

TVS Diode

P6KE Series

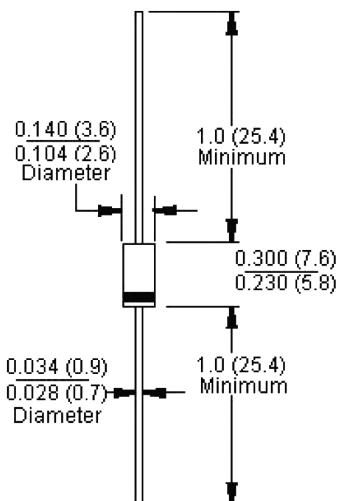


**RoHS
Compliant**

Features:

- Plastic package
- Exceeds environmental standards of MIL-STD-19500
- 600W surge capability at 10 x 1000 μ s waveform, duty cycle: 0.01%
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0ps from 0 volts to VBR for unidirectional and 5.0ns for bidirectional
- Typical I_r less than 1 μ A above 10V
- High temperature soldering guaranteed: 260°C/10 seconds/0.375 Inch (9.5mm) lead length/5lbs. (2.3kg) tension

DO-15



Dimensions : Inches (Millimetres)

Mechanical Data

Case : Molded plastic
Lead : Pure tin plated lead free, solderable per MIL-STD-202, Method 208
Polarity : Color band denotes cathode except bipolar
Weight : 0.42g

Max. Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60Hz, resistive or inductive load
For capacitive load, derate current by 20%

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Type Number	Symbol	Value	Units
Peak Power Dissipation at $T_A = 25^\circ\text{C}$, $T_P = 1\text{ms}$ (Note 1)	P_{PK}	Min. 600	W
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$ Lead Lengths 0.375 Inch 9.5mm (Note 2)	P_D	5	
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (Note 3)	I_{FSM}	100	A
Max. Instantaneous Forward Voltage at 50A for Unidirectional Only (Note 4)	V_F	3.5 / 5	V
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	$^\circ\text{C}$

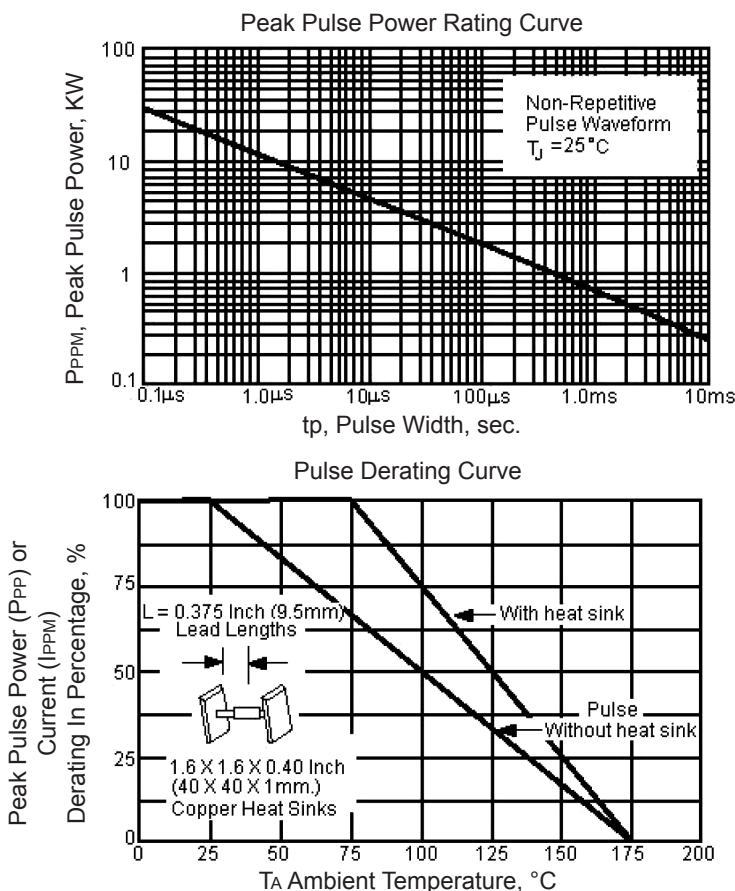
Notes:

1. Non-repetitive current pulse and derated above $T_A = 25^\circ\text{C}$
2. Mounted on copper pad area of $1.6" \times 1.6"$ ($40\text{mm} \times 40\text{mm}$) per
3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes max.
4. $V_F = 3.5\text{V}$ for devices of $V_{BR} \leq 200\text{V}$ and $V_F = 5\text{V}$ max. for devices of $V_{BR} > 200\text{V}$

Devices for bipolar applications

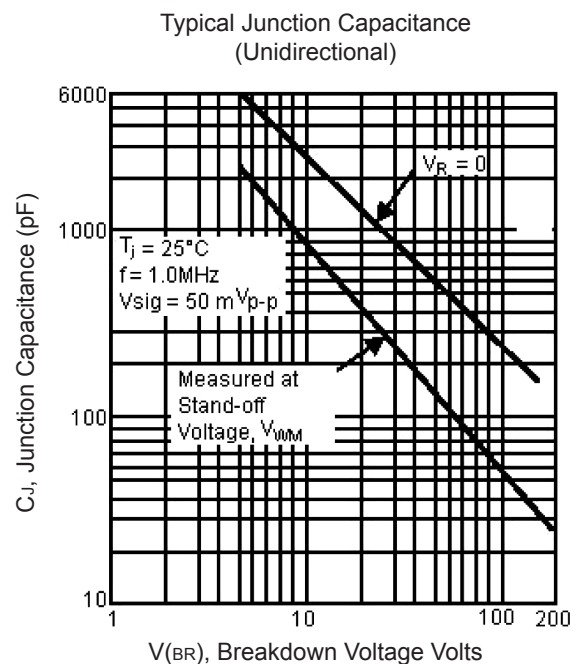
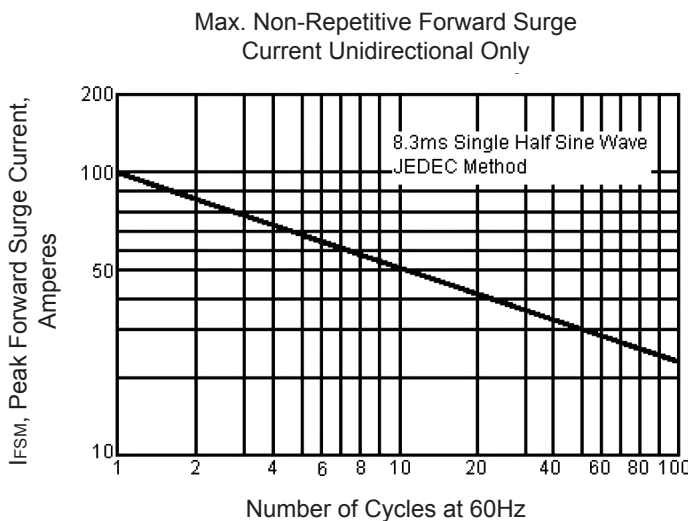
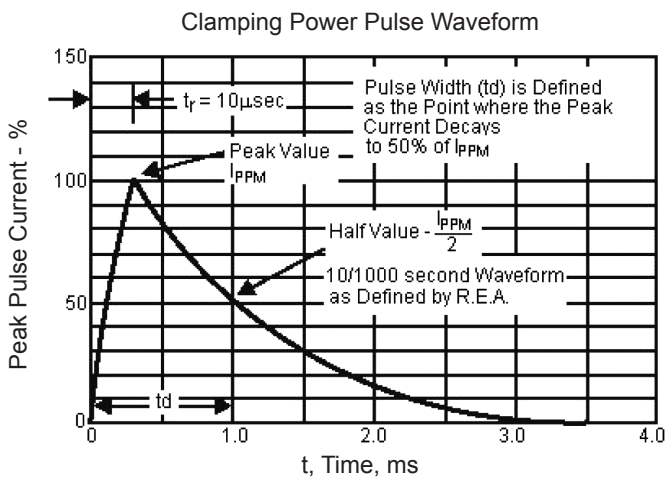
1. For bidirectional use C or CA suffix for types P6KE6.8 through types P6KE400
2. Electrical characteristics apply in both directions

Ratings and Characteristic Curves



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Electrical Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise noted)

Part Number		Nominal Voltage (V)	Breakdown Voltage		Test Current at I _T (mA)	Stand-Off Voltage V _{WM} (V)	Max. Reverse Leakage at V _{WM} I _D (μA)	Max Peak Pulse Current I _{RSM} (Note 2) (A)	Max Clamping Voltage at I _{PPM} V _C (V)	Max. Temperature Coefficient of V _{BR} (%/°C)
			V _{BR} (V) (Note 1)							
Unidirectional	Bidirectional		Min.	Max.						
P6KE100A	P6KE100CA	100	95	105	1	85.5	5	4.5	137	0.106
P6KE10A	P6KE10CA	10	9.5	10.5		8.55	10	43	14.5	0.073
P6KE110A	P6KE110CA	110	105	116		94	5	4.1	152	0.107
P6KE120A	P6KE120CA	120	114	126		102		3.8	165	
P6KE12A	P6KE12CA	12	11.4	12.6		10.2		37	16.7	0.078
P6KE13A	P6KE13CA	13	12.4	13.7		11.1		34	18.2	0.081

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Part Number		Nominal Voltage (V)	Breakdown Voltage		Test Current at I _T (mA)	Stand-Off Voltage V _{WM} (V)	Max. Reverse Leakage at V _{WM} I _D (μA)	Max Peak Pulse Current I _{RSM} (Note 2) (A)	Max Clamping Voltage at I _{PPM} V _C (V)	Max. Temperature Coefficient of V _{BR} (%/°C)
			V _{BR} (V) (Note 1)							
Unidirectional	Bidirectional		Min.	Max.						
P6KE150A	P6KE150CA	150	143	158	1	128	5	3	207	0.108
P6KE15A	P6KE15CA	15	14.3	15.8		12.8		29	21.2	0.084
P6KE160A	P6KE160CA	160	152	168		136		2.8	219	0.108
P6KE16A	P6KE16CA	16	15.2	16.8		13.6		28	22.5	0.086
P6KE180A	P6KE180CA	180	171	189		154		2.5	246	0.108
P6KE18A	P6KE18CA	18	17.1	18.9		15.3		25	25.2	0.088
P6KE200A	P6KE200CA	200	190	210		171		2.2	274	0.108
P6KE20A	P6KE20CA	20	19	21		17.1		22	27.7	0.09
P6KE22A	P6KE22CA	22	20.9	23.1		18.8		20	30.6	0.092
P6KE24A	P6KE24CA	24	22.8	25.2		20.5		19	33.2	0.094
P6KE27A	P6KE27CA	27	25.7	28.4		23.1		16.8	37.5	0.096
P6KE300A	P6KE300CA	300	285	315		256		1.5	414	0.11
P6KE30A	P6KE30CA	30	28.5	31.5		25.6		15	41.4	0.097
P6KE33A	P6KE33CA	33	31.4	34.7		28.2		13.8	45.7	0.098
P6KE36A	P6KE36CA	36	34.2	37.8		30.8		12.6	49.9	0.099
P6KE39A	P6KE39CA	39	37.1	41		33.3		11.6	53.9	0.1
P6KE400A	P6KE400CA	400	380	420		342		1.1	548	0.11
P6KE440A	P6KE440CA	440	418	462		376		1.04	600	
P6KE47A	P6KE47CA	47	44.7	49.4		40.2		9.7	64.8	0.101
P6KE62A	P6KE62CA	62	58.9	65.1		53		7.4	85	0.104
P6KE68A	P6KE68CA	68	64.6	71.4		58.1		6.8	92	
P6KE7.5A	P6KE7.5CA	7.5	7.13	7.88	10	6.4	500	55	11.3	0.061
P6KE8.2A	P6KE8.2CA	8.2	7.79	8.61	1	7.02	200	52	12.1	0.064
P6KE9.1A	P6KE9.1CA	9.1	8.65	9.55		7.78	50	47	13.4	0.068
P6KE91A	P6KE91CA	91	86.5	95.5		77.8	5	5	125	0.106

Notes:

1. V_{BR} measured after I_T applied for 300 μ s, I_T = square wave pulse or equivalent.
2. Surge current waveform per Figure 3 and derate.
3. For bipolar types having V_{WM} of 10V and under, the I_D limit is doubled.
4. All terms and symbols are consistent with ANSI/IEEE C62.35.

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