

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	$^\circ\text{C}$

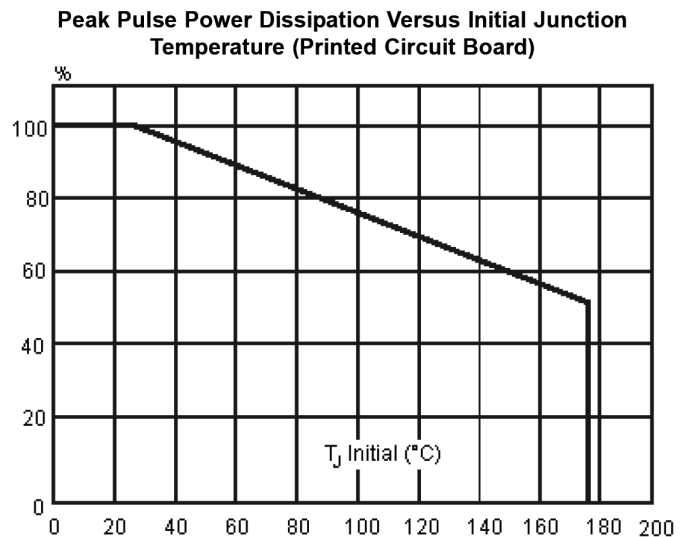
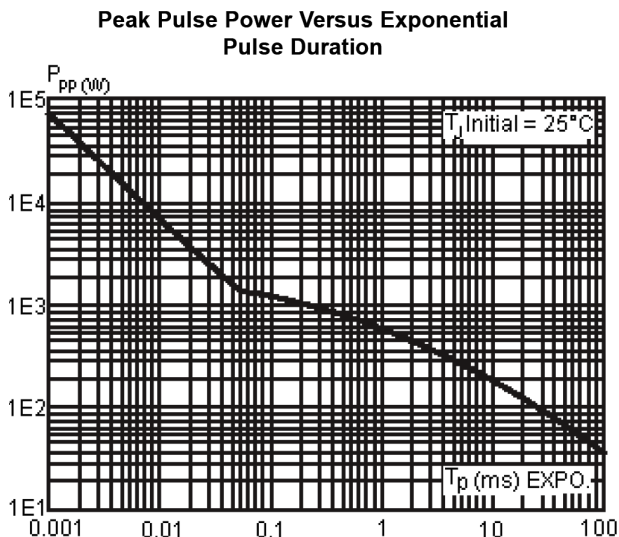
Notes: For a surge greater than the maximum values, the diode will fall in short-circuit.

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

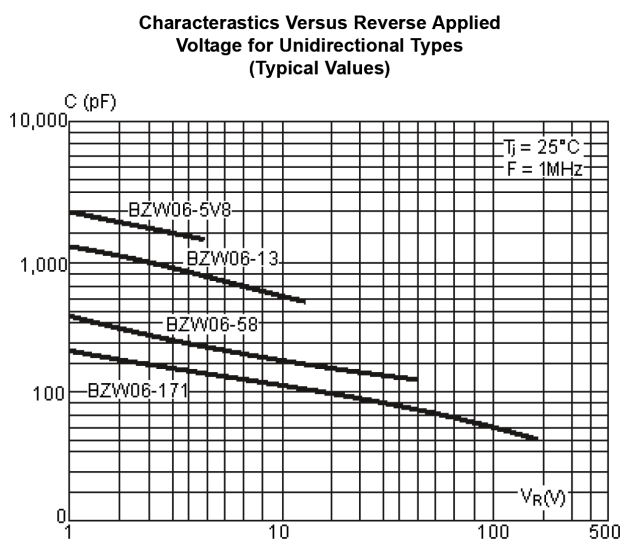
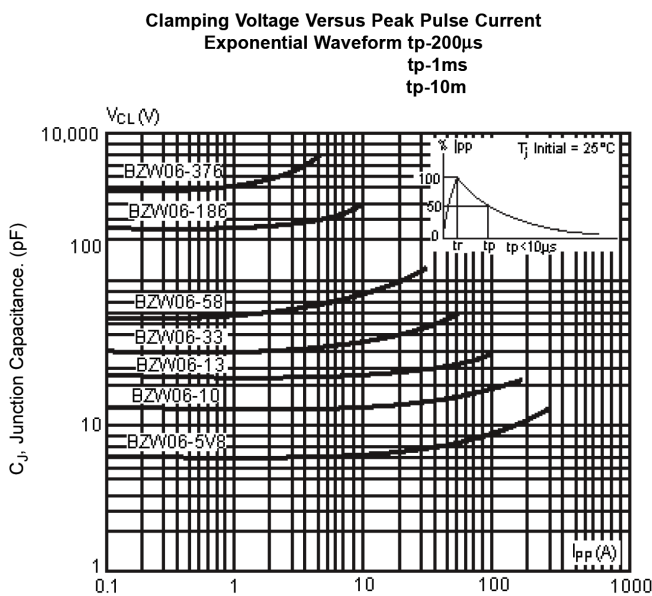
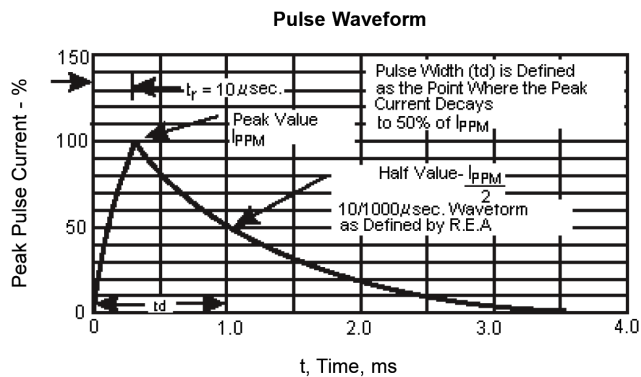
Device	I _{RM} at V _{RM}		V _{BR} at I _R				V _{CL} at I _{PP}		V _{CL} at I _{PP}		αT	C	
	Max.		Note1				Max.		Max.		Max.	Typical	
			Min.	Nom.	Max.		10/1,000μs		8/20μS		Note2	Note3	
Unidirectional	Bidirectional	μA	V	V	V	V	mA	V	A	V	A	10 ⁻⁴ /°C	(pF)
-	BZW06-102B	1	102	114	120	126	1	165	3.6	212	19	10.7	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.

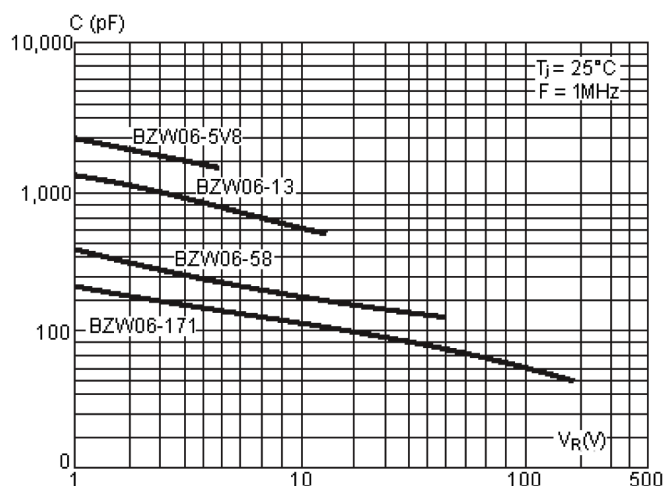
Ratings and Characteristic Curves



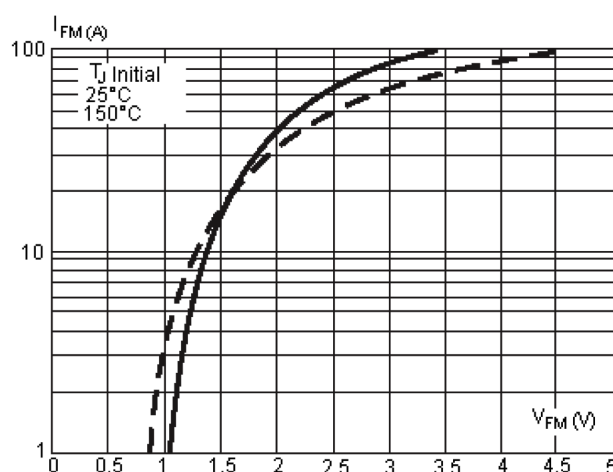
TVS Diode



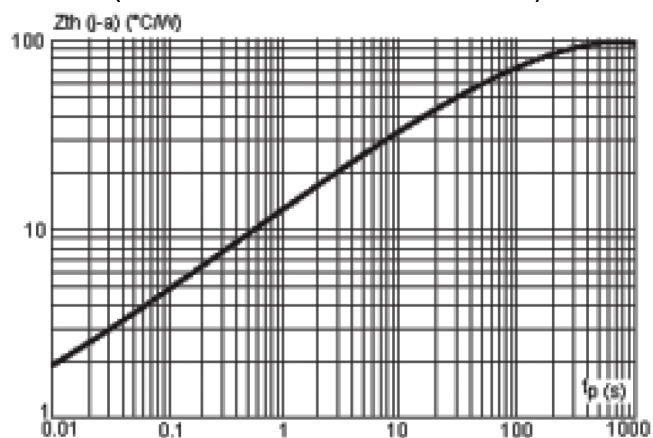
**Characteristics Versus Reverse Applied Voltage for Unidirectional Types
(Typical Values)**



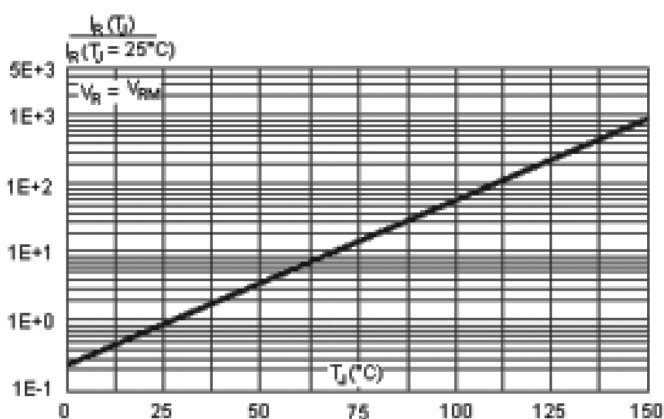
Peak Forward Voltage Drop Versus Peak Forward Current (Typical Values for Unidirectional Types)



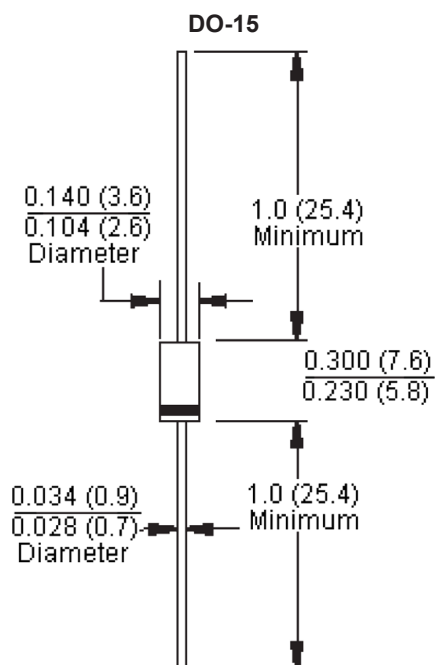
**Transient Thermal Impedance Junction Ambient Versus Pulse Duration
(For FR4 PC Board With L Lead = 10mm)**



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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