

## Zener Diodes



### FEATURES

- Silicon planar power Zener diodes
- For use in stabilizing and clipping circuits with high power rating
- Standard Zener voltage tolerance is  $\pm 5\%$
- These diodes are also available in the DO-41 case with type designation 1N4728A to 1N4761A
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
**HALOGEN**  
**FREE**

### LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
$V_Z$ range nom.	3.3 to 75	V
Test current $I_{ZT}$	3.3 to 76	mA
$V_Z$ specification	Thermal equilibrium	
Circuit configuration	Single	

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
ZM4728A to ZM4761A	ZM4728A to ZM4761A-series-GS18	5 000 (12 mm tape on 13" reel)	10 000/box
ZM4728A to ZM4761A	ZM4728A to ZM4761A-series-GS08	1 500 (12 mm tape on 7" reel)	12 000/box

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
MELF (DO-213AB) glass	approx. 135 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ °C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	Valid provided that electrodes are kept at ambient temperature	$P_{tot}$	1000	mW
Zener current	See table "Characteristics"			
Junction to ambient air	Valid provided that electrodes are kept at ambient temperature	$R_{thJA}$	170	K/W
Junction temperature		$T_j$	175	°C
Storage temperature range		$T_{stg}$	-65 to +175	°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)									
PART NUMBER	ZENER VOLTAGE RANGE <sup>(3)</sup>	TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE <sup>(1)</sup> $f = 1\text{ kHz}$		SURGE CURRENT <sup>(4)</sup>	REGULATOR CURRENT <sup>(2)</sup>
	$V_Z$ at $I_{ZT1}$	$I_{ZT1}$	$I_{ZT2}$	$I_R$ at $V_R$		$Z_Z$ at $I_{ZT1}$	$Z_{ZK}$ at $I_{ZT2}$	$I_{ZSM}$	$I_{ZM}$
	V	mA		$\mu\text{A}$	V	$\Omega$		mA	mA
	NOM.			MAX.		MAX.	MAX.		MAX.
ZM4728A	3.3	76	1	100	1	10	400	1380	276
ZM4729A	3.6	69	1	100	1	10	400	1260	252
ZM4730A	3.9	64	1	50	1	9	400	1190	234
ZM4731A	4.3	58	1	10	1	9	400	1070	217
ZM4732A	4.7	53	1	10	1	8	500	970	193
ZM4733A	5.1	49	1	10	1	7	550	890	178
ZM4734A	5.6	45	1	10	2	5	600	810	162
ZM4735A	6.2	41	1	10	3	2	700	730	146
ZM4736A	6.8	37	1	10	4	3.5	700	660	133
ZM4737A	7.5	34	0.5	10	5	4	700	605	121
ZM4738A	8.2	31	0.5	10	6	4.5	700	550	110
ZM4739A	9.1	28	0.5	10	7	5	700	500	100
ZM4740A	10	25	0.25	10	7.6	7	700	454	91
ZM4741A	11	23	0.25	5	8.4	8	700	414	83
ZM4742A	12	21	0.25	5	9.1	9	700	380	76
ZM4743A	13	19	0.25	5	9.9	10	700	344	69
ZM4744A	15	17	0.25	5	11.4	14	700	304	61
ZM4745A	16	15.5	0.25	5	12.2	16	700	285	57
ZM4746A	18	14	0.25	5	13.7	20	750	250	50
ZM4747A	20	12.5	0.25	5	15.2	22	750	225	45
ZM4748A	22	11.5	0.25	5	16.7	23	750	205	41
ZM4749A	24	10.5	0.25	5	18.2	25	750	190	38
ZM4750A	27	9.5	0.25	5	20.6	35	750	170	34
ZM4751A	30	8.5	0.25	5	22.8	40	1000	150	30
ZM4752A	33	7.5	0.25	5	25.1	45	1000	135	27
ZM4753A	36	7	0.25	5	27.4	50	1000	125	25
ZM4754A	39	6.5	0.25	5	29.7	60	1000	115	23
ZM4755A	43	6	0.25	5	32.7	70	1500	110	22
ZM4756A	47	5.5	0.25	5	35.8	80	1500	95	19
ZM4757A	51	5	0.25	5	38.8	95	1500	90	18
ZM4758A	56	4.5	0.25	5	42.6	110	2000	80	16
ZM4759A	62	4	0.25	5	47.1	125	2000	70	14
ZM4760A	68	3.7	0.25	5	51.7	150	2000	65	13
ZM4761A	75	3.3	0.25	5	56	175	2000	60	12

**Notes**

- (1) The Zener impedance is derived from the 1 kHz AC voltage which results when an AC current having an RMS value equal to 10 % of the Zener current ( $I_{ZT1}$  or  $I_{ZT2}$ ) is superimposed on  $I_{ZT1}$  or  $I_{ZT2}$ . Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units
- (2) Valid provided that electrodes are kept at ambient temperature
- (3) Measured under thermal equilibrium and DC test conditions
- (4) Width of the test pulse is 8.3 ms



**BASIC CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

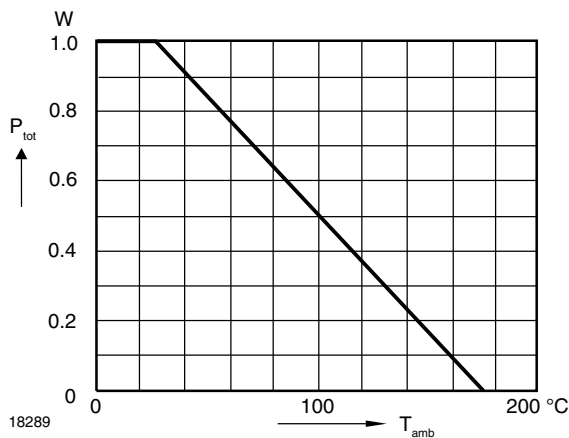


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

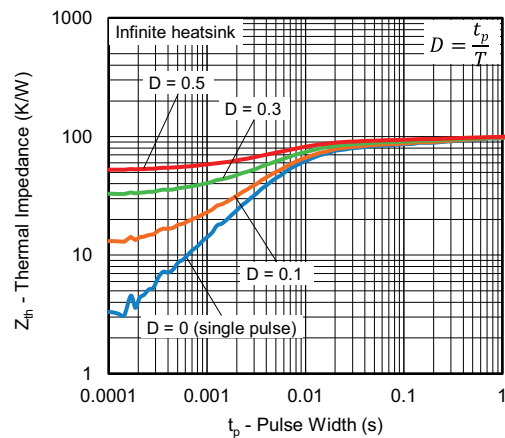


Fig. 2 - Thermal Impedance vs. Time

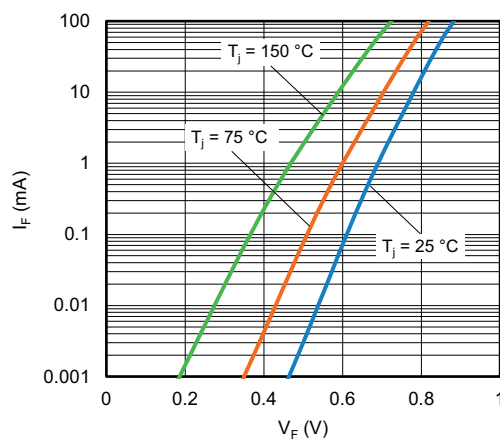
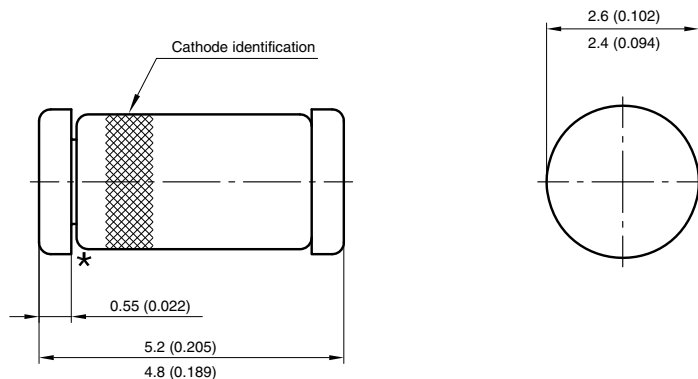


Fig. 3 - Typical Forward Current  $I_F$  vs. Forward Voltage  $V_F$

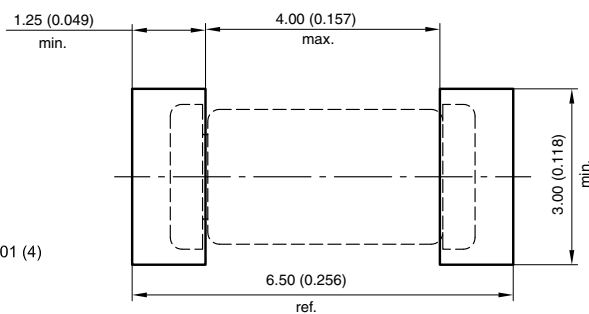


**PACKAGE DIMENSIONS** in millimeters (inches): **MELF DO-213AB (glass)**



★ The gap between plug and glass can be either on cathode or anode side

Foot print recommendation:



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