

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 µA 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

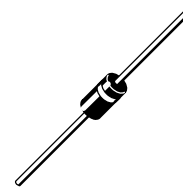
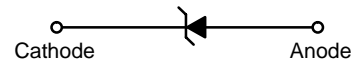
MAXIMUM LEAD TEMPERATURE FOR SOLDERING PURPOSES: 230°C, 1/16 in from the case for 10 seconds

POLARITY: Cathode indicated by polarity band

MOUNTING POSITION: Any

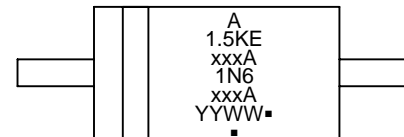


ON Semiconductor®



AXIAL LEAD
CASE 41A
PLASTIC

MARKING DIAGRAM



- A = Assembly Location
- 1.5KExxxA = ON Device Code
- 1N6xxxA = JEDEC Device Code
- YY = Year
- WW = Work Week
- (See Table on Page 3)
- = Pb-Free Package
- (Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
1.5KExxxA	Axial Lead	500 Units/Box
1.5KExxxAG	Axial Lead (Pb-Free)	500 Units/Box
1.5KExxxARL4	Axial Lead	1500/Tape & Reel
1.5KExxxARL4G	Axial Lead (Pb-Free)	1500/Tape & Reel
1N6xxxA	Axial Lead	500 Units/Box
1N6xxxAG	Axial Lead (Pb-Free)	500 Units/Box
1N6xxxARL4	Axial Lead	1500/Tape & Reel
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.

Preferred devices are recommended choices for future use and best overall value.

*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 20	W 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	$^\circ\text{C}$

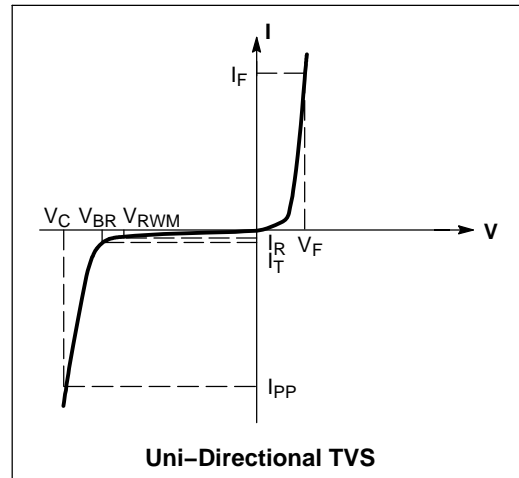
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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.

NOTES: Please see 1.5KE6.8CA to 1.5KE250CA for Bidirectional Devices

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 3.5$ 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



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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			@ I_T (mA)	V_C @ I_{PP} (Note 7)		Θ_{VBR} (%/°C)
				V_{BR} (Note 6) (Volts)				V_C (Volts)	I_{PP} (A)	
				Min	Nom	Max				
1.5KE6.8A, G	1N6267A, G	5.8	1000	6.45	6.8	7.14	10	10.5	143	0.057
1.5KE7.5A, G	1N6268A, G	6.4	500	7.13	7.5	7.88	10	11.3	132	0.061
1.5KE8.2A, G	1N6269A, G	7.02	200	7.79	8.2	8.61	10	12.1	124	0.065
1.5KE9.1A, G	1N6270A, G	7.78	50	8.65	9.1	9.55	1	13.4	112	0.068
1.5KE10A, G	1N6271A, G	8.55	10	9.5	10	10.5	1	14.5	103	0.073
1.5KE11A, G	1N6272A, G	9.4	5	10.5	11	11.6	1	15.6	96	0.075
1.5KE12A, G	1N6273A, G	10.2	5	11.4	12	12.6	1	16.7	90	0.078
1.5KE13A, G	1N6274A, G	11.1	5	12.4	13	13.7	1	18.2	82	0.081
1.5KE15A, G	1N6275A, G	12.8	5	14.3	15	15.8	1	21.2	71	0.084
1.5KE16A, G	1N6276A, G	13.6	5	15.2	16	16.8	1	22.5	67	0.086
1.5KE18A, G	1N6277A, G	15.3	5	17.1	18	18.9	1	25.2	59.5	0.088
1.5KE20A, G	1N6278A, G	17.1	5	19	20	21	1	27.7	54	0.09
1.5KE22A, G	1N6279A, G	18.8	5	20.9	22	23.1	1	30.6	49	0.092
1.5KE24A, G	1N6280A, G	20.5	5	22.8	24	25.2	1	33.2	45	0.094
1.5KE27A, G	1N6281A, G	23.1	5	25.7	27	28.4	1	37.5	40	0.096
1.5KE30A, G	1N6282A, G	25.6	5	28.5	30	31.5	1	41.4	36	0.097
1.5KE33A, G	1N6283A, G	28.2	5	31.4	33	34.7	1	45.7	33	0.098
1.5KE36A, G	1N6284A, G	30.8	5	34.2	36	37.8	1	49.9	30	0.099
1.5KE39A, G	1N6285A, G	33.3	5	37.1	39	41	1	53.9	28	0.1
1.5KE43A, G	1N6286A, G	36.8	5	40.9	43	45.2	1	59.3	25.3	0.101
1.5KE47A, G	1N6287A, G	40.2	5	44.7	47	49.4	1	64.8	23.2	0.101
1.5KE51A, G	1N6288A, G	43.6	5	48.5	51	53.6	1	70.1	21.4	0.102
1.5KE56A, G	1N6289A, G	47.8	5	53.2	56	58.8	1	77	19.5	0.103
1.5KE62A, G	1N6290A, G	53	5	58.9	62	65.1	1	85	17.7	0.104
1.5KE68A, G	1N6291A, G	58.1	5	64.6	68	71.4	1	92	16.3	0.104
1.5KE75A, G	1N6292A, G	64.1	5	71.3	75	78.8	1	103	14.6	0.105
1.5KE82A, G	1N6293A, G	70.1	5	77.9	82	86.1	1	113	13.3	0.105
1.5KE91A, G	1N6294A, G	77.8	5	86.5	91	95.5	1	125	12	0.106
1.5KE100A, G	1N6295A, G	85.5	5	95	100	105	1	137	11	0.106
1.5KE110A, G	1N6296A, G	94	5	105	110	116	1	152	9.9	0.107
1.5KE120A, G	1N6297A, G	102	5	114	120	126	1	165	9.1	0.107
1.5KE130A, G	1N6298A, G	111	5	124	130	137	1	179	8.4	0.107
1.5KE150A, G	1N6299A, G	128	5	143	150	158	1	207	7.2	0.108
1.5KE160A, G	1N6300A, G	136	5	152	160	168	1	219	6.8	0.108
1.5KE170A, G	1N6301A, G	145	5	162	170	179	1	234	6.4	0.108
1.5KE180A, G	1N6302A, G*	154	5	171	180	189	1	246	6.1	0.108
1.5KE200A, G	1N6303A, G	171	5	190	200	210	1	274	5.5	0.108
1.5KE220A, G		185	5	209	220	231	1	328	4.6	0.109
1.5KE250A, G		214	5	237	250	263	1	344	5	0.109

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.

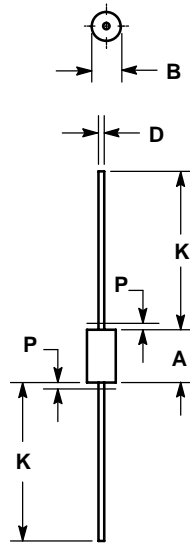
†The "G" suffix indicates Pb-Free package available.

*Not Available in the 1500/Tape & Reel

1N6267A Series

OUTLINE DIMENSIONS

MOSORB
CASE 41A-04
ISSUE D



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. LEAD FINISH AND DIAMETER UNCONTROLLED IN DIMENSION P.
4. 041A-01 THRU 041A-03 OBSOLETE, NEW STANDARD 041A-04.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.335	0.374	8.50	9.50
B	0.189	0.209	4.80	5.30
D	0.038	0.042	0.96	1.06
K	1.000	---	25.40	---
P	---	0.050	---	1.27