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.

Features

- Working Peak Reverse Voltage Range - 171 V
- Peak Power - 600 W @ 1.0 ms
- ESD Rating of Class 3 (>16 KV) per Human Body Model
- Maximum Clamp Voltage @ Peak Pulse Current
- Low Leakage < 5.0 μA above 171 V
- Maximum Temperature Coefficient Specified
- UL 497B for Isolated Loop Circuit Protection
- Response Time is Typically < 1.0 ns
- These are Pb-Free Devices*

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

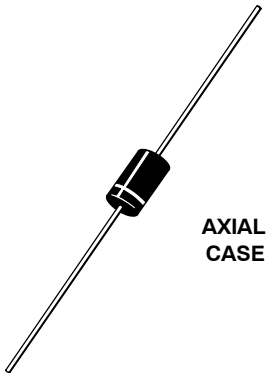
POLARITY: Cathode Indicated by Polarity Band

MOUNTING POSITION: Any

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ON Semiconductor®

http://onsemi.com



AXIAL LEAD
CASE 59AA

MARKING DIAGRAM

A	= Assembly Location
P6KE200B	= Device Code
YY	= Year
WW	= Work Week
▪	= Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
P6KE200B	Axial Lead**	1000 Units/Box
P6KE200BG	Axial Lead**	1000 Units/Box
P6KE200BRL	Axial Lead**	5000 / Tape & Reel
P6KE200BRLG	Axial Lead**	5000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

**These packages are inherently PB-Free.

MAXIMUM RATINGS

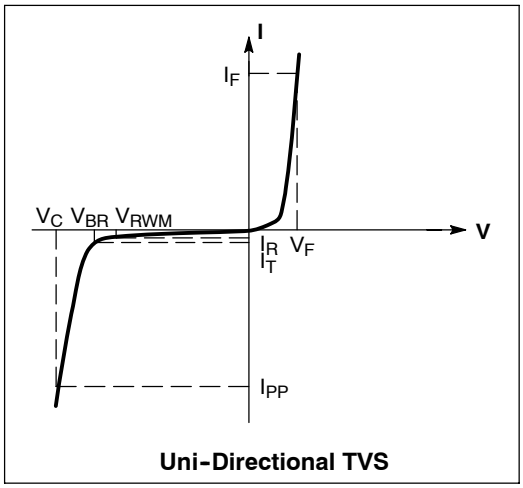
Rating	Symbol	Value	Unit
Peak Power Dissipation (Note 1) @ $T_L \le 25°C$	P_{PK}	600	W
Steady State Power Dissipation @ $T_L \le 75°C$, Lead Length = 3/8″, Derated above $T_L = 75°C$	P_D	5.0 50	W mW/°C
Thermal Resistance Junction−to−Lead	$R_{\theta JL}$	15	°C/W
Forward Surge Current (Note 2) @ $T_A =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

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

ELECTRICAL CHARACTERISTICS ($T_A = 25°C$ unless otherwise noted, $V_F = 3.5$ V Max. @ I_F (Note 3) = 50 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
ΘV_{BR}	Maximum Temperature Coefficient of V_{BR}
I_F	Forward Current
V_F	Forward Voltage @ I_F



Uni−Directional TVS

ELECTRICAL CHARACTERISTICS ($T_A = 25°C$ unless otherwise noted, $V_F = 3.5$ V Max. @ I_F (Note 3) = 50 A)

Device	Device Marking	V_{RWM} (Note 4)	I_R @ V_{RWM}	Breakdown Voltage V_{BR} (Note 5) (Volts)			@ I_T	V_C @ I_{PP} (Note 6)		ΘV_{BR}
		V	μA	Min	Nom	Max	mA	V	A	%/°C
P6KE200B	P6KE200B	171	5	190	200	210	1	274	2.2	0.108

3. 1/2 sine wave (or equivalent square wave), PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.
4. 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.
5. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C.
6. Surge current waveform per Figure 3 and derate per Figures 1 and 2.

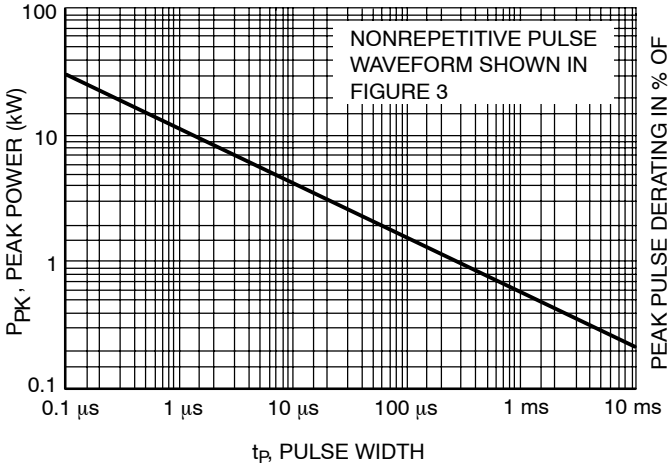


Figure 1. Pulse Rating Curve

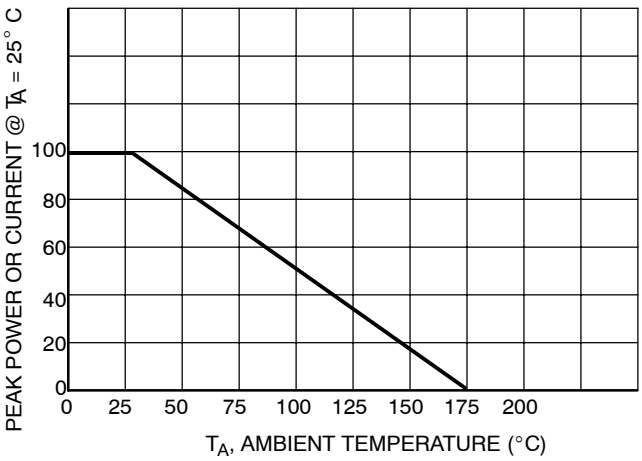


Figure 2. Pulse Derating Curve

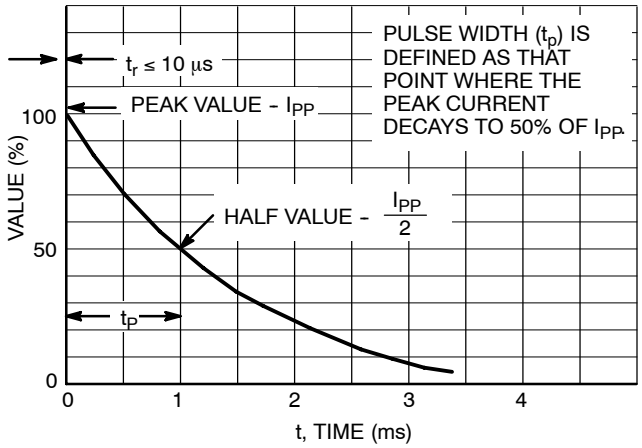


Figure 3. Pulse Waveform

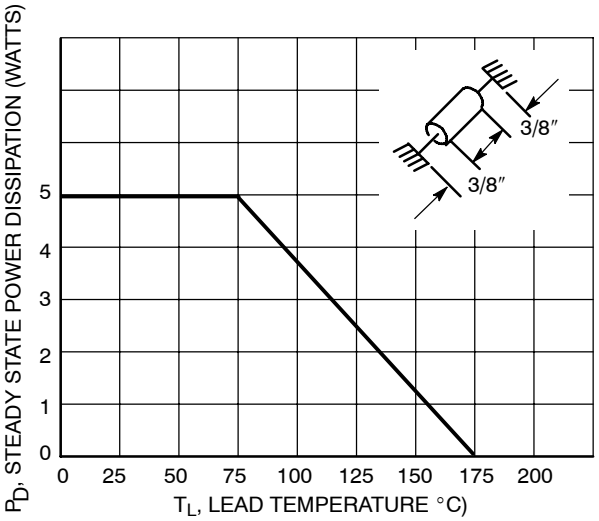
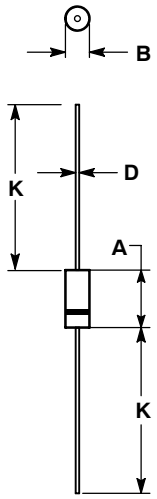


Figure 4. Steady State Power Derating

PACKAGE DIMENSIONS

AXIAL LEAD
CASE 59AA−01
(Previously 59−09)
ISSUE O



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

	INCHES		MILLIMETERS	
DIM	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	−−−

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
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Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.

P6KE200B/D