

Circuit Protection Components



About Yageo

Established in 1977, the Yageo Corporation has become the world's leading total service provider of passive components with capabilities on a global scale, including production and sales facilities in Asia, Europe and the Americas. Yageo has a strong global footprint 37 sales/service offices in 17 countries, 11 manufacturing sites, 6 JIT logistic hubs and 6 R&D centers worldwide.

The corporation provides one-stop-shopping, offering its complete product portfolio of resistors, capacitors and wireless components to meet the diverse requirements of customers.

Yageo's broad product offerings are targeting at key vertical markets, including applications for consumer electronics, computers & peripherals, industrial/power, alternative energy, telecommunication and automotive. We serve diversified leading global customers, such as EMS, ODM, OEM and distributors.



TVS (Transient Voltage Suppressors)

TVS has fast response speed to against overvoltage spikes. It has low dynamic internal resistance and excellent clamping capability. Yageo offers different packages in TVS products and the working voltage of TVS diodes are from 3.3 to 600V (and can be even higher). TVS diodes are used in unidirectional or bidirectional of data transmission lines in electronic circuits.

Applications

- DC power supply
- Security surveillance
- Telecom
- Automotive



Series	Package	Power	Figure
SMAJ / P4SMA	DO214AC	400W	
SMAJ-HP	DO214AC	500W	
SMBJ / P6SMB	DO214AA	600W	
1.0SMB	DO214AA	1000W	
SMCJ / 1.5SMC	DO214AB	1500W	
SMDJ / 5.0SMDJ	DO-214AB	3000W / 5000W	
SMEJ XXAG	DO-218AB	6600W / 8000W	
P4KE	DO-41	400W	
P6KE	DO-15	600W	
SA / SAC	DO-15	500W	
1.5KE / LCE	DO-201	1500W	
3KP	P600	3000W	
5KP	P600	5000W	
15KPA (High Power)	P600	15000W	
20KPA (High Power)	P600	20000W	
30KPA (High Power)	P600	30000W	
HF-L		Ipp(kA):3/6/10/16	
HF-C		Ipp(kA):3/6/10	
HF-S		Ipp(kA):3/6/10	
ATN		V _{RWM} : 20~36V	
ATS	P600	5000W / 10000W	



ESD (Electrostatic Discharge Protection Devices)

ESD is also known as TVS array. It has excellent clamping capability and low capacitance (under 1pF) which can meet the quality requirement of application in high speed data interface. Yageo provides high design flexibility for capacitance, configuration, and pulse load capability in ESD solutions for the usage in different applications.

Applications

- High speed networking
- Smart phone
- Industrial
- Consumer



Part Number (Reference)	Internal Configuration	V _{RWM} (V)	V _{BRMIN} (V)	CJMAX @0Vdc 1MHz(pF)	Peak Power Dissipation 8/20 μs(W)	I _R @V _{RWM} (μA)	Package
SBD52C05L01		5.0	5.6	30.0	150.0	5.0	SOD-523
UDD32C03L01		3.3	4.0	2.0	350.0	5.0	SOD-323
UDT26A05L05UL		5.0	6.0	1.5	N/A	5.0	SOT23-6L
SJD12AXXL01		5~170	6.0~180	15~200	1000.0	1.0	SOD-123S
UAD8C05L01		5.0	6.0	0.4	N/A	1.0	SOD-882
UET14A05L03		5.0	6.0	0.8	N/A	5.0	SOT-143
SET23A05L02		5.0	6.0	220.0	N/A	5.0	SOT-23
LAD92C5.0L01		5.0	5.6	15.0	100.0	1.0	SOD-923
UBQ10A05L04HI		5.0	6.0	0.6	N/A	1.0	QFN-10
UFS08A2.8L04		2.8	3.0	5.0	600.0	5.0	SOIC-08
SDD32A05L01		5.0	6.0	350.0	320.0	10.0	SOT-323
LES16C05L08		5.0	6.0	15.0	500.0	10.0	SOIC-16
UEDF3A3.3L04		3.3	3.8	5.0	N/A	1.0	DFN3020
UTDF28A125L04		12	13.5	550	N/A	1.0	DFN2018
STD22A07L01		7	7.3	2500	N/A	1.0	DFN2020
SJD16A07L01		7	7.3	800	N/A	1.0	DFN1610
UAD20A05L04		5	6	0.6	N/A	1.0	DFN2010
UAD38A05L08		5	6	0.6	N/A	1.0	DFN3810
UAT56A03L05		3.3	4.5	0.5	N/A	1.0	SOT-563
UAT36A03L05		3.3	4.5	5	N/A	1.0	SOT-363
LAQ02A05L01		5	6	40	N/A	1.0	0201

MOV (Metal Oxide Varistors)

MOV has fast response speed to against overvoltage spikes and good surge energy absorption capability. It is usually used in lightning surge protection in the input of AC power lines.

Applications

- AC power supply • Telecom • Circuit breaker • Consumer • SPD (Surge Protection Devices)
- LED driver • Smart meter



Series	Diameter	Surge Current	Figure
5D	5mm	100~800A	
7D	7mm	250~1750A	
10D	10mm	500~3500A	
14D	14mm	1000~6000A	
20D	20mm	2000~10000A	
25D	25mm	4500~15000A	
32D	32mm	20000~25000A	
34S	34mm	30000~40000A	
40D	40mm	30000~40000A	
53D	53mm	70000A	
TMOV 14D	14mm	4500~6000A	
TMOV 20D	20mm	3000~10000A	
TMOV 25D	25mm	15000A	
5H	5mm	100~800A	
7H	7mm	250~1750A	
10H	10mm	500~3500A	
14H	14mm	1000~6000A	
20H	20mm	2000~10000A	



GDT (Gas Discharge Tubes)

GDT is a good solution for surge protection. The insulation resistance of GDT is over $1G\Omega$, which achieves low degradation speed and high reliability. Yageo offers different packages including SMD and DIP type GDT. GDT with two-electrode, three- electrode are both available.

Applications

- Telecom • High speed networking (e.g. coaxial cable, Ethernet connection) • Industrial • Power Supply



Series	Dimension	Discharge Current	Figure
B32	3216(1206)	500A	
4532	4532(1812)	2000A	
2R-4	4.2*4.0mm	3000A	
2R-5	5.5*6.0mm	5000-10000A	
2R-6	6.2*4.2mm	3000-5000A	
2R-8*6	8.0*6.0mm	10000-20000A	
2R-8*6 (D1)	8.0*6.0mm	20000A	
2R-8*6 (S)	8.0*6.0mm	10000-20000A	
2R-8*8	8.0*8.0mm	2500-5000A	
3R-5S	5.0*7.2mm	5000A	
3R-5SS	5.0*7.2mm	5000-10000A	
3R-6	6.0*8.5mm	5000-10000A	
3R-8	8.0*10.0mm	10000-20000A	
3R-8 (SDSn)	8.0*10.5mm	10000-20000A	
3R-8T	8.0*10.0mm	10000A	
HIGH CURRENT	11.5*16.0mm	60000-100000A	

SPG (SPark Gap Protectors)

SPG has low junction capacitance ($< 2\text{pF}$) which can meet the quality requirement of application in telecommunication. SPG has faster response speed ($\text{GDT} \leq 100\text{nS}$, $\text{SPG} \leq 1\text{nS}$) than GDT. Yageo offers SPG products in both SMD and DIP type package for different application requirements.

Applications

- Power supply
- Telecom
- Safety surveillance
- Industrial



Series	Diameter	Surge Current	Figure
BK1-M	3.3*6.0mm	3000A	
BK1-M (S)	3.2*6.0mm	3000A	
BK1-HG	4.1*10.5mm	3000A	
BK2-M	2.8*5.0mm	1000A	
BK3-M	1.4*3.4mm	300A	
BK3-M(H)	2.1*4.0mm	500A	
BK1	3.1*4.0mm	3000A	
BK1-H	4.1*9.0mm	3000A	
BK2	2.6*4.3mm	1000A	
BK3	2.0*4.0mm	500A	



PPTC (Polymeric Positive Temperature Coefficient Thermistor)

PPTC is also known as resettable fuse. It has very low resistance under normal working status, no impact on the working circuit. The response speed of PPTC is from few dozen ms to few seconds level. It is proportional to the current value. Yageo provides SMD (case size: 0603 ~ 2920) and DIP package types for the usage in different applications.

Applications

- Industrial • Smart meter • Measuring instrument • Telecom



Series	I(hold)	Vmax	Figure
SMD 0603	0.10~0.50A	6-24V	
SMD 1206	0.125~2.00A	6-30V	
SMD 0805	0.10~1.10A	6-15V	
SMD 1812	0.10~3.00A	6-60V	
SMD 1210	0.05~ 2.00A	6-30V	
SMD 2016	0.30~2.00A	6-60V	
SMD 2920	0.30~5.00A	6-60V	
BK16	3.0~14A	16V	
BK30	0.9~9.0A	30V	
BK60	0.05~3.75A	60V	
BK130	0.1~1.35A	130V	
BK250	0.03~0.80A	250V	
BK600	0.11~0.16A	500V	

TSS (Thyristor Surge Suppressors)

TSS has fast response speed and excellent clamping capability to against overvoltage spikes. Low leak current (in mA~100 μ A level) and junction capacitance (in 10~100pF level) features can meet the quality requirement in data transmission and low power consumption circuits. Yageo offers various packages in SMD and DIP types for different application requirements.

Applications

- Telecom
- Industrial
- Smart meter
- Security surveillance



Series	V _{max}	I(hold)	Figure
DO-214AC/SMA	6-320V	50-150mA	
DO-214AA/SMB	6-600V	30-150mA	
DO-15 DO-201	6-320V	50-150mA	
SOP-8	- 170V	- 150mA	

NTC (Negative Temperature Coefficient Thermistor)

Yageo NTC products have excellent thermal cycle endurance and provide high capability of surge current protection. Yageo offers radial leaded NTC in diameter from 5mm to 25mm.

Applications

- Switch mode power supply • UPS • Transformer • Home appliance



Series	Resistance	I _{max}	Figure
5D	4~45Ω	0.25~2A	
8D	3~33Ω	1.5~4A	
10D	1~150Ω	1~5A	
13D	1~60Ω	2~7A	
15D	0.7~120Ω	2~9A	
20D	0.7~120Ω	2~12A	
25D	0.7~20Ω	5~22A	

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