



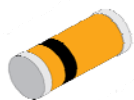
Continental Device India Pvt. Limited

An IATF 16949, ISO9001 and ISO 14001 Certified Company



Epitaxial Planar Power Zener Diodes

ZMYXXXX



LL-41
(MELF)

LL-41 (MELF)
Glass Axial Package
RoHS compliant

GENERAL DISCRIPTIONS:

For use in stabilizing and clipping circuits with high power rating. The Zener voltages are graded according to the international E24 standard. Smaller voltage tolerances are upon request.

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation	P_{tot}	1	W
Junction Temperature	T_j	175	°C
Storage Temperature Range	T_{STG}	-55to +175	°C

Thermal Resistance

Thermal Resistance Junction to Ambient ¹	$R_{\theta JA}$	150	°C/W
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Note:

1. Valid provided that electrodes are kept at ambient temperature.

ELECTRICAL CHARACTERISTICS at (Ta = 25 °C Unless otherwise specified)

Type	Zener Voltage			Dynamic Resistance		Reverse Current		Admissible Zener Current
	V_{ZT}		at I_{ZT}	Z_{ZT}	at I_{ZT}	I_R	at V_R	I_{ZM} (mA)
	Min. (V)	Max. (V)	(mA)	Max. (Ω)	(mA)	Max. (μA)	(V)	
ZMY1 ³	0.65	0.75	5	8	5	--	--	406
ZMY3V0	2.8	3.2	100	8	100	--	--	260
ZMY3V3	3.1	3.5	100	8	100	150	1	240
ZMY3V6	3.4	3.8	100	8	100	100	1	220
ZMY3V9	3.7	4.1	100	7	100	100	1	203
ZMY4V3	4	4.6	100	7	100	50	1	182
ZMY4V7	4.4	5	100	7	100	10	1	165
ZMY5V1	4.8	5.4	100	5	100	10	1	150
ZMY5V6	5.2	6	100	2	100	0.5	2	135
ZMY6V2	5.8	6.6	100	2	100	0.5	3	128
ZMY6V8	6.4	7.2	100	2	100	0.5	4	110

ZMYXXXX

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ELECTRICAL CHARACTERISTICS at ($T_a = 25^\circ\text{C}$ Unless otherwise specified)

Type	Zener Voltage			Dynamic Resistance		Reverse Current		Admissible Zener Current
	V _{ZT}		at I _{ZT}	Z _{ZT}	at I _{ZT}	I _R	at V _R	
	Min. (V)	Max. (V)	(mA)	Max. (Ω)	(mA)	Max. (μA)	(V)	I _{ZM} (mA)
ZMY7V5	7	7.9	100	2	100	0.5	5	100
ZMY8V2	7.7	8.7	100	2	100	0.5	6	89
ZMY9V1	8.5	9.6	50	4	50	0.5	7	82
ZMY10	9.4	10.6	50	4	50	0.5	7.6	74
ZMY11	10.4	11.6	50	7	50	0.5	8.4	66
ZMY12	11.4	12.7	50	7	50	0.5	9.1	60
ZMY13	12.4	14.1	50	9	50	0.5	9.9	55
ZMY15	13.8	15.8	50	9	50	0.5	11.4	49
ZMY16	15.3	17.1	25	10	25	0.5	12.2	44
ZMY18	16.8	19.1	25	11	25	0.5	13.7	40
ZMY20	18.8	21.2	25	12	25	0.5	15.2	36
ZMY22	20.8	23.3	25	13	25	0.5	16.7	34
ZMY24	22.8	25.6	25	14	25	0.5	18.2	29
ZMY27	25.1	28.9	25	15	25	0.5	20.6	27
ZMY30	28	32	25	20	25	0.5	22.8	25
ZMY33	31	35	25	20	25	0.5	25.1	22
ZMY36	34	38	10	60	10	0.5	27.4	20
ZMY39	37	41	10	60	10	0.5	29.7	18
ZMY43	40	46	10	80	10	0.5	32.7	17
ZMY47	44	50	10	80	10	0.5	35.8	15
ZMY51	48	54	10	100	10	0.5	38.8	14
ZMY56	52	60	10	100	10	0.5	42.6	13
ZMY62	58	66	10	130	10	0.5	47.1	11
ZMY68	64	72	10	130	10	0.5	51.7	10
ZMY75	70	79	10	160	10	0.5	56.0	9

Note:

2. Tested with pulses $t_p = 20\text{ ms}$
3. The ZMY1 is a silicon diode operated in forward direction. Hence, the index of all characteristics and maximum ratings should be "F" instead of "Z". Connect the cathode terminal to the negative pole.

ZMYXXXX

Rev0 06062022EGL

Recommended Reflow Solder Profiles

The recommended reflow solder profiles for Pb and Pb-free devices are shown below.

Figure 1 shows the recommended solder profile for devices that have Pb-free terminal plating, and where a Pb-free solder is used.

Figure 2 shows the recommended solder profile for devices with Pb-free terminal plating used with leaded solder, or for devices with leaded terminal plating used with a leaded solder.

Figure 1

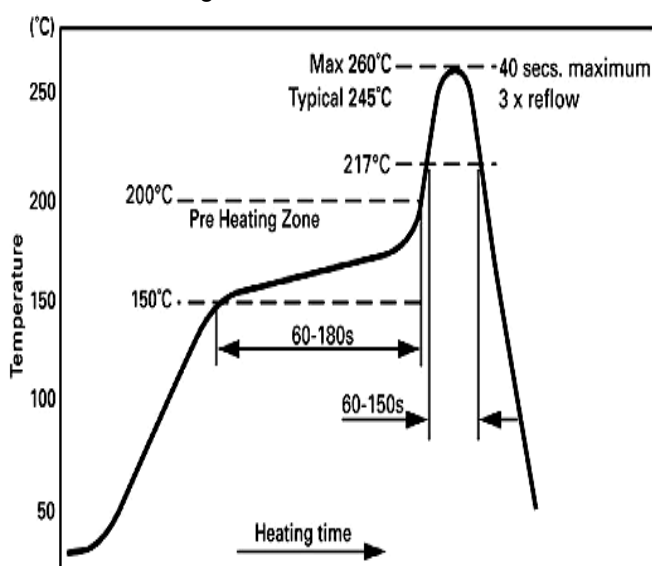
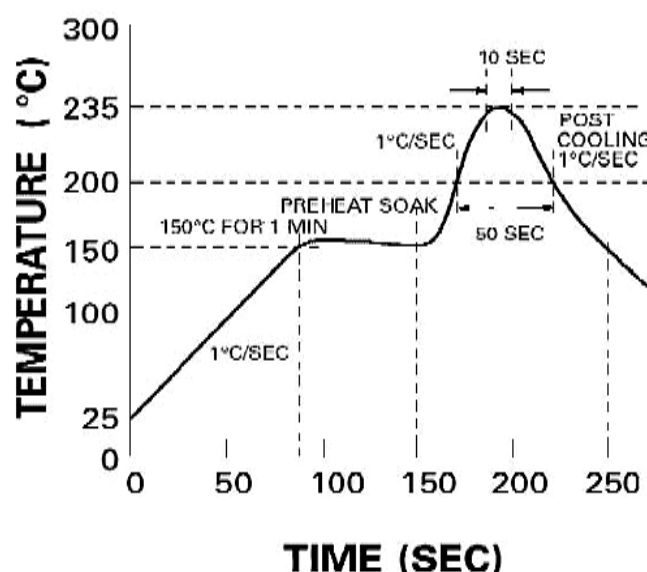


Figure 2



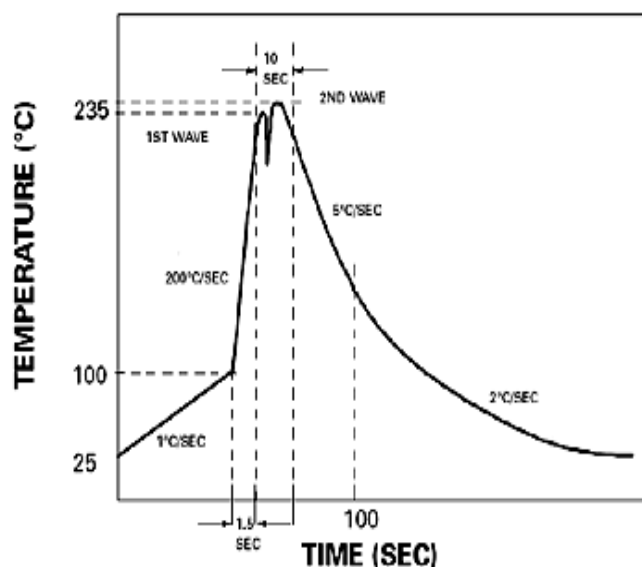
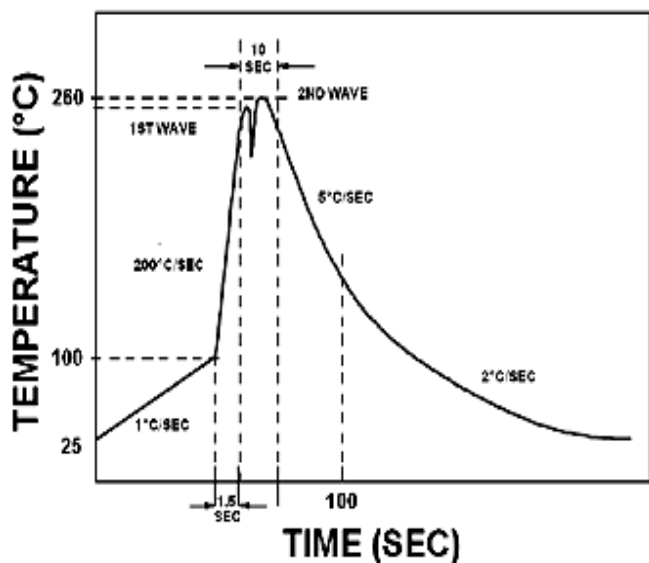
Reflow profiles in tabular form

Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~3°C/second	~3°C/second
Preheat		
– Temperature Range	150-170°C	150-200°C
– Time	60-180 seconds	60-180 seconds
Time maintained above:		
– Temperature	200°C	217°C
– Tim	30-50 seconds	60-150 seconds
Peak Temperature	235°C	260°C max.
Time within +0 -5°C of actual Peak	10 seconds	40 seconds
Ramp-Down Rate	3°C/second max.	6°C/second max

Recommended Wave Solder Profiles

The Recommended solder Profile For Devices with Pb-free terminal plating where a Pb-free solder is used

The Recommended solder Profile For Devices with Pb-free terminal plating used with leaded solder, or for devices with leaded terminal plating used with leaded solder



Wave Profiles in Tabular Form

Profile Feature	Sn-Pb System	Pb-free System
Average Ramp-Up Rate	~200°C/second	~200°C/second
Heating rate during preheat	Typical 1-2, Max 4°C/sec	Typical 1-2, Max 4°C/Sec
Final preheat Temperature	Within 125°C of Solder Temp	Within 125°C of Solder Temp
Peak Temperature	235°C	260°C max.
Time within +0 -5°C of actual Peak	10 seconds	10 seconds
Ramp-Down Rate	5°C/second max.	5°C/second max.

TYPICAL CHARACTERISTICS CURVES

Fig 1: Zener Characteristics Curve

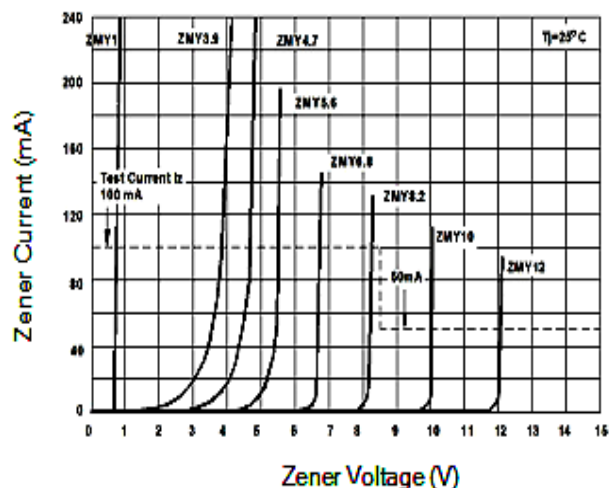


Fig 3: Zener Characteristics Curve

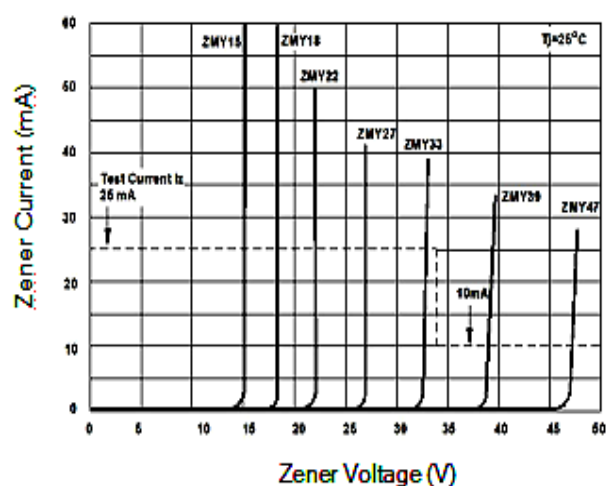


Fig 2: Zener Characteristics Curve

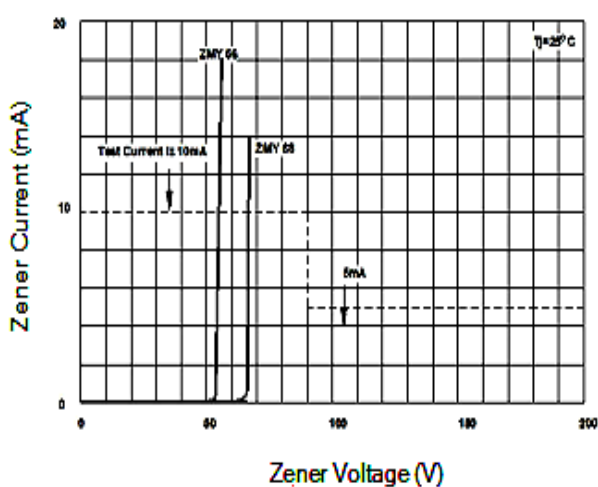
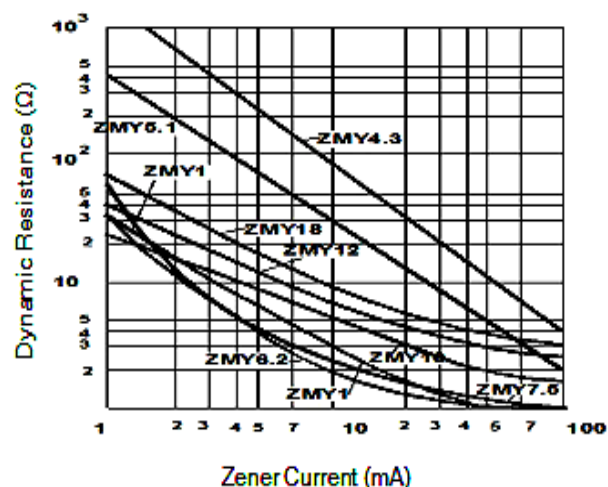


Fig 4: Dynamic Resistance vs. Zener Current



TYPICAL CHARACTERISTIC CURVES

Fig 5: Dynamic Resistance vs.Zener Current

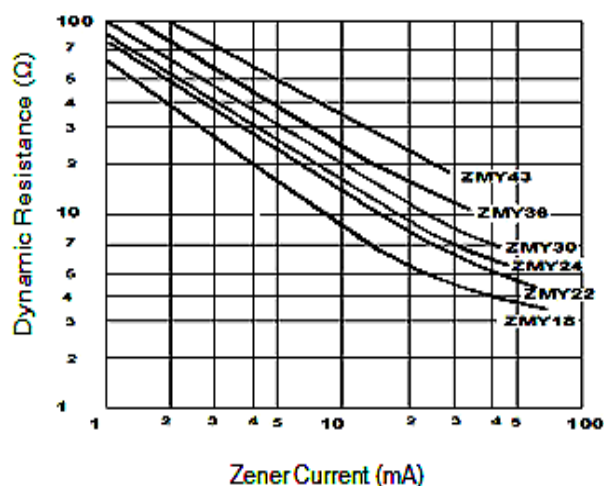


Fig 7: Dynamic Resistance vs.Zener Current

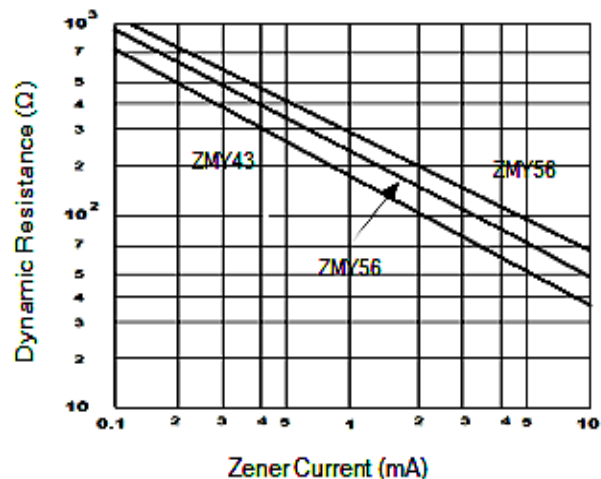


Fig 6: Power Derating Curve

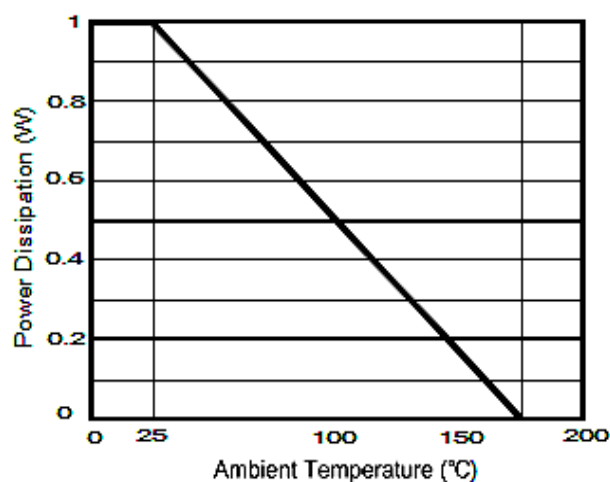
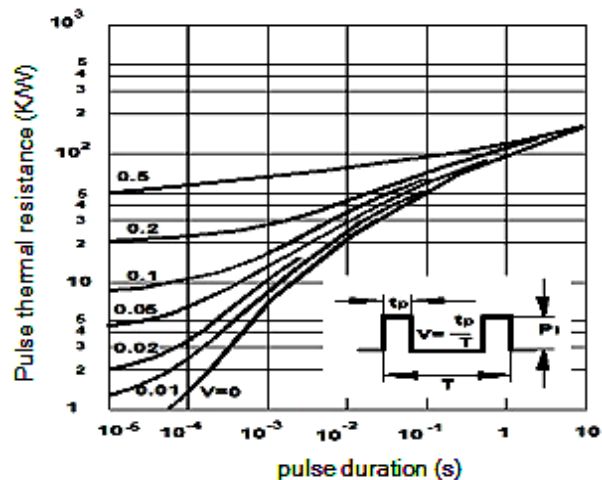


Fig 8: Pulse thermal resistance vs. pulse duration





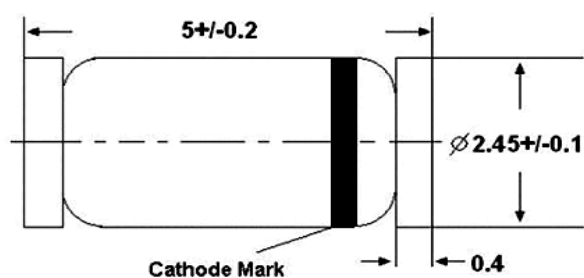
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Package Details

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Dimensions in mm

ZMYXXX
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Recommended Product Storage Environment for Discrete Semiconductor Devices

This storage environment assumes that the Diodes and transistors are packed properly inside the original packing supplied by CDIL.

- Temperature 5 °C to 30 °C
- Humidity between 40 to 70 %RH
- Air should be clean.
- Avoid harmful gas or dust.
- Avoid outdoor exposure or storage in areas subject to rain or water spraying .
- Avoid storage in areas subject to corrosive gas or dust. Product shall not be stored in areas exposed to direct sunlight.
- Avoid rapid change of temperature.
- Avoid condensation.
- Mechanical stress such as vibration and impact shall be avoided.
- The product shall not be placed directly on the floor.
- The product shall be stored on a plane area. They should not be turned upside down. They should not be placed against the wall.

Shelf Life of CDIL Products

The shelf life of products is the period from product manufacture to shipment to customers. The product can be unconditionally shipped within this period. The period is defined as 2 years.

If products are stored longer than the shelf life of 2 years the products shall be subjected to quality check as per CDIL quality procedure.

The products are further warranted for another one year after the date of shipment subject to the above conditions in CDIL original packing.

Floor Life of CDIL Products and MSL Level

When the products are opened from the original packing, the floor life will start.

For this, the following JEDEC table may be referred:

JEDEC MSL Level		
Level	Time	Condition
1	Unlimited	≤30 °C / 85% RH
2	1 Year	≤30 °C / 60% RH
2a	4 Weeks	≤30 °C / 60% RH
3	168 Hours	≤30 °C / 60% RH
4	72 Hours	≤30 °C / 60% RH
5	48 Hours	≤30 °C / 60% RH
5a	24 Hours	≤30 °C / 60% RH
6	Time on Label(TOL)	≤30 °C / 60% RH

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Customer Notes

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



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