

# TEKNATIONAL

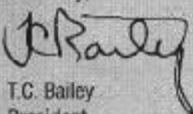
INDUSTRIES, INC.

For more than 40 years Teknational has supplied innovative electronic packaging hardware to customers around the world. From the early 1950's when TO-5's and TO-18's were "Hi-tech" to 1990's technology with SMT assembly, hybrid circuits and concerns about ESD and RFI, our company has successfully provided cost effective solutions to PCB assembly and insulation problems.

This catalog merges two product groups into one document. Our primary line of molded PCB hardware includes card guides and ejectors, board spacers for stacking PCB's shoulder washers, standoffs, LED mounts, transistor mounts and insulators for capacitors. The second product line is thermally conductive materials and die cutting services. As the power and speed of IC's has increased so has the need for heat dissipation. Over the past ten years, Teknational has assembled an array of solutions for thermal management problems which now includes 16 materials and thickness. Products range from generic insulators to ultrasoft gap filling materials and coated kapton® for SMT assembly. Custom designs for gaskets and insulators can be inexpensively die cut from these materials.

In this ever changing industry, we have evolved as a modern supplier to the worldwide electronics industry. Our "Mr Tek" logo symbolizes our fundamental goal to help design engineers solve problems. This catalog is a working document with sufficient dimensions and material details to answer the questions of engineers as they design assemblies and specify parts. As a global source for products, we provide metric dimensions for all newer items. We hope you will find this catalog useful. If you do not find exactly what you need, call us or send an E-mail message. We may still be able to help you.

Sincerely,



T.C. Bailey  
President

#### SPECIFICATIONS - UNLESS OTHERWISE NOTED MATERIAL:

Nylon per ASTM D 4066 PA225, U.L. rated 94V2. Temperature ratings exceed MIL specs. Specific data will be provided upon request. D.A.P., Self Extinguishing Polyester and other materials available for large orders. Ask for quotation.

Federal Supply code #24227

STANDARD DRAWING TOLERANCES,

Unless Otherwise Indicated:

Fractions:  $\pm 1/64$

.X  $\pm 1/64$

.XX  $\pm .010$

.XXX  $\pm .010$

**IMPORTANT NOTICE TO PURCHASER**-The following is made in lieu of all warranties express or implied. Seller's and manufacturer's only obligation shall be to replace such quantity of the product found to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his intended use and assume all risk and liability whatsoever in connection therewith. The foregoing may not be changed except by an agreement signed by officers of seller and manufacturer.

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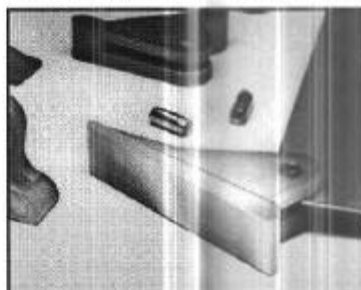
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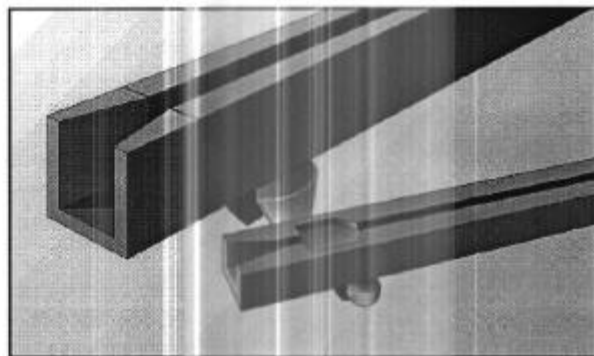
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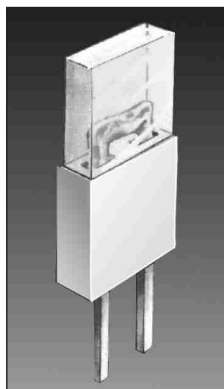
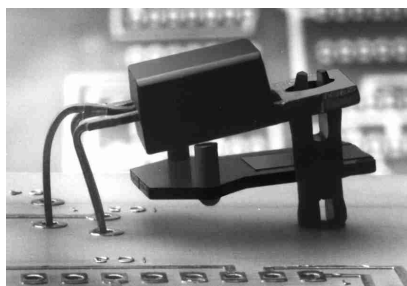
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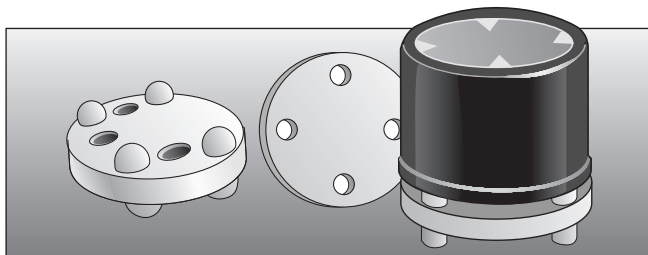
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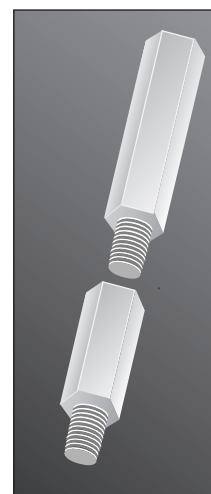
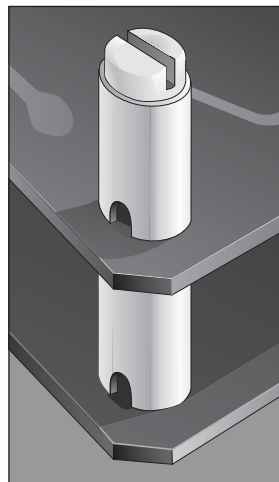


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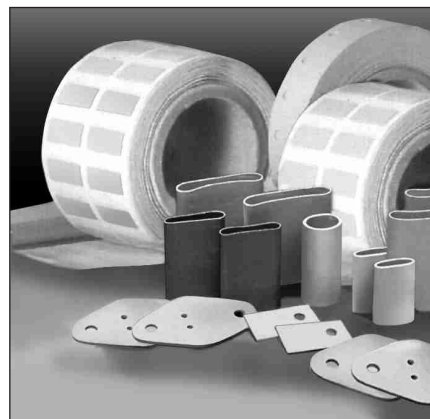
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# TEK-GUIDES

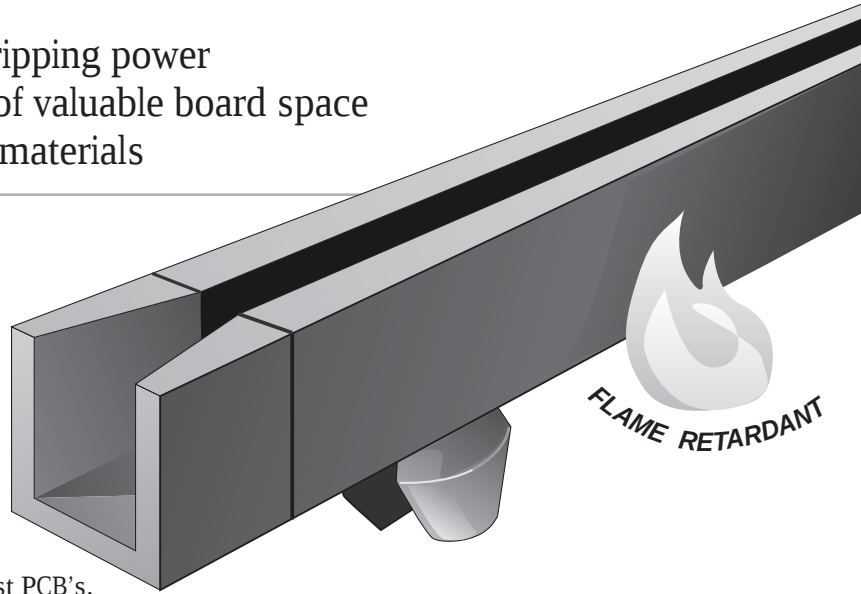
Deep Channel Guides provide "extra" gripping power  
 Space Saver Guides permit greater use of valuable board space  
 New Stat Guides protect static sensitive materials

## Deep Channel Guides

For 1/16" and 1/8" PCB's

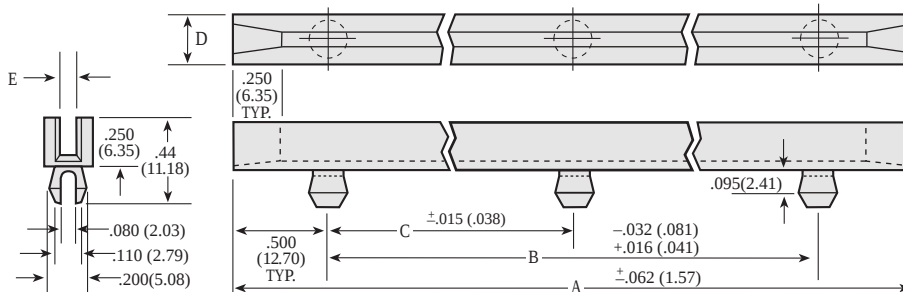
*The 9400 series DEEP CHANNEL card guides hold PCB's more firmly, withstanding vibration. These guides are specified more and more because of their versatility and extra "gripping power".*

- Permit horizontal and vertical mounting of extra large boards.
- .200" (5.08mm) deep channel slot firmly holds the heaviest PCB's.
- Extra grip "pinching action" is precision molded into the guide.
- PCB's will not vibrate out of slot.
- Reversible guides can be mounted end to end for tandem assembly.
- Press fit pylons easily slide into a .187" dia  $\pm .003$ " hole in any plate .047" to .090" thickness  $\pm .001$ ". (4.75mm dia  $\pm .08$ mm hole in any plate 1.19mm to 2.29mm thickness  $\pm .03$ mm). Slotting or elongating of second and third hole is recommended to allow for length variations in molding.
- MATERIAL: Flame retardant nylon, U.L. rated 94V-0, Color: Black



**Cross Reference to Bivar, Richco on page 21 and Milspec 84101 on page 22**

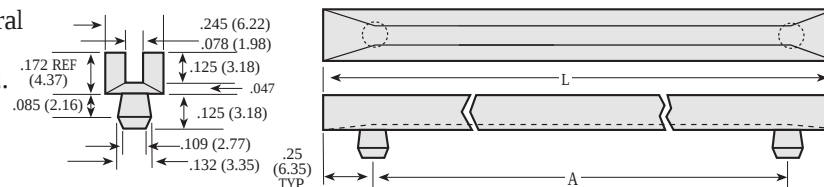
| PART NO. | A           | B           | C          | D           | E           |
|----------|-------------|-------------|------------|-------------|-------------|
| 9425     | 2.5 ( 63.5) | 1.5 (38.1)  | —          | .250 (6.35) | .080 (2.03) |
| 9445     | 4.5 (114.3) | 3.5 (88.9)  | —          | .250 (6.35) | .080 (2.03) |
| 9445-125 | 4.5 (114.3) | 3.5 (88.9)  | —          | .250 (6.35) | .130 (3.30) |
| 9460     | 6.0 (152.4) | 5.0 (127.0) | —          | .250 (6.35) | .080 (2.03) |
| 9460-125 | 6.0 (152.4) | 5.0 (127.0) | —          | .250 (6.35) | .132 (3.35) |
| 9480     | 8.0 (203.2) | 7.0 (177.8) | 3.5 (88.9) | .250 (6.35) | .080 (2.03) |
| 9480-125 | 8.0 (203.2) | 7.0 (177.8) | 3.5 (88.9) | .290 (7.37) | .132 (3.35) |



## 9200 Series Guides For Tight Spaces

- Thin (less than 1/4" width) improves airflow and packaging density.
- 13 standard sizes, 2.5" - 8.5".
- Snap-in design for easy assembly, no tools required.
- .125" channel depth for good board retention.
- Molded in natural nylon 6/6, U.L. rated 94V2. Available U.L. 94V-0

*Teknational's 9200 Series guides have been designed for easy insertion in sheet metal housing .048"-.085" (1.2-2.2) thick (US gauges 18/14). Parts should be mounted in a front hole .125" (3.2mm) diameter with a slotted hole .120" (3.0mm) X .218" (5.5mm) for the rear pylon. Longer lengths available with a third pylon (special order).*



**Cross Reference to Bivar, Keystone and Richco on page 21**

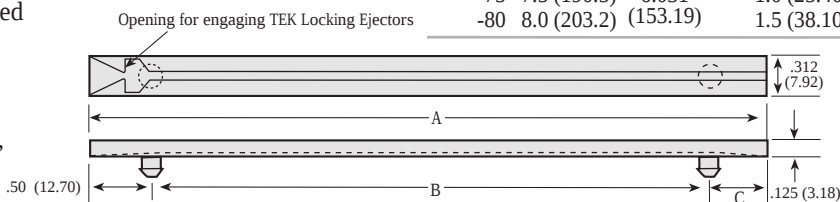
| PART NO. | L                | A               |
|----------|------------------|-----------------|
|          | $\pm .030$ (.76) | $\pm .024$ (61) |
| 9200-25  | 2.5 ( 63.5)      | 2.0 ( 50.8)     |
| 9200-30  | 3.0 ( 76.2)      | 2.5 ( 63.5)     |
| 9200-35  | 3.5 ( 88.9)      | 3.0 ( 76.2)     |
| 9200-40  | 4.0 (101.6)      | 3.5 ( 88.9)     |
| 9200-45  | 4.5 (114.3)      | 4.0 (101.6)     |
| 9200-50  | 5.0 (127.0)      | 4.5 (114.3)     |
| 9200-55  | 5.5 (139.7)      | 5.0 (127.0)     |
| 9200-60  | 6.0 (152.4)      | 5.5 (139.7)     |
| 9200-65  | 6.5 (165.1)      | 6.0 (152.4)     |
| 9200-70  | 7.0 (177.8)      | 6.5 (165.1)     |
| 9200-75  | 7.5 (190.5)      | 7.0 (177.8)     |
| 9200-80  | 8.0 (203.2)      | 7.5 (190.5)     |
| 9200-85  | 8.5 (215.9)      | 8.0 (203.2)     |

For 1/16" PCB's – Low profile  
for economy of space

- Available 2.5" to 8" in 12 standard lengths.
- Precision molded, offering strength and rigidity.
- Snap-in installation with any metal plate.
- PCB's will not vibrate out of slot.
- Mount on a plate .047" to .090" (1.19mm to 2.29mm) thickness with hole size .172" dia. + .003" (4.37mm dia. + .08mm) - .001" (.03mm) 11/64 drill)

- For extra retention use TEK 9062 or 9162 Locking Ejectors to firmly hold PCB's in place, see page 4.
- MATERIAL: Flame retardant nylon, U.L. rated 94V-0, Color: Black

| Part #. | A<br>+.062(1.575) | B<br>+.016(.407)<br>-.032(.813) | C<br>+.047(1.19) |
|---------|-------------------|---------------------------------|------------------|
| 9300-25 | 2.5 ( 63.5)       |                                 | 0.5 (12.70)      |
| -30     | 3.0 ( 76.2)       | 1.516                           | 1.0 (25.40)      |
| -35     | 3.5 ( 88.9)       | (38.51)                         | 1.5 (38.10)      |
| -40     | 4.0 (101.6)       |                                 | 0.5 (12.70)      |
| -45     | 4.5 (114.3)       | 3.016                           | 1.0 (25.40)      |
| -50     | 5.0 (127.0)       | (76.61)                         | 1.5 (38.10)      |
| -55     | 5.5 (139.7)       |                                 | 2.0 (50.80)      |
| -60     | 6.0 (152.4)       | 5.016                           | 0.5 (12.70)      |
| -65     | 6.5 (165.1)       | (127.41)                        | 1.0 (25.40)      |
| -70     | 7.0 (177.8)       |                                 | 0.5 (12.70)      |
| -75     | 7.5 (190.5)       | 6.031                           | 1.0 (25.40)      |
| -80     | 8.0 (203.2)       | (153.19)                        | 1.5 (38.10)      |



# ANTISTATIC GUIDES

# 9200-S N-Stat Guides

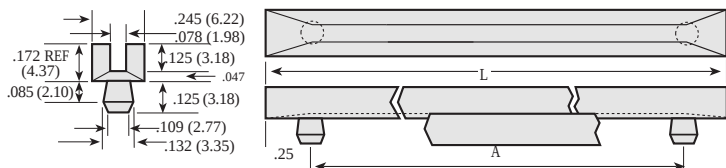
For 1/16" PCB's

- 13 standard sizes, 2.5" through 8.5"
- Simple snap-in installation, no tools required.
- Narrow width (less than 1/4")

*These guides easily snap mount into sheet metal .048"-.085" (1.2mm-2.2mm) thick sheet metal (US gages 18/14).*

Recommended mounting is a  
.125" (3.2mm) front hole with a  
slotted rear hole  
.120" (3.0mm) X .218" (5.5mm).

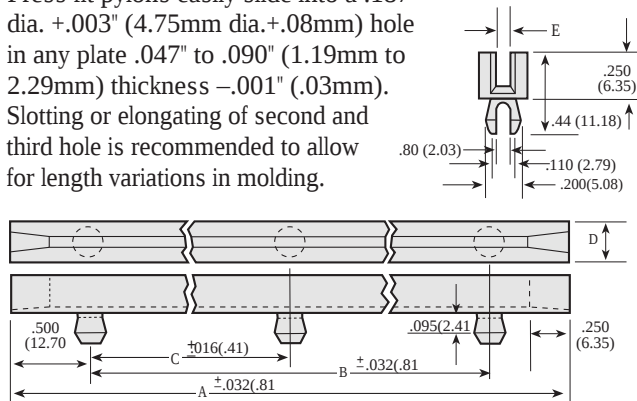
| Part No. | $L^{+/-} .030(.76)$ | $A^{+/-} .024(.61)$ |
|----------|---------------------|---------------------|
| 9200-25S | 2.532( 64.3)        | 2.020( 51.3)        |
| 9200-30S | 3.032( 77.0)        | 2.520( 64.6)        |
| 9200-35S | 3.532( 89.7)        | 3.020( 76.7)        |
| 9200-40S | 4.032(102.4)        | 3.520( 89.4)        |
| 9200-45S | 4.532(115.1)        | 4.020(102.1)        |
| 9200-50S | 5.032(127.8)        | 4.520(114.8)        |
| 9200-55S | 5.532(140.5)        | 5.020(127.5)        |
| 9200-60S | 6.032(153.2)        | 5.520(140.2)        |
| 9200-65S | 6.532(165.9)        | 6.020(152.9)        |
| 9200-70S | 7.032(178.6)        | 6.520(165.6)        |
| 9200-75S | 7.532(191.3)        | 7.020(178.3)        |
| 9200-80S | 8.032(204.0)        | 7.520(191.0)        |
| 9200-85S | 8.532(216.7)        | 8.020(203.7)        |



# Tek-Stat Guides

For 1/16" and 1/8" PCB's

- Available 2.5", 4.5", 6" and 8" long.
- Deep channel design ensures that PCB 's will not vibrate loose.
- Sturdy design.
- Snap mounting system with two or three pylons depending upon length.
- Press fit pylons easily slide into a .187" dia. +.003" (4.75mm dia.+.08mm) hole in any plate .047" to .090" (1.19mm to 2.29mm) thickness -.001" (.03mm). Slotting or elongating of second and third hole is recommended to allow for length variations in molding.



| Part No.  | A            | B            | C           | D          | E          |
|-----------|--------------|--------------|-------------|------------|------------|
| 9725E     | 2.520( 64.9) | 1.511( 38.4) | –           | .254(6.35) | .075(1.91) |
| 9745E     | 4.520(114.8) | 3.513(089.2) | –           | .250(6.35) | .075(1.91) |
| 9745-125E | 4.520(114.8) | 3.513(089.2) | –           | .250(6.35) | .128(3.25) |
| 9760-E    | 6.036(153.3) | 5.017(127.4) | –           | .250(6.35) | .075(1.91) |
| 9760-125E | 6.036(153.3) | 5.017(127.4) | –           | .250(6.35) | .128(3.25) |
| 9780E     | 8.065(204.9) | 7.024(178.4) | 3.512(89.2) | .250(6.35) | .075(1.91) |
| 9780-125E | 8.065(204.9) | 7.024(178.4) | 3.512(89.2) | .290(7.37) | .128(3.25) |

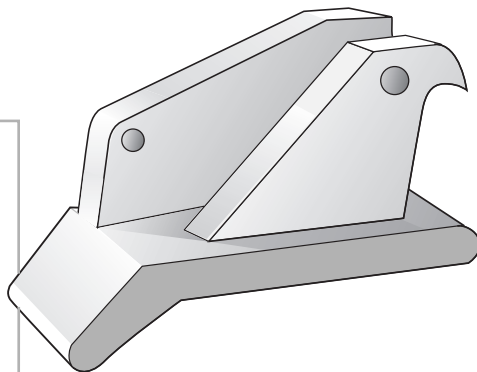
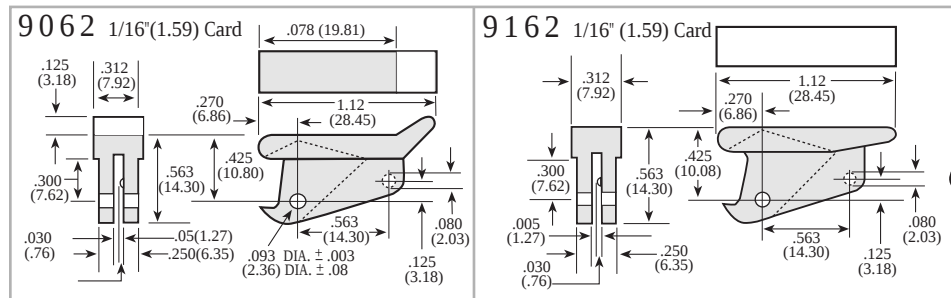
# TEK-EJECTORS & HANDLES

Web Site:  
www.teknational.com

## Locking Ejectors For Space Saver Guides

Cross References for Ejectors on page 21

Cross References to Milspec 83023 and 84191 on page 22



NYLON MATERIAL ASTM D4066 PA225  
UL RATED 94 V-2

Standard Color: Natural.

Other colors available for an additional charge.

Ejectors furnished with or without  
mounting pins.

STANDARD DRAWING TOLERANCES

Unless otherwise indicated:

Fractions

.X :  $\pm 1/64$  (.397)

.XX :  $\pm .010$  (.025)

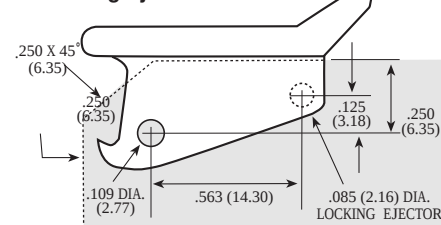
.XXX :  $\pm .005$  (.127)

### MARKING

TEK-PULLS can be numerically and  
alphabetically marked to code PCB's.  
The marking method is accepted by  
both military and commercial users for  
its durability.

Specify Marking size and position.

### CARD MOUNTING DIMENSIONS Locking Ejector illustrated



### MOUNTING SLOT DIMENSIONS:

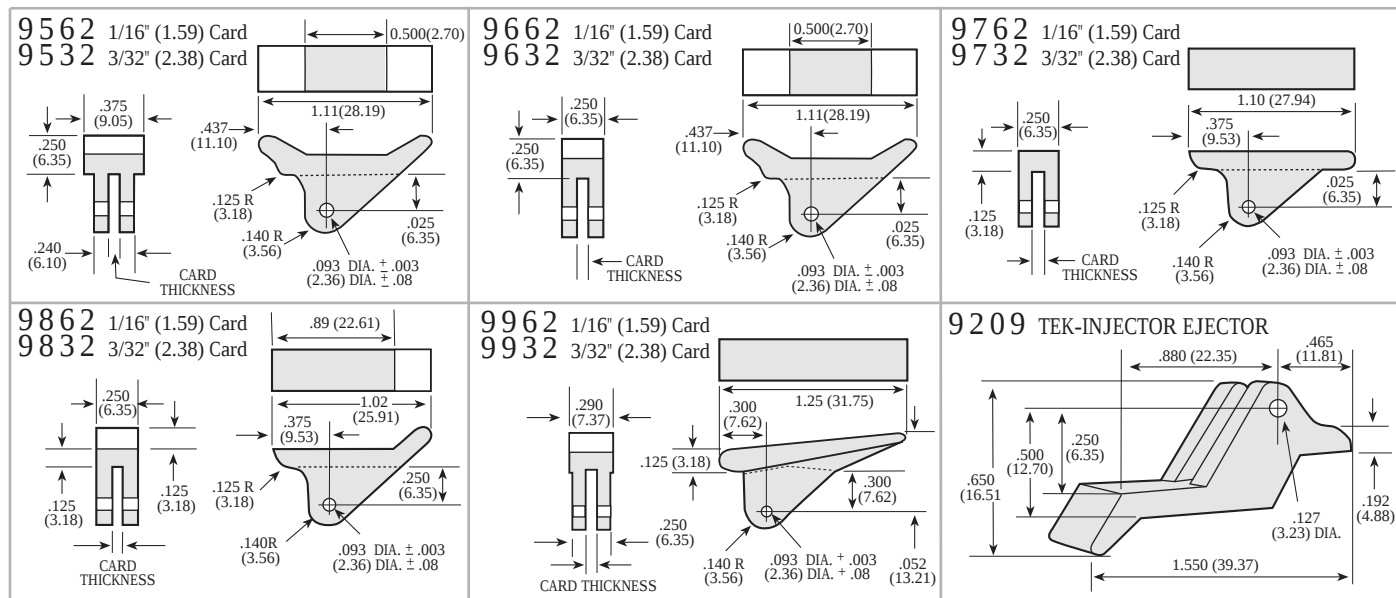
1/16 PCB's .073 (1.85)

3/32 PCB's .100 (2.54)

Flanges may converge as much  
as .020 (.51).



## Standard Ejectors



Dimensions in Millimeters are indicated by (.00)

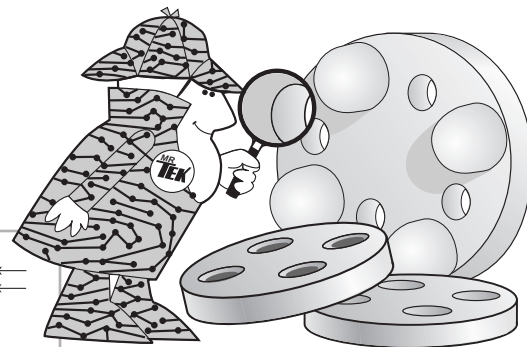
# TEK-MOUNTING PADS

These are the more popular Mounting Pads.  
Many other pads available, call the plant for details

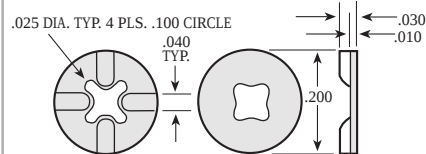
## TO-18 Mounts For .100" Entry and Exit

Also used with TO-16, 26, 28, 46, 52, 54, 56, 58, 72, 104, 106, 107

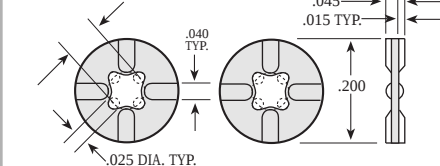
Parts arranged by outside diameters



1000

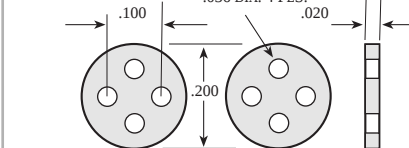


1011

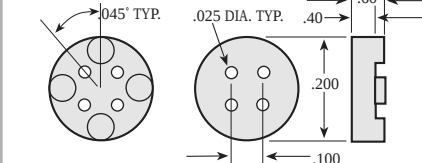


Cross Reference to Bivar on page 23 ,  
to Thermalloy on pages 25

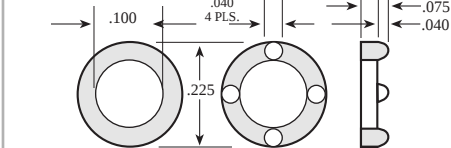
1017



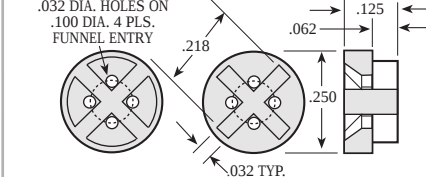
1019



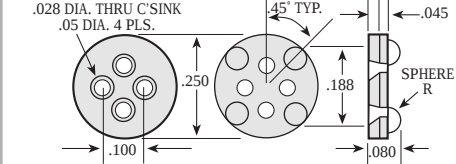
1002



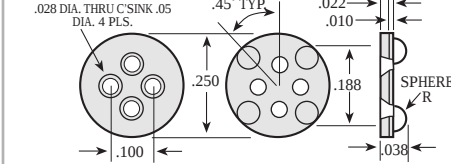
1015



1020



1027

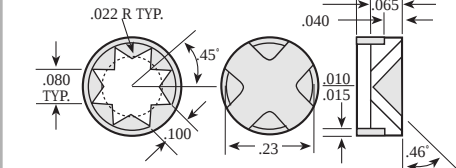


## For Lead Conversion

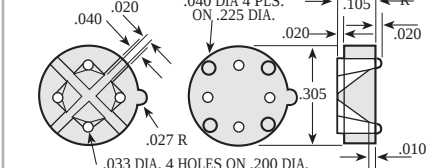
Also used with TO-7, 9, 11, 12, 16, 26, 29, 31, 32, 38, 39, 40, 43, 45, 55, 77, 78, 92, 98, 105

Parts arranged by number of leads and outside diameters

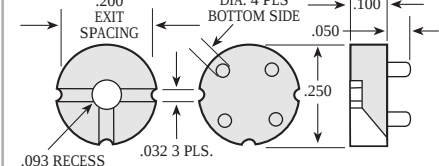
2018



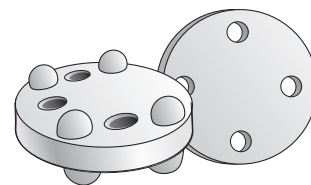
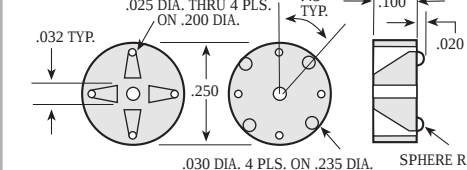
2015



2007



2020



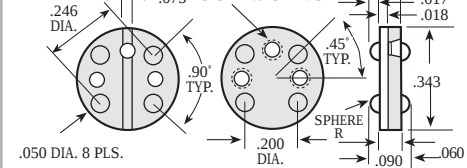
## TO-5 Mounts

### For .200" Entry and Exit

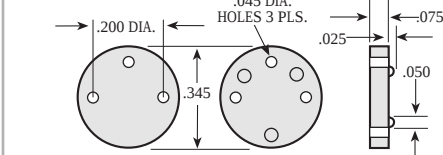
Also used with TO-7, 9, 11, 12, 16, 26, 29, 31, 32, 38, 39, 40, 43, 45, 55, 77, 78, 105

Parts arranged by number of leads

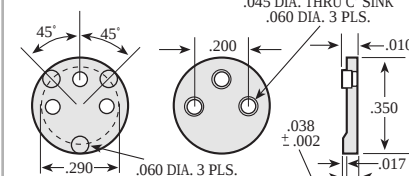
3028



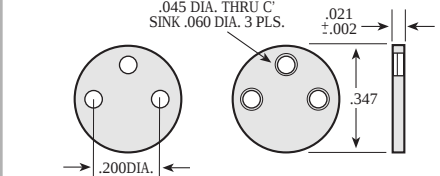
3008



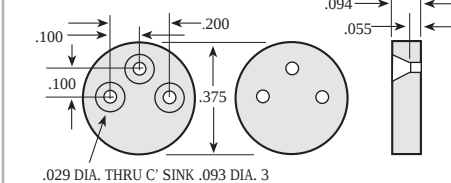
3005



3034

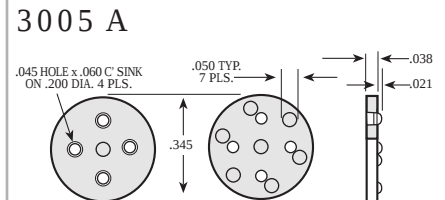
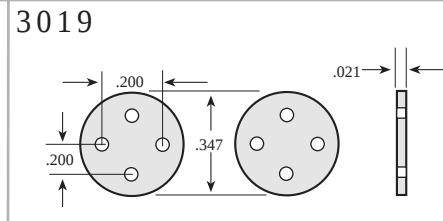
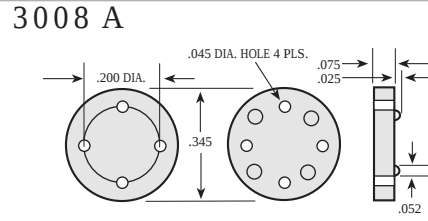
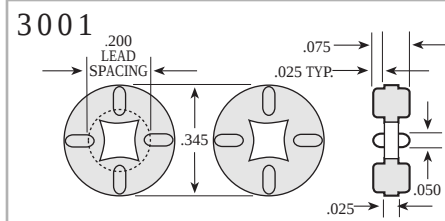


3035



# TEK-MOUNTING PADS

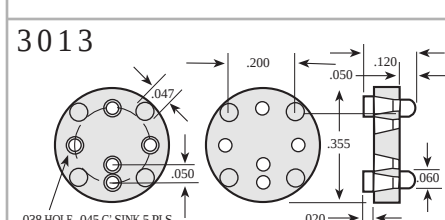
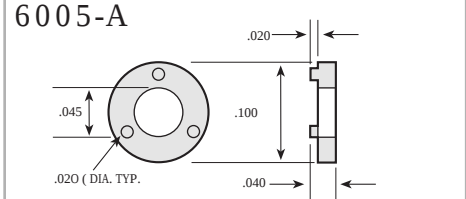
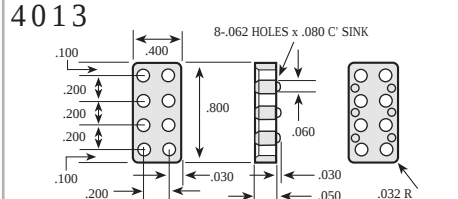
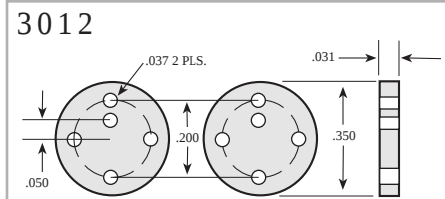
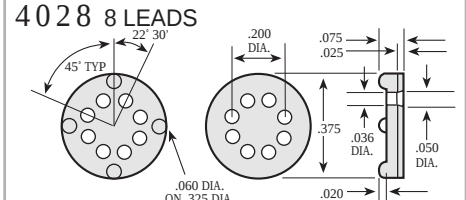
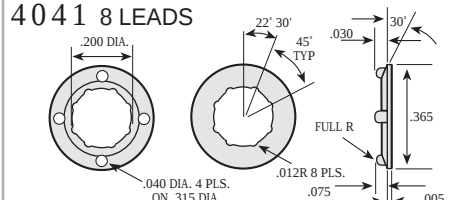
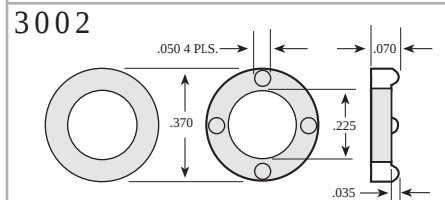
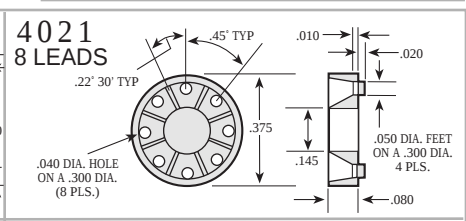
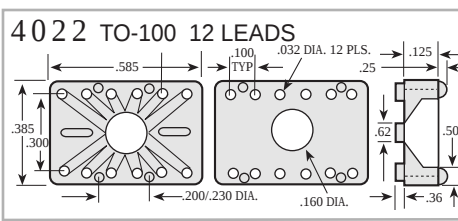
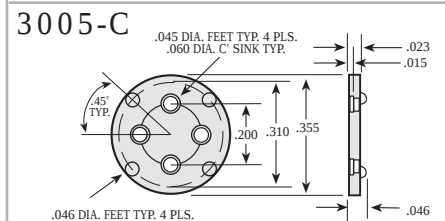
Cross Reference to Bivar on page 23, to Thermalloy on pages 25



## Integrated Circuit and Miscellaneous Mounts

Standard Color: Natural or White.

| Pad No. | No. of Leads | Inches O.D. | THK. | Spacing of Leads Entry | Exit         |
|---------|--------------|-------------|------|------------------------|--------------|
| 4021    | 8            | .375        | .080 | .200<br>.230           | .300<br>.300 |
| 4022    | 12           | —           | .186 | .200<br>.230           | .300<br>.300 |
| 4028    | 8            | .375        | .075 | —                      | —            |
| 4041    | 8            | .365        | .080 | .200<br>.230           | .200<br>.230 |

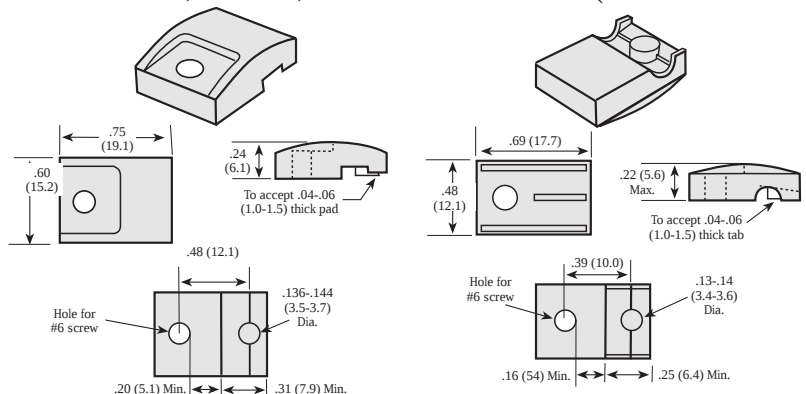


## Screw Insulators—Power Devices

- Isolates mounting screws
- Permits uses of optimum pressure on power device for contact with heat sink
- Molded in nylon 6/6, glass filled
- Color: Black

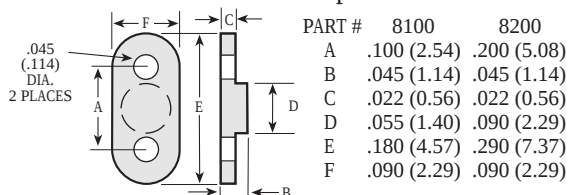
2518 (TO-218)

2520 (TO-220)



## Discrete Component and Capacitor Mounts

- ELIMINATE:
- Non Conducting Joints.
  - Component Failures.
  - Reduce inspection/rework.



Dimensions in Millimeters are indicated by (.00)

# PCB BUSHINGS & MOUNTS

## Nylon Flanged Bushings

Popular Applications for:

7045 – TO-220 Tabs Triac

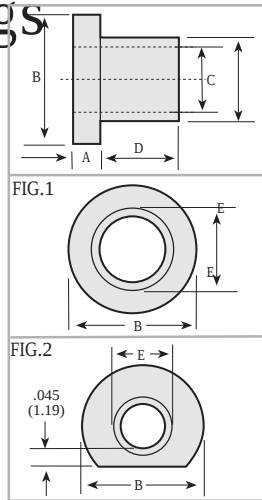
7075 – Metal Brackets for Gauge Mtg.

7115 – TO-3, TO-41, TO-66

7175 – TO-3, TO-41, TO-66

Molded in natural nylon 6/6 unless part number has suffix "P" for PPS—40% glass filled polyphenylene sulfide—color black. PPS is chemically inert and permits maximum temperature 260°C. Tolerances  $\pm .005"$  (.127).

Recommended torque for PPS is 5 to 6 inch-pounds; except 7037P which is 4 inch-pounds.

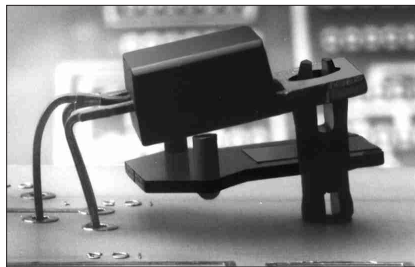


### Cross Reference to Thermalloy page 25, Bivar page 23

| Part No. | A              | B              | C              | D              | E              | No. | Fig. |
|----------|----------------|----------------|----------------|----------------|----------------|-----|------|
| 7037 P*  | .040<br>(1.02) | .215<br>(5.46) | .116<br>(2.95) | .032<br>(0.81) | .135<br>(3.43) | 4   | 1    |
| SW4021   | .063<br>(1.60) | .240<br>(6.10) | .114<br>(2.80) | .047<br>(1.19) | .138<br>(3.51) |     |      |
| 7033 P*  | .042<br>(1.07) | .280<br>(7.11) | .112<br>(2.84) | .125<br>(3.18) | .140<br>(3.56) | 4   | 1    |
| 7038 P*  | .040<br>(1.02) | .245<br>(6.22) | .119<br>(3.02) | .040<br>(1.02) | .140<br>(3.56) | 4   | 2    |
| 7045     | .047<br>(1.19) | .238<br>(6.05) | .114<br>(2.90) | .047<br>(1.19) | .142<br>(3.61) | 4   | 1    |
| 7036P*   | .047<br>(1.19) | .280<br>(7.11) | .118<br>(3.00) | .031<br>(0.79) | .145<br>(3.68) | 4   | 1    |
| 7031 P*  | .042<br>(1.07) | .280<br>(7.11) | .112<br>(2.84) | .125<br>(3.18) | .150<br>(3.81) | 4   | 1    |
| 7032 P*  | .042<br>(1.07) | .280<br>(7.11) | .112<br>(2.84) | .185<br>(4.70) | .150<br>(3.81) | 4   | 1    |
| 7115     | .050<br>(1.27) | .247<br>(6.27) | .125<br>(3.18) | .122<br>(3.10) | .150<br>(3.81) | 4/5 | 1    |
| 7035 P*  | .047<br>(1.19) | .312<br>(7.92) | .144<br>(3.66) | .031<br>(0.79) | .177<br>(4.50) | 6   | 1    |
| 7034 P*  | .047<br>(1.19) | .312<br>(7.92) | .146<br>(3.71) | .031<br>(0.79) | .190<br>(4.83) | 6   | 1    |
| 7075     | .062<br>(1.57) | .380<br>(9.65) | .228<br>(5.79) | .173<br>(4.39) | .310<br>(7.87) | 12  | 1    |
| 7175     | .047           | .246           | .125           | .175           | .153           | 4/5 | 1    |

\* PPS material

## 11-2201 Power Pad For Low Profile Mounting of TO-220's



11-2201 is:

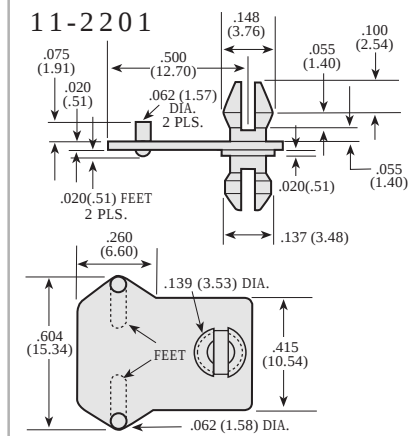
- A FASTENER - Secures devices without extra hardware.
- AN INSULATOR - Run circuitry beneath devices.  
- Protects during wave solder
- A SPACER - Uniformly positions parts on PCB

MATERIAL: Nylon 6/6-  
COLOR: Black

Quality of PCB's is improved with the 11-2201. It prevents lead breakage from accidental bumping and flexing of components. Feet on the 11-2201 permit complete washing under the assembly after wave solder. Devices are protected from heat during solder process.

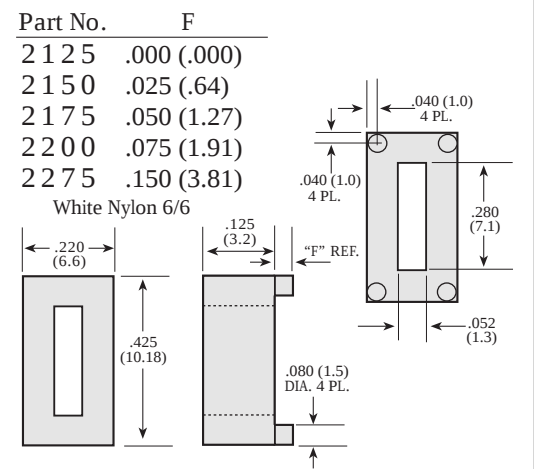
The 11-2201 frees up valuable PCB real estate beneath TO-220's for circuitry by electrically insulating the assembly.

The 11-2201 cuts cost by eliminating hardware and improving assembly time.



## 2100 Series For Vertical Mounting to 220's

Cross Reference to Bivar page 23



## Crystal Insulators

Material: Dupont Mylar® EL-21, UL rated 94V-2

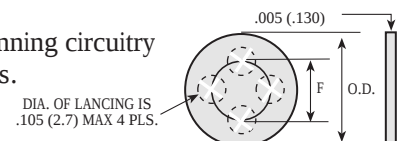
| Case Style | Use With                   | Cross Reference to Bivar CI and ECI Series page 23 |
|------------|----------------------------|----------------------------------------------------|
| 1          | HC-18/U, HC-43/U & HC-49/U |                                                    |
| 2          | HC-25/U, HC-42/U & HC-50/U |                                                    |
| 3          | HC-33/U, HC-47/U & HC-51/U |                                                    |
| 4          | HC- 6/U, HC-36/U & HC-48/U |                                                    |
| 5          | HC-17/U                    |                                                    |

| PART #     | C/C         | L            | D           | W           | T          | Case Style |
|------------|-------------|--------------|-------------|-------------|------------|------------|
| MY-192-028 | .192 (4.88) | .465 (11.81) | .028 (0.71) | .219 (5.56) | .005 (.13) | 1          |
| MY-192-050 | .192 (4.88) | .465 (11.81) | .050 (1.27) | .219 (5.56) | .005 (.13) | 2          |
| MY-486-040 | .486 (12.3) | .775 (19.7)  | .040 (1.0)  | .375 (9.5)  |            | 3          |
| MY-486-060 | .486 (12.3) | .775 (19.7)  | .060 (1.5)  | .375 (9.5)  |            | 4          |
| MY-486-105 | .486 (12.3) | .775 (19.7)  | .105 (2.7)  | .375 (9.5)  |            | 5          |

## Electrolytic Capacitor Insulators

- Self-retaining.
  - Insulates while running circuitry beneath capacitors.
  - Punch resistant material.
  - Heat resistant, UL Rated 94V-2.
- Color: Clear



| PART # | Case Style | O.D. +/- .005 | F           | Use With |
|--------|------------|---------------|-------------|----------|
| MY-710 | 1          | .710 (18.0)   | .394 (10.0) | 30       |
| MY-830 | 2          | .830 (21.0)   | .394 (10.0) | 22,25,35 |

# PCB SPACERS & SUPPORT POSTS

## Dual Locking Supports for 1/16" PCB's

- NO TOOL REQUIRED TO LOCK
- EASY ASSEMBLY
- STURDY, RELIABLE GRIP
- MOLDED IN NATURAL NYLON, UL RATED 94-V2
- TWO DESIGNS AVAILABLE

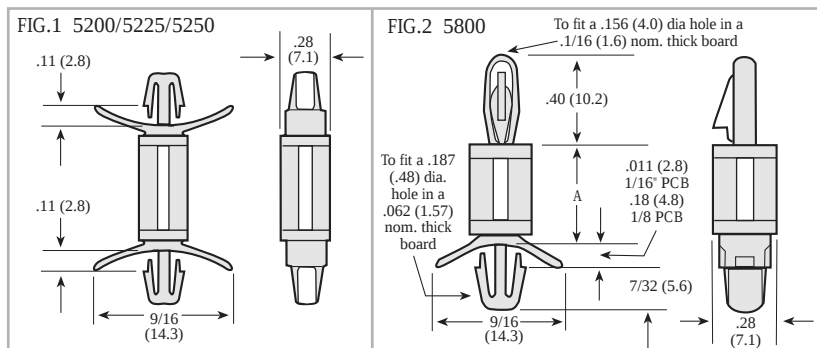
### 5200 SERIES

- Identical locking prongs on both ends (fig 1). (4.0mm)
- Available in stock for mounting in .156" (4.0)/.156" (4.0) diameter and .187" (4.8)/.187" (4.8) diameter holes.
- A .156"/.187" diameter combination may be special ordered.
- Seven lengths available from 3/16" (4.8) to 7/8" (22.2).

### 5800 SERIES

- Bayonet nose lock for mounting in .156" diameter hole in PCB with a locking prong to mount in a .187" (4.8) diameter base hole.
- May be special ordered for 1/8" (3.2) chassis thickness.
- Seven standard lengths stocked. Other lengths up to 1 3/8" (34.9) may be special ordered.

Cross References to Keystone page 24 and Richco page 24



Part numbers consist of the a base number for the PCB/chassis hole combination desired followed by "XXX" for the length designation in the table below.

| Base # | Fig. | PCB hole dia. | Chassis hole dia. | XXX  | Length       |
|--------|------|---------------|-------------------|------|--------------|
| 5200   | 1    | .156" (4.0)   | .156" (4.0)       | -187 | 3/16" ( 4.8) |
| 5225   | 1    | .187" (4.8)   | .187" (4.8)       | -250 | 1/4" ( 6.4)  |
| 5250*  | 1    | .156" (4.0)   | .187" (4.8)       | -375 | 3/8" ( 9.5)  |
| 5800   | 2    | .156" (4.0)   | .187" (4.8)       | -500 | 1/2" (12.7)  |
|        |      |               |                   | -625 | 5/8" (15.9)  |
|        |      |               |                   | -750 | 3/4" (19.1)  |
|        |      |               |                   | -875 | 7/8" (22.2)  |

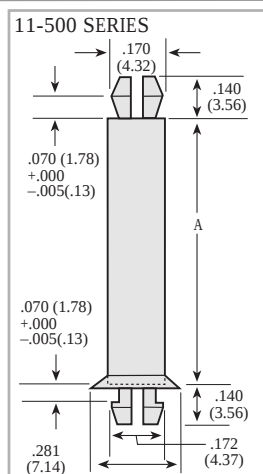
\*Special order

## Snap Mount Support Posts

### With Wide Base For Stability

Mount PCB's on metal chassis or stack them using no screws or other hardware. Available in nine lengths from .125" to 1.000".

- Economical, eliminates all hardware.
- Saves labor.
- Support base on chassis-end of post improves stability.
- Releasable head for mounting and removing PCB.
- Permanent locking head for chassis.
- Color code posts for identification.



Recommended hole size is .152 ±.002 (3.86 ±.05) in .062 (1.57) chassis.

| Part No.  | A            |
|-----------|--------------|
| 11-5125   | .125 ( 3.2)  |
| 11-5250   | .250 ( 6.4)  |
| 11-5312   | .312 ( 7.9)  |
| 11-5375   | .375 ( 9.5)  |
| 11-5500   | .500 (12.7)  |
| 11-5625   | .625 (15.9)  |
| 11-5750   | .750 (19.1)  |
| 11-5875   | .875 (22.2)  |
| 11-5000-1 | 1.000 (25.4) |

## Improved Support posts

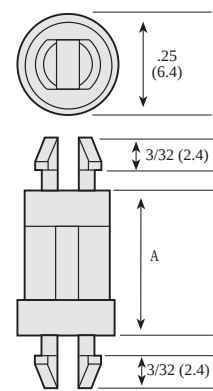
### 5300 Series

- Easy assembly, no tools required.
- Pinch prongs to remove for repairs.
- Available for mounting in .156" (4.0), .187" (4.8) holes, or a combination of .187" and .156" holes.
- Releasable head for mounting and removing PCB.
- Permanent locking head for chassis.

Cross References to Richco page 24

| Part No.<br>.156(4.0)<br>Dia. Hole | Part No.<br>.187(4.8)<br>Dia. Hole | Part No.<br>.156 (4.0) and<br>.187 (4.8) Hole | Height<br>"A" Dim. |
|------------------------------------|------------------------------------|-----------------------------------------------|--------------------|
| 5300-187                           | 5325-187                           | 5350-187                                      | 3/16" ( 4.8)       |
| 5300-250                           | 5325-250                           | 5350-250                                      | 1/4" ( 6.4)        |
| 5300-375                           | 5325-375                           | 5350-375                                      | 3/8" ( 9.5)        |
| 5300-500                           | 5325-500                           | 5350-500                                      | 1/2" (12.7)        |
| 5300-625                           | 5325-625                           | 5350-625                                      | 5/8" (15.9)        |
| 5300-750                           | 5325-750                           | 5350-750                                      | 3/4" (19.1)        |
| 5300-875                           | 5325-875                           | 5350-875                                      | 7/8" (22.2)        |
| 5300-1000                          | 5350-1000                          | 5350-1000                                     | 1" (25.4)          |

### 5300 SERIES



# PCB SPACERS & SUPPORT POSTS

Web-Site: [www.teknational.com](http://www.teknational.com)

## PCB Snap Mount Spacers and Support Posts

### Self Retaining Board Spacers

#### 5500 SERIES

- Maintain PCB spacing, insulate screws.
- Multilevel stacking.
- Spacers are self aligning and self retaining.
- Stack and space 1/16" PCB's.

Molded in natural 94-V2 nylon, SERIES 5500 and 5600 PCB spacers are available for use with #4 (M-3) and #6 (M-3.5) screws. Five standard lengths range from 1/4" to 1". Spacers for #8 (M-4) screws and for some intermediate lengths may be special ordered. 94-VO nylon is also available.

Call the plant for details.

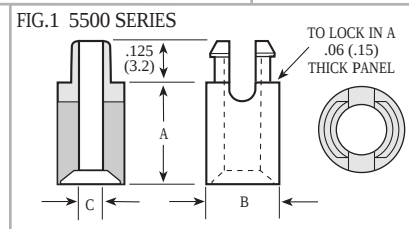
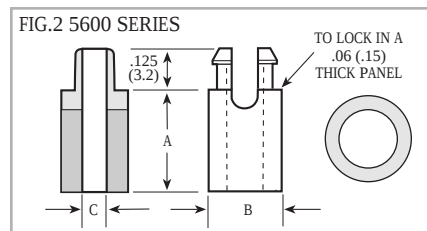
The part number for the spacers consists of the "PN" for the thread size and style shown in the table below followed by "XXX" for the length, eg 5600-375 or 5525-750.

The available lengths for the "XXX" are shown in column "A"

#### 5600 SERIES

- Snap mount design for 1/16" PCB's.
- Ideal for mounting PCB above wood.
- Secure fit in PCB before setting with screw.
- Insulate screws.

Cross References to Keystone page 24  
Cross References to Richco page 24



| PN<br>Fig 1 | PN<br>Fig 2 | Screw<br>size | "B"        | "C"        | Mounting<br>hole dia.<br>+.003 (.08) | Length      | XXX<br>dim.<br>"A" |
|-------------|-------------|---------------|------------|------------|--------------------------------------|-------------|--------------------|
| 5500        | 5600        | #4 (m-3)      | .250 (6.6) | .125 (3.1) | .187 (4.75)                          | 1/4" (6.4)  | -125               |
| 5525        | 5625        | #6 (m-3.5)    | .312 (7.1) | .153 (3.9) | .234 (5.94)                          | 3/8" (9.5)  | -375               |
| 5550        | 5650        | #8 (m-4)      | .313 (7.1) | .169 (4.3) | .234 (5.94)                          | 1/2" (12.7) | -500               |
|             |             |               |            |            |                                      | 3/4" (19.1) | -750               |
|             |             |               |            |            |                                      | 1" (25.4)   | -1000              |

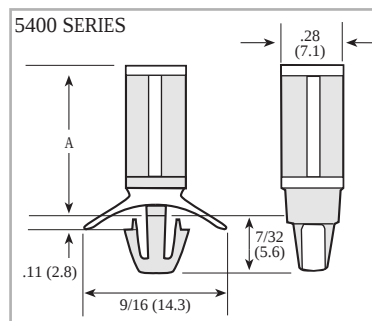
## 5400 Series Spacers

### Support Heavy Boards

- Snap mount into 1/16" (1.6) thick chassis; may be special ordered for 1/8" (3.2) chassis.
- Easy installation with no tools.
- Mount in 3/16" (4.8) dia. hole.
- May be special ordered for 5/32" (4.0) hole.
- Molded in natural nylon 6/6, 94V2; (94VO may be special ordered).
- Eight lengths available.

Cross References to Keystone  
and Richco page 24

| Part No. | Length<br>"A" Dim. |
|----------|--------------------|
| 5400-187 | 3/16" ( 4.8)       |
| 5400-250 | 1/4" ( 6.4)        |
| 5400-375 | 3/8" ( 9.5)        |
| 5400-437 | 7/16" (11.1)       |
| 5400-500 | 1/2" (12.7)        |
| 5400-625 | 5/8" (15.9)        |
| 5400-750 | 3/4" (19.1)        |
| 5400-875 | 7/8" (22.2)        |



## Versatile PCB Supports

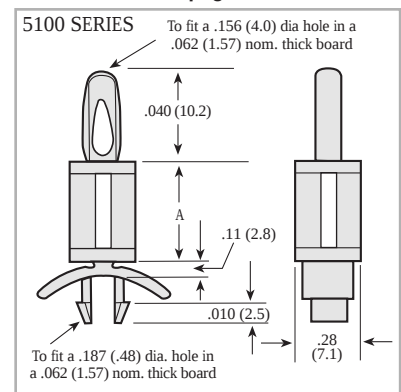
#### 5100 SERIES

- Locks on chassis, snaps onto board.
- Fits .187" (4.8) hole in chassis, .156" (4.0) hole in PCB
- No tools required.
- Releases easily for repairs.
- Molded in natural nylon 6/6, 94-V2; (94-VO available special order).
- Seven lengths available

Cross References to Keystone  
and Richco page 24

| Part No. | Length       |
|----------|--------------|
| 5100-187 | 3/16" ( 4.8) |
| 5100-250 | 1/4" ( 6.4)  |
| 5100-375 | 3/8" ( 9.5)  |
| 5100-500 | 1/2" (12.7)  |
| 5100-625 | 5/8" (15.9)  |
| 5100-750 | 3/4" (19.1)  |
| 5100-875 | *7/8" (22.2) |

\*Other lengths up to 1 3/8" (34.9) may be special ordered



# PCB SPACERS & STANDOFFS

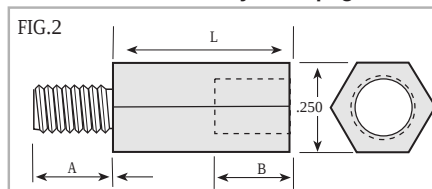
Web-Site:  
www.teknational.com

## Threaded Nylon Standoffs

Available in 14 lengths (1/4" - 1 3/8") with 1/16" incremental spacing, these standoffs are economical supports for PCB's. Molded in 94-V2 nylon, 4-40 and 6-32 threads are stocked. These are also available on a special order basis with 8-32 and 10-32 threads, or molded in 94-VO nylon.

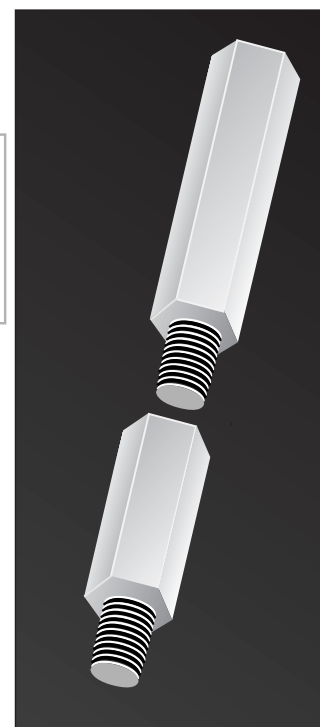
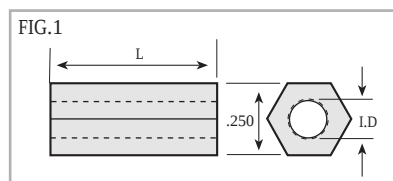
| Thread Size | PN Fem Fig.1 | PN Male/Fem Fig.2 | A (fig.2)   | B. (fig.2)     |
|-------------|--------------|-------------------|-------------|----------------|
| 4-40        | 4H           | 4MF               | 3/16"(4.76) | 3/16"(4.76)min |
| 6-32        | 6H           | 6MF               | 1/4" (6.35) | 1/4" (6.35)min |
| 8-32        | 8H*          | 8MF*              | 3/8" (9.53) | 3/8" (9.53)min |
| 10-32       | 10H*         | 10MF*             | 3/8" (9.53) | 3/8" (9.53)min |

Cross Reference to Keystone page 23.



The part number for each standoff consists of the PN for the thread size and type of standoff shown above followed by "XXX" for the length. The available lengths for the "XXX" suffix are shown in Column "L" on the table below. The part number consists of the thread shown on Figure 1 Or 2, followed by (xxx) the desired length in column "L" below. PN 6 MF-375 is a male/female standoff with a 6-32 thread and 3/8" body length; 6 H-375 is a 3/8" long hex standoff with 6-32 thread).

| L             | (XXX Suffix) | L              | (XXX Suffix) |
|---------------|--------------|----------------|--------------|
| 1/4" ( 6.35)  | - 250        | 11/16" (17.36) | - 688        |
| 5/16" ( 7.84) | - 312        | 3/4" (19.05)   | - 750        |
| 3/8" ( 9.53)  | - 375        | 7/8" (22.23)   | - 875        |
| 7/16" (11.11) | - 438        | 1" (25.40)     | - 1000       |
| 1/2" (12.70)  | - 500        | 1 1/8" (28.58) | - 1125       |
| 9/16" (14.25) | - 562        | 1 1/4" (31.75) | - 1250       |
| 5/8" (15.88)  | - 625        | 1 3/8" (34.93) | - 1375       |



## Permanent Spacers and LED Mounts

### 5000 SERIES TUBULAR SPACERS

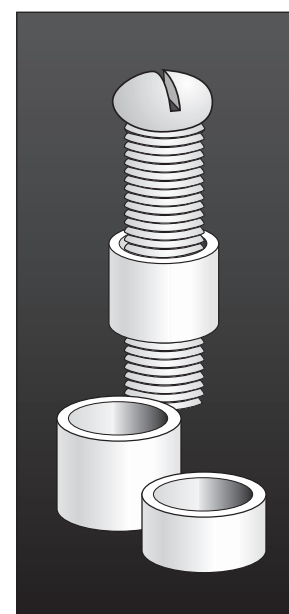
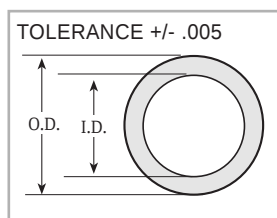
- Customized lengths up to 1"
- 15 ID/OD combinations available
- Available for #2, 4, 6, and 8 screws
- Made from extruded Nylon 6/6
- Inexpensive even in small quantities

The 5000 Series tubular spacers inexpensively solve many mounting problems. Designs can now be customized without being limited to the few standard lengths of molded spacers commercially available.

The ID/OD combinations for the 5000 SERIES are shown in the table right. Each ID/OD has its own letter or **style** designation (ie. an ID/OD of .028"/.085" is "F"). The complete part number is 5+ "xxx" for the height + the ID/OD **style** letter. In other words a spacer .200" long ID/OD of .028"/.085" will have part number **5200-F**. These spacers may be ordered in lengths from .030" up to 1.000" in .010" length increments. Tolerances are +/- .005" for lengths up to .500", for lengths .505" - .750" +/- .008", .755" - 1.000" +/- .015".

Cross Reference to Bivar page 23

| Style | I.D.        | O.D.        | Screw No. |
|-------|-------------|-------------|-----------|
| F     | .028 (0.71) | .085 (2.16) |           |
| P     | .032 (0.81) | .085 (2.16) |           |
| E     | .032 (0.81) | .125 (3.18) |           |
| Q     | .047 (1.19) | .125 (3.18) |           |
| G     | .047 (1.19) | .156 (3.96) |           |
| T     | .063 (1.60) | .156 (3.96) |           |
| H     | .063 (1.60) | .187 (4.75) |           |
| A     | .085 (2.16) | .148 (3.76) |           |
| M     | .091 (2.31) | .187 (4.75) | 2         |
| J     | .091 (2.31) | .250 (6.35) | 2         |
| B     | .105 (2.67) | .167 (4.24) |           |
| K     | .115 (2.92) | .250 (6.35) | 4         |
| S     | .135 (3.43) | .230 (5.84) |           |
| C     | .120 (3.05) | .187 (4.75) | 4         |
| D     | .147 (3.73) | .250 (6.35) | 6         |



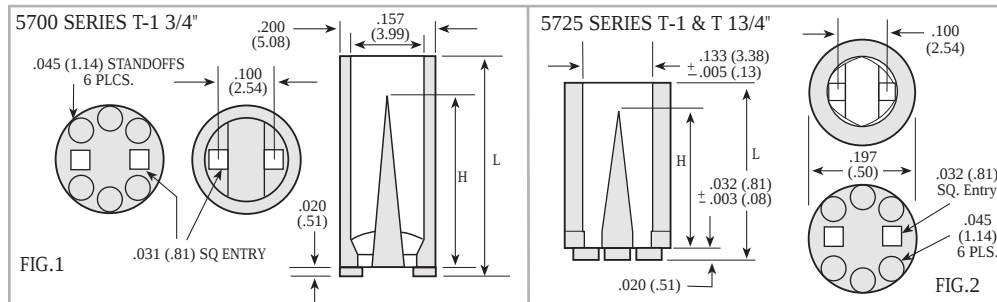
# LED MOUNTS

## 5700 Series For T 1 3/4

## 5725 Series Universal Mount For T 1 and T 1 3/4

- Tapered entry eases lead insertion.
- Feet permit board cleansing.
- Leads isolated and protected.
- Uniform spacing of LED's.
- Available in .010" (.25mm) increments from .120" (3.05mm) to .900" (22.86mm).

Molded in natural nylon, UL rated 94-V2, Teknational's 5700 and 5725 Series LED mounts solve many mounting problems. The 5700 Series is designed specifically for T1<sup>3/4</sup> LED's (see figure 1). For universal mounting of both T1<sup>3/4</sup> and T1 LED's, use the 5725, followed by "XXX" for the height. PN 5725-500 is figure 2, .500" (12.7mm) high; Pn 5700-140 is figure 1, .140" (3.56) high. A table showing standard heights is shown right. Other sizes available upon request.



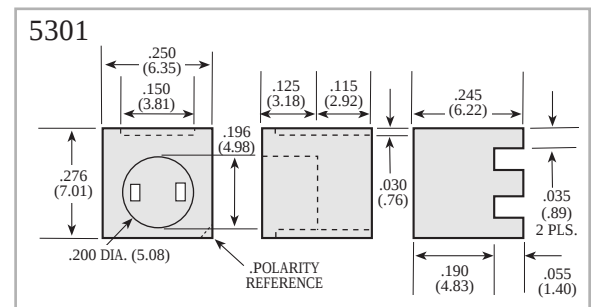
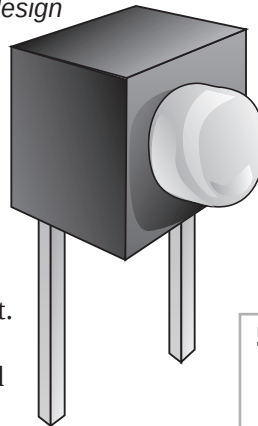
Cross Reference to Keystone pages 23 and 24 and Richo page 24

| (Prefix # & XXX) | "L" Dim.     | "H" Dim.     |
|------------------|--------------|--------------|
| 5700-120         | .120 (3.05)  | .075 ( 1.91) |
| or               |              |              |
| 5725-140         | .140 (3.56)  | .075 ( 1.91) |
| -160             | .160 (4.06)  | .075 ( 1.91) |
| -180             | .180 (4.57)  | .075 ( 1.91) |
| -200             | .200 (5.08)  | .075 ( 1.91) |
| -220             | .220 (5.59)  | .075 ( 1.91) |
| -240             | .240 (6.10)  | .200 ( 5.08) |
| -250             | .250 (6.35)  | .200 ( 5.08) |
| -260             | .260 (6.60)  | .200 ( 5.08) |
| -280             | .280 (7.11)  | .200 ( 5.08) |
| -300             | .300 (7.62)  | .200 ( 5.08) |
| -320             | .320 (8.13)  | .200 ( 5.08) |
| -340             | .340 (8.64)  | .200 ( 5.08) |
| -360             | .360 (9.14)  | .200 ( 5.08) |
| -380             | .380 (9.65)  | .325 ( 8.26) |
| -400             | .400 (10.16) | .325 ( 8.26) |
| -420             | .420 (10.67) | .325 ( 8.26) |
| -440             | .440 (11.18) | .325 ( 8.26) |
| -450             | .450 (11.43) | .325 ( 8.26) |
| -460             | .460 (11.68) | .325 ( 8.26) |
| -480             | .480 (12.19) | .325 ( 8.26) |
| -500             | .500 (12.70) | .445 (11.30) |
| -550             | .550 (13.97) | .445 (11.30) |
| -600             | .600 (15.24) | .445 (11.30) |
| -650             | .650 (16.51) | .580 (14.73) |
| -700             | .700 (17.78) | .580 (14.73) |
| -750             | .750 (19.05) | .580 (14.73) |
| -800             | .800 (20.32) | .690 (17.53) |
| -850             | .850 (21.59) | .690 (17.53) |
| -900             | .900 (22.86) | .690 (17.53) |

## 5301 Series Right Angle LED Mount For T 1 3/4 LEDs

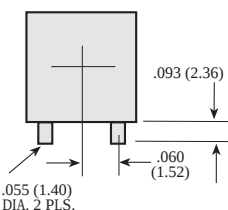
Assembly ease for accurate alignment of LED's in the 90° position is an important consideration in PCB design and layout. The 5301 solves several design and assembly problems for flangeless LED's.

- Uniform accurate spacing.
- Precise 90° alignment.
- Low Cost.
- Ease of PCB assembly.
- Compact size uses minimal board space.
- Wide viewing angle.
- Available in a black case to improve contrast.
- Polarity identification.
- Vibration and shock resistance for improved PCB reliability.
- Prevents lead breakage.
- Molded nylon 6/6, 94V-2, black.

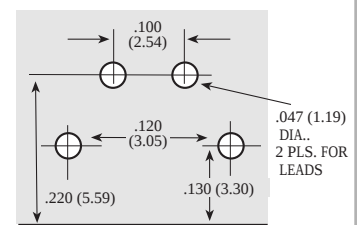


### 5301P

LOCKING PINS FOR EXACT POSITING



SUGGESTED DRILL PATTERN FOR 5301 P

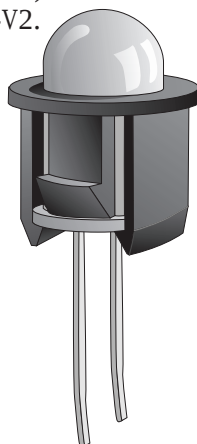
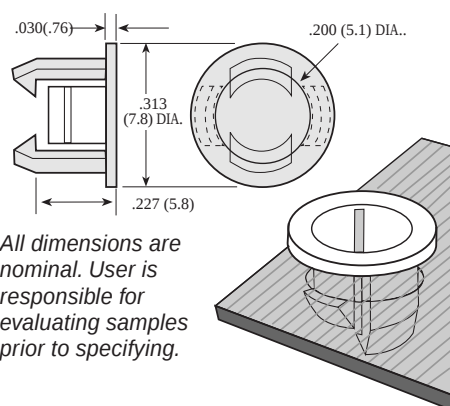


For more accurate positioning, the 5301 Mount may be ordered with optional locating pins (PN 5301P) which are pressed into holes in the PCB. The pins are .055" (1.40mm) diameter and .073" (2.36mm) long. A suggested hole drill pattern for the 5301P is shown on the right.

# LED MOUNTS

## 11-3301 Snap Mount LED Holder

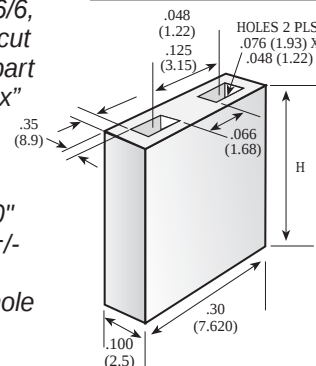
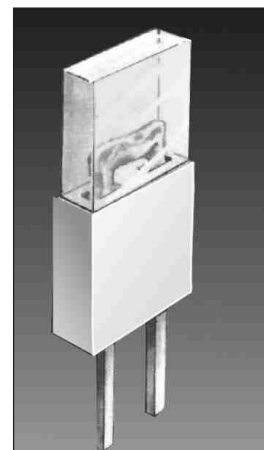
- Accurate positioning of T-1 3/4 LED's.
- No retaining ring required.
- Mounts either flush on panel, or counterbored.
- Snap mounts on panel for tight fit in .245" - .250" dia. hole (6.2mm - 6.4mm).
- Assemble LED after placing mount in panel.
- Panel thickness .060" - .070" (1.5 - 1.8mm).
- Molded in black nylon 6/6, UL rated 94-V2.



## R SERIES FOR RECTANGULAR LEDS

- Uniformly position LED's
- Maintain correct height
- Avoid "miss-match" of LED's with control panels
- Separate lead holes prevent shorting and lead breakage
- LED's will not bend during assembly

Made from extruded nylon 6/6, these spacers are custom cut to the length desired. The part number is 5xxx-R. The "xxx" is the length. For example 5200-R is .200" long. Tolerances for length up to .500" +/- .005", .505" - .750" +/- .008", .755" to 1.000" +/- .015". Due to extrusion process, no tolerances for hole size and other dimensions.



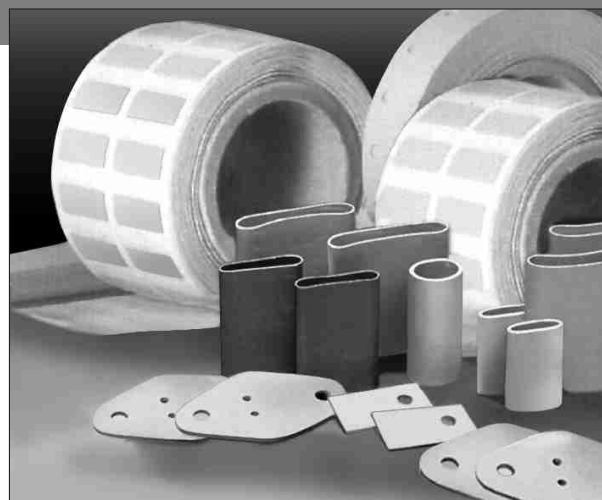
# TEK-SIL PRODUCTS

## A wide range of products for Thermal Management

- THERMAL INSULATORS • GASKETING
- ELECTRICALLY CONDUCTIVE/NONCONDUCTIVE
- GAP FILLING • TUBES/SLEEVES/COVERS

**The TEK-SIL family of thermal management materials continues to grow as new and improved products are developed.**

**NEW**



SR-06 - with thermal resistance at .21° C/watt, this product offers the best performance within the economical SR family of thermal management materials. See page 14 for details.

TUBES and CASES - Molded in silicone SCT and SCH materials, these tubes and cases easily slip on TO-220's, TO-3's and TO-3P's for complete protection from arcing. Mounted in series, assembly time is reduced compared to

individually securing each device. See page 18 for dimensions and specifications.

SB-08 - In high heat situations, SB-08 is the choice for superior performance in the boron nitride filled insulators. See page 14 for details.

GAP FILLERS - See our whole range of new GEL-PADS and gap fillers on page 16.

# TEK-SIL PRODUCTS

## Selecting Thermal Interface Materials

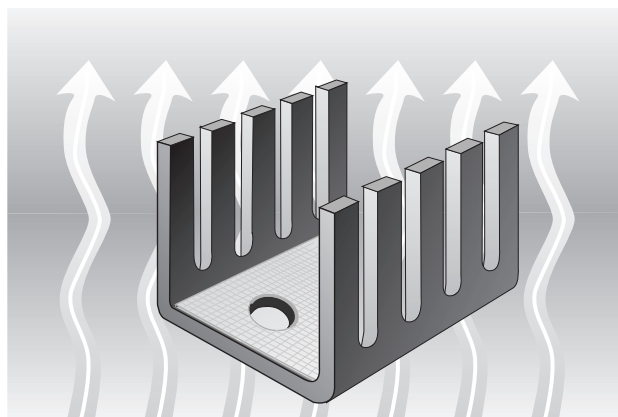
Thermally conductive silicone insulators were introduced many years ago as a cost saving improvement to mica and grease. Assemblies are clean, with no contamination from migrating grease. Assembly time is cut to 5 seconds - a 400% improvement compared to mica. To help solve heat transfer problems, **Teknational's** growing **TEK-SIL** family of thermally conductive insulators provides an extensive variety of solutions to thermal interface problems. To assist in selecting the appropriate material for your design, we offer some suggestions that should be considered as you design your assembly.

New PCB designs, which are denser and generate more heat, mandate improved thermal interface materials. To satisfy these needs **Teknational** offers a broad selection of products with different combinations of thickness, dielectric and thermal management properties. All of these factors are relevant to your selection. The final material decision will often result in a trade off between the need for thermal resistance as opposed to dielectric requirements and cost.

**Air bubbles** in the gap between the interface surfaces impede heat transfer. Ideally we will fill the gap with a highly conformable, thermally conductive material which will make complete contact with the irregular surfaces of the power device and heat sink. As excess material will increase thermal resistance, too much material is as detrimental as too little. For this reason it is important to measure the width of the gap to select the proper material thickness.

**The mounting pressure** of the contact between a heat sink and the interface material is another design consideration. High pressure will force out all air between the surfaces. However typical assemblies are not strong enough to be subjected to such pressure. Spring clips or nuts and bolts with a 5-15# mounting force are often used for heat sink assembly. To minimize the high cost in thermal efficiency caused by such low mounting pressures, one should select a highly conformable interface material. Another option might be to use **K-275®** which allows one to fix a heat sink on an IC without any hardware.

**The dielectric properties** of a thermal interface material to effectively provide electrical isolation for an assembly are often as important as the material's thermal properties. In densely populated PCB's potential damage from electrical shorting caused by a misplaced or torn insulator should be considered. To prevent tears or pin holes many materials are reinforced with fiber glass mesh. An increase in material thickness to solve the electrical isolation problem will unfortunately increase thermal resistance. The fillers required for dielectric strength will also significantly reduce heat transfer. One will note that for most materials, dielectric properties decrease as thermal properties improve. Product selection again must take both factors into consideration.



**Thermal resistance** measures the impact of contact resistance on thermal performance. Aside from selecting a thinner or more conformable material, thermal resistance can be lowered by using more/or better thermally conductive fillers in the **TEK-SIL** compound. The boron nitride used in **TEK-SIL "SB"** is highly conductive. It is also much more expensive than the alumina fillers used in our standard **TEK-SIL "SR"** and **"SH"** materials. The latter are more than adequate for most designs and should be used to lower costs. If heat transfer, low thermal resistance, or filling air gaps in irregular surfaces are critical, then other materials should be considered.

**PSA** is available with many, but not all, of our **TEK-SIL** materials. It is generally applied to one side of the material. If the insulator configuration is small, parts are usually "kiss cut" on a release liner so that they can be easily removed from the backing. It is often specified to facilitate assembly. The significant effect of **PSA** on thermal resistance is often overlooked. Even using a thermally conductive adhesive, thermal resistance on our basic **SR-06** increases from .21 degrees to .54 for **SR-06P**; for **SB-08** it goes from .11 degrees to .24 with **PSA**.

## Dies and Die Cutting

**Teknational** has a modern diecutting facility with tools and dies to cut most standard sizes and shapes. If you require something special, most dies are inexpensive and typically can be made in a few days. In a pinch Mr Tek and our customer friendly engineers can quickly supply prototype samples.

**Teknational** is continually working with design engineers to find solutions to their problems. Demands for higher performance and more conformable thermal interface materials have lead us to broaden our offering of products. We expect our next catalog will contain even more of them.

# TEK-SIL PRODUCTS

## TEK-SIL Materials

### Comparative Summary of TEK-SIL materials

| Material  | Page# | Suggested Application                                              | cal/cm <sup>2</sup> sec°C | W/m-k |
|-----------|-------|--------------------------------------------------------------------|---------------------------|-------|
| SR        | 14    | Reinforced, general use                                            | .0022                     | .90   |
| SCT       | 14    | Unreinforced, general use, low cost                                | .0029                     | 1.20  |
| SH        | 14    | Reinforced, better than "SR"                                       | .0034                     | 1.40  |
| SCH       | 14    | Unreinforced, cost effective                                       | .0041                     | 1.70  |
| SU        | 14    | Unreinforced, high performance                                     | .0062                     | 2.60  |
| SB        | 14    | Reinforced, best performance                                       | .0070                     | 2.90  |
| SA        | 15    | Medium hardness, good dielectric<br>.025"-.062" (.64-1.57mm) thick | .0031                     | 1.30  |
| "SQ"      | 16    | Medium hardness                                                    | .0026                     | 1.10  |
| "Gel Pad" | 16    | best gap filler, very soft<5<br>.020"-.200" (.50-5.0mm) thick      | .0036                     | 1.50  |

## TEK-SIL "SR" and "SCT" Materials

**Best Value**

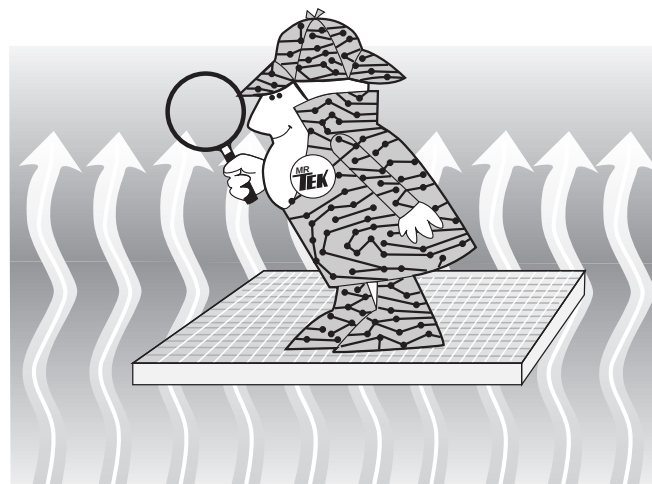
**TEK-SIL "SR"** materials offer an economical solution to most thermal transfer problems. They are inexpensive and easy to use. All "SR" materials are made with a fiber glass matrix to resist puncturing and improve tear strength. "SR" is available in four standard thicknesses (.006" to .012") both with and without PSA. Typical thermal conductivity for "SR" is .90 W/m-k. See Tables 1 and 2 on page 15 for specific properties.

**TEK-SIL "SCT"** is an unreinforced version of "SR" without the fiber glass matrix. To provide puncture resistance, "SCT" is somewhat thicker than "SR" materials. It is made in three thicknesses from .012" to .033". The added thickness combined with the smooth surface of "SCT" make this a highly conformable material. PSA is not available for the unreinforced materials. Specific material properties are shown in the Tables 1 and 2 on page 15. Part number is material and thickness (SCT-12, SR-06).

## TEK-SIL "SH" and "SCH" Materials

**Better Performance**

**TEK-SIL "SH"** has added fillers to improve thermal conductivity and dielectric strength. "SH" materials are formulated using a fiber glass matrix to improve tear strength and puncture resistance. Thermal conductivity for **TEK-SIL "SH"** is 1.40 W/m-k, a 56% improvement compared to "SR". "SH" materials come in 3 thicknesses from .006" to .012". Optional PSA is also available. See the Tables 1 and 2 on page 15 for specific properties.



TEK SIL Products will keep me cool !

**TEK-SIL "SCH"** is made using the same compound as "SH". Without fiber glass reinforcement thermal resistance improves from .26 degrees for "SH" to .18 for "SCH". This material has a smooth, conformable surface. Part number includes material plus thickness ("SH-12" or "SCH-33").

## TEK-SIL "SB" Materials

**TEK-SIL "SB-08"** is our best performing material with thermal conductivity measured at 2.9 watts/m-k and thermal resistance as low as .10 degress C. It is available in four thicknesses from .008" to .033" (.20-.85mm). All "SB" materials are coated on a fiber glass matrix to improve tear strength and pre-vent pin holes from forming. These materials also have excellent dielectric strength. They are available with optional PSA. **Teknational** stocks many standard shapes and sizes of parts made with "SB" materials. See Tables 1 and 2 on page 15 for specific properties of all thicknesses of **TEK-SIL "SB"** (.008"-.033"). It is also available in sheets 12" x 12" (310 x 310mm).

**Optimum Performance**

## TEK-SIL "SU" Materials

**Lower Cost  
Excellent Performance**

**TEK-SIL "SU"** is an improved formulation of silicone and alumina fillers which offers a low cost solution to many high heat problems. With thermal conductivity measured at 2.6 W/m-k, its performance is close to that of our best performing "SB-08". As "SU" is not reinforced with fiber glass, PSA is unavailable. **Teknational** die cuts "SU" in many standard sizes. This material is also sold in roll form 3.33" (85mm) wide. Specific properties are shown in the Tables 1 and 2 on page 15.

# TEK-SIL PRODUCTS

## Physical Properties of Thermal Insulating Materials

| TABLE 1                     | SR          | SCT         | SH          | SCH         | SB            | SQ          | SU          | SA          |
|-----------------------------|-------------|-------------|-------------|-------------|---------------|-------------|-------------|-------------|
| Material – Binder           | Silicone    | Silicone    | Silicone    | Silicone    | Silicone      | Silicone    | Silicone    | Silicone    |
| – Filler                    | Alumina     | Alumina     | Alumina+ALN | Alumina+ALN | Boron Nitride | Alumina     | Alumina     | Alumina     |
| – Reinforcement             | Fiber glass | None        | Fiber glass | None        | Fiber glass   | None        | None        | None        |
| Elongation %                | 2           | 100         | 2           | 60          | 2             | 250         | 110         | 200         |
| Hardness (Shore A)          | 85          | 75          | 92          | 85          | 85            | 55          | 79          | 65          |
| Thermal conductivity        |             |             |             |             |               |             |             |             |
| – watts/m-k                 | 0.9         | 1.2         | 1.4         | 1.7         | 2.9           | 1.1         | 2.6         | 1.3         |
| – cal/cm <sup>2</sup> sec°C | 0.0022      | 0.0029      | 0.0034      | 0.0041      | 0.007         | 0.0026      | 0.0062      | 0.0031      |
| UL 94 rating                |             |             |             |             |               |             |             |             |
| °F                          | -76 to >356 | -76 to >356 | -76 to >356 | -76 to >356 | -76 to >356   | -76 to >356 | -76 to >356 | -80 to >400 |
| °C                          | -60 to >180 | -60 to >180 | -60 to >180 | -60 to >180 | -60 to >180   | -60 to >180 | -60 to >180 | -60 to >204 |

| TABLE 2  |           |             | Thermal Resistance** |        | Withstand  | Maximum Roll     |                                                                                                                                                                                                                 |
|----------|-----------|-------------|----------------------|--------|------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MATERIAL | Color     | Thickness   | w.o. PSA             | w. PSA | Voltage kv | Width inches(mm) |                                                                                                                                                                                                                 |
| SR-06    | Green     | .0059 (.15) | 0.21                 | 0.54   | 4.0        | 3.33 (85)        | Before specifying user shall determine suitability of the product for his use. User assumes all risk and liability whatsoever in connection therewith.                                                          |
| SR-07    | Gray      | .007 (.18)  | 0.39                 | 0.61   | 3.5        | 11.80 (300)      |                                                                                                                                                                                                                 |
| SR-09    | Gray      | .009 (.23)  | 0.45                 | 0.71   | 4.5        | 11.80 (300)      |                                                                                                                                                                                                                 |
| SR-12    | Green     | .012 (.30)  | 0.48                 | 0.86   | 7.0        | 3.33 (85)        |                                                                                                                                                                                                                 |
| SCT-12   | Green     | .012 (.30)  | 0.36                 | NA     | 10.0       | 3.33 (85)        | *Tolerance for material thickness generally +/- .0005" (.013mm). Exceptions are: SR-06 +.0008/-.0016" (+.02/-.04); SB-08, SB-33 +/- .002" (+/- .06) **°C/watt (one square inch) ***12" x 12" sheets (310 x 310) |
| SCT-18   | Green     | .018 (.45)  | 0.46                 | NA     | 11.0       | 3.33 (85)        |                                                                                                                                                                                                                 |
| SCT-33   | Green     | .033 (.85)  | 0.90                 | NA     | 15.0       | 3.33 (85)        |                                                                                                                                                                                                                 |
| SH-06    | Brown     | .0059 (.15) | 0.22                 | 0.39   | 2.0        | 3.33 (85)        |                                                                                                                                                                                                                 |
| SH-08    | Brown     | .008 (.20)  | 0.22                 | 0.41   | 4.0        | 3.33 (85)        |                                                                                                                                                                                                                 |
| SH-12    | Brown     | .012 (.30)  | 0.26                 | 0.56   | 8.0        | 3.33 (85)        |                                                                                                                                                                                                                 |
| SCH-12   | Brown     | .012 (.30)  | 0.18                 | NA     | 9.0        | 3.33 (85)        |                                                                                                                                                                                                                 |
| SCH-18   | Brown     | .018 (.45)  | 0.29                 | NA     | 10.0       | 3.33 (85)        |                                                                                                                                                                                                                 |
| SCH-33   | Brown     | .033 (.85)  | 0.51                 | NA     | 14.0       | 3.33 (85)        |                                                                                                                                                                                                                 |
| SB-08    | White     | .008 (.20)  | 0.11                 | 0.24   | 3.0        | NA***            |                                                                                                                                                                                                                 |
| SB-12    | White     | .012 (.30)  | 0.10                 | 0.25   | 5.0        | NA***            |                                                                                                                                                                                                                 |
| SB-18    | White     | .018 (.45)  | 0.20                 | 0.30   | 7.0        | NA***            |                                                                                                                                                                                                                 |
| SB-33    | White     | .033 (.85)  | 0.32                 | 0.48   | 10.0       | NA***            |                                                                                                                                                                                                                 |
| SU-12    | Dark Gray | .012 (.30)  | 0.09                 | NA     | 11.0       | 3.33 (85)        |                                                                                                                                                                                                                 |
| SU-18    | Dark Gray | .018 (.45)  | 0.15                 | NA     | 12.0       | 3.33 (85)        |                                                                                                                                                                                                                 |
| SU-33    | Dark Gray | .033 (.85)  | 0.32                 | NA     | 16.0       | 3.33 (85)        |                                                                                                                                                                                                                 |
| SQ-12    | Black     | .012 (.30)  | 0.39                 | NA     | 9.0        | 3.33 (85)        |                                                                                                                                                                                                                 |
| SQ-18    | Black     | .018 (.45)  | 0.55                 | NA     | 12.0       | 3.33 (85)        |                                                                                                                                                                                                                 |
| SQ-33    | Black     | .033 (.85)  | 1.01                 | NA     | 16.0       | 3.33 (85)        |                                                                                                                                                                                                                 |
| SA-025   | Blue      | .025 (.64)  | 1.80                 | NA     | 11.0       | 18.00(457)       |                                                                                                                                                                                                                 |

## Conformable Materials

### For Gasketing and Filling Gaps

- Thermally conductive • Shock absorbent

Recognizing a need for thermally conductive products which will conform well to irregular surfaces and fill larger gaps, **Teknational** offers a variety of materials to solve these problems.

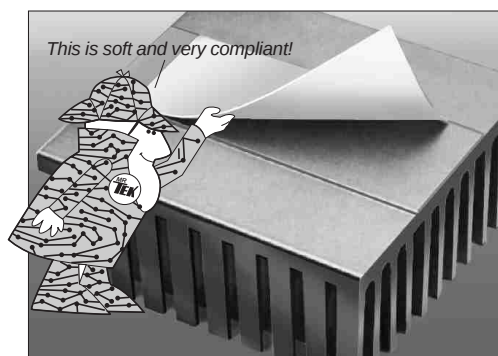
## Medium/Firm Materials

Some times there may be a small space between mismatched surfaces that must be filled. The **TEK-SIL** line includes two materials from .012" (.30mm) to .062" (1.57mm) thickness. Being somewhat softer in durometer and often thicker than the standard materials, these products conform well to mating surfaces for optimum heat transfer. They also protect assemblies from mechanical shock and absorb thermal expansion.

### TEK-SIL SA

**TEK-SIL SA** is an unsupported, thermally conductive silicone rubber with high dielectric strength to protect against power surges. **TEK-SIL SA** conforms better than many thermally conductive materials while protecting assemblies from mechanical shock and absorbing thermal expansion.

*Continued on page 16*



# TEK-SIL PRODUCTS

## TEK-SIL SA (Continued from page 15)

The thicknesses are: .025" (.64mm); .032" (.82mm); and .062" (1.57mm). This material is available in sheets or roll stock 18" wide. **Teknational** will die cut parts to customer specifications. See tabs 1 & 2 on page 15 for general specifications and properties.

Order **TEK-SIL SA** by thickness and size - eg. **SA-062-9X16**.

## TEK-SIL "SQ"

Offered in three thicknesses ranging from .012" to .033" (.30 - .85mm), **TEK-SIL "SQ"** is a medium firm material. With a durometer of 55, **"SQ"** may be used as thermally conductive gasketing which will absorb shock. It can also be squeezed into tight places. Its thermal properties are very good with conductivity measured at 1.10 W/m-k. Dielectrically, **"SQ"** will withstand a minimum 9 Kv depending upon thickness. See Tables 1 & 2 for comparative physical properties.

## Extra Soft Gap Fillers

**Teknational** has a whole range of gap filling materials to fill voids up to .197" (5.0mm). Even highly polished surfaces have irregularities which prevent them from making complete contact. In typical manufacturing environments such precision polishing is not affordable, even if it would solve the contact problem. To correct this, our gap fillers will minimize thermal resistance providing the best thermally conductive path. Most of our gap fillers/Gel Pads are available in 9 thicknesses: .20"; .039"; .059"; .079"; .098"; .118"; .126"; .157"; and .197" (.5; 1.0; 1.5; 2.0; 2.5; 3.0; .3.2; 4.0; and 5.0mm).

## TEK-SIL "GP"

With a durometer of <5, our **TEK-SIL "GP" Gel Pads** fill all voids. **Gel Pads**, which are made of unreinforced silicone rubber, are quite thermally conductive (1.5 W/m-k). They are so soft and tacky that no PSA is required. To ease handling problems, the sheets have release liner on both sides. **"GP"** is made in 9 thicknesses ranging from .020" to .197" (.50 - 5.0mm). All thicknesses are supplied in sheets 11.8" x 7.9" (300 x 200mm). As with all other **TEK-SIL** materials, **Teknational** will die cut special shapes to customer specifications. Material properties, comparative Thermal Resistance and Compression Set for all thicknesses are shown on Table 3 and Table 4 page 17. To order sheets of **"GP"**, specify the material and thickness (eg. **"GP-04"** for a sheet .04" (1.0mm) thick).

## TEK-SIL "GPN"

In some instances where puncturing from sharp edges may be a problem, **Gel Pad "GPN"** will solve this problem. Using the same material formulation as **"GP"**, **"GPN"** is extruded with a nylon mesh that makes it more puncture resistant while not affecting the thermal properties of the base material. The mesh stiffens the material so that it will not stretch as much as **"GP"**

Resistance and Compression Set for all thicknesses are shown on Table 3 and Table 4 on page 17. Sheets are 11.8" x 7.9" (300 x 200mm). To order by the sheet, the part number is **"GPN"** followed by the thickness (eg. **GPN-06** for .06" thick). **Teknational** will also die cut parts to your specifications. All materials are supplied with release liner on both sides.

## TEK-SIL "GPH"

In some assembly situations, the stickiness of our standard **Gel Pad "GP"** makes it difficult to handle. We now offer **Gel Pad "GPH"** which is hardened on one surface. Even with the hardened surface, this material is supplied with release liner on both sides. Thermal characteristics are not affected by the hardening. Standard sheet sizes and thicknesses are available. Comparative product data is shown on Table 3 and Table 4 on page 17. The ordering method is the same as for **"TEK-SIL "GP"**. The part number for a sheet .197" (5.0mm) thick will be **"GPN-197"**.

## TEK-SIL "GPHN"

**Gel Pad "GPHN"** combines all of the above options. It has been extruded using nylon mesh to stiffen the material so that it is more puncture proof. Distortion from compression is also minimized. With one hardened surface, the pads are easy to handle. Thermal conductivity which is measured at 1.50 W/m-k is the same as for **Gel Pad "GP"**. Look at Table 3 and Table 4 for specific product information. The ordering method is the same as for **TEK-SIL "GP"**, with the part number for a sheet .118" thick **"GPHN-118"**.

## High Performance GEL Pads

### TEK-SIL "GPX"

If you need a gap filler with higher thermal conductivity, **Gel Pad "GPX"** is rated at 2.30 watt/mk compared to 1.50 watt/mk for the standard **"GP"** material. Thermal resistance data and Compression Set for each thickness are shown on the Table 4 below. All other performance aspects of **"GPX"** are shown on Table 3. This material is presently available in five thicknesses, ranging from .020" to .098" (.50 - 2.50mm). Consult the plant for data on thicknesses greater than .098". The part number is the material plus thickness.

### TEK-SIL "GPXH"

As with the original **"GP"** material, four thicknesses of the high performance **GEL PAD** are available with one hardened surface to ease handling of the material. This material is named **TEK-SIL "GPXH"**. All **GEL PADS** are supplied with a release liner on both sides. The part number is the material plus its thickness (eg **"GPXH-118"** is 118" thick.)

# TEK-SIL PRODUCTS

**TABLE 3** Common Material Properties - GEL PADS

|                  |                                              | "GP"        | "GPN"       | "GPH"       | "GPHN"      | "GPX"       | "GPXH"      |
|------------------|----------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Color            |                                              | Dark Gray   | Dark Gray   | Dark Gray   | Dark Gray   | Gray        | Gray        |
| Hardness         | Shore A                                      | <5          | <5          | <5          | <5          | <5          | <5          |
| Elongation       |                                              | 100         | 60          | 80          | 60          | 100         | 80          |
| Temperature      | Continuous Use                               | 250F (120C) | 250F (120C) | 250F (120C) | 250F (120C) | 250F (120C) | 250F (120C) |
| Thermal          | Watt/m-k                                     | 1.5         | 1.5         | 1.5         | 1.5         | 2.3         | 2.3         |
| Conductivity     | Cal/cm-sec-°C                                | 0.0036      | 0.0036      | 0.0036      | 0.0036      | 0.005       | 0.005       |
| Flame Retardance | UL 94                                        | VO          | V1          | VO          | V1          | VO          | VO          |
| Sheet Size       | 7.9" x 11.8" (200 x 300mm) for all materials |             |             |             |             |             |             |

For ease of handling, all sheets are supplied with release liner on both sides. To order, the part number is the material name followed by thickness. "GP-04" is one sheet .04" thick. Before specifying, user shall determine suitability for his use. User assumes all risk and liability whatsoever in connection therewith.

**TABLE 4** Tek-Sil GEL PADS Thermal Resistance and Compression Set

|                    |                           | MATERIAL THICKNESS |            |            |                                  |                                  |            |            |            |            |
|--------------------|---------------------------|--------------------|------------|------------|----------------------------------|----------------------------------|------------|------------|------------|------------|
|                    |                           | .020 (.5mm)        | .040 (1.0) | .060 (1.5) | 0.79 (2.0)                       | .098 (2.5)                       | .118 (3.0) | .138 (3.5) | .157 (4.0) | .197 (5.0) |
| Thermal Resistance | °C/watt/inch <sup>2</sup> |                    |            |            |                                  |                                  |            |            |            |            |
| GP                 | 0.39                      | 0.82               | 1.23       | 1.48       | 1.87                             | 2.10                             | 2.34       | 2.54       | 3.04       |            |
| GPH                | 0.44                      | 0.89               | 1.37       | 1.71       | 2.00                             | 2.29                             | 2.38       | 2.62       | 3.06       |            |
| GPN                | 0.42                      | 0.83               | 1.35       | 1.62       | 2.03                             | 2.32                             | 2.38       | 2.64       | 2.91       |            |
| GPHN               | 0.48                      | 0.90               | 1.43       | 1.69       | 2.15                             | 2.43                             | 2.49       | 2.66       | 3.11       |            |
| GPX                | 0.37                      | 0.63               | 0.98       | 1.18       | Consult plant for specifications |                                  |            |            |            |            |
| GPXH               | 0.37                      | 0.72               | 1.08       | 1.37       |                                  |                                  |            |            |            |            |
| COMPRESSION SET    | Kgf/inch <sup>2</sup>     |                    |            |            |                                  |                                  |            |            |            |            |
| GP 10%             | 13.0                      | 12.5               | 11.5       | 10.2       | 7.7                              | 6.1                              | 5.6        | 4.9        | 4.2        |            |
| 50%                | 40.2                      | 39.2               | 33.1       | 30.9       | 27.2                             | 24.7                             | 23.5       | 20.3       | 15.8       |            |
| GPH 10%            | 20.9                      | 19.8               | 15.2       | 12.3       | 10.9                             | 8.0                              | 6.9        | 5.7        | 5.0        |            |
| 50%                | 106.9                     | 91.6               | 59.8       | 33.4       | 28.1                             | 25.2                             | 24.7       | 23.1       | 20.0       |            |
| GPN 10%            | 17.0                      | 15.2               | 15.4       | 11.2       | 8.2                              | 7.3                              | 6.5        | 5.4        | 4.8        |            |
| 50%                | 96.4                      | 71.6               | 49.9       | 31.2       | 25.8                             | 20.8                             | 18.9       | 18.2       | 17.9       |            |
| GPHN 10%           | 22.5                      | 20.7               | 20.1       | 15.7       | 14.8                             | 12.1                             | 9.8        | 9.0        | 7.1        |            |
| 50%                | 119.8                     | 102.9              | 78.2       | 50.8       | 41.7                             | 38.7                             | 32.2       | 32.4       | 25.2       |            |
| GPX 10%            | 15.5                      | 16.2               | 14.0       | 8.0        | 5.5                              | Consult plant for specifications |            |            |            |            |
| 50%                | 95.2                      | 85.3               | 66.7       | 48.2       | 38.2                             |                                  |            |            |            |            |
| GPXH 10%           | 15.5                      | 16.2               | 14.0       | 8.0        |                                  |                                  |            |            |            |            |
| 50%                | 92.5                      | 85.3               | 66.7       | 48.2       |                                  |                                  |            |            |            |            |

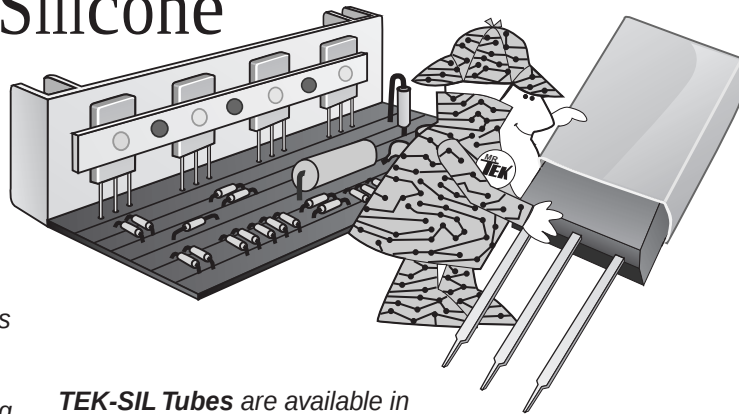
Before specifying, user shall determine suitability of the product for his use. User assumes all risk and liability whatsoever in connection therewith.

## Thermally Conductive Silicone Tubes and Covers

- Easy Assembly
- Full Protection

**Teknational** now offers both **TEK-SIL SCT** and **SCH** materials extruded in tubular form as sleeves and molded as five sided rectangular covers to completely encapsulate electronic devices. Easy to assemble, the tubes and covers slip over IC's to fully protect them from shock or damage during assembly and prevent arcing. With the sleeves, assembly labor is reduced when several are secured with a bar against an aluminum housing used as a heat sink.

The dielectric qualities of **TEK-SIL SCT** and **SCH** isolate the devices while conducting heat to a heat sink. Both materials are UL rated 94VO. These products are often used for mounting TO-3P and TO-220 style devices. See Tables 1 & 2 on page 15 for the physical properties of **TEK-SIL SCT** and **SCH** materials.



**TEK-SIL Tubes** are available in three thicknesses and three inner diameters. .433", .531", and .669" (11mm, 13.5mm and 17mm). They are stocked in several lengths which are standard for TO-220's, TO-3P's and TO-3PL's. Tubes are also available cut into other lengths not shown. Some other diameters may be available for special order. Tables showing part numbers for standard sizes of both Tubes and Covers are shown on the right and below. If you are ordering the better performing **TEK-SIL SCH** material, Substitute "**SCH**" in place of "**SCT**" for the part number.

# TEK-SIL PPRODUCTS

## TEK-SIL TUBES

### Standard Part Numbers

Part number consists of material designation (eg. SCT or SCH followed by material thickness (eg. "12" for .012")

| FOR TO-220's               | Diameter    | Length      |
|----------------------------|-------------|-------------|
| SCT12-433-0984             | .433+/-04   | .984+/-04   |
| SCT18-433-0984             | (11+/-1)    | (25+/-1)    |
| SCT33-433-0984             |             |             |
| SCT12-433-1181             | .433+/-04   | 1.181+/-04  |
| SCT18-433-1181             | (11+/-1)    | (30+/-1)    |
| SCT33-433-1181             |             |             |
| FOR TO-3P's/TO-247/TO- 218 |             |             |
| SCT12-531-0984             | .531+/-04   | .984 +/-04  |
| SCT18-531-0984             | (13.5+/-1)  | (25 +/-1)   |
| SCT33-531-0984             |             |             |
| SCT12-531-1181             | .531 +/-04  | 1.181+/-04  |
| SCT18-531-1181             | (13.5 +/-1) | (30 +/-1)   |
| SCT33-531-1181             |             |             |
| FOR TO-3PL's               |             |             |
| SCT18-669-1378             | .669 +/-04  | 1.378 +/-04 |
| SCT33-669-1378             | (17 +/-1)   | (35 +/-1)   |

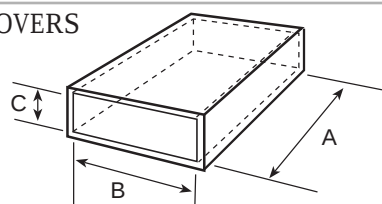
## TEK-SIL COVERS

### Standard SIZES

Standard sizes-the part number begins with the material name (eg. SCT or SCH and thickness (eg. "12" for .012")

| Part No.    | A            | B            | C           |
|-------------|--------------|--------------|-------------|
| SCT12-0886  | 0.886 (22.5) | 0.433 (11.0) | 0.177 (4.5) |
| SCT18-0866  | 0.866 (22.0) | 0.433 (11.0) | 0.197 (5.0) |
| SCT33-0866  | 0.866 (22.0) | 0.433 (11.0) | 0.197 (5.0) |
| FOR TO-3P's |              |              |             |
| SCT12-1102  | 1.102 (28.0) | 0.630 (16.0) | 0.177 (4.5) |
| SCT20-1083  | 1.083 (27.5) | 0.650 (16.5) | 0.197 (5.0) |
| SCT33-1102  | 1.102 (28.0) | 0.709 (18.0) | 0.197 (5.0) |

### COVERS



Note: A, B and C are inside dimensions

## K-275® Thermally Conductive Insulators

K-275® solves many problems encountered in surface mounting applications.

With **K-275** you can attach heat sinks without any external hardware. Suggested uses are for mounting ceramic hybrid and flat packages.

The base material for **K-275** is thermally conductive polyimide which is noted for its high (6.0 KV) dielectric strength and excellent thermal impedance.

**K-275** is coated with a liberal application of thermoset acrylic PSA adhesive (.002" thick on both sides). The uncured PSA adheres sufficiently for assembly operations. In its soft, uncured state, the extra thickness of PSA conforms to mating surfaces – improving thermal conductivity.

Ordinary exposure to wave solder will thermoset the PSA, with adhesion improving to 60 oz/in<sup>2</sup>. In the absence of wave soldering, the PSA may be cured for 5 seconds at 250°C. Thermosetting also improves resistance to solvents. The PSA used in **K-275** is thermally conductive. Its thermal interface penalty is less than for most adhesives offered with this type of product.

**TEK-SIL K-275®** is made by Furon. The base material is .001" thermally conductive **KAPTON®** type **MT** which is puncture resistant. It is supplied with a release liner of 80# silicone coated paper on one or both sides. **TEK-SIL K-275®** is available in roll form, 16" wide and in squares or rectangles: 8" x 8" and 9" x 16". **Teknational** will die cut parts to your specifications.

## TEK-SIL SK-04

**TEK-SIL SK-04** is a composite of high performance thermally conductive materials. Polyimide film is coated on one side with thermally conductive silicone rubber to provide high conformability with the upper surface. The opposite side is coated with thermally conductive acrylic adhesive which speeds assembly and improves performance by filling voids between mating surfaces.

**SK-04** is highly puncture resistant. Its excellent dielectric strength (6000 volts) and thermal resistance (.20° C/w) make **SK-04** a cost effective replacement for beryllium oxide insulators. To reduce assembly time, **SK-04** parts are kiss-cut on a release liner. **SK-04** is also available in 16" wide sheets.

TABLE 5 Physical Properties Kapton® Materials

|                                | K-275®         | SK-04           |                             | K-275®        | SK-04         |
|--------------------------------|----------------|-----------------|-----------------------------|---------------|---------------|
| MATERIAL COMPOSITION           |                |                 | ADHESION TO STEEL (oz/inch) |               |               |
| Kapton® MT - thickness         | .001" (.025mm) | .001" (.025mm)  | before thermoset            | 30            | 8             |
| Silicon (one side) - thickness | NA             | .002" (5.08mm)  | after thermoset             | 60            | 25            |
| Acrylic PSA- thickness         | .002" (5.08mm) | 0.015" (3.81mm) | TEMPERATURE RANGE °F        | -20 to +300   | -20 to +300   |
| THERMAL CONDUCTIVITY           |                |                 | °C                          | -20 to +149   | -29 to +149   |
| watt/m-k                       | .40            | .60             | MAXIMUM ROLL WIDTH          | 16" (406.4mm) | 16" (406.4mm) |
| DIELECTRIC STRENGTH            |                |                 |                             |               |               |
| volts/mil                      | 1600           | 1600            |                             |               |               |

<sup>1</sup> ASTM E1530 @ 10psi.

<sup>2</sup> The thermosetting PSA will become stronger and more solvent resistant after curing with wave solder; cure at 15 seconds @ 200° C or 5 sec @ 250°C.

All properties are typical and should not be used for writing specifications. Before specifying, user shall determine the suitability of the product for his intended use. User assumes all risk and liability whatsoever in connection therewith.

# TEK-SIL PRODUCTS

Web Site: [www.teknational.com](http://www.teknational.com)

## How to order TEK-SIL Materials

Tek-Sil materials may be ordered in sheet form or die cut.

### SHEET FORM

To order sheets, designate the material desired (e.g. **Tek-Sil SK-04** or **SR-09**) followed by the dimensions of the sheet. The part number for a 12"x12" sheet of **SR-09** will be **SR-09 12"x12"**

### DIE CUT

Tek-Sil materials are available die cut in styles to fit the more common transistor, diode and IC packages. The table below shows drawings and dimensions for many of our die cut products. Select the "Style" which fits your requirements.

The Part Number will consist of:

| Material | Thickness | Style | (optional PSA) |
|----------|-----------|-------|----------------|
| PN: SR   | 09        | -6    | P*             |
| SB       | 07        | -83   | P*             |
| SK       | 04        | -58   |                |

\*Since SK-04 is only available with PSA, no "P" is necessary

### FOR STYLES NOT YET TOOLED

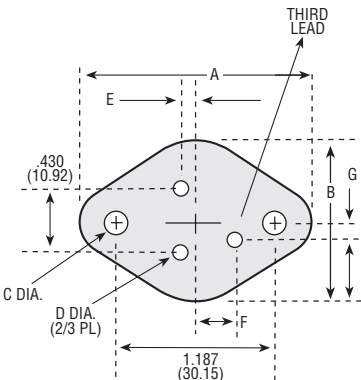
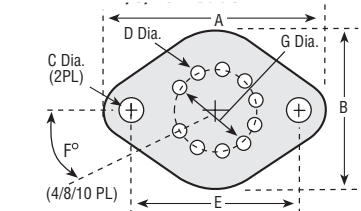
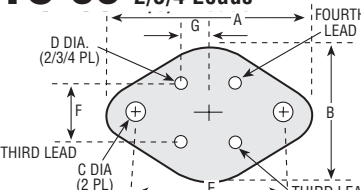
We can design and produce new dies within a few days.

Depending upon your volume requirements, tooling is inexpensive. Call or fax us with the material and dimensions required.

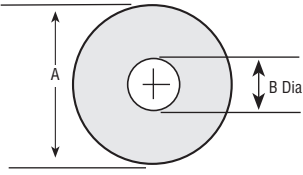
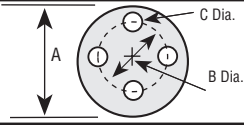
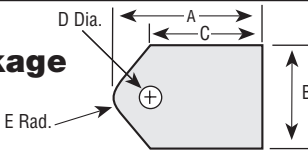
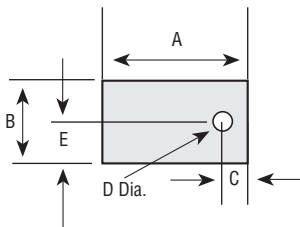
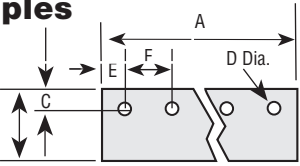
Dimensional Tolerances +/- .015"(.381mm),

Hole Diameters +/- .005"(.127mm).

**IMPORTANT NOTICE TO PURCHASER**—the following is made in lieu of all warranties express or implied. Seller's and manufacturer's only obligation shall be to replace such quantity of the product found to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his intended use and assume all risk and liability whatsoever in connection therewith. The foregoing may not be changed except by an agreement signed by officers of seller and manufacturer.

| CONFIGURATION                                                                                                             | STYLE | A                | B                | C               | D               | E                | F                | G                | LEAD HOLES | SCREW TORQUE                           |
|---------------------------------------------------------------------------------------------------------------------------|-------|------------------|------------------|-----------------|-----------------|------------------|------------------|------------------|------------|----------------------------------------|
| <b>TO 3</b><br><b>2/3 Leads</b><br>     | -3    | 1.563<br>(39.70) | 1.050<br>(26.67) | .140<br>(3.56)  | 0.080<br>(2.03) | 0.072<br>(1.83)  |                  |                  |            |                                        |
|                                                                                                                           | -5    | 1.563<br>(39.70) | 1.050<br>(26.67) | 0.140<br>(3.56) | 0.140<br>(3.56) | 0.072<br>(1.83)  |                  |                  | 2          | #4-40 5 in/lb.<br>OR<br>#6-32 6in/lb.  |
|                                                                                                                           | -6    | 1.593<br>(40.46) | 1.100<br>(27.94) | 0.156<br>(3.96) | 0.062<br>(1.57) | 0.072<br>(1.83)  |                  |                  | 2          |                                        |
|                                                                                                                           | -9    | 1.650<br>(41.91) | 1.140<br>(28.96) | 0.140<br>(3.56) | 0.046<br>(1.17) | 0.072<br>(1.83)  |                  |                  | 2          |                                        |
|                                                                                                                           | -11   | 1.650<br>(41.91) | 1.140<br>(28.96) | 0.165<br>(4.19) | 0.062<br>(1.57) | 0.072<br>(1.83)  |                  |                  | 2          |                                        |
|                                                                                                                           | -12   | 1.700<br>(43.18) | 1.187<br>(30.15) | 0.156<br>(3.96) | 0.062<br>(1.57) | 0.072<br>(1.83)  |                  |                  | 2          |                                        |
|                                                                                                                           | -14   | 1.780<br>(45.21) | 1.250<br>(31.75) | 0.140<br>(3.56) | 0.093<br>(2.36) | 0.072<br>(1.83)  |                  |                  | 2          |                                        |
|                                                                                                                           | -17   | 1.650<br>(41.91) | 1.140<br>(28.96) | 0.140<br>(3.56) | 0.093<br>(2.36) | 0.124<br>(3.15)  | 0.400<br>(10.16) | 0.155<br>(3.94)  | 3          |                                        |
|                                                                                                                           | -83   | 1.650<br>(41.91) | 1.140<br>(28.96) | 0.140<br>(3.56) | 0.093<br>(2.36) | 0.072<br>(1.83)  |                  |                  | 2          |                                        |
|                                                                                                                           | -90   | 1.655<br>(42.04) | 1.063<br>(27.00) | 0.156<br>(3.96) | 0.062<br>(1.57) | 0.072<br>(1.83)  |                  |                  | 2          |                                        |
|                                                                                                                           | -91   | 1.646<br>(41.81) | 1.125<br>(28.58) | 0.156<br>(3.96) | 0.093<br>(2.36) | 0.072<br>(1.83)  |                  |                  | 2          |                                        |
|                                                                                                                           | -100  | 1.650<br>(41.91) | 1.140<br>(28.96) | 0.122<br>(3.10) | 0.062<br>(1.57) | 0.072<br>(1.83)  |                  |                  | 2          |                                        |
|                                                                                                                           | -189  | 1.653<br>(42.00) | 1.142<br>(29.00) | .122<br>(3.10)  | .059<br>(1.50)  | .079<br>(2.00)   |                  |                  |            |                                        |
| <b>TO 3</b><br><b>4/8/10 Leads</b><br> | -19   | 1.563<br>(39.70) | 1.050<br>(26.67) | 0.156<br>(3.96) | 0.063<br>(1.60) | 1.187<br>(30.15) | 72               | 0.470<br>(11.94) | 4          | #4-45 5 in/lb<br>OR<br>#6-32 6in/lb.   |
|                                                                                                                           | -20   | 1.655<br>(42.04) | 1.187<br>(30.15) | 0.156<br>(3.96) | 0.060<br>(1.52) | 1.187<br>(30.15) | 40               | 0.500<br>(12.7)  | 8          |                                        |
| <b>TO 66</b><br><b>2/3/4 Leads</b><br> | -23   | 1.312<br>(33.32) | 0.762<br>(19.35) | 0.140<br>(3.56) | 0.062<br>(1.57) | 0.960<br>(24.38) | 0.200<br>(5.08)  | 0.100<br>(2.54)  | 2          | #4-40 5 in/lb.<br>OR<br>#6-32 6 in/lb. |
|                                                                                                                           | -24   | 1.250<br>(31.75) | 0.700<br>(17.78) | 0.140<br>(3.56) | 0.062<br>(1.57) | 0.960<br>(24.38) | 0.200<br>(5.08)  | 0.100<br>(2.54)  | 2          |                                        |
|                                                                                                                           | -25   | 1.375<br>(34.93) | 0.825<br>(20.96) | 0.140<br>(3.56) | 0.062<br>(1.57) | 0.960<br>(24.38) | 0.200<br>(5.08)  | 0.100<br>(2.54)  | 2          |                                        |
|                                                                                                                           | -190  | 1.378<br>(35.00) | 0.826<br>(21.00) | 0.122<br>(3.10) | 0.059<br>(1.50) | 0.960<br>(24.38) | 0.200<br>(5.08)  | 0.079<br>(2.00)  |            |                                        |

# TEK-SIL PRODUCTS

| CONFIGURATION                                                                                                           | STYLE             | A                 | B                | C                | D               | E                | F                | G | LEAD HOLES | SCREW TORQUE   |
|-------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|------------------|------------------|-----------------|------------------|------------------|---|------------|----------------|
| <b>Diode Washers</b><br>               | -93               | 0.562<br>(14.27)  | 0.203<br>(5.16)  |                  |                 |                  |                  |   |            | #10-32 2in/lb. |
|                                                                                                                         | -34<br>(DO-4)     | 0.625<br>(15.88)  | 0.200<br>(5.08)  |                  |                 |                  |                  |   |            |                |
|                                                                                                                         | -37<br>(DO-5)     | 0.800<br>(20.32)  | 0.260<br>(6.60)  |                  |                 |                  |                  |   |            |                |
|                                                                                                                         | -42<br>(DO-5)     | 1.000<br>(25.40)  | 0.260<br>(6.60)  |                  |                 |                  |                  |   |            |                |
|                                                                                                                         | -110              | 0.360<br>(9.14)   | 0.172<br>(4.37)  |                  |                 |                  |                  |   |            |                |
|                                                                                                                         | 154               | 1.600<br>(40.64)  | 0.200<br>(5.08)  |                  |                 |                  |                  |   |            |                |
| <b>Small Power Devices</b><br>         | -48<br>(TO-5)     | 0.360<br>(9.14)   | 0.200<br>(5.08)  | 0.040<br>(1.02)  |                 |                  |                  |   | 3          |                |
|                                                                                                                         | -49<br>(TO-5)     | 0.360<br>(9.14)   | 0.200<br>(5.08)  | 0.040<br>(1.02)  |                 |                  |                  |   | 4          |                |
| <b>Tip Package</b><br>                 | -65<br>(Tip-36)   | 0.865<br>(21.97)  | 0.650<br>(16.51) | 0.650<br>(16.51) | 0.140<br>(3.56) | 0.205<br>(5.21)  |                  |   |            | #4-40 4 in/lb. |
|                                                                                                                         | -51<br>(TO-126)   | 0.437<br>(11.10)  | 0.312<br>(7.92)  | 0.140<br>(3.56)  | 0.122<br>(3.10) |                  |                  |   |            |                |
| <b>Plastic Power Devices</b><br>     | -54               | 0.687<br>(17.45)  | 0.562<br>(14.27) | 0.218<br>(5.54)  | 0.125<br>(3.18) |                  |                  |   |            | #4-40 2in/lb.  |
|                                                                                                                         | -97               | 0.687<br>(17.45)  | 0.562<br>(14.27) | 0.185<br>(4.70)  | 0.093<br>(2.33) |                  |                  |   |            |                |
|                                                                                                                         | -191<br>(TO-220)  | 0.708<br>(18.00)  | 0.512<br>(13.00) | 0.177<br>(4.50)  | 0.118<br>(3.00) |                  |                  |   |            |                |
|                                                                                                                         | -55               | 0.710<br>(18.03)  | 0.500<br>(12.70) | 0.160<br>(4.06)  | 0.141<br>(3.58) |                  |                  |   |            |                |
|                                                                                                                         | -81               | 0.725<br>(18.42)  | 0.520<br>(13.21) | 0.170<br>(4.32)  | 0.115<br>(2.92) |                  |                  |   |            |                |
|                                                                                                                         | -56               | 0.750<br>(19.05)  | 0.410<br>(10.41) | 0.225<br>(5.72)  | 0.156<br>(3.96) |                  |                  |   |            |                |
|                                                                                                                         | -57<br>(TO-220)   | 0.750<br>(19.05)  | 0.500<br>(12.70) | 0.187<br>(4.75)  | 0.125<br>(3.18) |                  |                  |   |            |                |
|                                                                                                                         | -58<br>(TO-220)   | 0.750<br>(19.05)  | 0.500<br>(12.70) | 0.187<br>(4.75)  | 0.147<br>(3.73) |                  |                  |   |            |                |
|                                                                                                                         | -52               | 0.760<br>(19.05)  | 0.600<br>(15.24) | 0.240<br>(6.10)  | 0.150<br>(3.81) |                  |                  |   |            |                |
|                                                                                                                         | -64<br>(220 clip) | 0.750<br>(19.05)  | 0.500<br>(12.70) |                  |                 |                  |                  |   |            |                |
|                                                                                                                         | -102<br>(no hole) | 0.870<br>(22.10)  | 0.620<br>(15.75) |                  |                 |                  |                  |   |            |                |
|                                                                                                                         | -98<br>(TO-218)   | 0.800<br>(20.32)  | 0.600<br>(15.24) | 0.218<br>(5.54)  | 0.110<br>(2.79) |                  |                  |   |            |                |
|                                                                                                                         | -99               | 0.826<br>(20.96)  | 0.905<br>(22.99) | 0.210<br>(5.33)  | 0.145<br>(3.69) |                  |                  |   |            |                |
|                                                                                                                         | -96               | 0.937<br>(23.80)  | 0.750<br>(19.05) | 0.656<br>(16.66) | 0.125<br>(3.18) |                  |                  |   |            |                |
|                                                                                                                         | -192<br>(TO-3PF)  | 0.945<br>(24.00)  | 0.787<br>(20.00) | 0.295<br>(7.50)  | 0.122<br>(3.10) |                  |                  |   |            |                |
|                                                                                                                         | -84               | 0.945<br>(24.00)  | 0.825<br>(20.96) | 0.235<br>(5.97)  | 0.140<br>(3.56) |                  |                  |   |            |                |
|                                                                                                                         | -106              | 0.945<br>(24.00)  | 0.825<br>(20.96) | 0.235<br>(5.97)  | 0.120<br>(3.05) |                  |                  |   |            |                |
|                                                                                                                         | -112              | 1.125<br>(28.58)  | 0.625<br>(15.88) | 0.200<br>(5.08)  | 0.145<br>(3.68) |                  |                  |   |            |                |
|                                                                                                                         | -113              | 1.410<br>(35.81)  | 0.810<br>(20.57) | 0.360<br>(9.14)  | 0.147<br>(3.73) |                  |                  |   |            |                |
|                                                                                                                         | -122              | 1.300<br>(33.02)  | 1.000<br>(25.4)  | 0.650<br>(16.51) | 0.166<br>(4.22) | 0.350<br>(8.89)  |                  |   |            |                |
| <b>Plastic Devices Multiples</b><br> | -82               | 1.260<br>(32.00)  | 0.690<br>(17.53) | 0.250<br>(6.35)  | 0.160<br>(4.06) | 0.230<br>(5.84)  | 0.800<br>(20.32) |   | 2          |                |
|                                                                                                                         | -107              | 1.420<br>(36.07)  | 0.440<br>(11.18) | 0.155<br>(3.94)  | 0.120<br>(3.05) | 0.310<br>(7.87)  | 0.400<br>(10.16) |   | 3          |                |
|                                                                                                                         | -109              | 2.165<br>(54.99)  | 0.945<br>(24.00) | 0.472<br>(11.99) | 0.167<br>(4.24) | 0.472<br>(11.99) | 1.220<br>(30.99) |   | 2          |                |
|                                                                                                                         | -134              | 2.515<br>(63.88)  | 2.031<br>(51.59) | 0.531<br>(13.49) | 0.156<br>(3.96) | 0.734<br>(18.64) | 1.047<br>(26.59) |   | 2          |                |
|                                                                                                                         | -80               | 4.000<br>(101.60) | 0.750<br>(19.05) | 0.187<br>(4.75)  | 0.125<br>(3.18) | 0.250<br>(6.35)  | 0.500<br>(12.70) |   | 8          |                |

Dimensions in Millimeters are indicated by (.00)

## CROSS REFERENCES

Cross  
References  
to:

Bergquist

Birtcher

Bivar

Calmark

Concord

Keystone

Milspec

Richco

Rosin

SAE

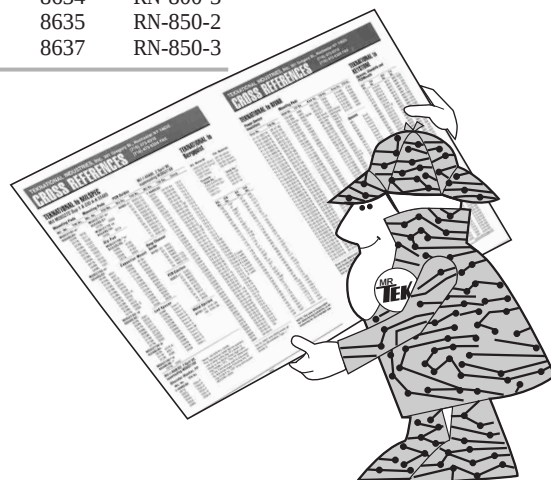
Scanbe

HH Smith

Thermalloy

## Card Guides

| Teknational | Birtcher | Bivar      | Calmark  | E.S.F     | Keystone | Richco      | Rosin        | Thermalloy |
|-------------|----------|------------|----------|-----------|----------|-------------|--------------|------------|
| 9425        | 94-2-5   | DC-250     |          |           |          | RDC-250     | C12203-0004F | 8820-2     |
| 9445        | 94-2-9   | DC-450     |          |           |          | RDC-450     |              | 8820-4     |
| 9445-125    | 94-4-9   | DC-450-130 |          |           |          | RDC-450-130 |              |            |
| 9460        | 94-2-12  | DC-600     |          |           |          | RDC-600     | C12203-0002F | 8820-6     |
| 9460-125    | 94-4-12  | DC-600-130 |          |           |          | RDC-600-130 |              |            |
| 9480        | 94-2-16  | DC-800     |          |           |          | RDC-800     | C12203-0003F | 8820-8     |
| 9480-125    | 94-4-16  | DC-800-130 |          |           |          | RDC-800-130 |              |            |
| 9200-25     |          | N-250-2    |          |           | 8620     | RN-250-2    |              |            |
| 9200-30     |          | N-300-2    |          | A-42870-4 | 8621     | RN-300-2    |              |            |
| 9200-35     |          | N-350-2    |          |           | 8622     | RN-350-2    |              |            |
| 9200-40     |          | N-400-2    | 120-400  | A-42870-1 | 8623     | RN-400-2    |              |            |
| 9200-45     |          | N-450-2    |          |           | 8624     | RN-450-2    |              |            |
| 9200-50     |          | N-500-2    |          |           | 8625     | RN-500-2    |              |            |
| 9200-55     |          | N-550-2    |          |           | 8626     | RN-550-2    |              |            |
| 9200-60     |          | N-600-2    | 120-600  | A-42870-2 | 8627     | RN-600-2    |              |            |
| 9200-65     |          | N-650-2    |          |           | 8628     | RN-650-2    |              |            |
| 9200-70     |          | N-700-2    | 120-700X |           | 8629     | RN-700-2    |              |            |
| 9200-70-3   |          | N-700-3    | 120-700  |           | 8630     | RN-700-3    |              |            |
| 9200-75     |          | N-750-2    |          |           | 8631     | RN-750-2    |              |            |
| 920075-3    |          | N-750-3    |          |           | 8632     | RN-750-3    |              |            |
| 9200-80     |          | N-800-2    | 120-800X |           | 8633     | RN-800-2    |              |            |
| 9200-80-3   |          | N-800-3    | 120-800  |           | 8634     | RN-800-3    |              |            |
| 9200-85     |          | N-850-2    |          |           | 8635     | RN-850-2    |              |            |
| 9200-85-3   |          | N-850-3    |          |           | 8637     | RN-850-3    |              |            |
| 9300-25     | 93-5     | E-250      |          |           |          |             |              |            |
| 9300-30     | 93-6     | E-300      |          |           |          |             |              |            |
| 9300-35     | 93-7     | E-350      |          |           |          |             |              |            |
| 9300-40     | 93-8     | E-400      |          |           |          |             |              |            |
| 9300-45     | 93-9     | E-450      |          |           |          |             |              |            |
| 9300-50     | 93-10    | E-500      |          |           |          |             |              |            |
| 9300-55     | 93-11    | E-550      |          |           |          |             |              |            |
| 9300-60     | 93-12    | E-600      |          |           |          |             |              |            |
| 9300-65     | 93-13    | E-650      |          |           |          |             |              |            |
| 9300-70     | 93-14    | E-700      |          |           |          |             |              |            |
| 9300-75     | 93-15    | E-750      |          |           |          |             |              |            |
| 9300-80     | 93-16    | E-800      |          |           |          |             |              |            |



## Ejectors

| TEK  | Birtcher | Bivar    | Calmark    | Concord  | Keystone | Richco    | SAE  | Scanbe   | HH Smith | Thermalloy |
|------|----------|----------|------------|----------|----------|-----------|------|----------|----------|------------|
| 9062 | 90-2     | LP-06    |            |          |          |           |      |          |          |            |
| 9162 | 91-2     | LP-36    |            |          |          |           |      |          |          |            |
| 9209 | 92-2     | 1209-062 |            |          |          | R1209-062 |      | S209     |          |            |
| 9532 | 95-3     | CP-09    |            |          |          | RCP-09    |      | S200-100 |          |            |
| 9562 | 93-2     | CP-06    | Series 103 | 770-4496 | 8640     | RCP-06    |      | S200     |          |            |
| 9632 | 96-3     | CP-29    |            |          |          | RCP-29    |      | S202-100 |          |            |
| 9662 | 96-2     | CP-26    |            | 770-4497 | 8641     | RCP-26    |      | S202     | 6297     | 5003N      |
| 9732 | 97-3     | CP-39    |            |          |          | RCP-39    |      | S203-100 |          |            |
| 9762 | 97-2     | CP-36    |            | 770-4495 | 8842     | RCP-36    |      | S203     |          | 5009N      |
| 9832 | 98-3     | CP-89    |            |          |          | RCP-89    |      | S208-100 |          |            |
| 9862 | 98-2     | CP-86    | Series 101 | 770-4493 | 8844     | RCP-86    |      | S208     |          | 5005-20N   |
| 9932 | 99-3     | CP-69    |            |          |          | RCP-69    |      |          |          |            |
| 9962 | 99-2     | CP-66    | Series 105 | 770-4494 | 8643     | RCP-66    | 6100 | S-212    |          | 5005-08N   |
| 9990 | 88-125   | CP-00    |            |          |          |           |      |          |          |            |
| 9991 | 86-125   | CP-2     | Series 110 |          | 6200     |           |      | 40080    |          | 5005-09N   |

\*Teknational ejectors are natural nylon. The parts shown are functional equivalents to those offered by other manufacturers.

NOTE: The user is responsible for determining suitability of all materials for the intended use.

## CROSS REFERENCES

## TEKNATIONAL to MILSPEC FSC #24227

Mil M38527C Sup 1 &amp; CID A-A 55485

Mil-I-49466, 2 April 90,  
superseding M38527/08

| Mounting Pads |         | Mounting Pads   |         | PCB Guides     |          |             |           |               |
|---------------|---------|-----------------|---------|----------------|----------|-------------|-----------|---------------|
| Mil. No.      | TEK No. | Mil. No.        | TEK No. | Mil No.        | TEK No.  | Mil No.     | TEK No.   | Descp.        |
| M38527/01-or  |         | M38527/07-or    |         | 84006-01       | 9300-25  | 1-49466/02- |           |               |
| A55485/01-    |         | A55485/07-      |         | 02             | 9300-30  | 001R        | SR-09-04  | TO-3          |
| 030N          | 1018    | 002N            | 2009    | 03             | 9300-35  | 002R        | SB-09-04  | TO-3          |
| 031N          | 1011    | M38527/10 or    |         | 04             | 9300-40  | 003R        | SR-09-05  | TO-3          |
| 033N          | 1029    | A55485/10-      |         | 05             | 9300-45  | 004R        | SB-09-05  | TO-3          |
| 034N          | 1020    | 006N            | 2014    | 06             | 9300-50  | 006R        | SB-09-06  | TO-3          |
| 036N          | 1027    |                 |         | 07             | 9300-55  | 007R        | SB-09-06  | TO-3          |
| 037N          | 1000    | Dip Pad         |         | 08             | 9300-60  | 009R        | SR-09-100 | TO-3          |
| 040N          | 1017    | M38527/06-or    |         | 09             | 9300-65  | 010R        | SB-09-100 | TO-3          |
| 041N          | 3035    | A55485/06 -     |         | 10             | 9300-70  | 011R        | SR-09-09  | TO-3          |
| 044N          | 1030    | 004N            | 4130    | 11             | 9300-75  | 012R        | SR-09-09  | TO-3          |
| 049N          | 1001    | 005N            | 4160    | 12             | 9300-80  | 013R        | SR-09-83  | TO-3          |
|               |         | 006N            | 4180    |                |          | 014R        | SB-09-83  | TO-3          |
| M38527/02-or  |         | 007N            | 4360    |                |          | 016R        | SR-09-12  | TO-3          |
| A55485/02-    |         |                 |         | Deep Channel   |          | 017R        | SR-09-12  | TO-3          |
| 004N          | 4041    | Capacitor Mount |         | Guide          |          | 019R        | SR-09-132 | TO-3          |
| 010N          | 3001    | 008N            | 8100    | 84101-01       | 9425     | 020R        | SB-09-132 | TO-3          |
| 012N          | 4015    | 009N            | 8150    | 02             | 9445     | 022R        | SR-09-14  | TO-3          |
| 013N          | 3027    | 010N            | 8200    | 03             | 9460     | 023R        | SB-09-14  | TO-3          |
| 014N          | 3005    | 017N            | 8250    | 04             | 9480     | 024R        | SR-09-15  | TO-3          |
| 018N          | 3019    | 018N            | 8300    | 22             | 9445-125 | 025R        | SB-09-15  | TO-3          |
| 019N          | 3034    | 019N            | 8350    | 23             | 9460-125 | 026R        | SR-09-24  | TO-66         |
| 020N          | 3005-A  | 020N            | 8400    | 24             | 9480-125 | 027R        | SB-09-24  | TO-66         |
| 027N          | 3030    | 021N            | 8500    | PCB Ejectors   |          | 029R        | SR-09-23  | TO-66         |
| 030N          | 4031    | 023N            | 8201    | 83023-01       | 9762     | 030R        | SR-09-23  | TO-66         |
| 033N          | 4029    | 024N            | 8202    | 02             | 9562     | 031R        | SR-09-25  | TO-66         |
| 039N          | 3005-C  | 025N            | 8203    | 03             | 9662     | 032R        | SB-09-25  | TO-66         |
| 047N          | 3006    | 026N            | 8204    | 04             | 9962     | 034R        | SR-09-26  | TO-66 3 Leads |
|               |         | 027N            | 8205    | 05             | 9732     | 035R        | SB-09-26  | TO-66 3 Leads |
| M38527/03- or |         | 028N            | 8206    | 06             | 9532     | 036R        | SR-09-27  | TO-66 4 Leads |
| A55485/03-    |         |                 |         | 07             | 9632     | 037R        | SB-09-27  | TO-66 4 Leads |
| 002N          | 2001    | Led Spacer*     |         | 08             | 9932     | 038R        | SR-09-19  | TO-3 4 Leads  |
| 004N          | 2018    | 029N            | 5xxx-F  | 18             | 9162     | 039R        | SB-09-19  | TO-3 4 Leads  |
| 007N          | 2010    | 030N            | 5xxx-P  | 19             | 9209     | 040R        | SR-09-20  | TO-3 8 Leads  |
| 008N          | 2017    | 031N            | 5xxx-E  |                |          | 041R        | SB-09-20  | TO-3 8 Leads  |
| 009N          | 2016    | 032N            | 5xxx-Q  | Metal Ejectors |          | 060R        | SR-09-47  | TO-36         |
| 010N          | 2015    | 033N            | 5xxx-A  | 84191-03       | 9191-03  | 061R        | SB-09-47  | TO-36         |
| 013N          | 2028    | 034N            | 5xxx-G  | 04             | 9191-04  | 067R        | SR-09-48  | TO-5          |
| 015N          | 2020    | 035N            | 5xxx-B  |                |          | 068R        | SB-09-48  | TO-5          |
| 017N          | 3032    | 036N            | 5xxx-H  |                |          | 070R        | SR-09-49  | TO-5          |
| M38527/04 or  |         | 037N            | 5xxx-M  |                |          | 071R        | SB-09-49  | TO-5          |
| A55485/04-    |         | 038N            | 5xxx-C  |                |          | 080R        | SR-09-32  | DO-4          |
| 001N          | 4018-A  | 039N            | 5xxx-J  |                |          | 081R        | SB-09-32  | DO-4          |
| 011N          | 4021    | 040N            | 5xxx-K  |                |          | 082R        | SR-09-34  | DO-4          |
| 013N          | 4006    | 041N            | 5xxx-D  |                |          | 083R        | SB-09-34  | DO-4          |
| M38527/06-or  |         | 042N            | 5xxx-L  |                |          | 085R        | SR-09-37  | DO-5          |
| A55485/06 -   |         |                 |         |                |          | 086R        | SB-09-37  | DO-5          |
| 001N          | 4042    |                 |         |                |          | 087R        | SR-09-42  | D5            |
|               |         |                 |         |                |          | 088R        | SB-09-42  | DO-5          |

\*Note: /06-029 thru 042N

The Teknational 5000 Series spacers use a letter suffix (eg "F") which is equal to the DESC three digit suffix (eg "029N = "F"). The "H" dimension of the Teknational part is indicated by the three digits following the "5" (eg 5125-F is .125" long and equals 06/029N-125H).

Mil-I-4946/03, 2 April 90, superseding M38527/08

| Shoulder Washer, PP | Mil. No.    | TEK No.     |
|---------------------|-------------|-------------|
|                     | 1-49466/03- | 001S 7034-P |
|                     |             | 002S 7033-P |
|                     |             | 003S 7032-P |
|                     |             | 004S 7034-P |
|                     |             | 005S 7035-P |
|                     |             | 006S 7036-P |

Tek-Sil SR07 and SR09 meet all specs  
for MIL49456A, Type 1, Grade 3.

TEKNATIONAL to  
Bergquist

| BQ. Material      | TEK. Material |
|-------------------|---------------|
| 7403-09-FR (Gray) | SR-09 (Gray)  |
| 3223-07-FR (Gray) | SR-07 (Gray)  |
| 1009 (Pink)       | SB-09 (Green) |
| 1007 (Pink)       | SB-07 (Green) |
| Example:          |               |
| "Style No."       | "Style No."   |
| 7403-09-FR-04=    | SR-09-100     |
| 3223-07-FR-35=    | SR-07-55      |
| 1009-11=          | SB-09-23      |
| 1007-51=          | SB-07-54      |

| BQ. No. | TEK No. | BQ. No. | TEK No. |
|---------|---------|---------|---------|
| -02     | -14     | -54     | -58     |
| -03     | -4      | -55     | -53     |
| -04     | -100    | -56     | -61     |
| -05     | -83     | -57     | -69     |
| -06     | -11     | -58     | -57     |
| -07     | -15     | -59     | -111    |
| -08     | -47     | -60     | -51     |
| -09     | -48     | -61     | -56     |
| -10     | -22     | -62     | -60     |
| -11     | -23     | -63     | -59     |
| -12     | -114    | -64     | -52     |
| -13     | -116    | -65     | -67     |
| -15     | -13     | -66     | -71     |
| -16     | -16     | -72     | -121    |
| -17     | -9      | -73     | -66     |
| -18     | -5      | -75     | -30     |
| -19     | -31     | -76     | -35     |
| -20     | -32     | -78     | -40     |
| -21     | -37     | -79     | -43     |
| -22     | -34     | -80     | -44     |
| -23     | -6      | -81     | -45     |
| -24     | -12     | -82     | -33     |
| -25     | -42     | -83     | -28     |
| -26     | -38     | -84     | -27     |
| -27     | -39     | -85     | -18     |
| -28     | -41     | -86     | -18     |
| -29     | -7      | -87     | -19     |
| -30     | -24     | -88     | -20     |
| -31     | -25     | -89     | -70     |
| -32     | -46     | -90     | -63     |
| -33     | -49     | -91     | -21     |
| -34     | -144    | -92     | -17     |
| -35     | -55     | -93     | -29     |
| -36     | -75     | -94     | -142    |
| -37     | -76     | -95     | -143    |
| -38     | -77     | -96     | -72     |
| -39     | -78     | -97     | -73     |
| -40     | -79     | -98     | -74     |
| -41     | -80     | -99     | -75     |
| -42     | -68     | -101    | -146    |
| -43     | -64     | -102    | -147    |
| -50     | -50     | -104    | -148    |
| -51     | -54     | -105    | -149    |
| -52     | -62     | -105    | -150    |
| -53     | -65     |         |         |

NOTE: The user is responsible  
for determining suitability of all  
materials for the intended use.

## CROSS REFERENCES

## TEKNATIONAL to BIVAR

Power Device  
Insulators

| Bivar No.    | TEK No.  |
|--------------|----------|
| P1-07-0031-N | SR-07-06 |
| P1-07-0032-N | SR-07-83 |
| P1-07-0041-N | SR-07-34 |
| P1-07-0051-N | SR-07-37 |
| P1-07-0052-N | SR-07-42 |
| P1-07-0661-N | SR-07-24 |
| P1-07-0662-N | SR-07-23 |
| P1-07-2181-N | SR-07-65 |
| P1-07-2182-N | SR-07-96 |
| P1-07-2201-N | SR-07-54 |
| P1-07-2202-N | SR-07-55 |
| P1-07-2203-N | SR-07-57 |
| P1-07-2204-N | SR-07-58 |
| P1-07-2205-N | SR-07-63 |
| P1-09-0031-N | SR-09-06 |
| P1-09-0032-N | SR-09-83 |
| P1-09-0041-N | SR-09-34 |
| P1-09-0051-N | SR-09-37 |
| P1-09-0052-N | SR-09-42 |
| P1-09-0661-N | SR-09-24 |
| P1-09-0662-N | SR-09-23 |
| P1-09-2181-N | SR-09-65 |
| P1-09-2182-N | SR-09-96 |
| P1-09-2201-N | SR-09-54 |
| P1-09-2202-N | SR-09-55 |
| P1-09-2203-N | SR-09-57 |
| P1-09-2204-N | SR-09-58 |
| P1-09-2205-N | SR-09-63 |
| P2-09-0031-N | SB-09-06 |
| P2-09-0032-N | SB-09-83 |
| P2-09-0041-N | SB-09-34 |
| P2-09-0051-N | SB-09-37 |
| P2-09-0052-N | SB-09-42 |
| P2-09-0661-N | SB-09-24 |
| P2-09-0662-N | SB-09-23 |
| P2-09-2181-N | SB-09-65 |
| P2-09-2182-N | SB-09-96 |
| P2-09-2201-N | SB-09-54 |
| P2-09-2202-N | SB-09-55 |
| P2-09-2203-N | SB-09-57 |
| P2-09-2204-N | SB-09-58 |
| P2-09-2205-N | SB-09-63 |

Bivar cross references to  
Card Guides DC,N,S and E  
Series, for Ejectors LP & CP  
Series see page 21

**NOTE: The user is  
responsible for  
determining suitability of  
all materials for the  
intended use.**

## Mounting Pads

| Bivar No. | TEK No. | Bivar No. | TEK No. | Bivar No. | TEK No. |
|-----------|---------|-----------|---------|-----------|---------|
| 101-096   | 1009    | 426-250   | 7009    | 814-060   | 4160    |
| 103-080   | 1002    | 427-327   | 7010    | 814-080   | 4180    |
| 104-020   | 1017    | 428-207   | 7028    | 814-100   | 4200    |
| 105-021   | 1004    | 429-217   | 7029    | 816-030   | 4330    |
| 106-045   | 1001    | 466-380   | 7066-5  | 816-060   | 4360    |
| 107-180   | 1008    | 467-380   | 7066-0  | 816-080   | 4380    |
| 108-021   | 1003    | 468-380   | 7066-1  | 816-100   | 4400    |
| 109-045   | 1011    | 500-080   | 3002    |           |         |
| 110-030   | 1000    | 501-075   | 3008    |           |         |
| 112-040   | 2009    | 502-120   | 3013    |           |         |
| 113-125   | 1015    | 503-075   | 3001    |           |         |
| 115-100   | 1018    | 505-120   | 3011    |           |         |
| 116-060   | 1019    | 506-038   | 3012    |           |         |
| 117-080   | 1020    | 507-100   | 3010    |           |         |
| 118-055   | 1027    | 508-075   | 3006    |           |         |
| 119-096   | 1029    | 509-060   | 3009    |           |         |
| 120-156   | 1030    | 510-110   | 3007    |           |         |
| 121-032   | 1031    | 511-038   | 3005-A  |           |         |
| 200-115   | 2028    | 513-075   | 3008-A  |           |         |
| 200-170   | 2004    | 515-020   | 3019    |           |         |
| 201-150   | 2002    | 517-038   | 3027    |           |         |
| 202-150   | 2007    | 517-095   | 3028    |           |         |
| 203-150   | 2006    | 518-038   | 3041    |           |         |
| 205-085   | 2001    | 519-075   | 3032    |           |         |
| 209-125   | 2015    | 520-021   | 3034    |           |         |
| 211-040   | 2016    | 521-094   | 3035    |           |         |
| 212-087   | 2030    | 524-085   | 3037    |           |         |
| 213-100   | 2018    | 525-038   | 3005    |           |         |
| 214-120   | 2020    | 526-090   | 3045    |           |         |
| 300-100   | 8100    | 527-117   | 3030    |           |         |
| 301-150   | 8150    | 528-117   | 3042    |           |         |
| 302-200   | 8200    | 530-090   | 3038    |           |         |
| 303-090   | 7203    | 531-218   | 3011-A  |           |         |
| 303-469   | 7203-WB | 532-050   | 3011-A  |           |         |
| 311-200   | 8201    | 600-080   | 3003    |           |         |
| 312-250   | 8202    | 601-120   | 3015    |           |         |
| 313-300   | 8203    | 602-038   | 3040    |           |         |
| 315-400   | 8205    | 603-115   | 4030*   |           |         |
| 316-500   | 8206    | 605-085   | 4001*   |           |         |
| 366-090   | 7266    | 606-075   | 4005    |           |         |
| 366-402   | 7266-WB | 607-075   | 4008    |           |         |
| 400-100   | 3004    | 608-090   | 4015    |           |         |
| 401-187   | 5002    | 609-075   | 3018    |           |         |
| 402-120   | 2010    | 610-075   | 4028    |           |         |
| 403-062   | 5001    | 611-075   | 4031    |           |         |
| 405-160   | 7115    | 612-075   | 4040    |           |         |
| 407-220   | 7175    | 615-075   | 4029    |           |         |
| 408-080   | 4013    | 616-070   | 4041    |           |         |
| 409-120   | 7055    | 700-130   | 4002    |           |         |
| 414-125   | 2005    | 701-130   | 4006    |           |         |
| 415-480   | 7003-5  | 702-130   | 4009    |           |         |
| 416-110   | 4011    | 703-250   | 4004    |           |         |
| 416-480   | 7003-0  | 704-250   | 4003    |           |         |
| 417-480   | 7003-1  | 706-250   | 4010    |           |         |
| 422-315   | 2012    | 707-120   | 4012    |           |         |
| 424-040   | 6008    | 709-275   | 4016    |           |         |
| 424-125   | 2125    | 710-275   | 4018    |           |         |
| 424-150   | 2150    | 812-187   | 4022    |           |         |
| 424-175   | 2175    | 814-030   | 4130    |           |         |
| 424-200   | 2200    | 814-045   | 4145    |           |         |
| 425-310   | 7006    | 814-060   | 4160    |           |         |

## Spacers

|     |       |
|-----|-------|
| 901 | 5xxxF |
| 902 | 5xxxE |
| 903 | 5xxxG |
| 904 | 5xxxH |
| 905 | 5xxxD |
| 906 | 5xxxA |
| 907 | 5xxxB |
| 908 | 5xxxC |
| 910 | 5xxxJ |
| 911 | 5xxxK |
| 912 | 5xxxL |
| 913 | 5xxxM |
| 938 | 5xxxP |
| 939 | 5xxxQ |
| 940 | 5xxxT |
| 941 | 5xxxS |

For Teknational spacers  
xxx = "H" dimension for  
the spacer

Example:  
Bivar 901-250 =  
Teknational 5250-F

Other Bivar Cross  
References

|            |           |
|------------|-----------|
| CI192-028  | MY192-028 |
| CI192-050  | MY192-050 |
| CI480-060  | MY480-060 |
| CI480-105  | MY480-105 |
| ECI-1      | MY710     |
| ECI-2      | MY820     |
| SW-125-150 | 7031-P    |
| SW-185-150 | 7032-P    |
| SW-125-140 | 7033-P    |
| SW-031-190 | 7034-P    |
| SW-031-177 | 7035-P    |
| SW-031-145 | 7036-P    |
| SW-032-135 | 7037-P    |
| SW-040-140 | 7038-P    |

TEKNATIONAL to  
KEYSTONESpacers, Standoffs and  
PCBMounts

| KEY<br>No. | TEK<br>No. | KEY<br>No. | TEK<br>No. |
|------------|------------|------------|------------|
| 875        | 5125-K     | 4814       | 6MF- 250   |
| 876        | 5250-K     | 4815       | 6MF- 375   |
| 877        | 5375-K     | 4816       | 6MF- 500   |
| 878        | 5500-K     | 4817       | 6MF- 625   |
| 879        | 5625-K     | 4818       | 6MF- 750   |
| 880        | 5750-K     | 4819       | 6MF- 875   |
| 881        | 5875-K     | 4820       | 6MF-1000   |
| 882        | 5000-1-K   | 4821       | 6MF-1125   |
| 883        | 5125-D     | 4822       | 6MF-1250   |
| 884        | 5250-D     | 4823       | 6MF-1375   |
| 885        | 5375-D     | 4828       | 8MF- 250   |
| 836        | 5500-D     | 4829       | 8MF- 375   |
| 887        | 5625-D     | 4830       | 8MF- 500   |
| 888        | 5750-D     | 4831       | 8MF- 625   |
| 889        | 5875-D     | 4832       | 8MF- 750   |
| 890        | 5000-1-D   | 4833       | 8MF- 875   |
| 891        | 5125-L     | 4884       | 8MF-1000   |
| 892        | 5250-L     | 4835       | 8MF-1125   |
| 893        | 5375-L     | 4836       | 8MF-1250   |
| 894        | 5500-L     | 4837       | 8MF-1375   |
| 895        | 5625-L     | 7351       | 5725-120   |
| 896        | 5750-L     | 7352       | 5725-140   |
| 897        | 5875-L     | 7353       | 5725-160   |
| 89B        | 5000-1-L   | 7354       | 5725-180   |
| 1902A      | 4H-250     | 7355       | 5725-200   |
| 1902B      | 4H-375     | 7356       | 5725-220   |
| 1902C      | 4H-500     | 7357       | 5725-240   |
| 1902F      | 4H-625     | 7358       | 5725-250   |
| 1902D      | 4H-750     | 7359       | 5725-260   |
| 1902G      | 4H-875     | 7360       | 5725-280   |
| 1902E      | 4H-1000    | 7361       | 5725-300   |
| 1903A      | 6H-250     | 7362       | 5725-320   |
| 1903B      | 6H-375     | 7363       | 5725-340   |
| 1903C      | 6H-500     | 7364       | 5725-350   |
| 1903F      | 6H-625     | 7365       | 5725-360   |
| 1903D      | 6H-750     | 7366       | 5725-380   |
| 1903G      | 6H-875     | 7367       | 5725-400   |
| 1903E      | 6H-1000    | 7368       | 5725-420   |
| 1904A      | 8H-250     | 7369       | 5725-440   |
| 1904B      | 8H-375     | 7370       | 5725-450   |
| 1904C      | 8H500      | 7371       | 5725-460   |
| 1904F      | 8H-625     | 7372       | 5725-480   |
| 1904D      | 8H-750     | 7373       | 5725-500   |
| 1904G      | 8H-875     | 7374       | 5725-550   |
| 1904E      | 8H-1000    | 7375       | 5725-600   |
| 4800       | 4MF-250    | 7376       | 5725-650   |
| 4801       | 4MF-375    | 7377       | 5725-700   |
| 4802       | 4MF-500    | 7378       | 5725-750   |
| 4803       | 4MF-625    | 7379       | 5725-800   |
| 4804       | 4MF-750    | 7380       | 5725-850   |
| 4805       | 4MF-875    | 7381       | 5725-900   |
| 4806       | 4MF-1000   |            |            |
| 4807       | 4MF-1125   |            |            |
| 4808       | 4MF-1250   |            |            |
| 4809       | 4MF-1375   |            |            |

Continued on page 24

## CROSS REFERENCES

TEKNATIONAL to  
KEYSTONESpacers, Standoffs and  
PCBMounts

| KEY No. | TEK No.  | KEY No. | TEK No.   |
|---------|----------|---------|-----------|
| 8311    | 5700-120 | 8442F   | 8HV-875   |
| 8312    | 5700-140 | 8842G   | 8HV-1000  |
| 8313    | 5700-160 | 8800    | 5100-187  |
| 8314    | 5700-180 | 8801    | 5100-250  |
| 8315    | 5700-200 | 8802    | 5100-375  |
| 8316    | 5700-220 | 8803    | 5100-500  |
| 8317    | 5700-240 | 8804    | 5100-625  |
| 8318    | 5700-250 | 8805    | 5100-750  |
| 8319    | 5700-260 | 8806    | 5100-875  |
| 8320    | 5700-280 | 8807    | 5800-187  |
| 8321    | 5700-300 | 8808    | 5800-250  |
| 8322    | 5700-320 | 8809    | 5800-375  |
| 8323    | 5700-340 | 8810    | 5800-500  |
| 8324    | 5700-350 | 8811    | 5800-625  |
| 8325    | 5700-360 | 8812    | 5800-750  |
| 8326    | 5700-380 | 8813    | 5800-875  |
| 8327    | 5700-400 | 8814    | 5800-1000 |
| 8328    | 5700-420 | 8815    | 5225-187  |
| 8329    | 5700-440 | 8816    | 5225-250  |
| 8330    | 5700-450 | 8817    | 5225-375  |
| 8331    | 5700-460 | 8818    | 5225-500  |
| 8332    | 5700-480 | 8819    | 5225-625  |
| 8333    | 5700-500 | 8820    | 5225-750  |
| 8334    | 5700-550 | 8821    | 5225-875  |
| 8335    | 5700-600 | 8822    | 5400-187  |
| 8336    | 5700-650 | 8823    | 5400-250  |
| 8337    | 5700-700 | 8824    | 5400-375  |
| 8338    | 5700-750 | 8825    | 5400-500  |
| 8339    | 5700-800 | 8826    | 5400-625  |
| 8340    | 5700-850 | 8827    | 5400-750  |
| 8341    | 5700-900 | 8828    | 5400-875  |
| 8440A   | 4HV-250  | 8829    | 5500-125  |
| 8440B   | 4HV-375  | 8830    | 5500-187  |
| 8440C   | 4HV-500  | 8831    | 5500-250  |
| 8440D   | 4HV-625  | 8832    | 5500-375  |
| 8440E   | 4HV-750  | 8833    | 5500-500  |
| 8440F   | 4HV-875  | 8834    | 5500-625  |
| 8440G   | 4HV-1000 | 8835    | 5525-250  |
| 8441A   | 6HV-250  | 8836    | 5525-375  |
| 8441B   | 6HV-375  | 8837    | 5525-500  |
| 8441C   | 6HV-500  | 8838    | 5525-625  |
| 8441D   | 6HV-625  | 8839    | 5550-250  |
| 8441E   | 6HV-750  | 8840    | 5550-375  |
| 8441F   | 6HV-475  | 8841    | 5550-500  |
| 8441G   | 6HV-1000 | 8842    | 5550-625  |
| 8442A   | 8HV-250  |         |           |
| 8442B   | 8HV-375  |         |           |
| 8442C   | 8HV-500  |         |           |
| 8442D   | 8HV-625  |         |           |
| 8442E   | 8HV-750  |         |           |

Cross references to Card Guides 8620 thru 8637 Series, to Ejectors 8640 thru 8643 Series, Die Cast Handles 7169 thru 7199 Series see page 21

## TEKNATIONAL to Richco

| Richco No.    | TEK No.   | Richco No.    | TEK No.   | Richco No.     | TEK No.   |
|---------------|-----------|---------------|-----------|----------------|-----------|
| CBS-3-01      | 5100-187  | LEDS2M-450-48 | 5700-450  | SRS6-4-01      | 5625-250  |
| CBS-4-01      | 5100-250  | LEDS2M-460-48 | 5700-460  | SRS6-5-01      | 5625-312  |
| CBS-6-01      | 5100-375  | LEDS2M-480-48 | 5700-480  | SRS6-6-01      | 5625-375  |
| CBS-8-01      | 5100-500  | LEDS2M-500-48 | 5700-500  | SRS6-8-01      | 5625-500  |
| CBS-10-01     | 5100-625  | LEDS2M-550-48 | 5700-550  | SRS6-10-01     | 5625-625  |
| CBS-12-01     | 5100-750  | LEDS2M 600-48 | 5700-600  | SRS6-12-01     | 5625-750  |
| CBS-14-01     | 5100-875  | LEDS2M-650-48 | 5700-650  | SRS6-14-01     | 5625-875  |
| DLCBS-3-01    | 5200-187  | LEDS2M-700-48 | 5700-700  | SRS6-16-01     | 5625-1000 |
| DLCBS-4-01    | 5200-250  | LEDS2M-750-48 | 5700-750  | SRS8-4-01      | 5650-250  |
| DLCBS-6-01    | 5200-375  | LEDS2M-800-48 | 5700-800  | SRS8-5-01      | 5650-312  |
| DLCBS-8-01    | 5200-500  | LEDS2M-850-48 | 5700-850  | SRS8-6-01      | 5650-375  |
| DLCBS-10-01   | 5200-625  | LEDS2M-900-48 | 5700-900  | SRS8-8-01      | 5650-500  |
| DLCBS-12-01   | 5200-750  | MNI-HT #4-2   | 7036-P    | SRS8-10-01     | 5650-625  |
| DLCBS-14-01   | 5200-875  | MNI-HT #4-8   | 7031-P    | SRS8-12-01     | 5650-750  |
| DLCBS2-3-01   | 5225-187  | MNI-HT #4-12  | 7032-P    | SRS8-14-01     | 5650-875  |
| DLCBS2-4-01   | 5225-250  | MNI-HT #6-2   | 7034-P    | SRS8-16-01     | 5650-1000 |
| DLCBS2-6-01   | 5225-375  | PS-3-01       | 5400-187  | SSRS4-2-01     | 5500-125  |
| DLCBS2-8-01   | 5225-500  | PS-4-01       | 5400-250  | SSRS4-3-01     | 5500-187  |
| DLCBS2-10-01  | 5225-625  | PS-6-01       | 5400-375  | SSRS4-4-01     | 5500-250  |
| DLCBS2-12-01  | 5225-750  | PS-7-01       | 5400-437  | SSRS4-5-01     | 5500-312  |
| DLCBS2-14-01  | 5225-875  | PS-8-01       | 5400-500  | SSRS4-6-01     | 5500-375  |
| DLCBS3-3-01   | 5250-187  | PS-10-01      | 5400-625  | SSRS4-7-01     | 5500-437  |
| DLCBS3-4-01   | 5250-250  | PS-12-01      | 5400-750  | SSRS4-8-01     | 5500-500  |
| DLCBS3-6-01   | 5250-375  | PS-14-01      | 5400-875  | SSRS4-10-01    | 5500-625  |
| DLCBS3-8-01   | 5250-500  | SP1-3-01      | 5300-187  | SSRS6-4-01     | 5525-250  |
| DLCBS3-10-01  | 5250-625  | SP1-4-01      | 5300-250  | SSRS6-5-01     | 5525-312  |
| DLCBS3-12-01  | 5250-750  | SP1-6-01      | 5300-375  | SSRS6-6-01     | 5525-375  |
| DLCBS3-14-01  | 5250-875  | SP1-8-01      | 5300-500  | SSRS6-7-01     | 5525-437  |
| LCBS-3        | 5800-187  | SP1-10-01     | 5300-625  | SSRS6-8-01     | 5525-500  |
| LCBS-4        | 5800-250  | SP1-12-01     | 5300-750  | SSRS6-10-01    | 5525-625  |
| LCBS-5        | 5800-312  | SP1-14-01     | 5300-875  | SSRS8-4-01     | 5550-250  |
| LCBS-6        | 5800-375  | SP1-16-01     | 5300-1000 | SSRS8-5-01     | 5550-312  |
| LCBS-8        | 5800-500  | SP2-3-01      | 5325-187  | SSRS8-6-01     | 5550-375  |
| LCBS-10       | 5800-625  | SP2-4-01      | 5325-250  | SSRS8-7-01     | 5550-437  |
| LCBS-12       | 5800-750  | SP2-6-01      | 5325-375  | SSRS8-8-01     | 5550-500  |
| LCBS-14       | 5800-875  | SP2-8-01      | 5325-500  | SSRS8-10-01    | 5550-625  |
| LCBS-16       | 5800-1000 | SP2-10-01     | 5325-625  | TO-3-05        | SR-07-83  |
| LCBS-18       | 5800-1125 | SP2-12-01     | 5325-750  | TO-220-68      | SR-07-112 |
| LCBS-20       | 5800-1250 | SP2-14-01     | 5325-875  | TO-218-70      | SR-07-113 |
| LCBS-22       | 5800-1375 | SP2-16-01     | 5325-1000 | IEC TO-220V-18 | 2520      |
| LEDS2M-120-48 | 5700-120  | SP3-3-01      | 5350-187  | IEC TO-218     | 2518      |
| LEDS2M-140-48 | 5700-140  | SP3-4-01      | 5350-250  |                |           |
| LEDS2M-160-48 | 5700-160  | SP3-6-01      | 5350-375  |                |           |
| LEDS2M-180-48 | 5700-180  | SP3-8-01      | 5350-500  |                |           |
| LEDS2M-200-48 | 5700-200  | SP3-10-01     | 5350-625  |                |           |
| LEDS2M-220-48 | 5700-220  | SP3-12-01     | 5350-750  |                |           |
| LEDS2M-240-48 | 5700-240  | SP3-14-01     | 5350-875  |                |           |
| LEDS2M-250-48 | 5700-250  | SP3-16-01     | 5350-1000 |                |           |
| LEDS2M-260-48 | 5700-260  | SRS4-2-01     | 5600-125  |                |           |
| LEDS2M-280-48 | 5700-280  | SRS4-3-01     | 5600-187  |                |           |
| LEDS2M-300-48 | 5700-300  | SRS4-4-01     | 5600-250  |                |           |
| LEDS2M-320-48 | 5700-320  | SRS4-5-01     | 5600-312  |                |           |
| LEDS2M-340-48 | 5700-340  | SRS4-6-01     | 5600-375  |                |           |
| LEDS2M-350-48 | 5700-350  | SRS4-8-01     | 5600-500  |                |           |
| LEDS2M-360-48 | 5700-360  | SRS4-10-01    | 5600-625  |                |           |
| LEDS2M-380-48 | 5700-380  | SRS4-12-01    | 5600-750  |                |           |
| LEDS2M-400-48 | 5700-400  | SRS4-14-01    | 5600-875  |                |           |
| LEDS2M-420-48 | 5700-420  | SRS4-16-01    | 5600-1000 |                |           |
| LEDS2M-440-48 | 5700-440  |               |           |                |           |
| LEDS2M-450-48 | 5700-450  |               |           |                |           |

Cross references to Card Guides RDC Series, RN Series, to Ejectors R1209-062, RCP Series see page 21

## Led Spacers

| Richco No. | TEK No.  | Richco No. | TEK No.  |
|------------|----------|------------|----------|
| R901       | F Series | R908       | C Series |
| R902       | E Series | R910       | J Series |
| R903       | G Series | R911       | K Series |
| R904       | H Series | R912       | L Series |
| R905       | D Series | R913       | M Series |
| R906       | A Series | R938       | P Series |
| R907       | B Series | R939       | Q Series |

Example: Richco R905-2=  
Teknational 5125-D

| Richco No. | TEK No. | Richco No. | TEK No. |
|------------|---------|------------|---------|
| 1          | 5060    | 9          | 5560    |
| 2          | 5125    | 10         | 5625    |
| 3          | 5185    | 11         | 5685    |
| 4          | 5250    | 12         | 5750    |
| 5          | 5310    | 13         | 5810    |
| 6          | 5375    | 14         | 5875    |

# CROSS REFERENCES

## Teknational to Thermalloy

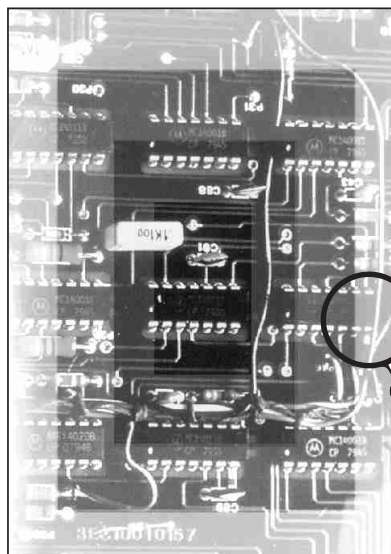
### Mounting Pads

| Therm No. | TEK No. | Therm No. | TEK No. |
|-----------|---------|-----------|---------|
| 7717-2    | 2014    | 7717-153  | 1027    |
| 3         | 3001    | 154       | 3002*   |
| 4         | 3008-A* | 155       | 3033    |
| 5         | 51124   | 156       | 4145    |
| 6         | 3018    | 157       | 1004*   |
| 7         | 51746   | 159       | 3013*   |
| 8         | 4028    | 160       | 2010    |
| 10        | 4031    | 161       | 3032    |
| 11        | 5001*   | 162       | 4017*   |
| 12        | 4040    | 175       | 4013*   |
| 15        | 3019    | 178       | 3034    |
| 16        | 1017    | 188       | 1029    |
| 18        | 1018*   | 189       | 3031    |
| 20        | 4014*   | 190       | 3037    |
| 21        | 4016*   | 192       | 1030    |
| 22        | 3008*   | 193       | 1031    |
| 26        | 2010    | 195       | 3028*   |
| 30        | 4005*   | 198       | 3005    |
| 32        | 4040*   | 201       | 4030*   |
| 38        | 4029    | 205       | 2028    |
| 43        | 2017    | 206       | 3008-A  |
| 44        | 2015    | 207       | 1017    |
| 46        | 1019    | 219       | 3005-A* |
| 79        | 3005-A* | 220       | 1012    |
| 86        | 3008    | 222       | 6008    |
| 89        | 1020    | 224       | 3039    |
| 93        | 2016    | 227       | 3009    |
| 94        | 3027    | 239       | 1180*   |
| 104       | 4016*   | 240       | 3040    |
| 107       | 4012*   | 241       | 4360*   |
| 108       | 1006*   | 247       | 2020*   |
| 109       | 3028    | 248       | 2015    |
| 110       | 1003*   | 251       | 3001    |
| 112       | 1000*   | 252       | 4018*   |
| 114       | 3005-A* | 253       | 4030*   |
| 119       | 4016*   | 330       | 3012    |
| 120       | 4004*   | 337       | 1002    |
| 121       | 2015*   | 342       | 1180*   |
| 122       | 4041*   | 7721-1    | 7031-P  |
| 124       | 1003    | 7721-2    | 7032-P  |
| 125       | 4001*   | 7721-3    | 7033-P  |
| 127       | 3012    | 7721-4    | 7034-P  |
| 128       | 3030    | 7721-5    | 7035-P  |
| 129       | 4013*   | 7721-6    | 7036-P  |
| 130       | 2009    | 7721-7    | 7037-P  |
| 131       | 3041    | 7721-8    | 7038-P  |
| 133       | 2001*   | 7732      | 8202    |
| 135       | 2020*   | 7733      | 8203    |
| 137       | 2018    | 7734      | 8204    |
| 139       | 2015*   | 7735      | 8205    |
| 145       | 2015    | 7736      | 8206    |
| 146       | 1018    | 7737      | 8100    |
| 147       | 4005*   | 7738      | 8150    |
| 148       | 4030*   | 7739      | 8200    |
| 149       | 2020    | 7741      | 7203-WB |
| 151       | 3006*   | 7742      | 7203    |
| 152       | 1011    |           |         |

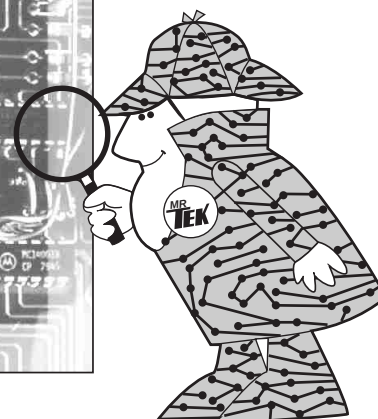
### Thermasil

| Thermalloy No. | TEK No.   | Thermalloy No. | TEK No.   | Thermalloy No. | TEK No.   |
|----------------|-----------|----------------|-----------|----------------|-----------|
| 53-02-10       | SR-06-93  | 54-02-10       | SR-09-93  | 55-02-10       | SR-07-93  |
| 53-02-15       | SR-06-34  | 54-02-15       | SR-09-34  | 55-02-15       | SR-02-34  |
| 53-02-20       | SR-06-42  | 54-02-20       | SR-09-42  | 55-02-20       | SR-07-42  |
| 53-02-25       | SR-06-94  | 54-02-25       | SR-09-94  | 55-02-25       | SR-07-94  |
| 53-02-95       | SR-06-95  | 54-02-95       | SR-09-95  | 55-02-95       | SR-07-95  |
| 53-02-102      | SR-06-173 | 54-02-102      | SR-09-173 | 55-02-102      | SR-07-173 |
| 50-02-103      | SR-06-96  | 54-02-103      | SR-09-96  | 55-02-103      | SR-07-96  |
| 53-03-02       | SR-06-90  | 54-03-102      | SR-09-90  | 55-03-02       | SR-07-90  |
| 53-03-11       | SR-06-91  | 54-03-11       | SR-09-91  | 55-03-11       | SR-07-91  |
| 53-03-12       | SR-06-83  | 54-03-12       | SR-09-83  | 55-03-12       | SR-07-83  |
| 53-03-14       | SR-06-05  | 54-03-14       | SR-09-05  | 55-03-14       | SR-07-05  |
| 53-03-15       | SR-06-172 | 54-03-15       | SR-09-172 | 55-03-15       | SR-07-172 |
| 53-03-16       | SR-06-12  | 54-03-16       | SR-09-12  | 55-03-16       | SR-07-12  |
| 53-66-2        | SR-06-23  | 54-66-2        | SR-09-23  | 55-66-2        | SR-07-23  |
| 53-66-9        | SR-06-92  | 54-66-9        | SR-09-92  | 55-66-9        | SR-07-92  |
| 53-66-10       | SR-06-24  | 54-66-10       | SR-09-24  | 55-66-10       | SR-07-24  |
| 53-66-11       | SR-06-25  | 54-66-11       | SR-09-25  | 55-66-11       | SR-07-25  |
| 53-77-2        | SR-06-54  | 54-77-2        | SR-09-93  | 55-77-2        | SR-07-54  |
| 53-77-3        | SR-06-97  | 54-77-3        | SR-07-54  | 55-77-3        | SR-07-97  |
| 53-77-4        | SR-06-58  | 54-77-4        | SR-09-97  | 55-77-4        | SR-07-58  |
| 53-77-5        | SR-06-98  | 54-77-5        | SR-09-58  | 55-77-5        | SR-07-98  |
| 53-77-9        | SR-06-81  | 54-77-9        | SR-09-98  | 55-77-9        | SR-07-81  |
| 53-77-10       | SR-06-99  | 5477-10        | SR-09-81  | 55-77-10       | SR-07-99  |
| 53-77-11       | SR-06-101 | 54-77-11       | SR-09-99  | 55-77-11       | SR-07-101 |
| 53-77-13       | SR-06-55  | 54-77-13       | SR-09-101 | 55-77-13       | SR-07-55  |
| 53-78-1        | SR-06-102 | 55-78-1        | SR-07-102 | 55-78-1        | SR-07-102 |
| (no hole)      |           | (no hole)      |           | (no hole)      |           |
| 53-78-3        | SR-06-103 | 55-78-3        | SR-07-103 | 55-78-3        | SR-07-103 |
| (no hole)      |           | (no hole)      |           | (no hole)      |           |

\* Teknational parts marked with an asterisk are recommended substitutes which perform equally in function to the part referenced. Overall appearance and dimensions may be different.



*Mr TEK always on the look out for new solutions to your PCB assembly problems.*



Cross References to 8820 Guides and 5003-5009 ejectors on page 21