MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Off−State Voltage − Maximum MMT10B230T3 MMT10B260T3 MMT10B310T3	V_{DM}	 ±170 ±200 ±270	V
Maximum Pulse Surge Short Circuit Current Non−Repetitive Double Exponential Decay Waveform (Notes 1 and 2) (−20°C to +65°C) 2 x 10 μsec 10 x 700 μsec 10 x 1000 μsec	 I_{PPS1} I_{PPS2} I_{PPS3}	 ±500 ±180 ±100	A(pk)
Maximum Non−Repetitive Rate of Change of On−State Current Double Exponential Waveform, R = 2.0, L = 1.5 μH, C = 1.67 μF, I_{pk} = 110A	di/dt	±100	A/μs

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. Allow cooling before testing second polarity.
2. Measured under pulse conditions to reduce heating.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Operating Temperature Range Blocking or Conducting State	T_{J1}	−40 to +125	°C
Overload Junction Temperature − Maximum Conducting State Only	T_{J2}	+175	°C
Instantaneous Peak Power Dissipation (I_{pk} = 100 A, 10x1000 μsec @ 25°C)	P_{PK}	4000	W
Maximum Lead Temperature for Soldering Purposes 1/8″ from Case for 10 Seconds	T_L	260	°C

ORDERING INFORMATION

Device	Package	Shipping†
MMT10B230T3	SMB	(12mm) Tape & Reel 2500 Units per Reel
MMT10B230T3G	SMB (Pb−Free)	
MMT10B260T3	SMB	
MMT10B260T3G	SMB (Pb−Free)	
MMT10B310T3	SMB	
MMT10B310T3G	SMB (Pb−Free)	

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

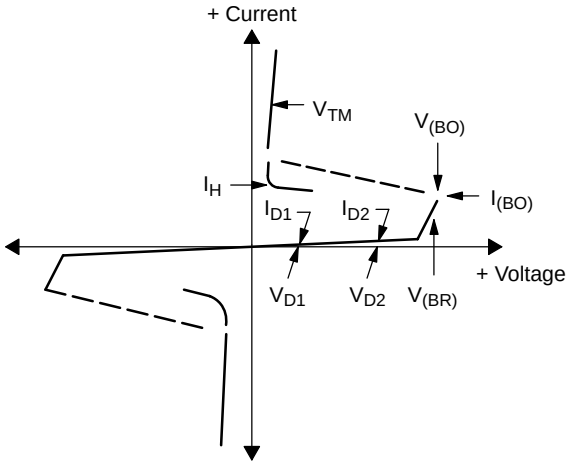
ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)
Devices are bidirectional. All electrical parameters apply to forward and reverse polarities.

Characteristic		Symbol	Min	Typ	Max	Unit
Breakover Voltage (Both polarities)		$V_{(BO)}$				V
(dv/dt = 100 V/μs, I_{SC} = 1.0 A, Vdc = 1000 V)	MMT10B230T3, G		–	–	265	
	MMT10B260T3, G		–	–	320	
	MMT10B310T3, G		–	–	365	
(+65°C)						
	MMT10B230T3, G		–	–	290	
	MMT10B260T3, G		–	–	340	
	MMT10B310T3, G		–	–	400	
Breakover Voltage (Both polarities)		$V_{(BO)}$				V
(f = 60 Hz, I_{SC} = 1.0 A(rms), V_{OC} = 1000 V(rms),	MMT10B230T3, G		–	–	265	
R_I = 1.0 kΩ, t = 0.5 cycle) (Note 3)	MMT10B260T3, G		–	–	320	
	MMT10B310T3, G		–	–	365	
(+65°C)						
	MMT10B230T3, G		–	–	290	
	MMT10B260T3, G		–	–	340	
	MMT10B310T3, G		–	–	400	
Breakover Voltage Temperature Coefficient		$dV_{(BO)}/dT_J$	–	0.08	–	%/°C
Breakdown Voltage ($I_{(BR)}$ = 1.0 mA) Both polarities		$V_{(BR)}$				V
	MMT10B230T3, G		–	190	–	
	MMT10B260T3, G		–	240	–	
	MMT10B310T3, G		–	280	–	
Off State Current (V_{D1} = 50 V) Both polarities		I_{D1}	–	–	2.0	μA
(V_{D2} = V_{DM}) Both polarities		I_{D2}	–	–	5.0	
On−State Voltage (I_T = 1.0 A)		V_T	–	1.53	5.0	V
(PW ≤ 300 μs, Duty Cycle ≤ 2%) (Note 3)						
Breakover Current (f = 60 Hz, V_{DM} = 1000 V(rms), R_S = 1.0 kΩ) Both polarities		I_{BO}	–	260	–	mA
Holding Current (Both polarities)	(Note 3)	I_H	150	270	–	mA
V_S = 500 Volts; I_T (Initiating Current) = ±1.0 A						
Critical Rate of Rise of Off−State Voltage		dv/dt	2000	–	–	V/μs
(Linear waveform, V_D = Rated V_{BR}, T_J = 25°C)						
Capacitance (f = 1.0 MHz, 50 Vdc, 1.0 V rms Signal)		C_O	–	65	–	pF
(f = 1.0 MHz, 2.0 Vdc, 15 mV rms Signal)			–	160	200	

3. Measured under pulse conditions to reduce heating.

Voltage Current Characteristic of TSPD (Bidirectional Device)

Symbol	Parameter
I_{D1}, I_{D2}	Off State Leakage Current
V_{D1}, V_{D2}	Off State Blocking Voltage
V_{BR}	Breakdown Voltage
V_{BO}	Breakover Voltage
I_{BO}	Breakover Current
I_H	Holding Current
V_{TM}	On State Voltage



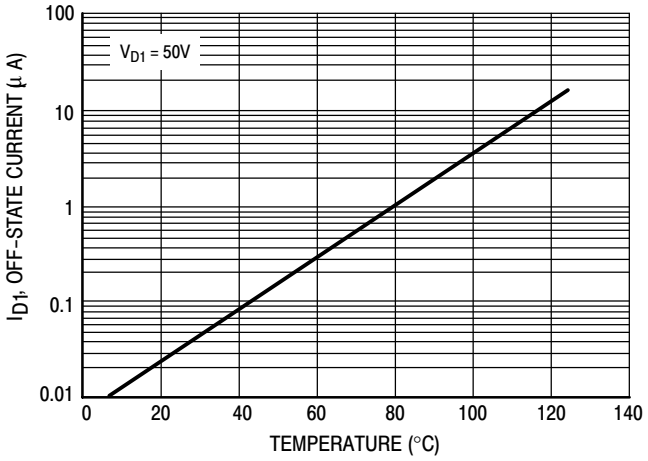


Figure 1. Off−State Current versus Temperature

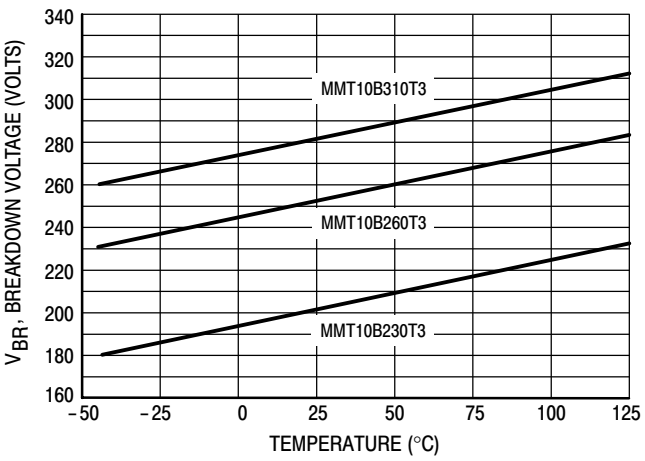


Figure 2. Breakdown Voltage versus Temperature

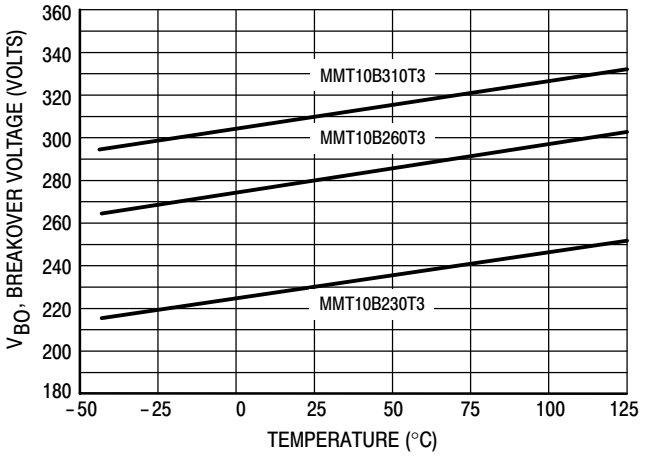


Figure 3. Breakover Voltage versus Temperature

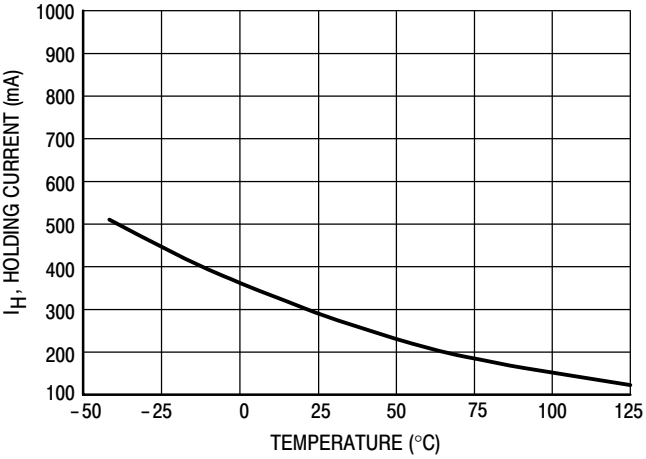


Figure 4. Holding Current versus Temperature

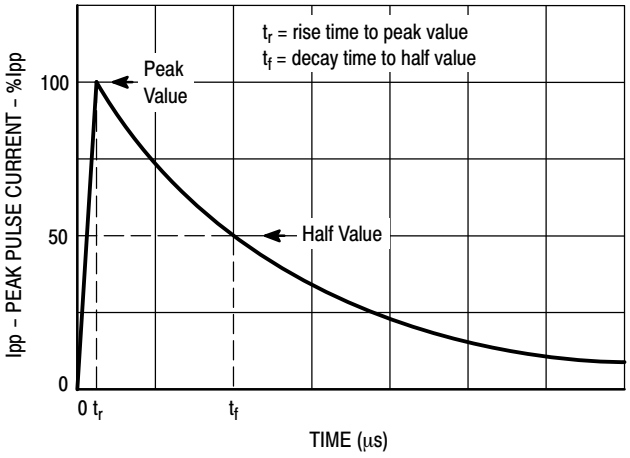


Figure 5. Exponential Decay Pulse Waveform

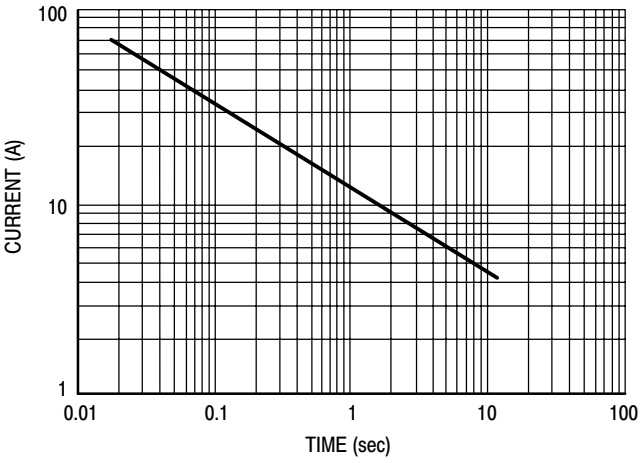
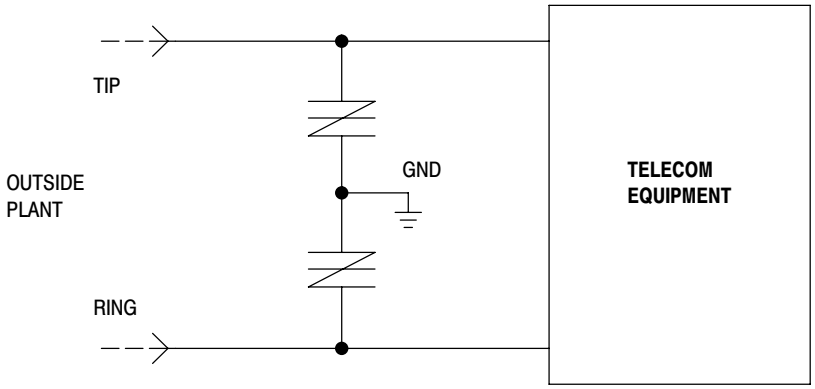
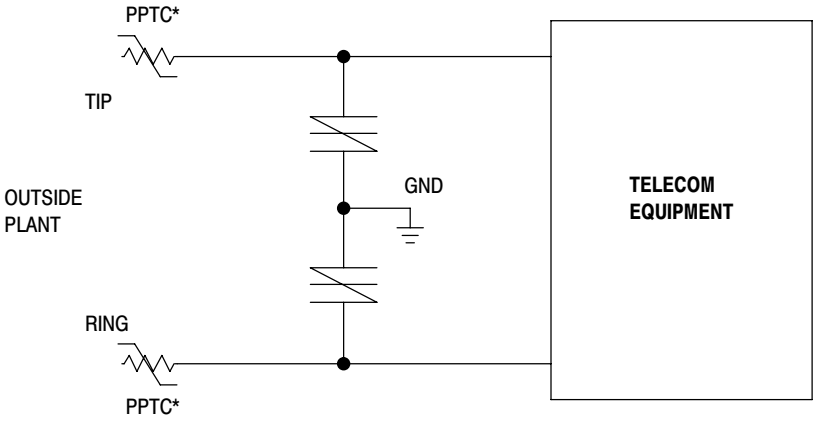
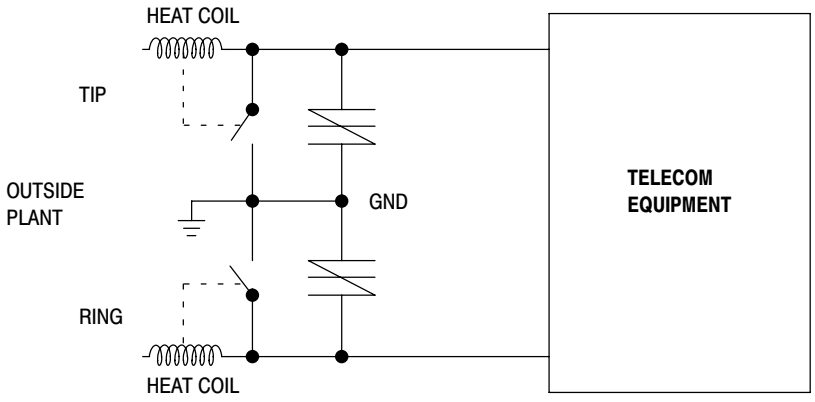


Figure 6. Peak Surge On−State Current versus Surge Current Duration, Sinusoidal Waveform



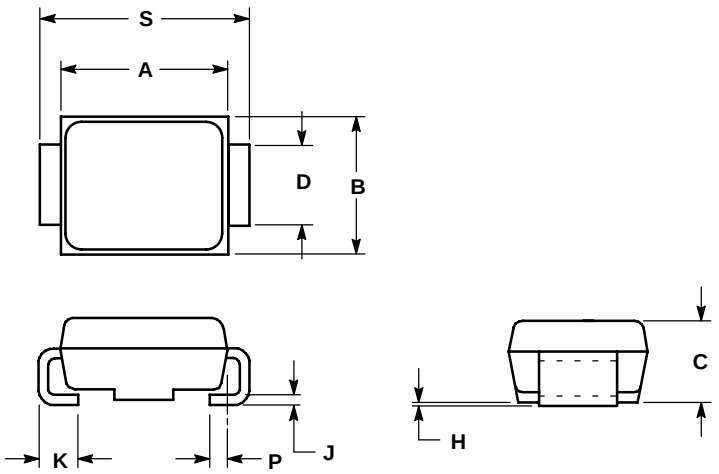


*Polymeric PTC (positive temperature coefficient) overcurrent protection device



PACKAGE DIMENSIONS

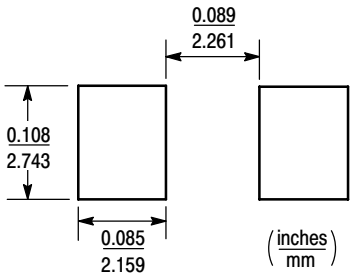
SMB
(No Polarity)
(Essentially JEDEC DO−214AA)
CASE 403C−01
ISSUE A



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.160	0.180	4.06	4.57
B	0.130	0.150	3.30	3.81
C	0.075	0.095	1.90	2.41
D	0.077	0.083	1.96	2.11
H	0.0020	0.0060	0.051	0.152
J	0.006	0.012	0.15	0.30
K	0.030	0.050	0.76	1.27
P	0.020 REF		0.51 REF	
S	0.205	0.220	5.21	5.59

SOLDERING FOOTPRINT*



*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
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