Zener Diodes Permitting 500 mW Power Dissipation

FEATURES

- Sillicon planar Zener diodes, ultra small
- Low profile surface mount package
- Low leakage current
- Excellent stability
- High temperature soldering: 260 °C / 10 s at terminals
- Wave and reflow solderable (reflow as per JPC / JEDEC® J-STD 020) (double wave as per IEC 61760-1)
- Designed to withstand ESD pulses:
  HBM 1500 Ω / 100 pF / ± 8000 V
  MM 0 Ω / 200 pF / ± 800 V
- Full Zener voltage range 2.0 V to 39 V under development
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	13 to 27	V
Test current I_{ZT}	5 to 10	mA
V_Z specification	Pulse current	
Int. construction	Single	

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
PLZ-Series	PLZ-Series-G3/H	4500 per 7" reel (8 mm tape)	22 500 / box
Base part number PLZxxx-G3- indicates green and RoHS-compliant, commercial grade			

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
MicroSMF (SOD-323FL)	4.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C / 10 s at terminals

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	50 mm x 50 mm x 1.6 mm (1)	P_{tot}	500	mW
Z-current		I_Z	P_{tot}/V_Z	mA
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to +150	°C

THERMAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air	50 mm x 50 mm x 1.6 mm (1)	R_{thJA}	180	K/W

Note

(1) Mounted on FR4 board, solder land 10 mm x 10 mm

ELECTRICAL SPECIFICATIONS (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward Voltage	I_F = 10 mA	V_F		0.8		V

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)							
PART NUMBER	**MARKING CODE**	**ZENER VOLTAGE RANGE (1)**		**TEST CURRENT**	**REVERSE CURRENT**		**DYNAMIC RESISTANCE**
		V_Z at I_{ZT}		**I_{ZT1}**	**I_R at V_R**		**Z_Z at I_{ZT}**
		V		**mA**	**µA**	**V**	**Ω**
		MIN.	**MAX.**		**MAX.**		**MAX.**
PLZ13B	13B	12.55	13.21	10	0.2	10	14
PLZ18A	18A	16.22	17.06	10	0.2	13	23
PLZ18C	18C	17.42	18.33	10	0.2	13	23
PLZ20B	20B	18.63	19.59	10	0.2	15	28
PLZ24B	24B	22.61	23.77	5	0.2	19	35
PLZ27B	27B	24.97	26.26	5	0.2	21	45

Notes

- Full Zener voltage range 2.0 V to 39 V under development

(1) Pulse test: t_p = 40 ms

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

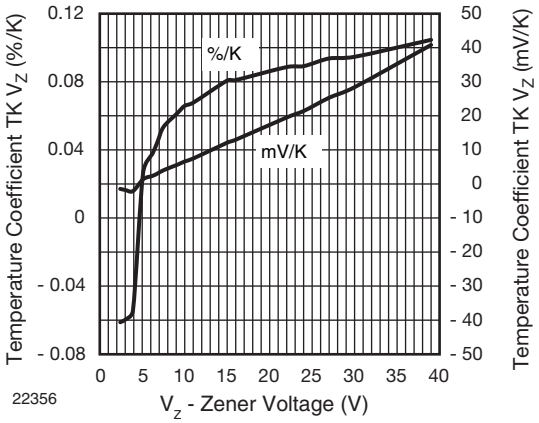


Fig. 1 - Temperature Coefficient vs. Zener Voltage

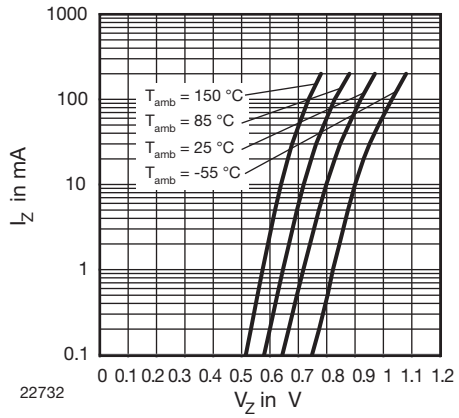


Fig. 3 - Typical Forward Characteristics, $V_F = f(I_F)$; t_p = 0.3 ms

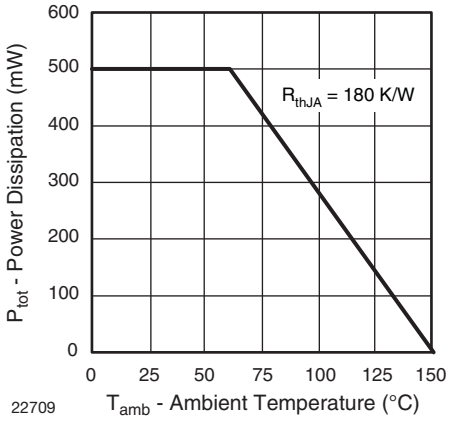


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

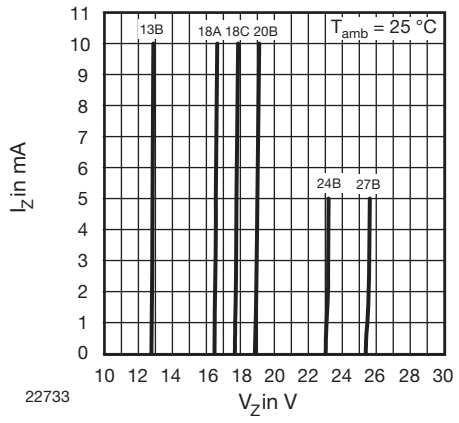
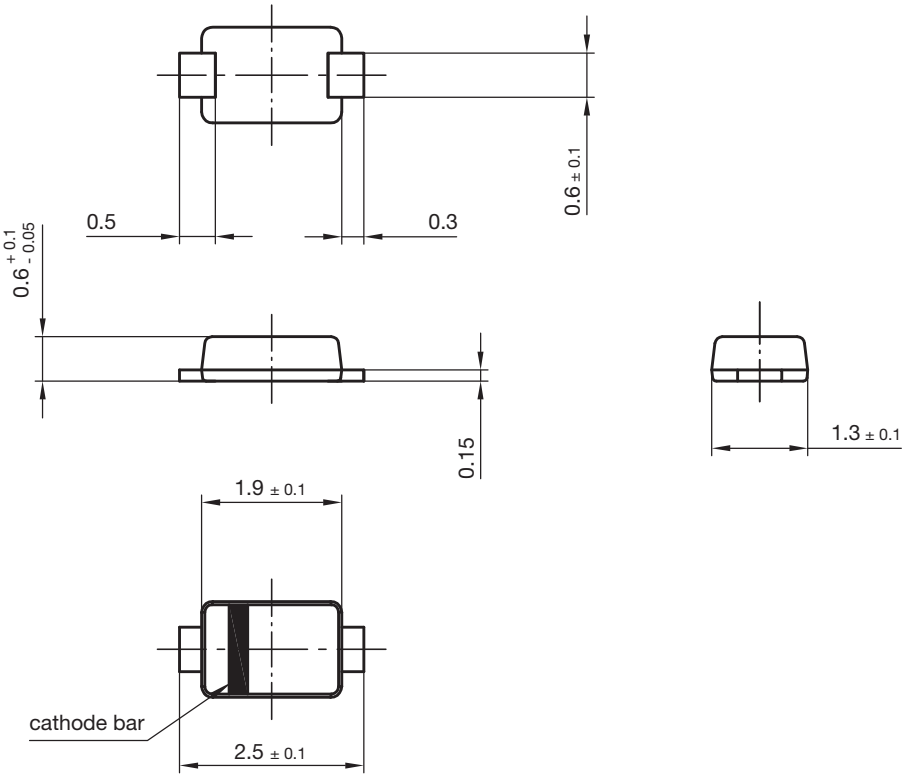
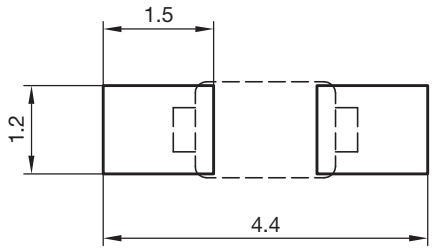


Fig. 4 - Typical Reverse Breakdown Characteristics, $V_Z = f(I_Z)$; t_p = 40 ms

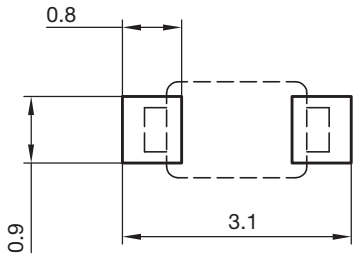
PACKAGE DIMENSIONS in millimeters: **MicroSMF** (SOD-323FL)



foot print recommendation
for wave soldering:



foot print recommendation
for reflow soldering:



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