

1N6267A Series

1500 Watt Mosorb™ Zener Transient Voltage Suppressors

Unidirectional

Mosorb devices are 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 are ideally-suited for use in communication systems, numerical controls, process controls, medical equipment, business machines, power supplies and many other industrial/consumer applications, to protect CMOS, MOS and Bipolar integrated circuits.

Features

- Working Peak Reverse Voltage Range – 5.8 V to 214 V
- Peak Power – 1500 Watts @ 1 ms
- ESD Rating of Class 3 (>16 kV) per Human Body Model
- Maximum Clamp Voltage @ Peak Pulse Current
- Low Leakage < 5 μ A Above 10 V
- UL 497B for Isolated Loop Circuit Protection
- Response Time is Typically < 1 ns
- Pb-Free Packages are Available*

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 PURPOSES: 260°C, 1/16 in from the case for 10 seconds

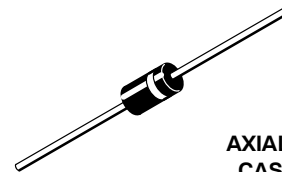
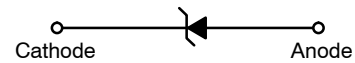
POLARITY: Cathode indicated by polarity band

MOUNTING POSITION: Any



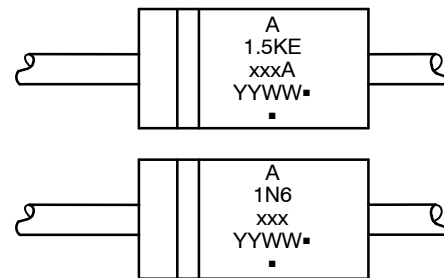
ON Semiconductor®

<http://onsemi.com>



AXIAL LEAD
CASE 41A
PLASTIC

MARKING DIAGRAMS



A = Assembly Location
1.5KExxxA = ON Device Code
1N6xxx = JEDEC Device Code
YY = Year
WW = Work Week
■ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
1.5KExxxAG	Axial Lead (Pb-Free)	500 Units/Box
1.5KExxxARL4G	Axial Lead (Pb-Free)	1500/Tape & Reel
1N6xxxAG	Axial Lead (Pb-Free)	500 Units/Box
1N6xxxARL4G	Axial Lead (Pb-Free)	1500/Tape & Reel

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

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

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MAXIMUM RATINGS

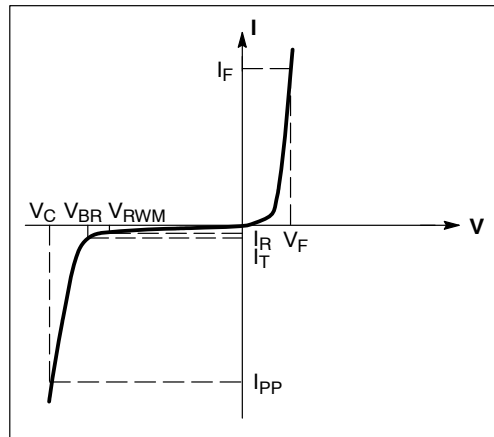
Rating	Symbol	Value	Unit
Peak Power Dissipation (Note 1) @ $T_L \leq 25^\circ\text{C}$	P_{PK}	1500	W
Steady State Power Dissipation @ $T_L \leq 75^\circ\text{C}$, Lead Length = 3/8 in Derated above $T_L = 75^\circ\text{C}$	P_D	5.0	W
		20	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Lead	$R_{\theta JL}$	20	$^\circ\text{C/W}$
Forward Surge Current (Note 2) @ $T_A = 25^\circ\text{C}$	I_{FSM}	200	A
Operating and Storage Temperature Range	T_J, T_{stg}	- 65 to +175	$^\circ\text{C}$

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 5 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.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 3.5\text{ V Max.}$, I_F (Note 3) = 100 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

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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 3.5\text{ V Max. @ } I_F$ (Note 3) = 100 A)

Device†	JEDEC Device† (Note 4)	V_{RWM} (Note 5) (Volts)	I_R @ V_{RWM} (μA)	Breakdown Voltage			V_C @ I_{PP} (Note 7)		Θ_{VBR} (%/°C)	
				V_{BR} (Note 6) (Volts)			$@ I_T$ (mA)	V_C (Volts)		I_{PP} (A)
				Min	Nom	Max				
1.5KE6.8AG	1N6267AG	5.8	1000	6.45	6.8	7.14	10	10.5	143	0.057
1.5KE7.5AG	–	6.4	500	7.13	7.5	7.88	10	11.3	132	0.061
1.5KE8.2AG	1N6269AG	7.02	200	7.79	8.2	8.61	10	12.1	124	0.065
1.5KE9.1AG	–	7.78	50	8.65	9.1	9.55	1	13.4	112	0.068
1.5KE10AG	1N6271AG	8.55	10	9.5	10	10.5	1	14.5	103	0.073
1.5KE11AG	–	9.4	5	10.5	11	11.6	1	15.6	96	0.075
1.5KE12AG	–	10.2	5	11.4	12	12.6	1	16.7	90	0.078
1.5KE13AG	1N6274AG	11.1	5	12.4	13	13.7	1	18.2	82	0.081
1.5KE15AG	1N6275AG	12.8	5	14.3	15	15.8	1	21.2	71	0.084
1.5KE16A, G	1N6276AG	13.6	5	15.2	16	16.8	1	22.5	67	0.086
1.5KE18A, G	1N6277AG	15.3	5	17.1	18	18.9	1	25.2	59.5	0.088
1.5KE20AG	1N6278AG	17.1	5	19	20	21	1	27.7	54	0.09
–	1N6279AG	18.8	5	20.9	22	23.1	1	30.6	49	0.092
1.5KE24AG	1N6280AG	20.5	5	22.8	24	25.2	1	33.2	45	0.094
1.5KE27AG	1N6281AG	23.1	5	25.7	27	28.4	1	37.5	40	0.096
1.5KE30AG	1N6282AG	25.6	5	28.5	30	31.5	1	41.4	36	0.097
1.5KE33AG	1N6283AG	28.2	5	31.4	33	34.7	1	45.7	33	0.098
1.5KE36AG	1N6284AG	30.8	5	34.2	36	37.8	1	49.9	30	0.099
1.5KE39AG	1N6285AG	33.3	5	37.1	39	41	1	53.9	28	0.1
1.5KE43AG	1N6286AG	36.8	5	40.9	43	45.2	1	59.3	25.3	0.101
1.5KE47AG	1N6287AG	40.2	5	44.7	47	49.4	1	64.8	23.2	0.101
1.5KE51AG	1N6288A, G	43.6	5	48.5	51	53.6	1	70.1	21.4	0.102
1.5KE56AG	1N6289AG	47.8	5	53.2	56	58.8	1	77	19.5	0.103
1.5KE62AG	1N6290AG	53	5	58.9	62	65.1	1	85	17.7	0.104
1.5KE68AG	1N6291AG	58.1	5	64.6	68	71.4	1	92	16.3	0.104
1.5KE75AG	1N6292AG	64.1	5	71.3	75	78.8	1	103	14.6	0.105
1.5KE82A, G	–	70.1	5	77.9	82	86.1	1	113	13.3	0.105
1.5KE91AG	1N6294AG	77.8	5	86.5	91	95.5	1	125	12	0.106
–	1N6295AG	85.5	5	95	100	105	1	137	11	0.106

Devices listed in **bold, italic** are ON Semiconductor Preferred devices. **Preferred** devices are recommended choices for future use and best overall value.

3. 1/2 sine wave (or equivalent square wave), PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.

4. Indicates JEDEC registered data

5. 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.

6. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C

7. Surge current waveform per Figure 5 and derate per Figures 1 and 2.

†The “G” suffix indicates Pb–Free package or Pb–Free packages are available.

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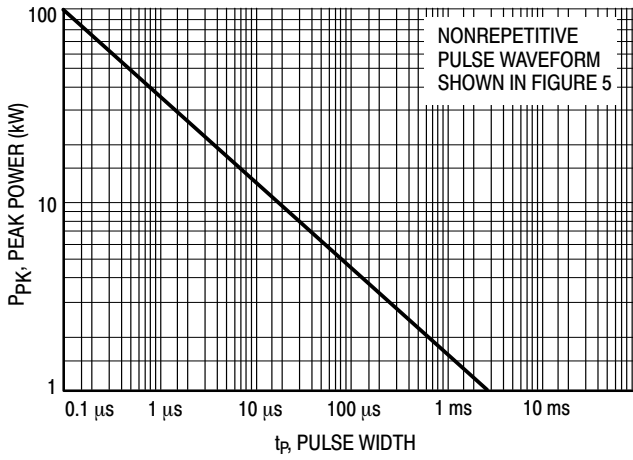


Figure 1. Pulse Rating Curve

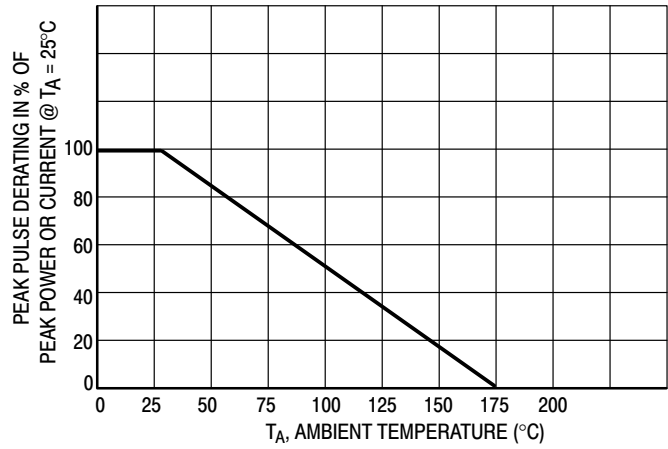


Figure 2. Pulse Derating Curve

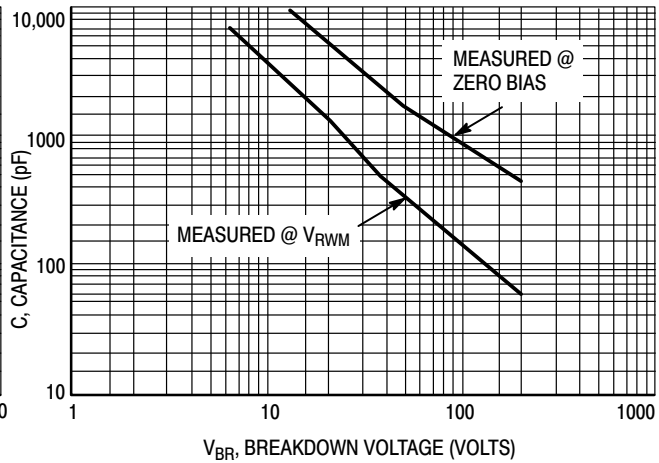
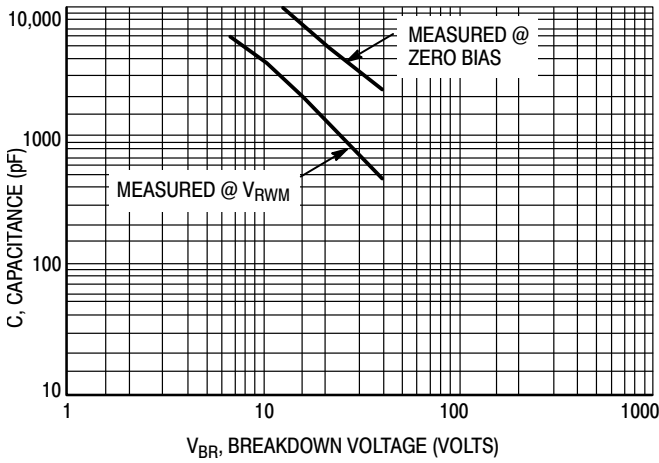


Figure 3. Capacitance versus Breakdown Voltage

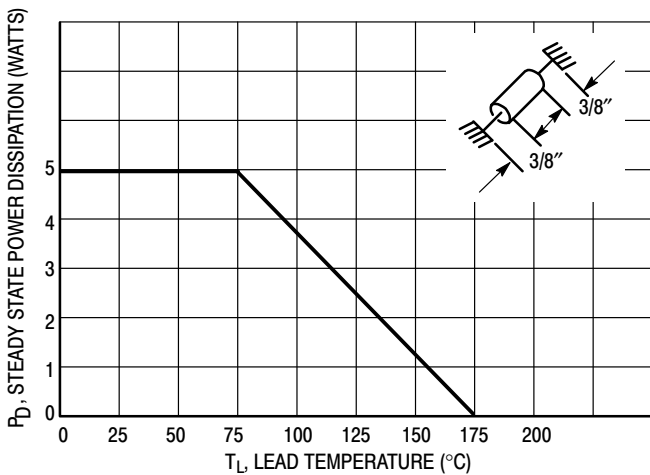


Figure 4. Steady State Power Derating

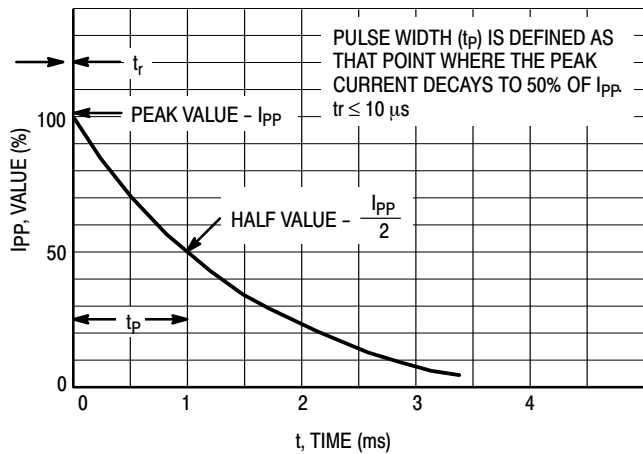


Figure 5. Pulse Waveform