THE DATASHEET OF

SMAZ5V6-13-F

1.0W SURFACE MOUNT ZENER DIODE

Features

- 1.0W Power Dissipation
- Ideally Suited for Automated Assembly
- 5.1V - 39V Nominal Zener Voltage Range
- Standard V_Z Tolerance is ± 5%
- **Lead Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: SMA
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Notch or Cathode Band
- Weight: 0.064 grams (Approximate)

Top View

Bottom

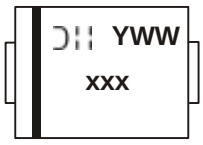
Ordering Information (Note 4)

Device*	Compliance	Packaging	Shipping
SMAZx-13-F	Commercial	SMA	5,000/Tape & Reel

*x = Device Voltage, e.g., SMAZ5V1-13-F.

Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



xxx = Product Type Marking Code
(See Electric Characteristics Table)
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 6 for 2016)
WW = Week Code (01 to 53)

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Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Forward Voltage @I_F = 200mA	V_F	1.2	V
Zener Current	I_{ZM}	P_D / V_Z	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation @T_A = +50°C Derate Above +50°C (Note 5)	P_D	1.0 10.0	W mW/°C
Typical Thermal Resistance – Junction to Terminal (Note 5)	$R_{\theta JT}$	30	°C/W
Typical Thermal Resistance – Junction to Ambient (Note 5)	$R_{\theta JA}$	100	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Type Number	Marking Code	Zener Voltage Range (Note 6)			Test Current	Maximum Zener Impedance			Maximum Reverse Current (Note 6)		I_{ZM} Max (Note 5)
		V_Z @ I_{ZT}			I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}		I_R @ V_R		
		Nom (V)	Min (V)	Max (V)	mA	Ω	Ω	mA	µA	V	mA
SMAZ5V1	ZHK	5.1	4.84	5.40	100	5.0	500	1.0	2.5	1.0	196
SMAZ5V6	ZHL	5.60	5.32	5.88	100	2.0	250	2.0	5.0	2.0	179
SMAZ6V2	ZHN	6.20	5.89	6.51	100	2.0	200	2.0	5.0	3.0	161
SMAZ6V8	ZHO	6.80	6.46	7.14	100	2.0	200	1.0	5.0	4.0	147
SMAZ7V5	ZHQ	7.50	7.13	7.88	100	2.0	450	1.0	5.0	5.0	133
SMAZ8V2	ZHR	8.20	7.79	8.61	100	2.0	200	1.0	5.0	6.0	122
SMAZ9V1	ZHT	9.10	8.65	9.56	50	4.0	200	1.0	5.0	7.0	110
SMAZ10	ZHU	10.00	9.50	10.50	50	4.0	200	1.0	1.0	7.6	100
SMAZ12	ZHW	12.00	11.40	12.60	50	7.0	150	1.0	1.0	9.1	83
SMAZ15	ZHZ	15.00	14.25	15.75	50	10	150	1.0	1.0	11.4	67
SMAZ16	ZJA	16.00	15.20	16.80	25	15	150	1.0	0.5	12.2	63
SMAZ18	ZJF	18.00	17.10	18.90	25	15	150	1.0	0.5	13.7	56
SMAZ20	ZJG	20.00	19.00	21.00	25	15	180	1.0	0.5	15.2	50
SMAZ22	ZJK	22.00	20.90	23.10	25	15	180	1.0	0.5	16.7	45
SMAZ24	ZJL	24.00	22.80	25.20	25	15	180	1.0	0.5	18.2	42
SMAZ27	ZJN	27.00	25.65	28.35	25	15	200	1.0	0.5	20.5	37
SMAZ30	ZJQ	30.00	28.50	31.50	25	15	250	1.0	0.5	22.8	33
SMAZ33	ZJR	33.00	31.35	34.65	25	15	300	1.0	0.5	25.1	30
SMAZ36	ZJS	36.00	34.20	37.80	10	40	350	1.0	0.5	27.4	28
SMAZ39	ZJT	39.00	37.05	40.95	10	40	450	1.0	0.5	29.6	26

Notes: 5. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc.'s package outlines page, which can be found on our website at http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.

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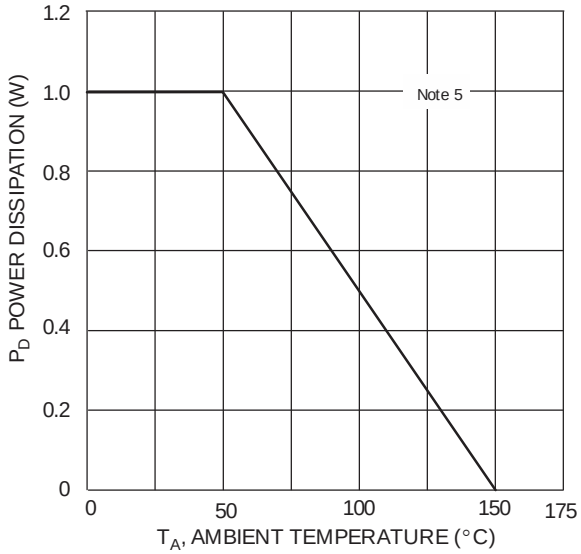

Fig. 1 Power Dissipation vs. Ambient Temperature

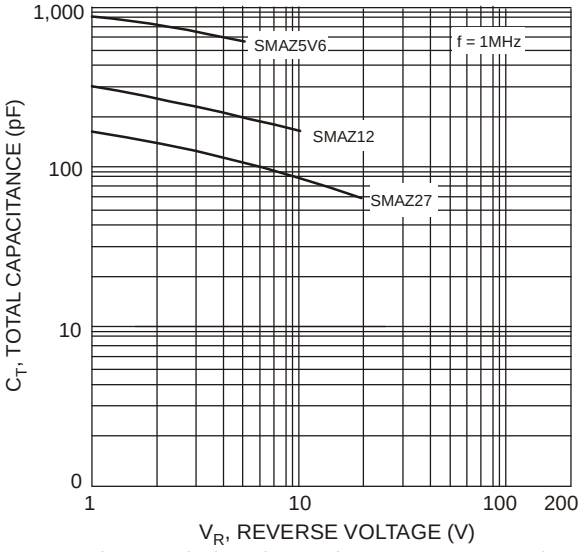

Fig. 2 Typical Total Capacitance vs. Reverse Voltage

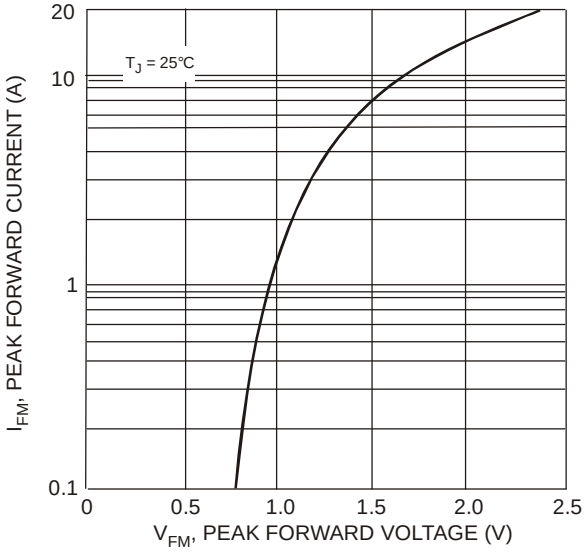

Fig. 3 Peak Forward Current vs. Peak Forward Voltage

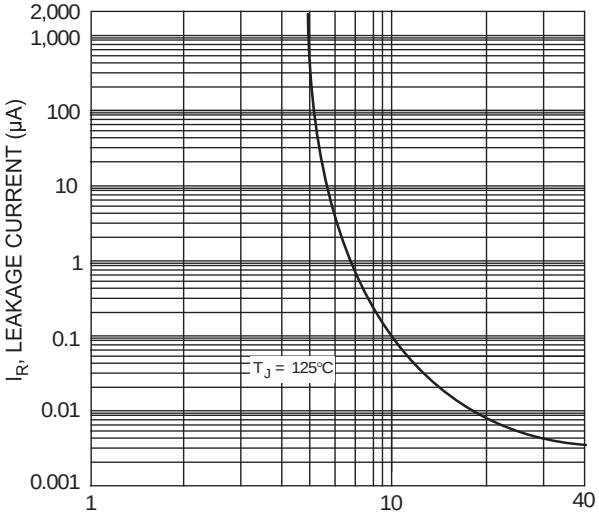

Fig. 4 Leakage Current vs. Regulation Voltage

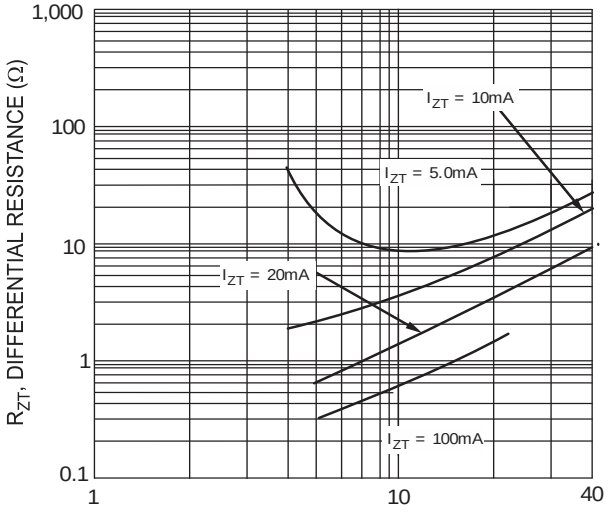

Fig. 5 Differential Resistance vs. Regulation Voltage

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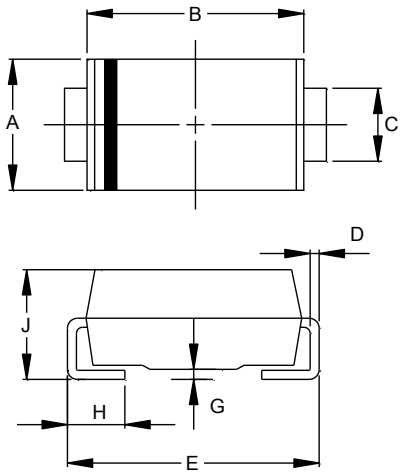
Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SMA

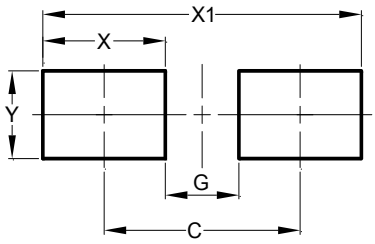


SMA		
Dim	**Min**	**Max**
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	1.96	2.40
All Dimensions in mm		

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SMA



Dimensions	Value (in mm)
C	4.00
G	1.50
X	2.50
X1	6.50
Y	1.70

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