

TVS Diode



Features:

- Plastic package
- Exceeds environmental standards of MIL-STD-19500
- 600W surge capability at $10 \times 1000\mu\text{s}$ waveform, duty cycle: 0.01%
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1ps from 0 volts to VBR for unidirectional and 5ns for bidirectional
- Typical IR less than 1 μA above 10V
- High temperature soldering guaranteed: 260°C/10 seconds/0.375 Inch (9.5mm) lead length/5lbs. (2.3kg) tension

Mechanical Data

Case	: Molded Plastic
Lead	: Axial Leads, Solderable Per MIL-STD-202, Method 208
Polarity	: Colour Band Denotes Cathode Except Bipolar
Weight	: 0.34 Gram

Maximum Ratings and Electrical Characteristics ($T_A = 25^\circ\text{C}$)

Type Number	Symbol	Value	Units
Peak Pulse Power Dissipation at $T_A = 25^\circ\text{C}$, $T_p = 1\text{ms}$ (Note)	P_{PP}	Min.600	W
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$ Lead Lengths 0.375" 9.5mm	P	1.7	
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	100	A
Junction to Leads	$R_{\theta JL}$	60	$^\circ\text{C/W}$
Junction to Ambient on Printed Circuit. L Lead = 10mm	R	100	
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to + 175	$^\circ\text{C}$

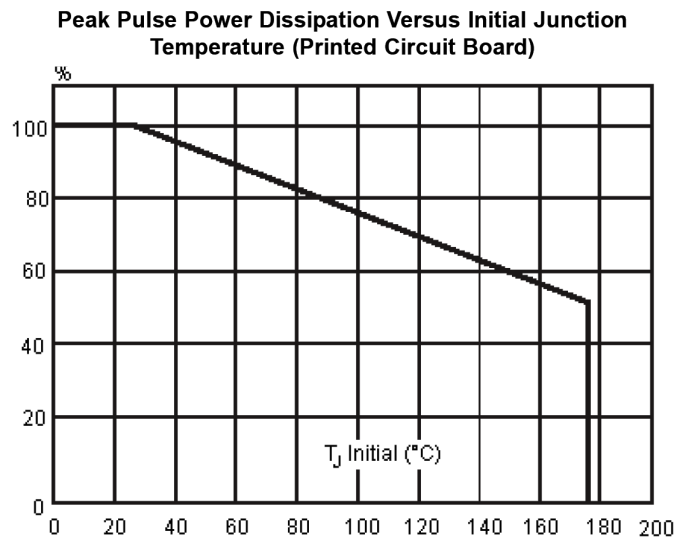
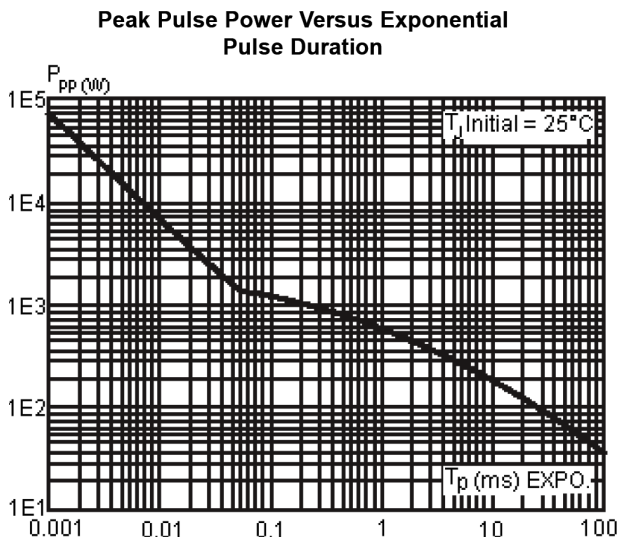
Notes: For a surge greater than the maximum values, the diode will fall in short-circuit.

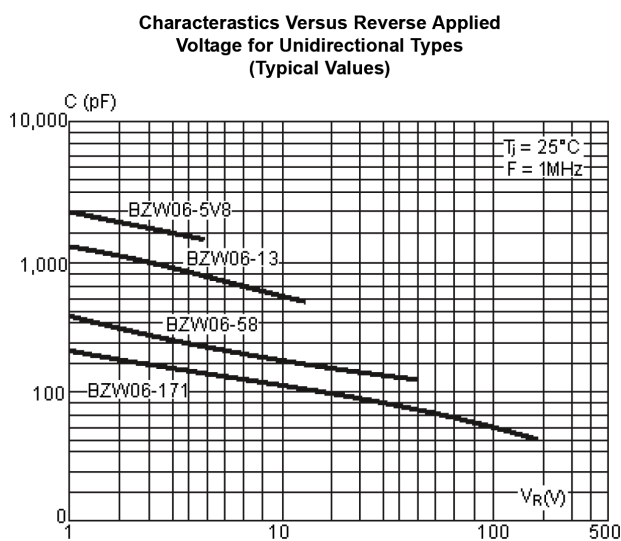
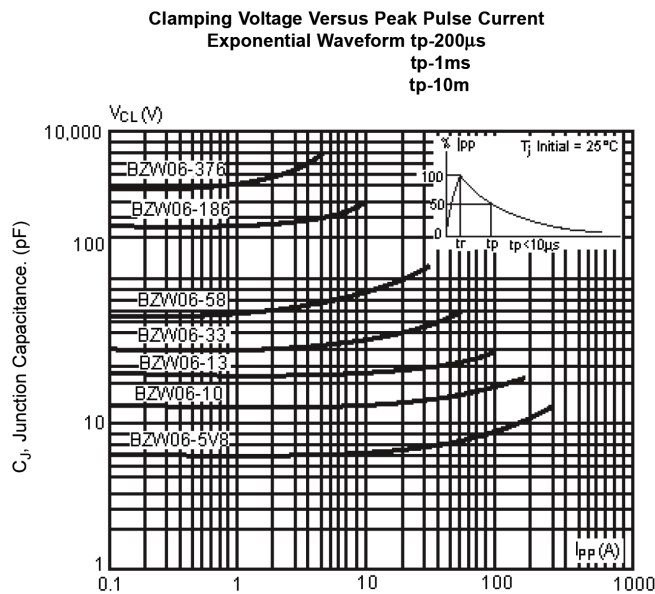
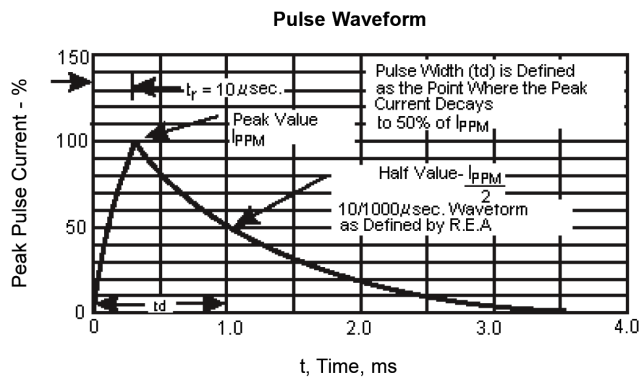
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Device	I _{RM} at V _{RM}		V _{BR} at I _R				V _{CL} at I _{PP}		V _{CL} at I _{PP}		αT	C	
	Max.		Note1				Max.		Max.		Max.	Typical	
			Min.	Nom.	Max.		10/1,000μs		8/20μS		Note2	Note3	
Unidirectional	Bidirectional	μA	V	V	V	V	mA	V	A	V	A	10 ⁻⁴ /°C	(pF)
-	BZW06-102B	1	102	114	120	126	1	165	3.6	212	19	10.7	450
BZW06-13	BZW06-13B	5	12.8	14.3	15	15.8		21.2	28	27.2	147	8.4	1,900
BZW06-15	BZW06-15B	1	15.3	17.1	18	18.9		25.2	24	32.5	123	8.8	1,600
BZW06-20	BZW06-20B		20.5	22.8	24	25.2		33.2	28	42.8	93	9.4	1,250
BZW06-31	BZW06-31B		30.8	34.2	36	37.8		49.9	12	64.3	62	9.6	950
BZW06-33	BZW06-33B		33.3	37.1	39	41		53.9	11.1	69.7	57	10.0	900

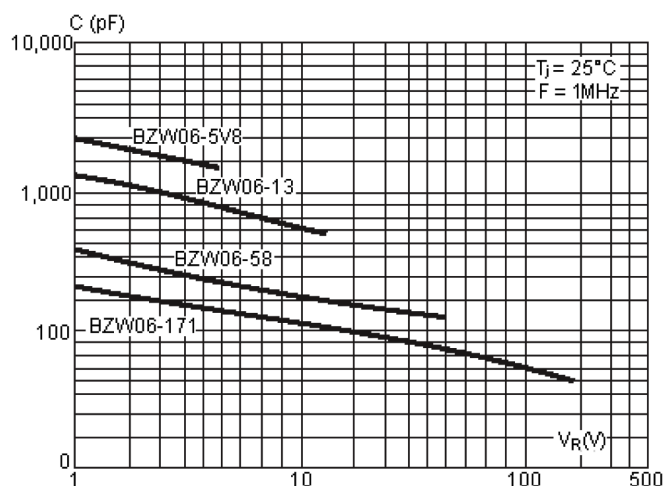
Notes: 1. Pulse test: t_p < 50ms.
 2. $\Delta V_{BR} = \alpha T \times (T_A - 25) \times V_{BR}(25^\circ\text{C})$.
 3. V_R = 0V, F = 1MHz, For bidirectional types, capacitance value is divided by 2.

Ratings and Characteristic Curves

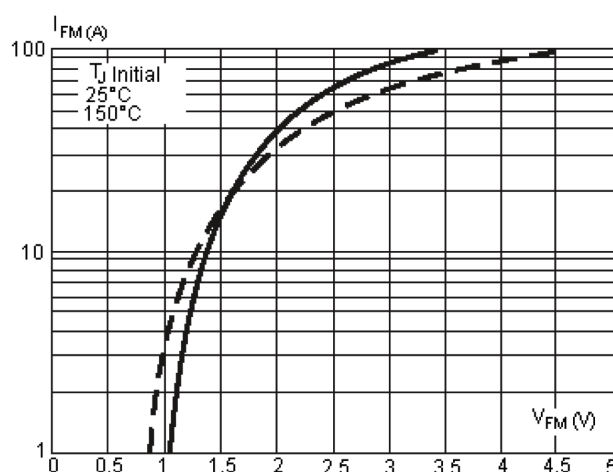




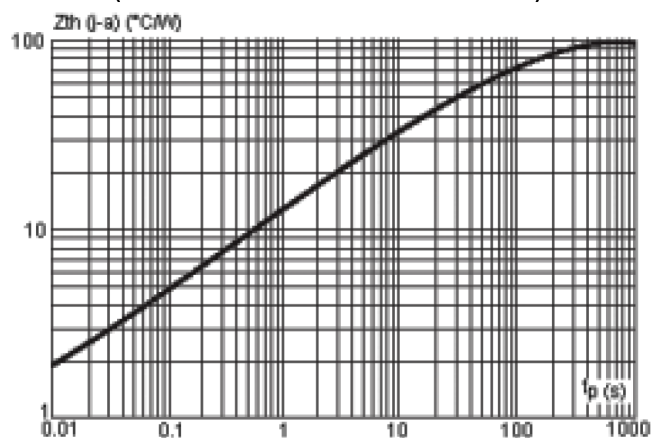
Characteristics Versus Reverse Applied Voltage for Unidirectional Types (Typical Values)



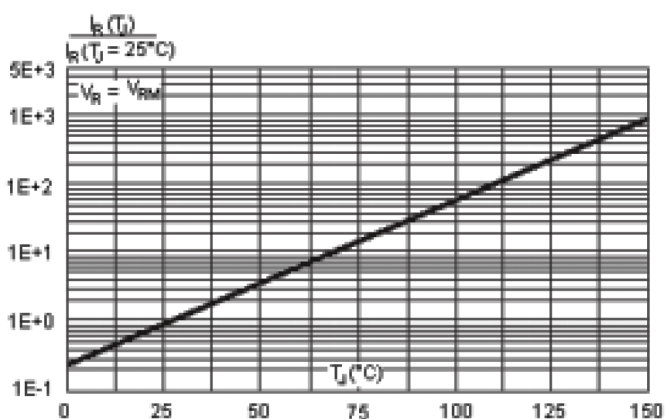
Peak Forward Voltage Drop Versus Peak Forward Current (Typical Values for Unidirectional Types)



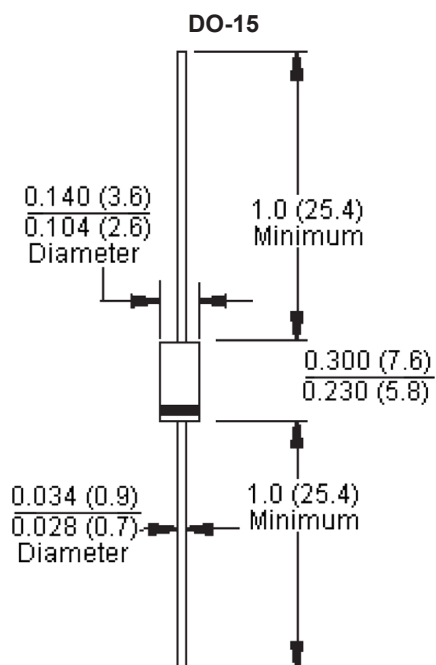
Transient Thermal Impedance Junction Ambient Versus Pulse Duration (For FR4 PC Board With L Lead = 10mm)



Relative Variation of Leakage Current Versus Junction Temperature



TVS Diode



Dimensions : Inches (Millimetres)

Part Number Table

Description	Part number
Diode, TVS, 13V, 600W	BZW06-13
Diode, TVS, 13V, 600W	BZW06-13B
Diode, TVS, 15V, 600W	BZW06-15
Diode, TVS, 15V, 600W	BZW06-15B
Diode, TVS, 20V, 600W	BZW06-20
Diode, TVS, 20V, 600W	BZW06-20B
DIODE, TVS, 31V, 600W	BZW06-31
Diode, TVS, 31V, 600W	BZW06-31B
Diode, TVS, 33V, 600W	BZW06-33
Diode, TVS, 33V, 600W	BZW06-33B

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