1SMF5920B

2.5 Watt Zener Diode in Flat Lead Package

This complete new line of 2.5 Watt Zener Diodes are offered in highly efficient micro miniature and space saving surface mount design. Because of its small size, it is ideal for use in cellular phones, portable devices, business machines and many other industrial/ consumer applications.

Features

- Zener Breakdown Voltage: 6.2 V
- Low Leakage < 5 μA
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- Small Footprint − Footprint Area of 8.45 mm^2
- Low Profile − Maximum Height of 1.0 mm
- Supplied in 8 mm Tape and Reel − 3,000 Units per Reel
- Cathode Indicated by Polarity Band
- Lead Orientation in Tape: Cathode Lead to Sprocket Holes
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

Mechanical Characteristics:
CASE: Void-free, transfer-molded, thermosetting plastic Epoxy Meets UL 94 V−0
LEAD FINISH: 100% Matte Sn (Tin)
MOUNTING POSITION: Any
QUALIFIED MAX REFLOW TEMPERATURE: 260°C
Device Meets MSL 1 Requirements

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PLASTIC SURFACE MOUNT
2.5 WATT ZENER DIODE
6.2 VOLTS

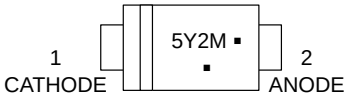


1: CATHODE
2: ANODE



SOD−123FL
CASE 498

MARKING DIAGRAM



5Y2 = Device Code
M = Date Code
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
1SMF5920BT1G	SOD−123FL (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.

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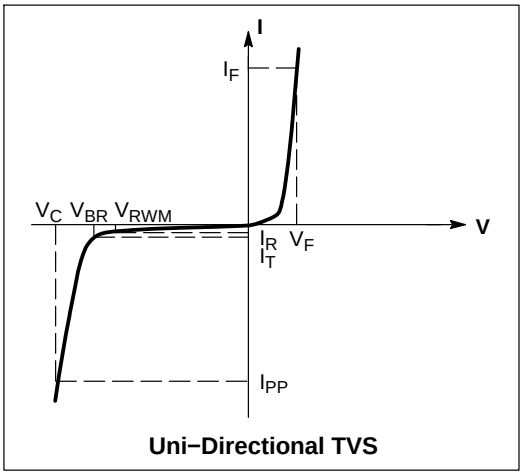
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Power Dissipation @ T_A = 25°C (Note 1) Derate above 25°C Thermal Resistance, Junction−to−Ambient	P_D $R_{\theta JA}$	350 2.9 350	mW mW/°C °C/W
Thermal Resistance, Junction−to−Lead	$R_{\theta JL}$	30	°C/W
Maximum DC Power Dissipation (Notes 1 and 2)	P_D	2.5	W
Operating and Storage Temperature Range	T_J, T_{stg}	−55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.
1. Mounted with recommended minimum pad size, PC board FR−4.
2. At lead temperature 75°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted, V_F = 1.5 V Max. @ I_F = 200 mA for all types)

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_L = 30°C unless otherwise noted, V_F = 1.25 Volts @ 200 mA)

Device	Device Marking	Zener Voltage (Note 3) V_Z @ I_{ZT} (Volts) Min	Nom	Max	I_{ZT} (mA)	I_R @ V_R (μA)	V_R (V)	Z_{ZT} @ I_{ZT} (Note 4) (Ω)	Z_{ZK} @ I_{ZK} (Note 4) (Ω)	I_{ZK} (mA)
1SMF5920BT1G	5Y2	5.89	6.2	6.51	60.5	5.0	4.0	2.0	200	1.0

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
3. Zener voltage is measured with the device junction in thermal equilibrium with an ambient temperature of 25°C.
4. Zener Impedance Derivation Z_{ZT} and Z_{ZK} are measured by dividing the AC voltage drop across the device by the AC current applied. The specified limits are for I_Z(ac) = 0.1 I_Z(dc) with the ac frequency = 60 Hz.

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TYPICAL CHARACTERISTICS

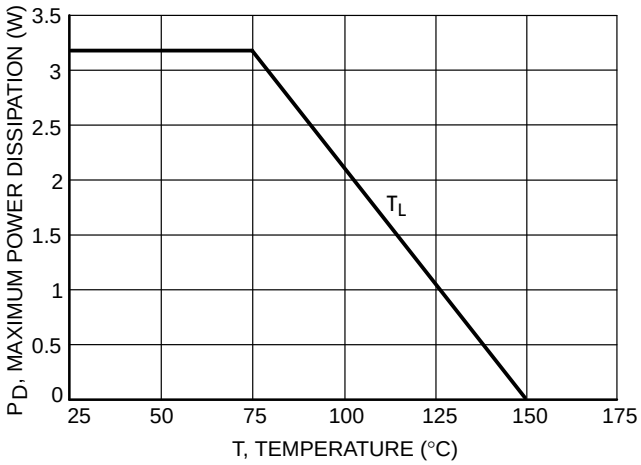


Figure 1. Steady State Power Derating

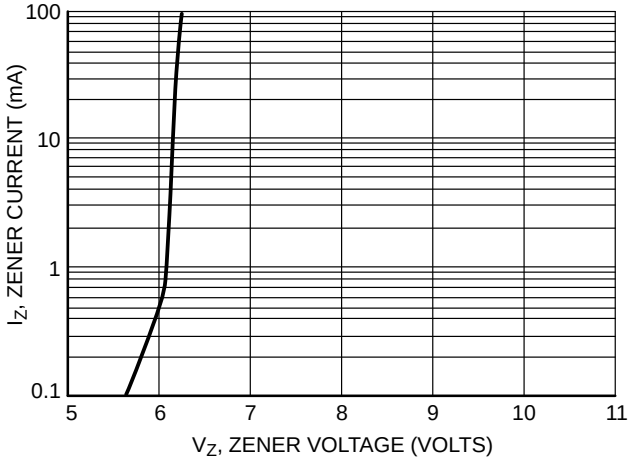


Figure 2. V_Z

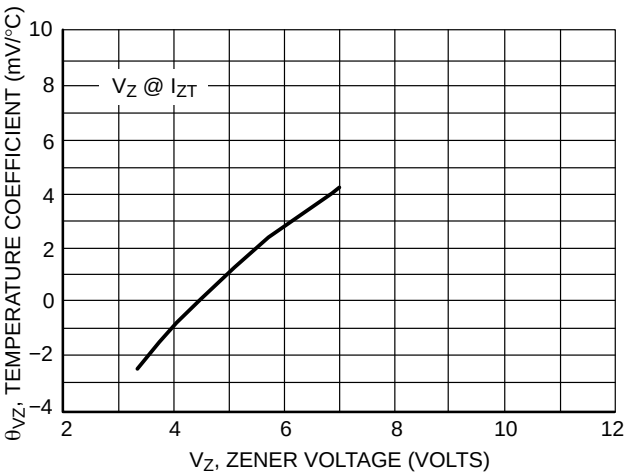


Figure 3. Zener Voltage

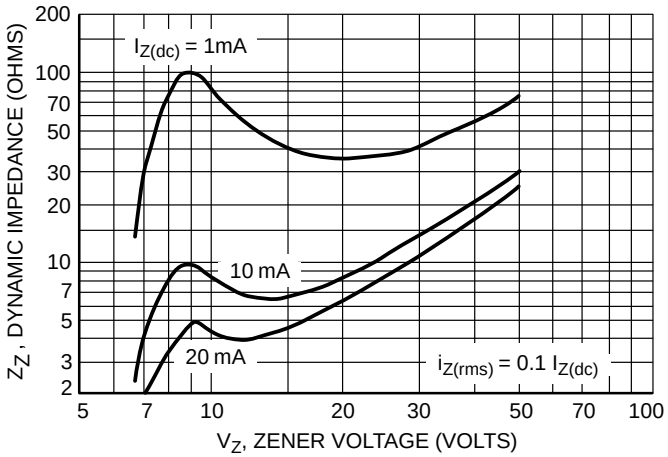


Figure 4. Effect of Zener Voltage

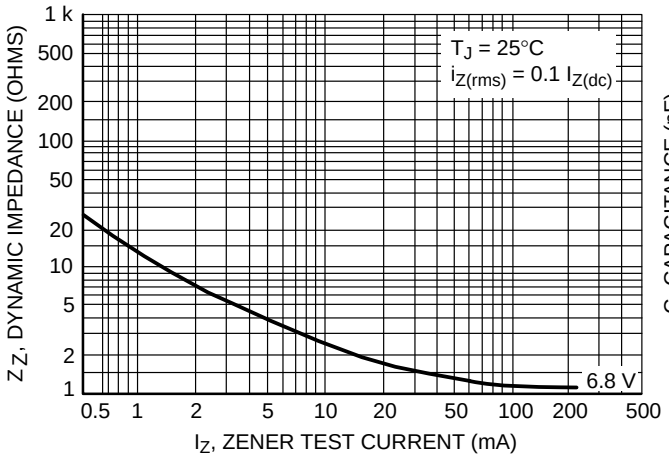


Figure 5. Effect of Zener Current

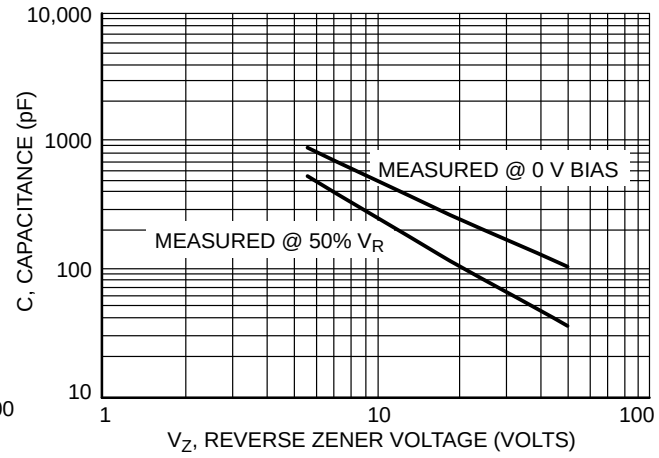
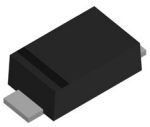


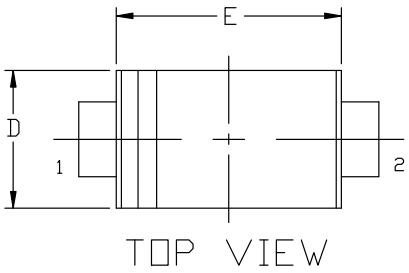
Figure 6. Capacitance versus Reverse Zener Voltage

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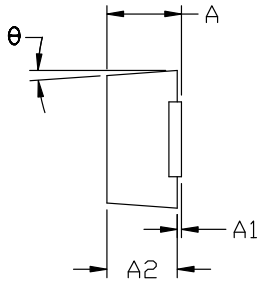


SOD−123−2 1.65x2.70x0.90
CASE 498
ISSUE E

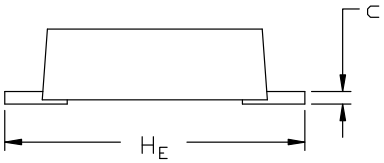
DATE 22 AUG 2023



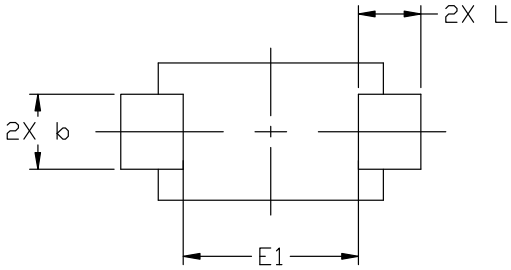
TOP VIEW



END VIEW



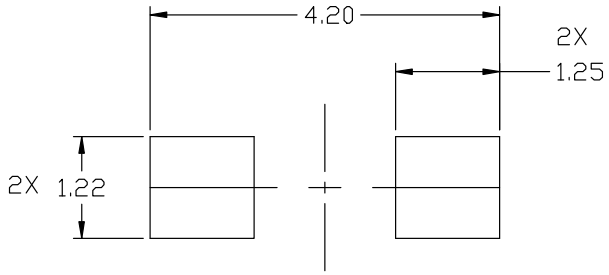
SIDE VIEW



BOTTOM VIEW

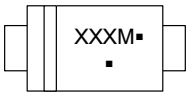
DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.90	0.95	0.98
A1	0.00	0.05	0.10
A2	0.85	0.90	0.95
b	0.70	0.90	1.10
c	0.10	0.15	0.20
D	1.50	1.65	1.80
E	2.50	2.70	2.90
E1	1.70	2.10	2.50
H_E	3.40	3.60	3.80
L	0.55	0.75	0.95
θ	0°	---	8°

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSIONS b AND L ARE TO BE MEASURED ON A FLAT SECTION OF THE LEAD BETWEEN 0.10 AND 0.25 FROM THE LEAD TIP.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH PROTRUSIONS, OR GATE BURRS.
5. FLAT LEAD.



RECOMMENDED
MOUNTING FOOTPRINT

GENERIC
MARKING DIAGRAM*



XXX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

* 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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DESCRIPTION:	**SOD−123−2 1.65x2.70x0.90**		**PAGE 1 OF 1**

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