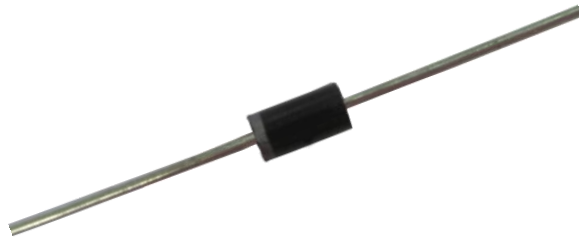


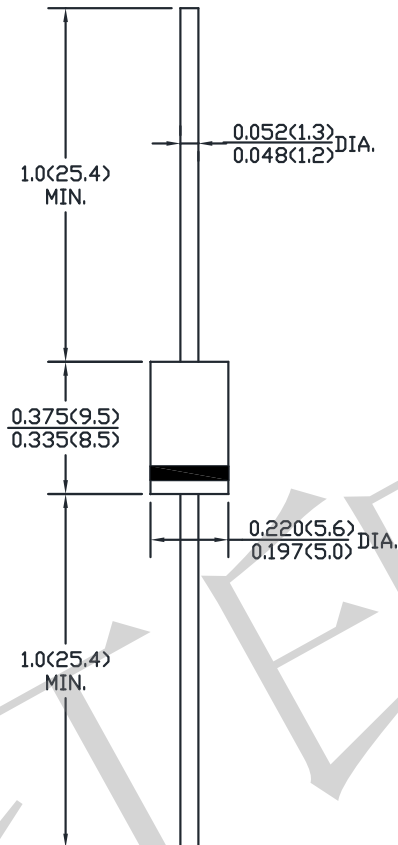
1N6373 thru 1N6389 MPTE-5 thru MPTE-45C

Transient Voltage Suppressor

Breakdown Voltage 5.0 to 45 Volts
Peak Pulse Power 1500 Watts



CASE: DO-201AD (DO-27)



Dimensions in inches and (millimeters)

Features

- Breakdown Voltages (V_{BR}) from 5.0 to 45V
- 1500W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01%
- Fast Response Time
- Low incremental surge resistance
- Excellent clamping capability
- Available in uni-directional and bi-directional
- High temperature soldering guaranteed: 265 $^{\circ}$ C /10 seconds, 0.375" (9.5mm) lead length, 5lbs. (2.3kg) tension

Application

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFE, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication

Mechanical Data

- **Case:** Void-free transfer molded thermosetting epoxy body meeting UL94V-O
- **Terminals:** Tin-Lead or ROHS Compliant annealed matte-Tin plating readily solderable per MIL-STD-750, Method 2026
- **Marking:** Part number and polarity diode symbol
- **Polarity:** Cathode indicated by band
- **Weight:** 1.2g (Approximately)

Maximum Ratings and Electrical Characteristics @ 25 $^{\circ}$ C unless otherwise specified

Symbol	Conditions	Value	Unit
P_{PPM}	Peak pulse power capability with a 10/1000 μ s	1500	W
I_{PPM}	Peak pulse current with a 10/1000 μ s	SEE TABLE	A
$P_{M(AV)}$	Steady state power dissipation at $T_L \leq 40^{\circ}\text{C}$, Lead lengths 0.375"(10mm)	5	W
	Steady state power dissipation at $T_A = 25^{\circ}\text{C}$ when mounted on FR4 PC described for thermal resistance	1.52	W
I_{FSM}	Peak forward surge current, 8.3ms single half sine-wave unidirectional only(1)	200	A
V_F	Maximum instantaneous forward voltage at 100A for unidirectional only	3.5	V
$R_{\theta JL}$	Thermal resistance junction to lead	22	$^{\circ}\text{C/W}$
$R_{\theta JA}$	Thermal resistance junction to ambient	82	$^{\circ}\text{C/W}$
T_J, T_{STG}	Operating and Storage Temperature	-65 to +150	$^{\circ}\text{C}$

Notes:

(1) Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum

Electrical Characteristics @ 25°C (Unidirectional) TABLE

Microsemi Part Number		Breakdown Voltage V_{BR} @ I_{BR}			Stand Off Voltage (Note1)	Maximum Reverse current I_D @ V_{WM}	Maximum Peak Pulse Current	Maximum Clamping Voltage V_C @ I_{PP}	
		MIN	MAX	I_{BR} (mA)				$I_{PP1}=1A$	$I_{PP2}=10A$
		$V_{BR}(V)$							
1N6373	MPTE-5	6.00	7.00	1	5.0	300	160	7.1	7.5
1N6374	MPTE-8	9.40	10.39	1	8.0	25	100	11.3	11.5
1N6375	MPTE-10	11.7	12.93	1	10.0	2	90	13.7	14.1
1N6376	MPTE-12	14.1	15.58	1	12.0	2	70	16.1	16.5
1N6377	MPTE-15	17.6	19.45	1	15.0	2	60	20.1	20.6
1N6378	MPTE-18	21.2	23.43	1	18.0	2	50	24.2	25.2
1N6379	MPTE-22	25.9	28.63	1	22.0	2	40	29.8	32.0
1N6380	MPTE-36	42.4	46.86	1	36.0	2	23	50.6	54.3
1N6381	MPTE-45	52.9	58.47	1	45.0	2	19	63.3	70.0

V_F at 100amps peak, 8.3msec sine wave equals 3.5volts maximum.

Electrical Characteristics @ 25°C (Bidirectional) TABLE

Microsemi Part Number		Breakdown Voltage V_{BR} @ I_{BR}			Stand Off Voltage (Note1)	Maximum Reverse current I_D @ V_{WM}	Maximum Peak Pulse Current	Maximum Clamping Voltage V_C @ I_{PP}	
		MIN	MAX	I_{BR} (mA)				$I_{PP1}=1A$	$I_{PP2}=10A$
		$V_{BR}(V)$							
1N6382	MPTE-5C	6.00	7.00	1	5.0	300	160	7.1	7.5
1N6383	MPTE-8C	9.40	10.39	1	8.0	25	100	11.4	11.6
1N6383	MPTE-10C	11.7	12.93	1	10.0	2	90	14.1	14.5
1N6384	MPTE-12C	14.1	15.58	1	12.0	2	70	16.7	17.1
1N6385	MPTE-15C	17.6	19.45	1	15.0	2	60	20.8	21.4
1N6386	MPTE-18C	21.2	23.43	1	18.0	2	50	24.8	25.5
1N6387	MPTE-22C	25.9	28.63	1	22.0	2	40	30.8	32.0
1N6388	MPTE-36C	42.4	46.86	1	36.0	2	23	50.6	54.3
1N6389	MPTE-45C	52.9	58.47	1	45.0	2	19	63.3	70.0

C Suffix indicates Bidirectional

Note1.TVS devices are normally selected according to the reverse "Stand Off Voltage" (V_{WM}) which should be equal to or greater than the dc or continuous peak operating voltage level.

Characteristic Curve

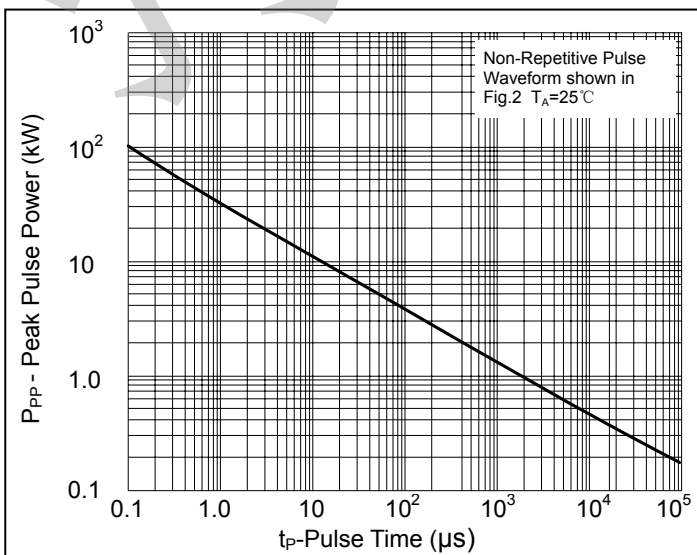


Fig. 1 Peak Pulse Power vs. Pulse Time

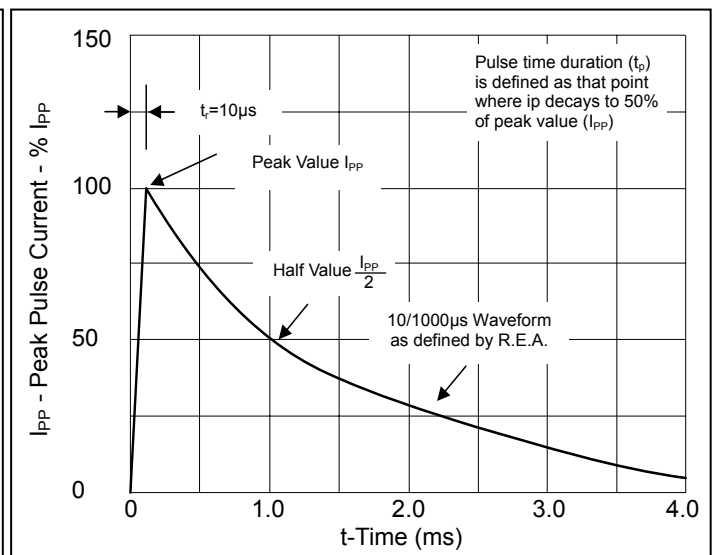


Fig.2 Pulse Waveform for Exponential Surge

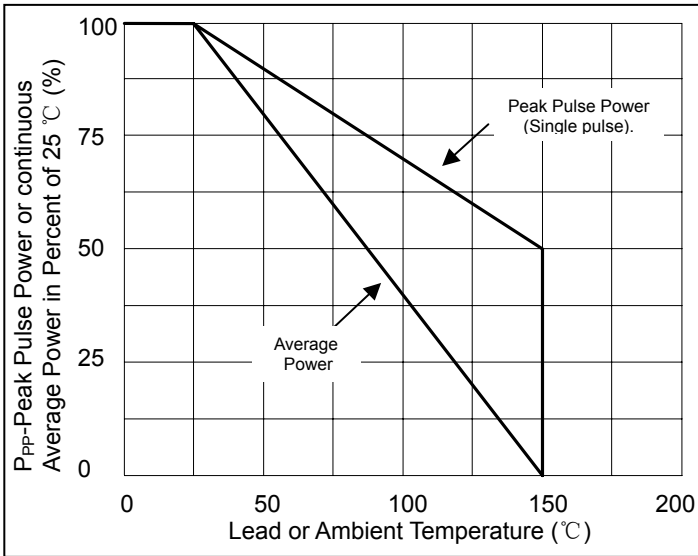


Fig.3 Derating Curve

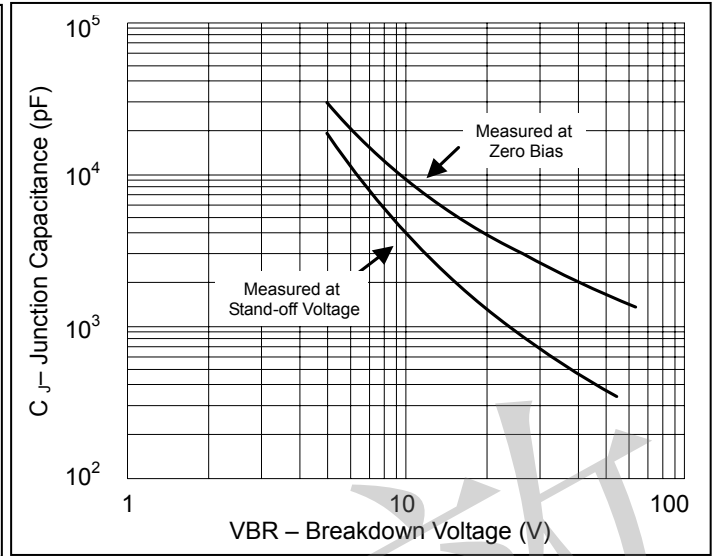


Fig.4 Typical Capacitance vs. Breakdown Voltage (Unidirectional)

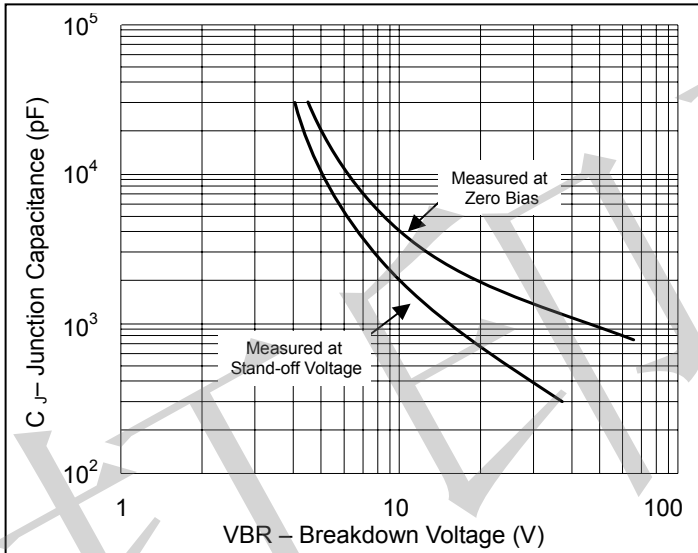


Fig.5 Typical Capacitance vs. Breakdown Voltage (Bidirectional)

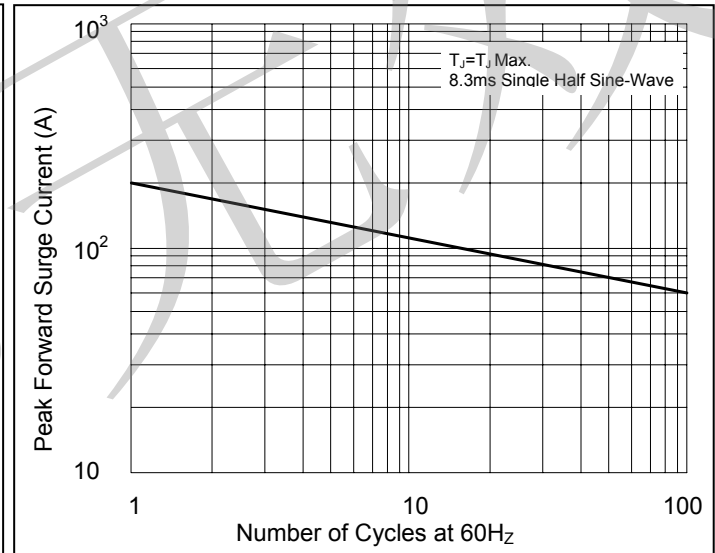


Fig.6 Max. Non-Repetitive Forward Surge Current Uni-Directional Only

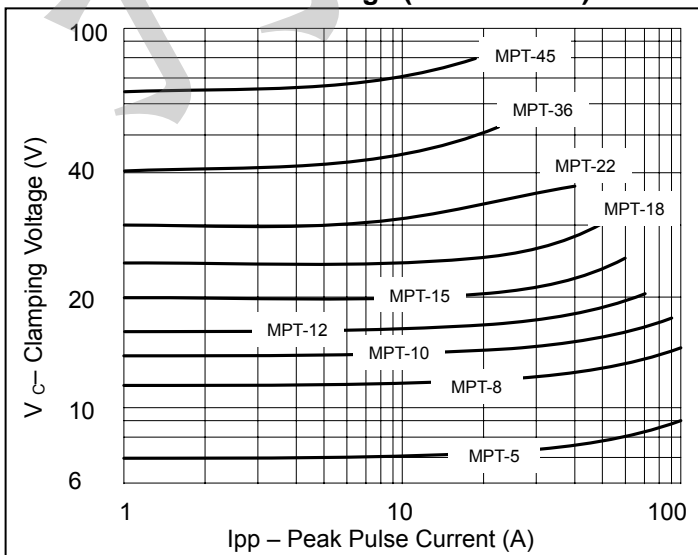


Fig.7 Typical Capacitance Clamping Voltage vs. Peak Pulse Current