

T10B Series - DO-201



Agency Approvals

Agency	Agency File Number
	E128662

Pinout Designation

Not Applicable

Schematic Symbol



Description

T10B Series are SIDAct[®] devices designed protect baseband equipment such as modems, line cards, CPE and DSL from damaging overvoltage transients.

The series provides a robust and cost effective through-hole solution that enables equipment to comply with global regulatory standards

Features and Benefits

- Low voltage overshoot
- Low on-state voltage
- Does not degrade surge capability after multiple surge events within limit.
- Fails short circuit when surged in excess of ratings
- High Surge Current Rating
- 2nd level interconnect is Pb-free per IPC/JEDEC J-STD-609A.01

Applicable Global Standards

- TIA-968-A
- TIA-968-B
- ITU K.20/21 Enhanced Level
- ITU K.20/21 Basic Level
- GR 1089 Intra-building
- IEC 61000-4-5
- YD/T 1082
- YD/T 993
- YD/T 950

Electrical Characteristics

Part Number	Marking	V_{DRM} @ $I_{DRM}=5\mu A$	V_S @ 100V/ μs	I_H	I_S	I_T	V_T @ $I_T=2.2$ Amp	Capacitance @ 1MHz, 2V Bias
		V Min	V Max	mA Min	mA Max	A Max	V Max	pF
T10B080Bxx	T10B080B	70	125	120	800	2.2	4	60
T10B110Bxx	T10B110B	100	142	120	800	2.2	4	55
T10B140Bxx	T10B140B	120	178	120	800	2.2	4	48
T10B180Bxx	T10B180B	170	220	120	800	2.2	4	44
T10B220Bxx	T10B220B	200	275	120	800	2.2	4	41
T10B270Bxx	T10B270B	240	370	120	800	2.2	4	36
T10B080Exx	T10B080E	70	125	180	800	2.2	4	60
T10B110Exx	T10B110E	100	142	180	800	2.2	4	55
T10B140Exx	T10B140E	120	178	180	800	2.2	4	48
T10B180Exx	T10B180E	170	220	180	800	2.2	4	44
T10B220Exx	T10B220E	200	275	180	800	2.2	4	41
T10B270Exx	T10B270E	240	370	180	800	2.2	4	36

Notes:

- Absolute maximum ratings measured at $T_a = 25^\circ C$ (unless otherwise noted).
- Devices are bi-directional (unless otherwise noted).
- **XX** Part Number Suffix: **'RP'** (Reel Pack), **Blank** (Bulk Pack), or **'60'** (Type 60 lead form, Bulk Pack)

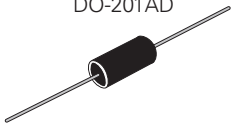
Surge Ratings

Series	I_{PP}			I_{TSM} 50/60 Hz	di/dt
	8x20 ¹ 1.2x50 ²	5x310 ¹ 10x700 ²	10x1000 ¹ 10x1000 ²		
	A min	A min	A min		
B	250	125	100	30	500

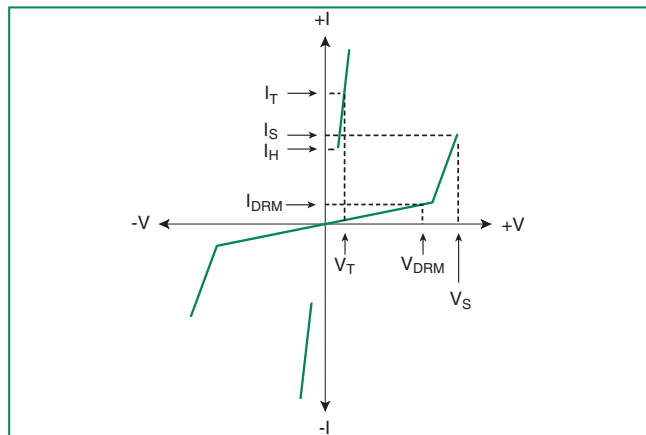
Notes:

- Current waveform in μs
 - Voltage waveform in μs
- Peak pulse current rating (I_{PP}) is repetitive and guaranteed for the life of the product.
 - I_{PP} ratings applicable over temperature range of $-40^{\circ}C$ to $+85^{\circ}C$
 - The device must initially be in thermal equilibrium with $-40^{\circ}C \leq T_J \leq +150^{\circ}C$

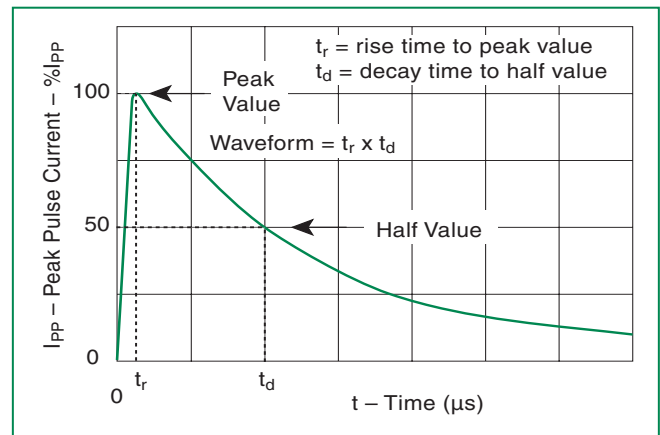
Thermal Considerations

Package	Symbol	Parameter	Value	Unit
DO-201AD 	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	$^{\circ}C/W$

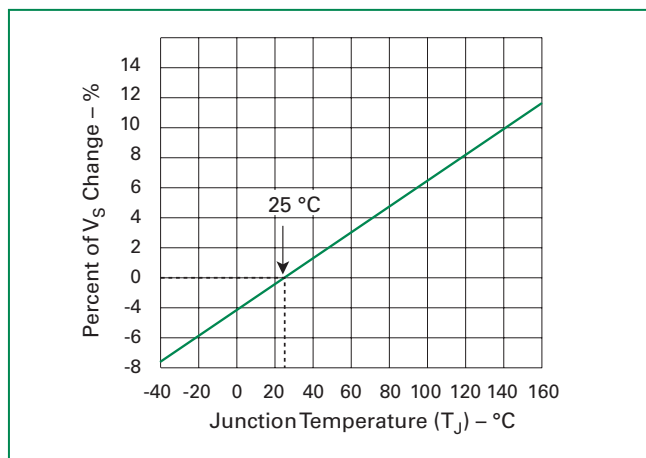
V-I Characteristics



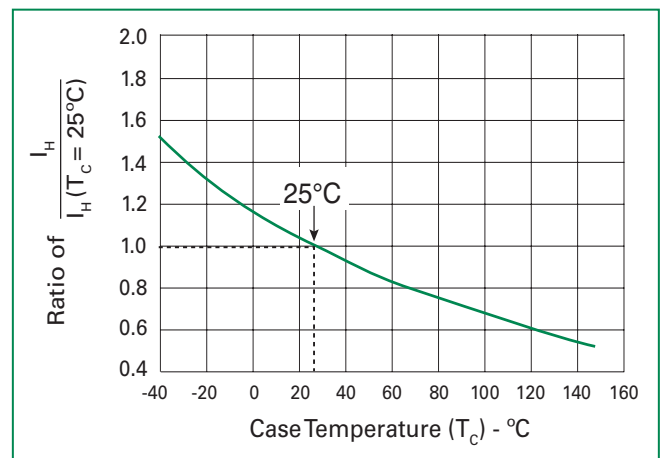
$t_r \times t_d$ Pulse Waveform



Normalized V_S Change vs. Junction Temperature

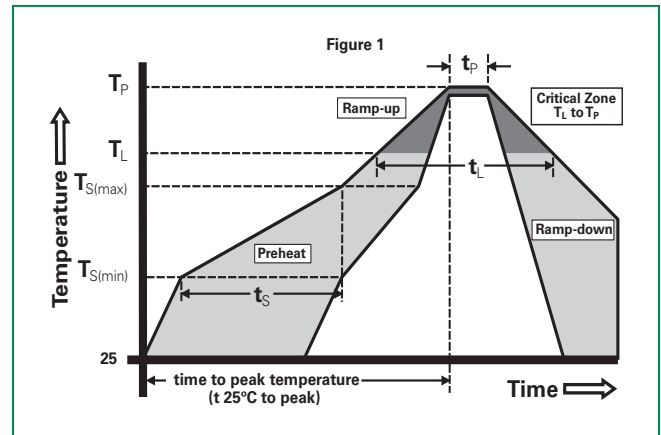


Normalized DC Holding Current vs. Case Temperature



Soldering Parameters

Reflow Condition		Pb-Free assembly (see Fig. 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/sec. Max.
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max.
Reflow	-Temperature (T_L) (Liquidus)	+217°C
	-Temperature (t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to Peak Temp (T_p)		8 min. Max.
Do not exceed		+260°C



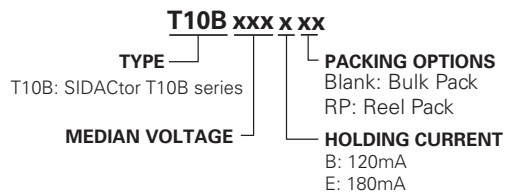
Physical Specifications

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

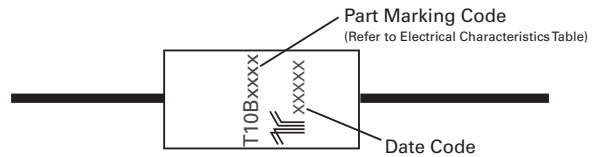
Environmental Specifications

High Temp Voltage Blocking	80% Rated V_{DRM} ($V_{AC Peak}$) +125°C or +150°C, 504 or 1008 hrs. MIL-STD-750 (Method 1040) JEDEC, JESD22-A-101
Temp Cycling	-65°C to +150°C, 15 min. dwell, 10 up to 100 cycles. MIL-STD-750 (Method 1051) EIA/JEDEC, JESD22-A-104
Biased Temp & Humidity	52 V_{DC} (+85°C) 85% RH, 504 up to 1008 hrs. EIA/JEDEC, JESD22-A-101
High Temp Storage	+150°C 1008 hrs. MIL-STD-750 (Method 1031) JEDEC, JESD22-A-101
Low Temp Storage	-65°C, 1008 hrs.
Thermal Shock	0°C to +100°C, 5 min. dwell, 10 sec. transfer, 10 cycles. MIL-STD-750 (Method 1056) JEDEC, JESD22-A-106
Autoclave (Pressure Cooker Test)	+121°C, 100% RH, 2atm, 24 up to 168 hrs. EIA/JEDEC, JESD22-A-102
Resistance to Solder Heat	+260°C, 30 secs. MIL-STD-750 (Method 2031)
Moisture Sensitivity Level	85% RH, +85°C, 168 hrs., 3 reflow cycles (+260°C Peak). JEDEC-J-STD-020, Level 1

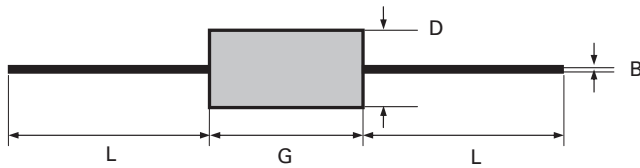
Part Numbering



Part Marking



Dimensions — DO-201AD



Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
B	0.028	0.042	0.711	1.067
D	0.190	0.205	4.826	5.207
G	0.360	0.375	9.146	9.527
L	1		25.4	

Packing Options

Package Type	Description	Quantity	Added Suffix	Industry Standard
T10B	DO-201AD Tape and Reel Pack	1000	RP	EIA-RS-296-D
	DO-201AD Bulk Pack	500	N/A	N/A

Tape and Reel Specification — DO-201AD

