

RoHS TwinChip™ Axial Series



Description

The TwinChip™ Axial Series SIDACtor® provides a Broadband Optimized™ overvoltage protection solution for Customer Premises Equipment (CPE) such as DSL modems and VoIP terminal equipment. By utilizing TwinChip™ Technology, this series of products can deliver the speed of Thyristor protection along with lower capacitance that mitigates interference with high speed broadband signals. The product series is packaged in an economical DO-15 making it an ideal replacement for GDT or Spark gap protectors.

Agency Approvals

Agency	Agency File Number
	E 133083

Features & Benefits

- RoHS compliant
- Bidirectional transient voltage protection
- Axial through-hole component
- Teccor® branded SIDACtor technology

Schematic Symbol



Protection Solution for

- YD/T 950
- YD/T 993
- YD/T 1082
- GR1089 Intra-building
- IEC 61000-4-5
- ITU K.20/21 Basic Level
- TIA-968-A

Electrical Characteristics


Part Number	Marking	$V_{DRM} @ I_{DRM}=5\mu A$	$V_S @ 100V/\mu S$	I_H	I_S	$I_T @ V_T$	$V_T @ I_T = 2.2 \text{ amp}$	Capacitance @ 1MHz @ 2V bias	
		Volts	Volts	mAmps	mAmps	Amps	Volts	pF	
		Min	Max	Min			Max	Min	Max
P2602G_LRP	P26B	220	300	150	800	1.0	8	15	25
P3002G_LRP	P30B	280	360	150	800	1.0	8	10	20
P3502G_LRP	P35B	320	400	150	800	1.0	8	10	20

- All measurements are made at an ambient temperature of 25°C. I_{PP} applies to -40°C through +85°C temperature range.
- I_{PP} is a repetitive surge rating and is guaranteed for the life of the product.
- Listed SIDACtor device are bidirectional. All electrical parameters and surge ratings apply to forward and reverse polarities.
- V_S is measured at 100V/μs.
- Specifications are subject to change without notice.

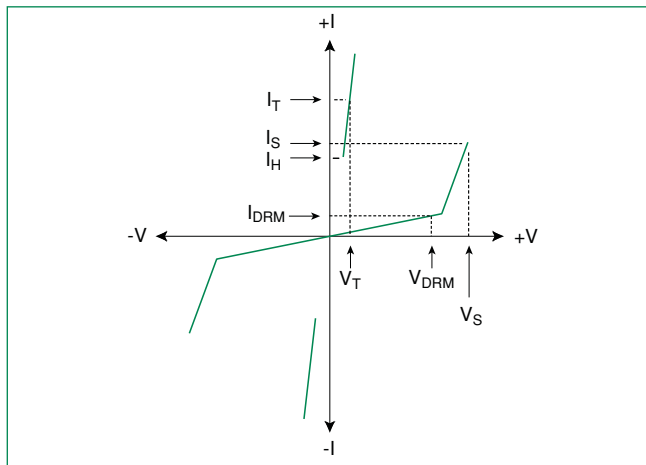
Surge Ratings

Series	I_{PP}	
	10x560 μ s	10x1000 μ s
	Amps Min	Amps Min
A	50	50
B	100	80

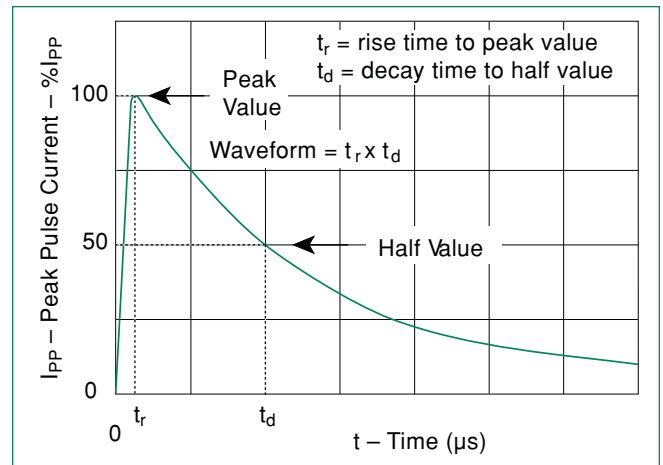
Thermal Considerations

Package	Symbol	Parameter	Value	Unit
 DO-15 Plastic	T_J	Operating Junction Temperature Range	-40 to +150	$^{\circ}$ C
	T_S	Storage Temperature Range	-65 to +150	$^{\circ}$ C
	$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	120	$^{\circ}$ C/W

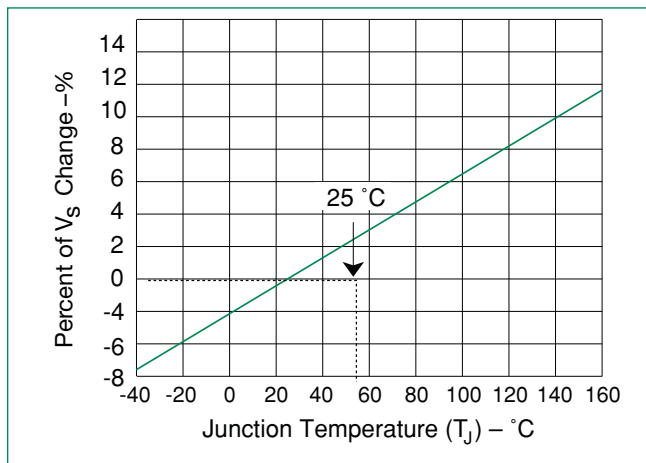
V-I Characteristics



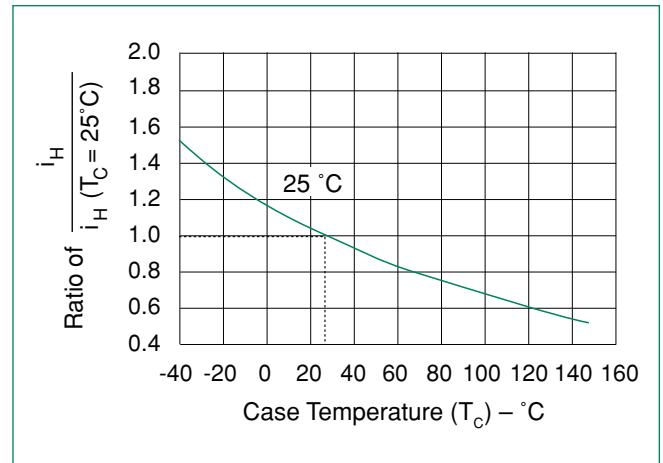
Temperature Rerating Curve



Normalized V_S Change Vs. Junction Temperature

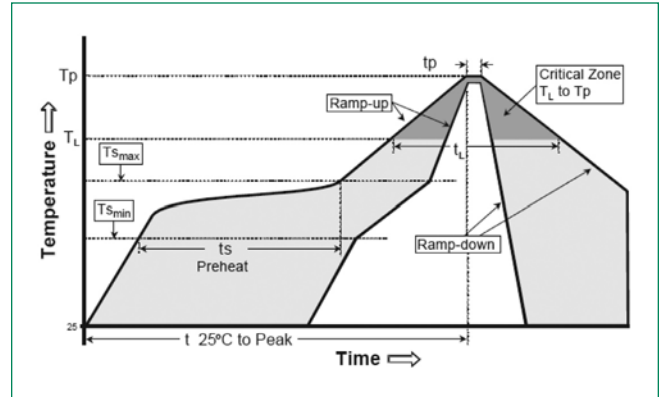


Normalized DC Holding Current Vs. Case Temperature



Soldering Parameters

Reflow Condition		Pb – Free assembly (see Figure 1)
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 30 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max
Do not exceed		260°C



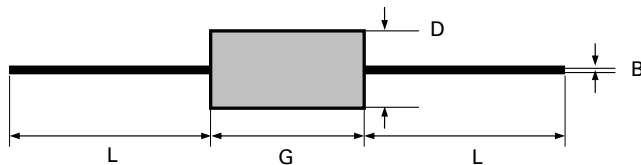
Physical Specifications

Terminal Material	Copper Alloy
Terminal Finish	100% Matte Tin-plated.
Body Material	UL recognized epoxy meeting flammability classification 94V-0

Reliability/Environmental Tests

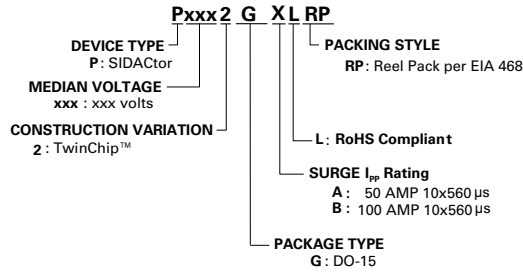
Temperature	Specifications / Description
High Temperature Voltage Blocking	MIL-STD-750: Method 1040, Condition A 80% min V_{DRM} (VAC-peak), 150°C, 504 hours
Temperature Cycling	MIL-STD-750: Method 1051 -65°C to 150°C, 15-minute dwell, 100 cycles
Biased Temperature & Humidity	EIA/JEDEC: JESD22-A101 52VDC, 85°C, 85%RH, 1008 hours
High Temp Storage	MIL-STD-750: Method 1031 150°C, 1008 hours
Low Temp Storage	-65°C, 1008 hours
Thermal Shock	MIL-STD-750: Method 1056 0°C to 100°C, 5-minute dwell, 10-second transfer, 10 cycles
Autoclave (Pressure Cooker Test)	EIA/JEDEC: JESD22-A102 121°C, 100%RH, 2atm, 168 hours
Resistance to Solder Heat	MIL-STD-750: Method 2031 260°C, 10 seconds
Solderability	ANSI/J-STD-002: Category 3
Lead Bend	MIL-STD-750: Method 2036, Condition E

Dimensions — DO-15



Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
B	0.028	0.034	0.711	0.864
D	0.12	0.14	3.048	3.556
G	0.235	0.27	5.969	6.858
L	1		25.4	

Part Numbering System



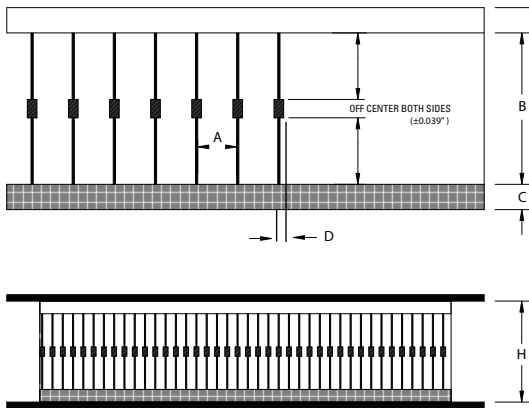
Part Marking System



Packaging Options

Package Type	Description	Packaging Quantity	Added Suffix	Industry Standard
DO-15	Axial	5000	RP	EIA-468

Tape and Reel Specification



Symbols	Description	Inches	MM
A	Component Spacing (lead to lead)	0.200 ± 0.020"	5.08 ± 0.508
B	Tape Spacing	2.062 ± 0.059"	52.37 ± 1.498
C	Tape Width	0.250"	6.35
D	Max. Off Alignment	0.048"	1.219
E	Reel Dimension	13"	330.2
F	Max. Hub Recess	3"	76.19
G	Max. Arbor Hole	0.68"	17.27
H	Reel Dimension	2.75"	69.85

