

# P6KE200B

## 600 Watt Peak Power Transient Voltage Suppressors

### Unidirectional\*

The P6KE200B is designed to protect voltage sensitive components from high voltage, high energy transients. They have excellent clamping capability, high surge capability, low zener impedance and fast response time. These devices are ON Semiconductor's exclusive, cost-effective, highly reliable Surmetic™ axial leaded package and is ideally-suited for use in communication systems, numerical controls, process controls, medical equipment, business machines, power supplies and many other industrial/consumer applications.

#### Specification Features:

- Working Peak Reverse Voltage Range – 171 V
- Peak Power – 600 Watts @ 1.0 ms
- ESD Rating of Class 3 (>16 KV) per Human Body Model
- Maximum Clamp Voltage @ Peak Pulse Current
- Low Leakage < 5.0  $\mu$ A above 171 V
- Maximum Temperature Coefficient Specified
- UL 497B for Isolated Loop Circuit Protection
- Response Time is typically < 1.0 ns

#### Mechanical Characteristics:

**CASE:** Void-free, Transfer-molded, Thermosetting plastic

**FINISH:** All external surfaces are corrosion resistant and leads are readily solderable

#### MAXIMUM LEAD TEMPERATURE FOR SOLDERING:

230°C, 1/16" from the case for 10 seconds

**POLARITY:** Cathode indicated by polarity band

**MOUNTING POSITION:** Any

#### MAXIMUM RATINGS

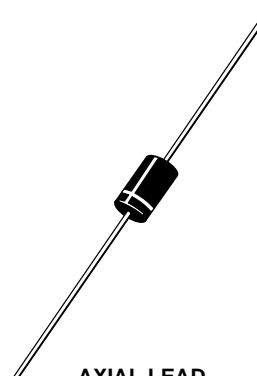
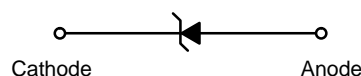
Rating	Symbol	Value	Unit
Peak Power Dissipation (Note 1) @ $T_L \leq 25^\circ\text{C}$	$P_{PK}$	600	Watts
Steady State Power Dissipation @ $T_L \leq 75^\circ\text{C}$ , Lead Length = 3/8" Derated above $T_L = 75^\circ\text{C}$	$P_D$	5.0	Watts
		50	mW/°C
Thermal Resistance, Junction-to-Lead	$R_{\theta JL}$	15	°C/W
Forward Surge Current (Note 2) @ $T_A = 25^\circ\text{C}$	$I_{FSM}$	100	Amps
Operating and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	°C

1. Nonrepetitive current pulse per Figure 3 and derated above  $T_A = 25^\circ\text{C}$  per Figure 2.
2. 1/2 sine wave (or equivalent square wave), PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.



ON Semiconductor™

<http://onsemi.com>



AXIAL LEAD  
CASE 59-09  
PLASTIC



L = Assembly Location  
P6KE200B = Device Code  
YY = Year  
WW = Work Week

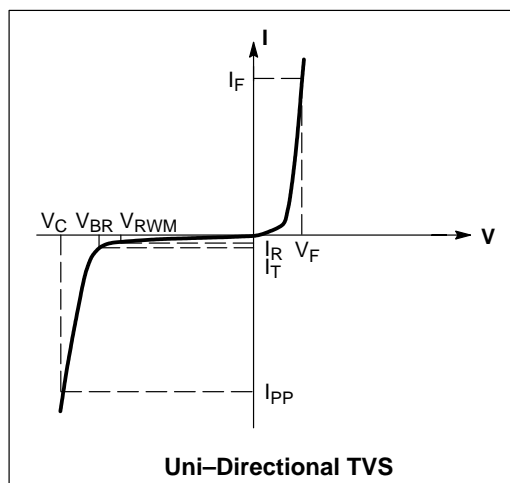
#### ORDERING INFORMATION

Device	Package	Shipping
P6KE200B	Axial Lead	1000 Units/Box
P6KE200BRL	Axial Lead	5000 Tape & Reel

## P6KE200B

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 3.5\text{ V Max. @ } I_F \text{ (Note 6) } = 50\text{ A}$ )

Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$\Theta V_{BR}$	Maximum Temperature Coefficient of $V_{BR}$
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$



**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 3.5\text{ V Max. @ } I_F \text{ (Note 6) } = 50\text{ A}$ )

Device	Device Marking	$V_{RWM}$ (Note 3) Volts	$I_R$ @ $V_{RWM}$ $\mu\text{A}$	Breakdown Voltage			$V_C$ @ $I_{PP}$ (Note 5)		$\Theta V_{BR}$ %/°C	
				$V_{BR}$ (Note 4) (Volts)			@ $I_T$	$V_C$		$I_{PP}$
				Min	Nom	Max	mA	Volts		A
P6KE200B	P6KE200B	171	5	190	200	210	1	274	2.2	0.108

3. A transient suppressor is normally selected according to the maximum working peak reverse voltage ( $V_{RWM}$ ), which should be equal to or greater than the dc or continuous peak operating voltage level.
4.  $V_{BR}$  measured at pulse test current  $I_T$  at an ambient temperature of  $25^\circ\text{C}$ .
5. Surge current waveform per Figure 3 and derate per Figures 1 and 2.
6. 1/2 sine wave (or equivalent square wave),  $PW = 8.3\text{ ms}$ , duty cycle = 4 pulses per minute maximum.

# P6KE200B

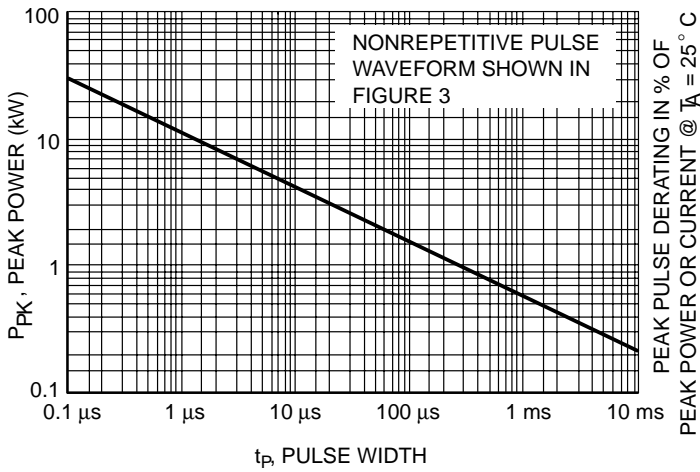


Figure 1. Pulse Rating Curve

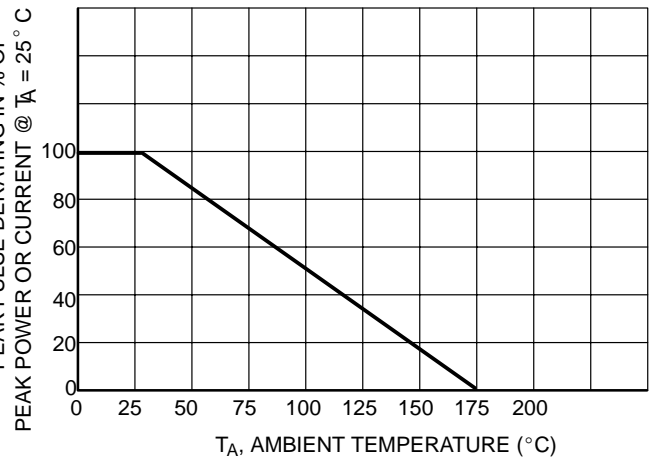


Figure 2. Pulse Derating Curve

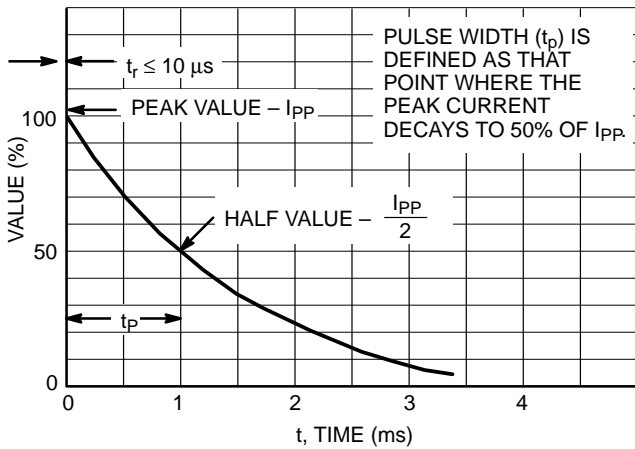


Figure 3. Pulse Waveform

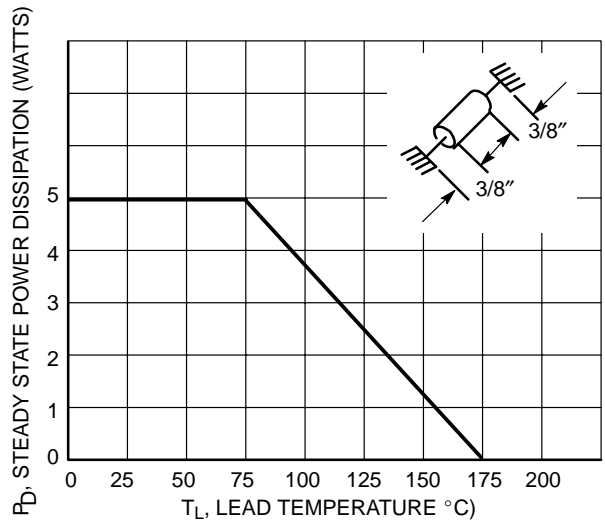


Figure 4. Steady State Power Derating

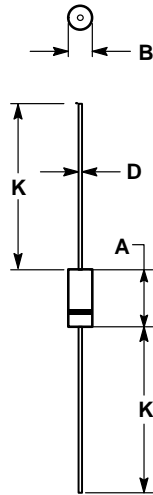
# P6KE200B

## OUTLINE DIMENSIONS

# Transient Voltage Suppressors – Axial Leaded

## 600 Watt Peak Power


AXIAL LEAD  
CASE 59-09  
ISSUE R



### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 59-04 OBSOLETE, NEW STANDARD 59-09.
4. 59-03 OBSOLETE, NEW STANDARD 59-10.
5. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO-41 OUTLINE SHALL APPLY.
6. POLARITY DENOTED BY CATHODE BAND.
7. LEAD DIAMETER NOT CONTROLLED WITHIN F DIMENSION.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.228	0.299	5.80	7.60
B	0.102	0.142	2.60	3.60
D	0.028	0.034	0.71	0.86
K	1.000	---	25.44	---

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