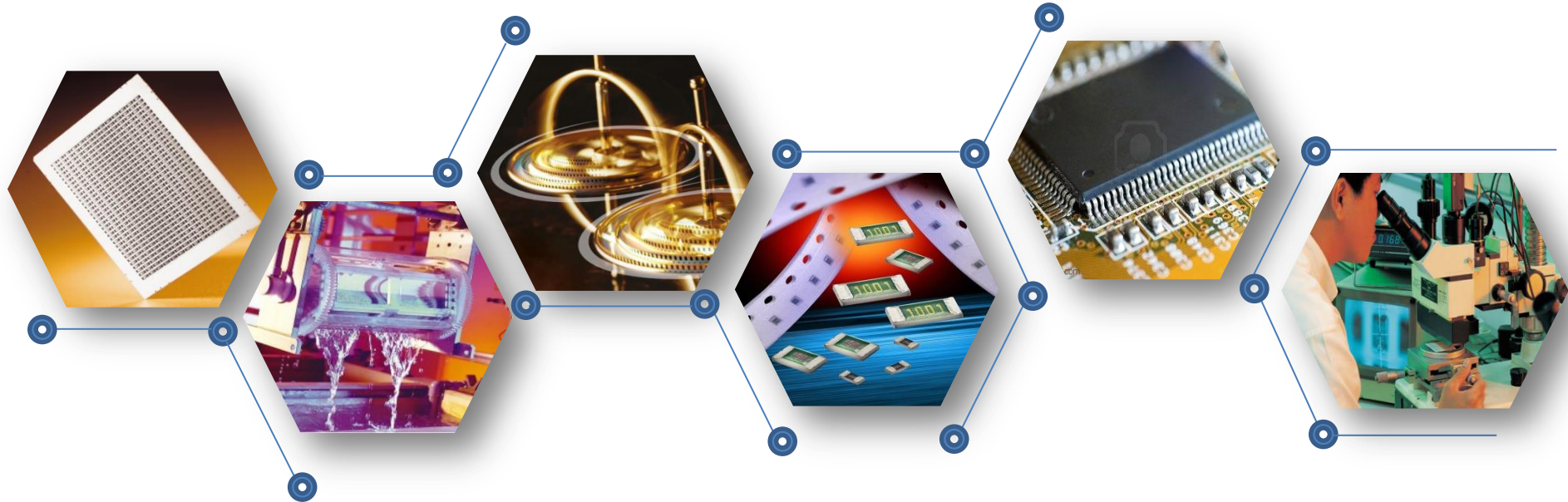




Subsidiary of Ralec Electronic Corp.



ASJ

Formation of ASJ Pte Ltd in Singapore



- Public listed in SGX (SG Stock Exchange) in 1997
- ISO9002 in 1995

- Set-up 2nd mfg plant in JB, Malaysia

ISO9001:2000 in 2003

- Acquisition of CRL Components Pte Ltd in 2008

- Expand cap. to 5B/mth
- Transfer of SG mfg to Malaysia
- ISO14001 in 2009

- Expand cap. to 10B/mth
- TS16949 in 2011
- OHSAS18001 & EICC Compliance

- ASJ Holdings delisted from SGX

- Expand cap. to 12B/mth
- Groundbreaking ceremony for Senai 2nd plant in Nov 2016

1980

1994

1995~99

2000~01

2002~05

2007~09

2010~13

2014

2015~16

2017

RALEC

Founded in Kaohsiung (KHH), Taiwan



- ISO9002 in 1996
- Public listed in Taiwan Stock Exchange in 1998
- ISO9001/QS9000 in 1999

- ISO14001/ OHSAS 18001 (KHH) in 2001



- Full process production in Kunshan, China in 2002
- Sony Green partner
- ISO9001/14001 (KSN)
- RoHs compliance in 2005

- KSN plant reach 10B shipment/mth
- QC080000 (KSN) in 2007

- Acquired (GCT) Giant Chip Tech in 2011
- TS16949 in 2010
- KSN plant reached 15B shipment/mth
- KHH expand cap. to 30M/mth for Metal Alloys

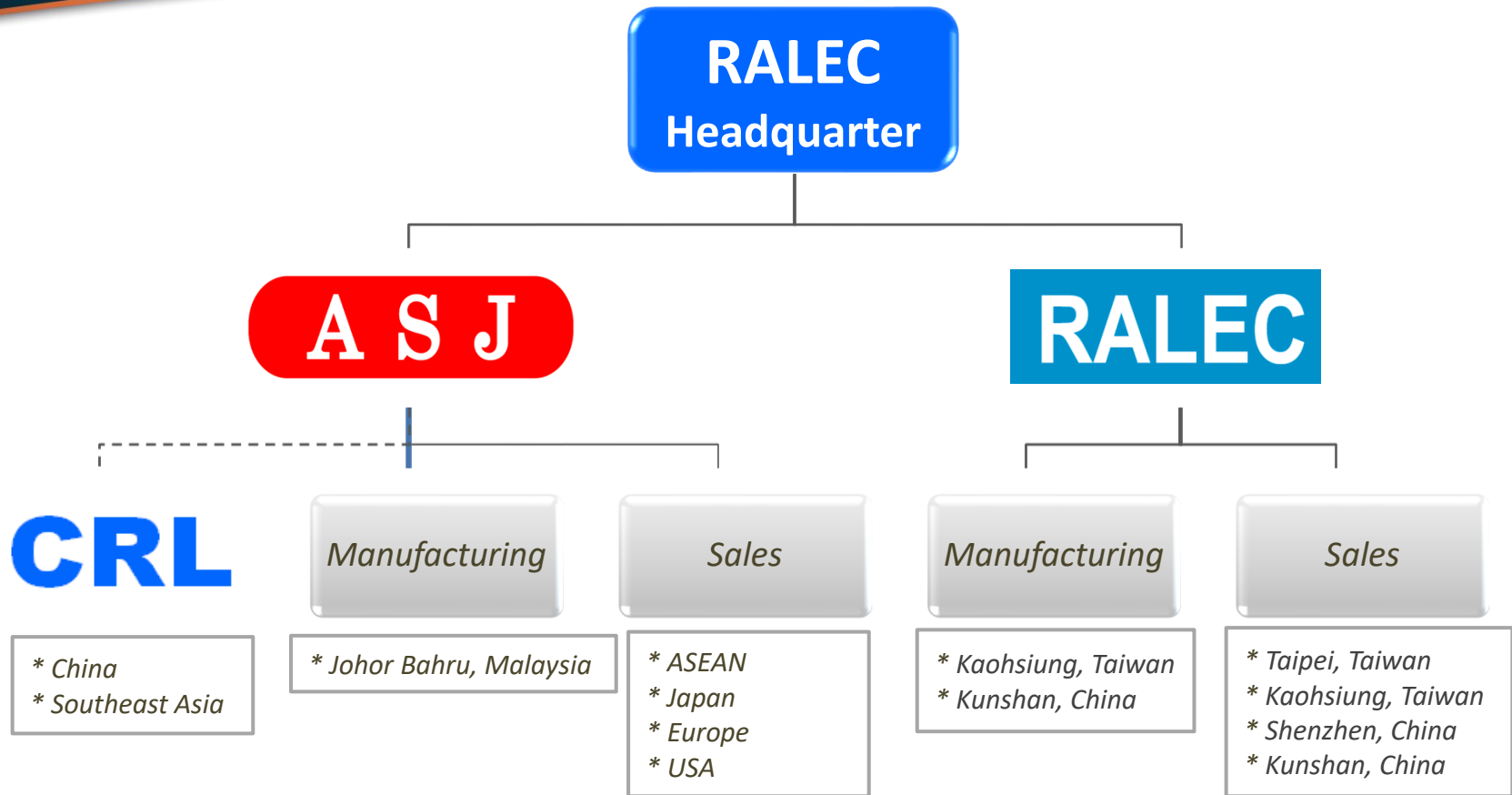
- RALEC acquired ASJ as it's wholly-owned subsidiary



- KSN plant reach 23B shipment in Sept 2016
- KHH expand capacity to 65M/mth for Metal Alloys

- CHILISIN, a Taiwanese-based co. acquired Ralec in June 2017

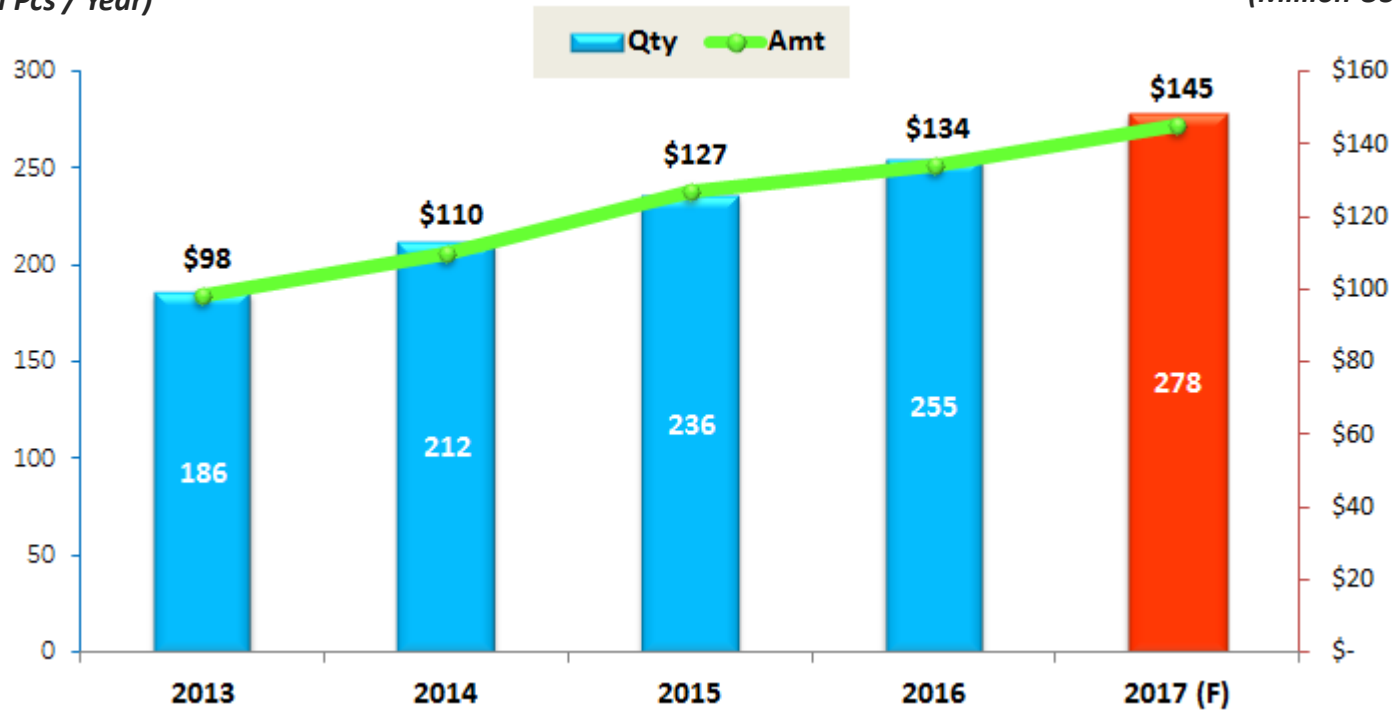




Group Performance

*Shipment Qty
(Billion Pcs / Year)*

*Revenue
(Million US\$ / Year)*





Kaohsiung, Taiwan

- *Land Space:* **8,360m²**
- *Employees:* **350**
- *Capacity:* **Metal Element – 65Mpcs/mth**
- *Certifications:* **ISO 9001 / ISO 14001 / TS16949 / OHSAS 18001 / QS 9000 / SONY GP / Samsung ECO**



Kunshan, China

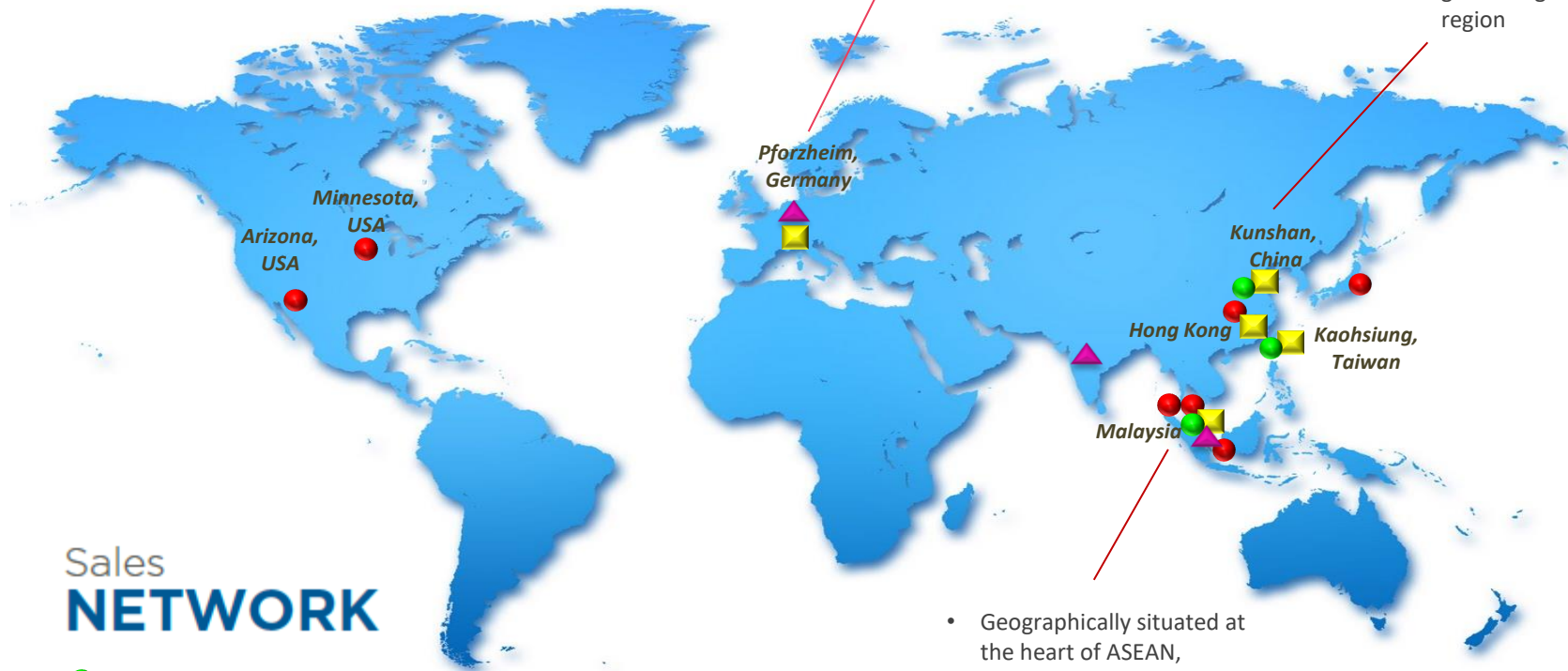
- *Land Space:* **120,770m²**
- *Employees:* **1,000**
- *Capacity:* **20Bpcs/mth**
- *Certifications:* **ISO 9001 / ISO 14001 / TS16949 / QC 080000 / SONY GP**



Johor Bahru, Malaysia

- *Land Space:* **11,100m²**
- *Employees:* **600**
- *Capacity:* **12Bpcs/mth**
- *Certifications:* **ISO 9001 / ISO 14001 / TS16949 / OHSAS 18001 / EICC Compliance**

- State-of-the-art warehouse logistics control
- Logistic systems available – Deliver Plan, KANBAN, Consignment
- Fully-developed logistics systems in all mfg plants & inventory hubs meets the global largest demand region



Sales NETWORK

- Manufacturing Plant
- Warehouse
- Sales Offices / Representatives
- ▲ Distribution

- Geographically situated at the heart of ASEAN, ASJ MY factory serves as distributing hub to all key ASEAN customers

Customers by Market Segments

A S J

Subsidiary of Ralec Electronic Corp.



• Automotive



• Communication



• Computing

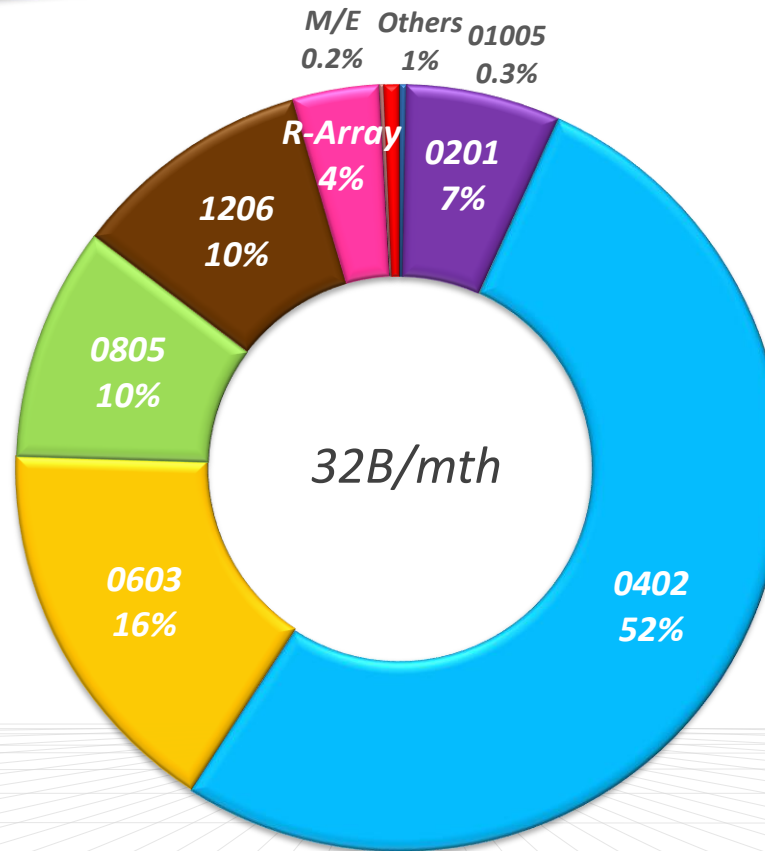


• Consumer



• Others





- *Production capacity is 32B/month and ranks 2nd in terms of global production capacity*
- *ASJ offers wide range of resistors from ultra small to bigger sizes, resistors array & specialty products*
- *Smaller case sizes 0201 & 0402 occupy more than 50% of production due to increasing market demand on smaller and lightweight electronic devices*

Certifications

A S J

Subsidiary of Ralec Electronic Corp.



• Thick Film

CR Series

Commodity (General Purpose)

- ❖ 01005 ~ 2512
- ❖ Other sizes available upon request: 1218, 1812, 0612

CR Series Low Ohm, Low TCR

- ❖ 0402 ~ 2512
- ❖ $\pm 100\text{ppm}/^\circ\text{C}$ for 1Ω to 9.99Ω

CR Series Precision Grade

- ❖ 0402 ~ 2512
- ❖ Tol: $\pm 0.5\%$, T.C.R: $\pm 50\text{ppm}/^\circ\text{C}$

CR Series High Ohm

- ❖ 0402 ~ 2512
- ❖ $10\text{M}\Omega \sim 27\text{M}\Omega$

SAS Series Anti-Sulphur

- ❖ 0201 ~ 2512



• Thin Film

CT Series General Purpose

- ❖ 0402 ~ 2512
- ❖ Tolerance: $\pm 1\%$,
- ❖ T.C.R: $\pm 50\text{ppm}/^\circ\text{C}$

CT Series High Precision, High Stability

- ❖ 0402 ~ 2512
- ❖ Tol: $\pm 0.05\%$, $\pm 0.1\%$, $\pm 0.25\%$, $\pm 0.5\%$
- ❖ T.C.R: ± 10 , ± 15 , ± 25 , $\pm 50\text{ppm}/^\circ\text{C}$

• Current Sensing

CR Series Milli-Ohm

- ❖ 0402 ~ 2512 / $0.1\Omega \sim 0.99\Omega$

CR Series Ultra-Low Ohm

- ❖ 0402 ~ 2512 / $0.01\Omega \sim 0.09\Omega$

CLP Series

Ultra-Low Ohm, High Power

- ❖ 0402 ~ 2512 / $0.01\Omega \sim 0.09\Omega$



• Current Sensing

CLS Series Metal Element

- ❖ 1206 ~ 4527
- ❖ $0.2\text{m}\Omega \sim 200\text{m}\Omega$
- ❖ T.C.R: $\pm 25 \sim \pm 450\text{ppm}/^\circ\text{C}$
- ❖ Customize resistance value is available

CLE Series Metal Element

- ❖ 0402 ~ 1206
- ❖ Wide terminal size 0508 & 0612
- ❖ $1\text{m}\Omega \sim 75\text{m}\Omega$
- ❖ Customize resistance value is available

CLS Shunt Series

- ❖ 3921 & 5931
- ❖ Power Rating up to 10W
- ❖ Current detection under high current circuit



• Power Chip

CPW Series High Power

- ❖ 0402 ~ 2512

CPH Series High Voltage

- ❖ 0603 ~ 2512

CPS Series Anti-Surge

- ❖ 0603, 0805, 1206



• Arrays & Networks

YCN Series Thick Film R- Array

- ❖ $0201 \times 2 / 4$
- ❖ $0402 \times 2 / 4 / 8$
- ❖ $0603 \times 2 / 4$
- ❖ $0201 \times 2 / 4$ (Flat Type)

YAS Series Thick Film Anti-Sulphur Chip Array

- ❖ $0402 \times 2 / 4$
- ❖ $0603 \times 2 / 4$



YCN Series Thick Film Chip Network

- ❖ 3216



Product Roadmap

A S J

Subsidiary of Ralec Electronic Corp.

• 2015

Thick Film Chip Res 0612,1020,1225
EU Pb free components

Thick Film Low Ohm
0201

Wide Terminal Thick Film
0508, 0612, 1020, 1218, 1225

High Voltage Chip Res 0603
CPH16

Anti-Sulphur Reverse Flat Type
Thick-Film R-Array
0201 x 2 & 0201 x 4
YAS052RF, YAS054RF

M/E Current Sensing Power
Upgrade
CLS/CLE Series
0508 (1W)
0603 (1/3W)
1206 (1.5W)
Shunt 3921 (3/5W)
Shunt 5931 (5W,7W)

• 2016

Thick Film Chip Res 0508, 1218
EU Pb free components

Array Thick Film Chip Res
0402x2, 0402x4
EU Pb free components

High Voltage Chip Res 0402
CPH10

Anti-Sulphur 0805
Low Ohmic 0<R<1

Anti-Surge 0603
CPS16

Metal Element Current
Sensing Power Upgrade
CLS/CLE Series
0402 (1/5W)
0603 (1/5W)
0805 (1/2W, 3/4W)
1206 (1W)
Shunt 5931 (10W)

• 2017

Thick Film Low Ohm Chip Res
0508, 0612

Reverse Flat Type Chip
R-Array Thick Film 01005 x 2
YCN032F

High Voltage Chip Res
1210 ~ 2512
CPH40, CPH50, CPH63

Anti-Sulphur Wide Terminal
Thick Film Res
0508, 0612, 1020

Anti-Surge 0402, 1210, 2010, 2512
CPS10, CPS40, CPS50, CPS63

Anti-Sulphur Surge Chip Res
0805, 1206

Metal Element Current Sensing
Power Upgrade
CLS/CLE Series
0612 (1W/1.5W)
0603 (1/2W)
0612 (4-Terminal)

• 2018

Thick Film Chip Res 0402 ~2512
EU Pb free components

Thick Film Chip Res R-Array
0201x2, 0201x4
EU Pb free components

Anti-Sulphur Wide Terminal
Thick Film Res
1218, 1225

Anti-Sulphur Surge Chip Res
1206 ~ 2512

Metal Element Current Sensing
Chip Res
CLS/CLE Series
0805 (1W)
1225
0204 (4-Terminal)
0306 (4-Terminal)
1225 (4-Terminal)



MANUFACTURING / WAREHOUSE

MALAYSIA

ASJ COMPONENTS (M) SDN BHD   
PTD 37440, Jalan Perindustrian Senai 3
Kawasan Perindustrian Senai Fasa 2
81400 Senai, Johor, Malaysia
Tel : (607) 597 7800
Fax : (607) 598 7946

CHINA

RALEC ELECTRONIC CORPORATION  
333 Huang Pu Jiang Road
Kunshan, JS, China
Tel : (86) 512 5770 9898
Fax : (86) 512 5770 9977

TAIWAN

RALEC ELECTRONIC CORPORATION  
No. 1, Central 2nd Street
Nantze Export Processing Zone
Kaohsiung, Taiwan, R.O.C
Tel : (886) 7 366 1067
Fax : (886) 7 362 2258

HONGKONG WAREHOUSE

ASJ (HONG KONG) LIMITED 
Unit nos.324 to 325
3rd Flr. Hi-Tech Centre
No.9 Choi Yuen Road
Sheung Shui, N.T., Hong Kong
Tel : (852) 2672 6363
Fax : (852) 2672 2002

SALES OFFICES

SINGAPORE

ASJ PTE LTD 
514 Chai Chee Lane #05-05/06
Bedok Industrial Estate
Singapore 469029
Tel : (65) 6412 0800
Fax : (65) 6412 0808
Web : www.asj.com.sg

CHINA

ASJ (SHENZHEN) 
Room 802, Bao Hong Lin Building
N4-1 Area, Bao An Center District
Shenzhen, China 518102
Tel : (86) 755 2723 5222
Fax : (86) 755 2723 5960

JAPAN

ASJ (JAPAN) 
206 Juldinet, 3-319Iko, Adachi ku
Tokyo, Japan
Tel : (81) 3 6313 3729

MALAYSIA

ASJ MALAYSIA (PENANG) 
16A (1st Floor), Jalan Todak 3
Pusat Bandar Seberang Jaya
13700 Prai, Pulau Pinang
Penang Malaysia
Tel : (604) 380 9890
Fax : (604) 397 3137

USA

ASJ (U.S.A) 
683 N. Sierra Avenue
Nogales, AZ 85621
Tel : (520) 313 8944

DISTRIBUTION

SOUTHEAST ASIA

CRL COMPONENTS (S) LTD 
514 Chai Chee Lane #05-05/06
Bedok Industrial Estate
Singapore 469029
Tel : (65) 6412 0800
Fax : (65) 6412 0808
Web : www.asj.com.sg

EUROPE

RUTRONIK ELEKTRONISCHE BAUELEMENTE GMBH 
Industriestraße 2
75228 Inspringen, Germany
Tel : (49) 7231 8010
Fax : (49) 7231 82282
Web : www.rutronik.com

INDIA

MILLENNIUM SEMICONDUCTORS 
17/18/19, 2nd Floor, Mahalaxmi Heights
Mumbai Pune Road, Pimpri, Pune 411018
Maharashtra, India
Tel : (91) 20 2748 4800
Fax : (91) 20 2742 1486
Web: www.millenniumsemi.com



