MA3075WALT1

Preferred Device

Zener Transient Voltage Suppressor

SOT−23 Dual Common Anode Zeners for ESD Protection

These dual monolithic silicon zener diodes are designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. Their dual junction common anode design protects two separate lines using only one package. These devices are ideal for situations where board space is at a premium.

Features

- SOT−23 Package Allows Two Separate Unidirectional Configurations
- Low Leakage < 1 μA @ 5.0 V
- Breakdown Voltage: 7.2−7.9 V @ 5 mA
- Low Capacitance (80 pF typical @ 0 V, 1 MHz)
- ESD Protection Meeting: 16 kV Human Body Model
30 kV Air and Contact Discharge
- Pb−Free Packages are Available

Mechanical Characteristics:

- Void Free, Transfer−Molded, Thermosetting Plastic Case
- Corrosion Resistant Finish, Easily Solderable
- Package Designed for Optimal Automated Board Assembly
- Small Package Size for High Density Applications

MAXIMUM RATINGS

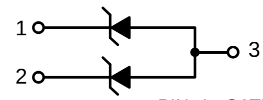
Rating	Symbol	Value	Unit
Peak Power Dissipation @ 100 μs (Note 1)	P_{pk}	15	W
Steady State Power Dissipation Derate above 25°C (Note 2)	P_D	225 1.8	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	556	°C/W
Maximum Junction Temperature	$R_{\theta JA}$	417	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	− 55 to +150	°C
ESD Discharge MIL STD 883C − Method 3015−6 IEC61000−4−2, Air Discharge IEC61000−4−2, Contact Discharge	V_{PP}	 16 30 30	kV

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.

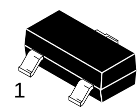
1. Non−repetitive 100 μs pulse width
2. Mounted on FR−5 Board = 1.0 X 0.75 X 0.062 in.

ON Semiconductor®

http://onsemi.com

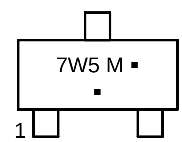


PIN 1. CATHODE
2. CATHODE
3. ANODE



SOT−23
CASE 318
STYLE 12

MARKING DIAGRAM



7W5 = Specific Device Code
M = Date Code*
▪ = Pb−Free Package
(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping†
MA3075WALT1	SOT−23	3000/Tape & Reel
MA3075WALT1G	SOT−23 (Pb−Free)	3000/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.

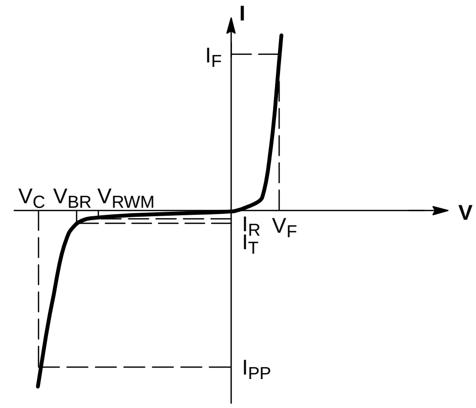
Preferred devices are recommended choices for future use and best overall value.

December, 2005 − Rev. 2

Publication Order Number:
MA3075WALT1/D

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward Voltage	V_F	I_F = 10 mA		0.8	0.9	V
Zener Voltage[*2]	V_Z	I_Z = 5 mA	7.2	7.5	7.9	V
Operating Resistance	R_{ZK}	I_Z = 0.5 mA			120	Ω
	R_Z	I_Z = 5 mA		6	15	Ω
Reverse Current	I_{R1}	V_R = 5 V			1	μA
	I_{R2}	V_R = 6.5 V			60	μA
Temperature Coefficient of Zener Voltage[*3]	S_Z	I_Z = 5 mA	2.5	4.0	5.3	mV/°C
Terminal Capacitance	C_t	V_R = 0 V		80		pF



Uni−Directional TVS

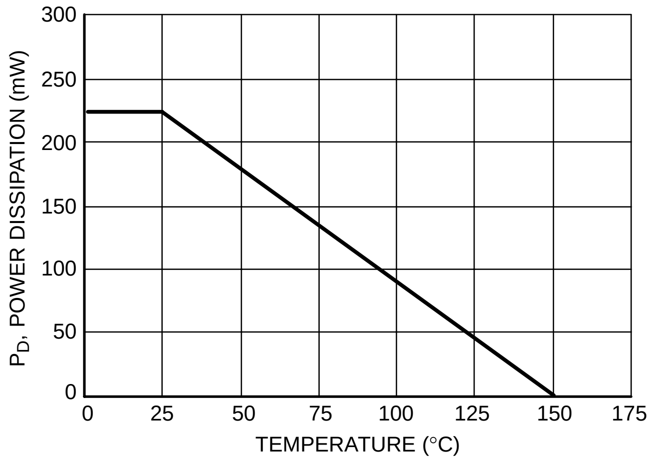


Figure 1. Steady State Power Derating Curve

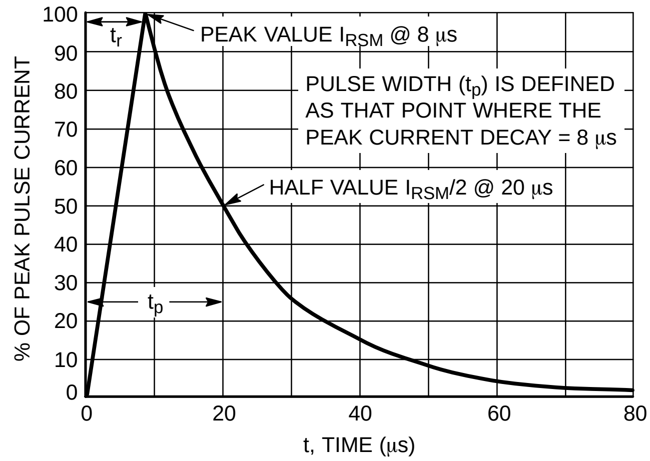


Figure 2. 8 X 20 μs Pulse Waveform

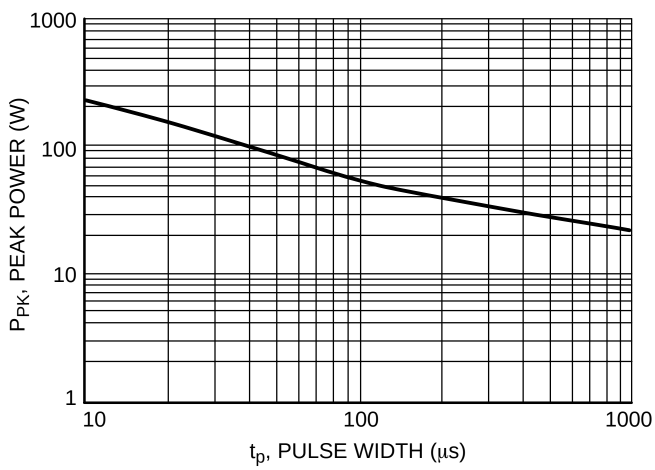


Figure 3. Pulse Rating Curve

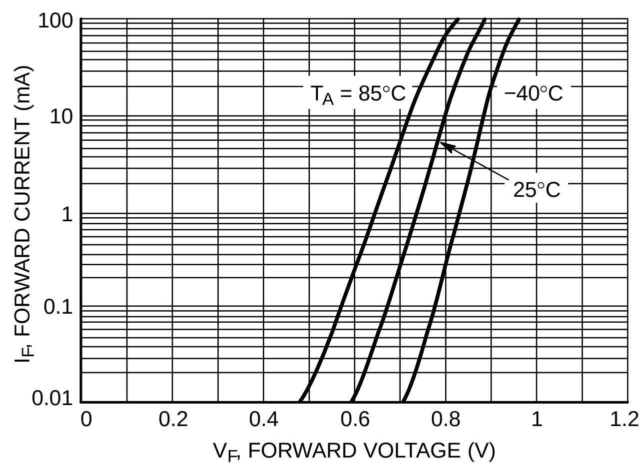


Figure 4. Forward Current versus Forward Voltage

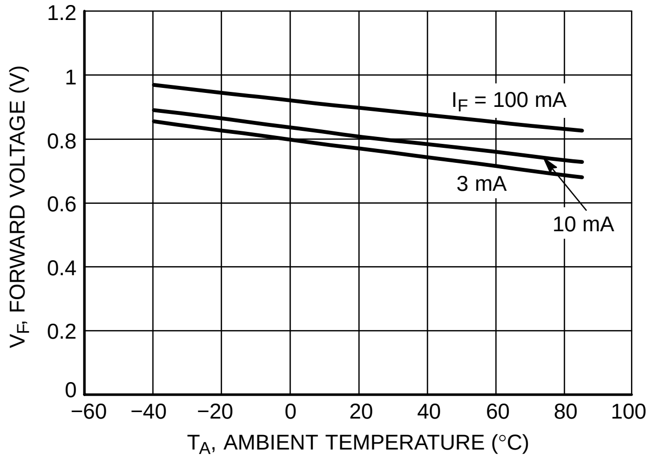


Figure 5. Forward Voltage versus Temperature

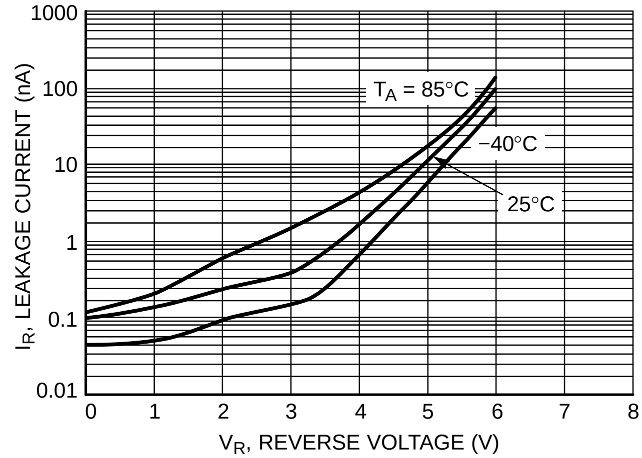


Figure 6. Leakage Current versus Reverse Voltage

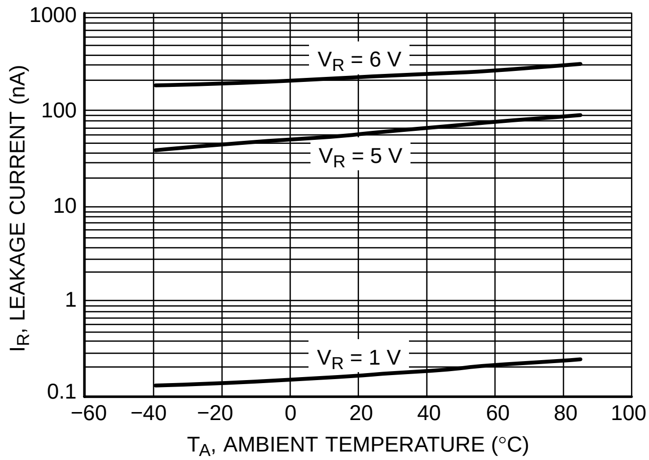


Figure 7. Leakage Current versus Temperature

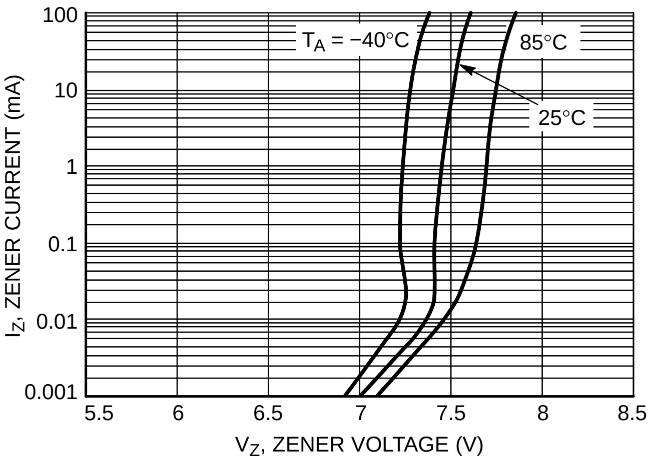


Figure 8. Zener Current versus Zener Voltage

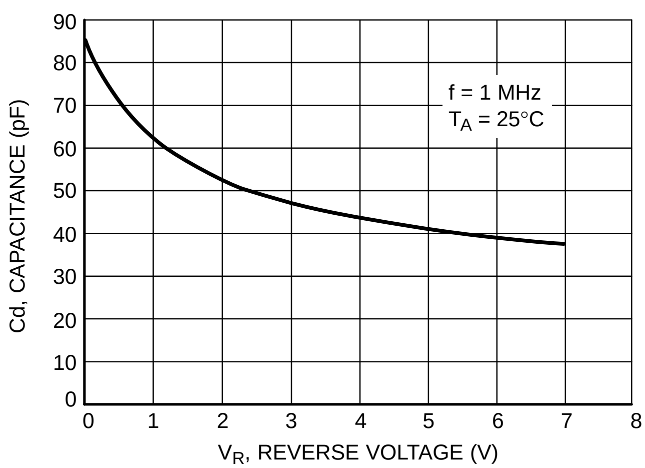


Figure 9. Capacitance

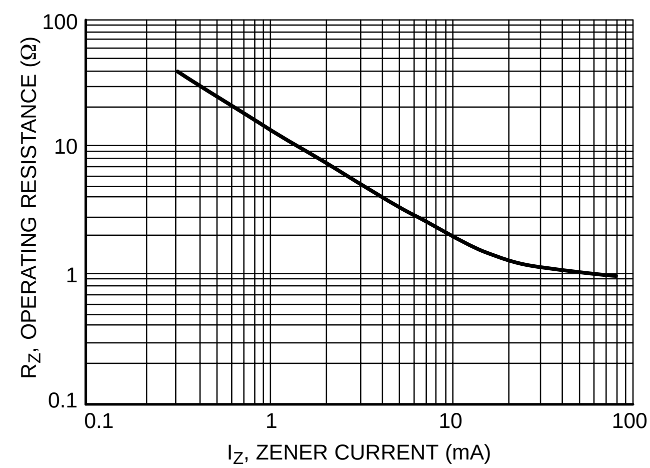
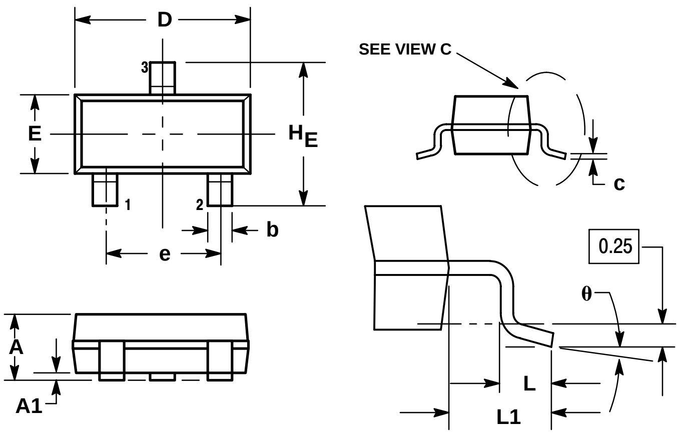


Figure 10. Operating Resistance versus Zener Current

SOT−23 (TO−236)
CASE 318−08
ISSUE AN



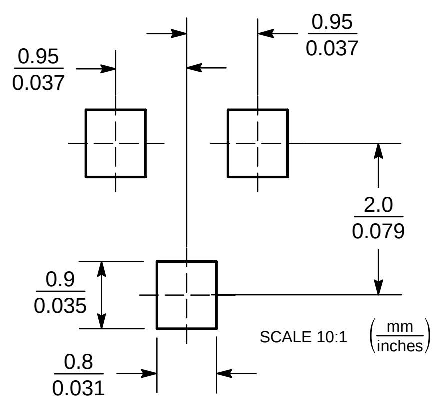
VIEW C

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318−01 THRU −07 AND −09 OBSOLETE, NEW STANDARD 318−08.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.40	2.64	0.083	0.094	0.104

STYLE 12:
PIN 1. CATHODE
2. CATHODE
3. ANODE

SOLDERING FOOTPRINT*



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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
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