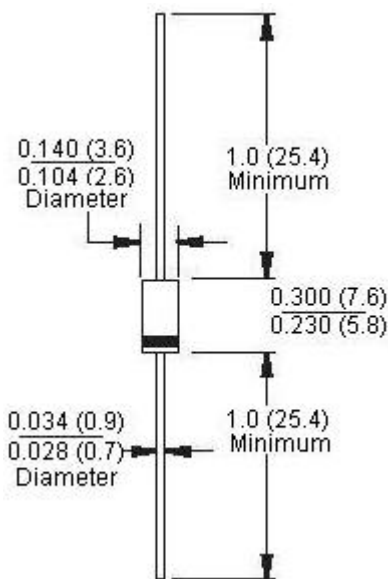




## Features:

- Plastic package.
- Exceeds environmental standards of MIL-STD-19500.
- 600W surge capability at 10 x 1000 $\mu$ 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 $\mu$ 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 : 0.42 gram.

## Maximum 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%.

Type Number	Symbol	Value	Units
Peak Power Dissipation at $T_A = 25^\circ\text{C}$ , $T_p = 1\text{ms}$ (Note 1)	$P_{PK}$	Minimum 600	Watts
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$ Lead Lengths 0.375 Inch 9.5mm (Note 2)	$P_D$	5.0	
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (Note 3)	$I_{FSM}$	100	Amps
Maximum Instantaneous Forward Voltage at 50.0A for Unidirectional Only (Note 4)	$V_F$	3.5/5.0	Volts
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 175	$^\circ\text{C}$

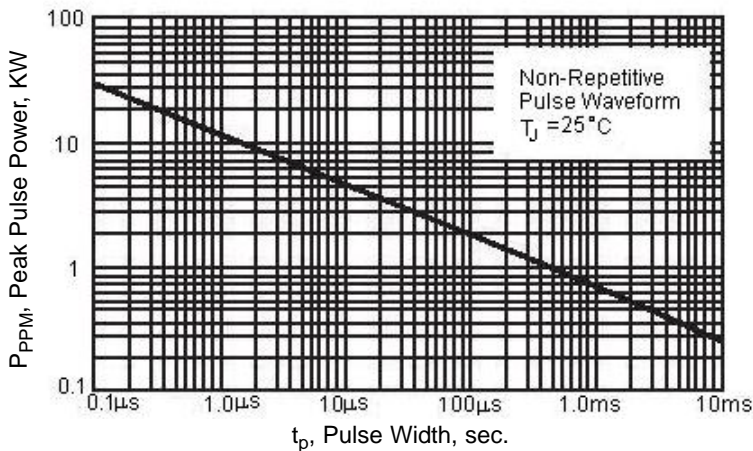
- Notes:
1. Non-repetitive current pulse and derated above  $T_A = 25^\circ\text{C}$ .
  2. Mounted on copper pad area of 1.6 x 1.6 inch (40 x 40mm) per.
  3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum.
  4.  $V_F = 3.5\text{V}$  for devices of  $V_{BR} \leq 200\text{V}$  and  $V_F = 5.0\text{V}$  maximum for devices of  $V_{BR} > 200\text{V}$ .

Devices for bipolar applications

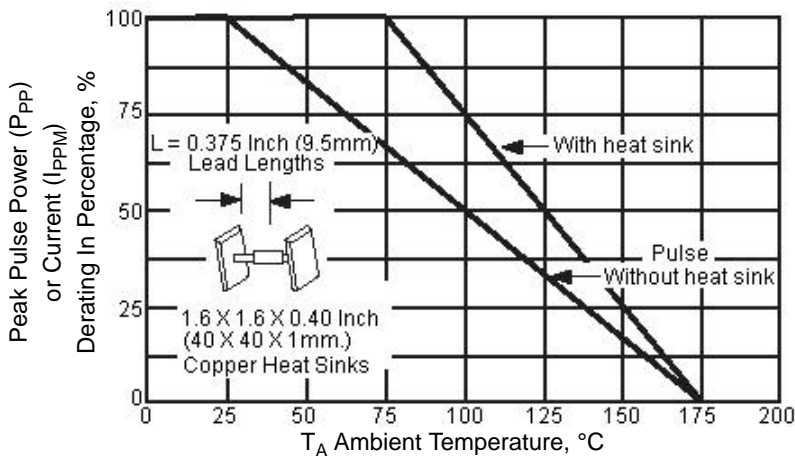
1. For bidirectional use C or CA suffix for types P6KE6.8 through types P6KE400.
2. Electrical characteristics apply in both directions.

## Ratings and Characteristic Curves

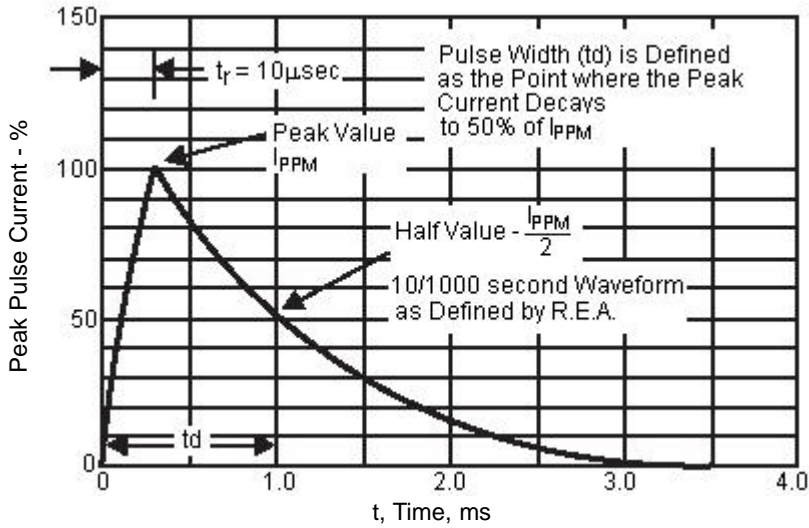
Peak Pulse Power Rating Curve



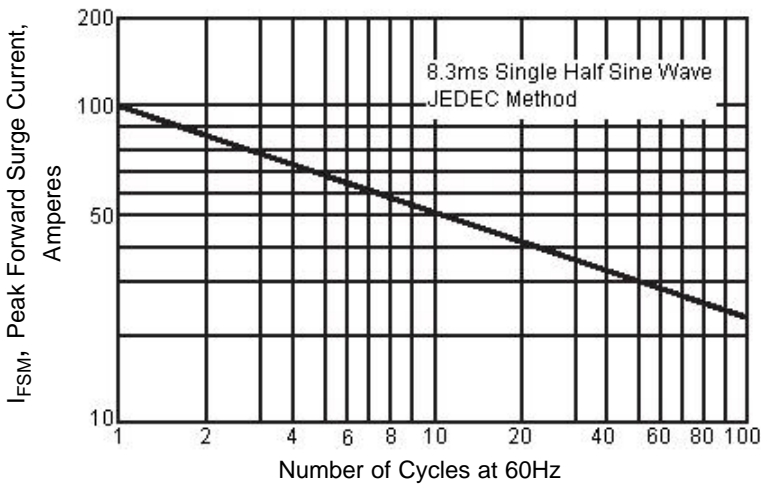
Pulse Derating Curve



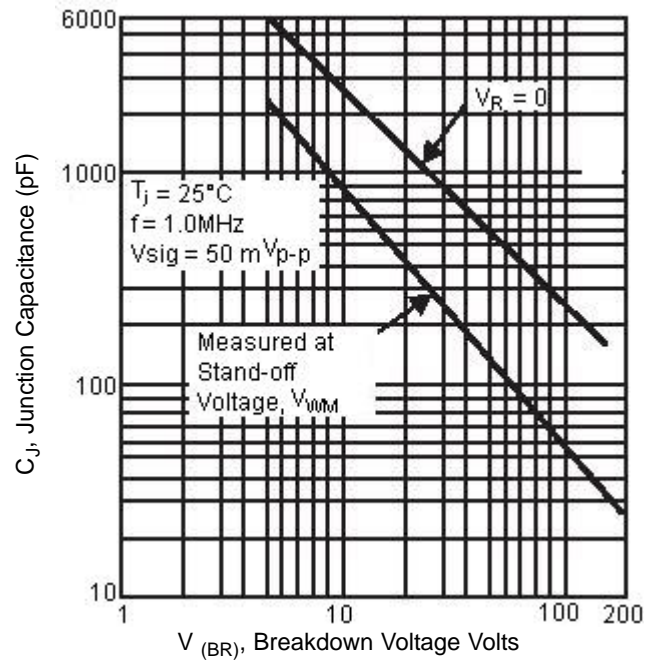
Clamping Power Pulse Waveform



Maximum Non-Repetitive Forward Surge Current Unidirectional Only



Typical Junction Capacitance (Unidirectional)



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

Device		Nominal Voltage (Volts)	Breakdown Voltage		Test Current at $I_T$ (mA)	Stand-Off Voltage $V_{WM}$ (Volts)	Maximum Reverse Leakage at $V_{WM}$ $I_D$ ( $\mu\text{A}$ )	Maximum Peak Pulse Current $I_{RSM}$ (Note 2) (Amps)	Maximum Clamping Voltage at $I_{PPM}$ $V_C$ (Volts)	Maximum Temperature Coefficient of $V_{BR}$ ( $\%/^\circ\text{C}$ )	
			$V_{BR}$ (Volts) (Note 1)								
Unidirectional	Bidirectional		Minimum	Maximum							
P6KE100A	P6KE100CA	100.0	95.0	105.0	1.0	85.5	5.0	4.5	137.0	0.106	
P6KE10A	P6KE10CA	10.0	9.50	10.5		8.55		10.0	43.0	14.5	0.073
P6KE110A	P6KE110CA	110.0	105.0	116.0		94.0		5.0	4.1	152.0	0.107
P6KE120A	P6KE120CA	120.0	114.0	126.0		102.0			3.8	165.0	
P6KE12A	P6KE12CA	12.0	11.4	12.6		10.2			37.0	16.7	0.078
P6KE13A	P6KE13CA	13.0	12.4	13.7		11.1			34.0	18.2	0.081
P6KE150A	P6KE150CA	150.0	143.0	158.0		128.0			3.0	207.0	0.108
P6KE15A	P6KE15CA	15.0	14.3	15.8		12.8			29.0	21.2	0.084
P6KE160A	P6KE160CA	160.0	152.0	168.0		136.0			2.8	219.0	0.108
P6KE16A	P6KE16CA	16.0	15.2	16.8		13.6			28.0	22.5	0.086
P6KE180A	P6KE180CA	180.0	171.0	189.0		154.0			2.5	246.0	0.108
P6KE18A	P6KE18CA	18.0	17.1	18.9		15.3			25.0	25.2	0.088
P6KE200A	P6KE200CA	200.0	190.0	210.0		171.0		2.2	274.0	0.108	
P6KE20A	P6KE20CA	20.0	19.0	21.0		17.1		22.0	27.7	0.090	
P6KE22A	P6KE22CA	22.0	20.9	23.1		18.8		20.0	30.6	0.092	
P6KE24A	P6KE24CA	24.0	22.8	25.2		20.5		19.0	33.2	0.094	
P6KE27A	P6KE27CA	27.0	25.7	28.4		23.1		16.8	37.5	0.096	
P6KE300A	P6KE300CA	300.0	285.0	315.0		256.0		1.5	414.0	0.110	
P6KE30A	P6KE30CA	30.0	28.5	31.5		25.6		15.0	41.4	0.097	
P6KE33A	P6KE33CA	33.0	31.4	34.7		28.2		13.8	45.7	0.098	
P6KE36A	P6KE36CA	36.0	34.2	37.8	30.8	12.6	49.9	0.099			
P6KE39A	P6KE39CA	39.0	37.1	41.0	33.3	11.6	53.9	0.100			
P6KE400A	P6KE400CA	400.0	380.0	420.0	342.0	1.1	548.0	0.110			
P6KE440A	P6KE440CA	440.0	418.0	462.0	376.0	1.04	600.0				
P6KE47A	P6KE47CA	47.0	44.7	49.4	40.2	9.7	64.8	0.101			
P6KE62A	P6KE62CA	62.0	58.9	65.1	53.0	7.4	85.0	0.104			
P6KE68A	P6KE68CA	68.0	64.6	71.4	58.1	6.8	92.0				
P6KE7.5A	P6KE7.5CA	7.5	7.13	7.88	10.0	6.40	500.0	55.0	11.3	0.061	

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

Device		Nominal Voltage (Volts)	Breakdown Voltage		Test Current at $I_T$ (mA)	Stand-Off Voltage $V_{WM}$ (Volts)	Maximum Reverse Leakage at $V_{WM}$ $I_D$ ( $\mu\text{A}$ )	Maximum Peak Pulse Current $I_{RSM}$ (Note 2) (Amps)	Maximum Clamping Voltage at $I_{PPM}$ $V_C$ (Volts)	Maximum Temperature Coefficient of $V_{BR}$ ( $\%/^\circ\text{C}$ )
			$V_{BR}$ (Volts) (Note 1)							
Unidirectional	Bidirectional		Minimum	Maximum						
P6KE8.2A	P6KE8.2CA	8.2	7.79	8.61	1.0	7.02	200.0	52.0	12.1	0.064
P6KE9.1A	P6KE9.1CA	9.1	8.65	9.55		7.78	50.0	47.0	13.4	0.068
P6KE91A	P6KE91CA	91.0	86.5	95.5		77.8	5.0	5.0	125.0	0.106

### Notes:

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

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