1N5908

Preferred Device

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

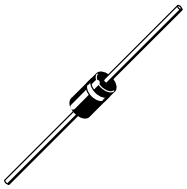
- Working Peak Reverse Voltage Range − 5.0 V
- Peak Power − 1500 Watts @ 1 ms
- Maximum Clamp Voltage @ Peak Pulse Current
- Low Leakage < 5 μA Above 10 V
- Response Time is Typically < 1 ns
- These are Pb−Free Devices*

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 PURPOSES: 260°C, 1/16″ from the case for 10 seconds
POLARITY: Cathode indicated by polarity band
MOUNTING POSITION: Any

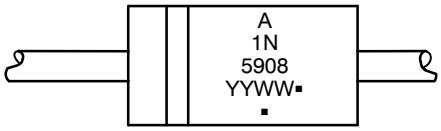
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ON Semiconductor®



AXIAL LEAD
CASE 41A
PLASTIC

MARKING DIAGRAM



A = Assembly Location
1N5908 = JEDEC Device Number
YY = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
1N5908G	Axial Lead (Pb−Free)	500 Units/Box
1N5908RL4G	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.

Publication Order Number:
1N5908/D

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Power Dissipation (Note 1) @ $T_L \le 25°C$	P_{PK}	1500	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	$R_{\theta JL}$	20	°C/W
Forward Surge Current (Note 2) @ $T_A = 25°C$	I_{FSM}	200	A
Operating and Storage Temperature Range	T_J, T_{stg}	− 65 to +175	°C

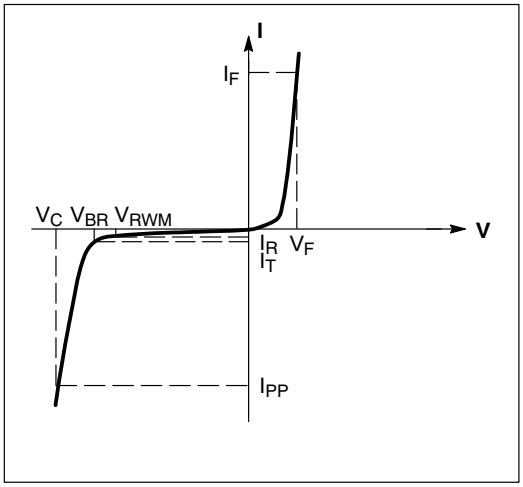
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Nonrepetitive current pulse per Figure 4 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.

*Bidirectional device will not be available in this device

ELECTRICAL CHARACTERISTICS ($T_A = 25°C$ 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
I_F	Forward Current
V_F	Forward Voltage @ I_F



Uni−Directional TVS

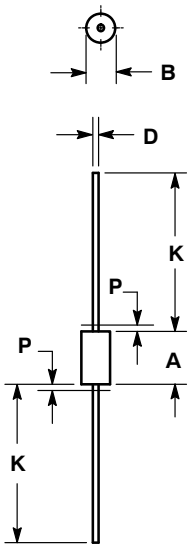
ELECTRICAL CHARACTERISTICS ($T_A = 25°C$ unless otherwise noted, $V_F = 3.5$ V Max. @ I_F (Note 3) = 53 A)

Device (Note 4)	V_{RWM} (Note 5) (Volts)	I_R @ V_{RWM} (μA)	Breakdown Voltage V_{BR} (Note 6) (Volts) Min	Nom	Max	@ I_T (mA)	V_C (Volts) (Note 7) @ I_{PP} = 120 A	@ I_{PP} = 60 A	@ I_{PP} = 30 A
1N5908	5.0	300	6.0	−	−	1.0	8.5	8.0	7.6

3. Square waveform, PW = 8.3 ms, Non−repetitive duty cycle.
4. 1N5908 is JEDEC registered as a unidirectional device only (no bidirectional option)
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 and minimum voltages in V_{BR} are to be controlled.
7. Surge current waveform per Figure 4 and derate per Figure 2 of the General Data − 1500 W at the beginning of this group

PACKAGE 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.

	INCHES		MILLIMETERS	
DIM	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