



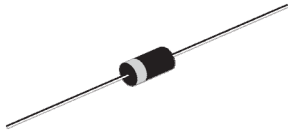
Continental Device India Pvt. Limited

An ISO/TS 16949, ISO9001 and ISO 14001 Certified Company



SILICON PLANAR ZENER DIODES

2EZ3.6D5 - 2EZ200D5
VZ : 3.6V - 200V



DO-41P

DO-41P Axial Lead
Plastic Package
RoHS compliant

FEATURES:

1. High Peak Reverse Power Dissipation
2. High Reliability
3. Low Leakage Current

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

PARAMETERS	SYMBOL	VALUE	UNIT
DC Power Dissipation at $T_L = 75^\circ\text{C}$ ¹	P_D	2.0	W
Maximum Forward Voltage at $I_F = 200\text{mA}$	V_F	1.2	V
Junction Temperature Range	T_J	-55 to +175	$^\circ\text{C}$
Storage Temperature Range	T_S	-55 to +175	$^\circ\text{C}$

Note:

1. T_L = Lead temperature at 3/8" (9.5 mm) from body
2. Valid provided that leads are kept at Ambient Temperature at a distance of 10mm from case.



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

DEVICE	Nominal Zener Voltage		Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current
	V _Z @ I _{ZT}	I _{ZT}	Z _{ZT} @ I _{ZT}	Z _{ZK} @ I _{ZK}	I _{ZK}	I _R @ V _R		I _{ZM}
	(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	(mA)
2EZ3.6D5	3.6	139	5	400	1	80	1	504
2EZ3.9D5	3.9	128	5	400	1	30	1	468
2EZ4.3D5	4.3	116	4.5	400	1	20	1	434
2EZ4.7D5	4.7	106	4.5	550	1	5	1	386
2EZ5.1D5	5.1	98	3.5	600	1	5	1	356
2EZ5.6D5	5.6	89.5	2.5	500	1	5	2	324
2EZ6.2D5	6.2	80.5	1.5	700	1	5	3	292
2EZ6.8D5	6.8	73.5	2	700	1	50	4	266
2EZ7.5D5	7.5	66.5	2	700	0.5	50	5	242
2EZ8.2D5	8.2	61	2.3	700	0.5	50	6	220
2EZ9.1D5	9.1	55	2.5	700	0.5	50	7	200
2EZ10D5	10	50	3.5	700	0.25	50	7.6	182
2EZ11D5	11	45.5	4	700	0.25	50	8.4	166
2EZ12D5	12	41.5	4.5	700	0.25	1	9.1	152
2EZ13D5	13	38.5	5	700	0.25	0.5	9.9	138
2EZ14D5	14	35.7	5.5	700	0.25	0.5	10.6	130
2EZ15D5	15	33.4	7	700	0.25	0.5	11.4	122
2EZ16D5	16	31.2	8	700	0.25	0.5	12.2	114
2EZ17D5	17	29.4	9	750	0.25	0.5	13	107
2EZ18D5	18	27.8	10	750	0.25	0.5	13.7	100
2EZ19D5	19	26.3	11	750	0.25	0.5	14.4	95
2EZ20D5	20	25	11	750	0.25	0.5	15.2	90
2EZ22D5	22	22.8	12	750	0.25	0.5	16.7	82
2EZ24D5	24	20.8	13	750	0.25	0.5	18.2	76
2EZ27D5	27	18.5	18	750	0.25	0.5	20.6	68
2EZ30D5	30	16.6	20	1000	0.25	0.5	22.5	60
2EZ33D5	33	15.1	23	1000	0.25	0.5	25.1	55
2EZ36D5	36	13.9	25	1000	0.25	0.5	27.4	50
2EZ39D5	39	12.8	30	1000	0.25	0.5	29.7	47
2EZ43D5	43	11.6	35	1500	0.25	0.5	32.7	43
2EZ47D5	47	10.6	40	1500	0.25	0.5	35.8	39
2EZ51D5	51	9.8	48	1500	0.25	0.5	38.8	36



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

DEVICE	Nominal Zener Voltage		Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current
	V _Z @ I _{ZT}	I _{ZT}	Z _{ZT} @ I _{ZT}	Z _{ZK} @ I _{ZK}	I _{ZK}	I _R @ V _R		I _{ZM}
	(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	(mA)
2EZ56D5	56	9	55	2000	0.25	0.5	42.6	32
2EZ62D5	62	8.1	60	2000	0.25	0.5	47.1	29
2EZ68D5	68	7.4	75	2000	0.25	0.5	51.7	27
2EZ75D5	75	6.7	90	2000	0.25	0.5	56	24
2EZ82D5	82	6.1	100	3000	0.25	0.5	62.2	22
2EZ91D5	91	5.5	125	3000	0.25	0.5	69.2	20
2EZ100D5	100	5	175	3000	0.25	0.5	76.0	18
2EZ110D5	110	4.5	250	4000	0.25	0.5	83.6	17
2EZ120D5	120	4.2	325	4500	0.25	0.5	91.2	15
2EZ130D5	130	3.8	400	5000	0.25	0.5	98.8	14
2EZ140D5	140	3.6	500	5500	0.25	0.5	106.4	13
2EZ150D5	150	3.3	575	6000	0.25	0.5	114	12
2EZ160D5	160	3.1	650	6500	0.25	0.5	121.6	11
2EZ170D5	170	2.9	675	7000	0.25	0.5	130.4	11
2EZ180D5	180	2.8	725	7000	0.25	0.5	136.8	10
2EZ190D5	190	2.6	825	8000	0.25	0.5	144.8	10
2EZ200D5	200	2.5	900	8000	0.25	0.5	152.0	9.0

Note:

1. Suffix '5' indicates +/- 5.0% tolerance, suffix '10' indicates +/-10% tolerance.
2. " EZ " will be omitted in marking on the diode.



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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

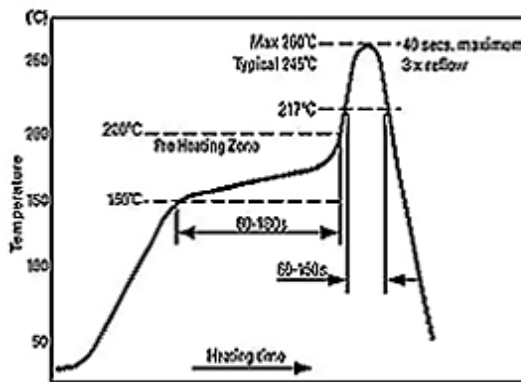
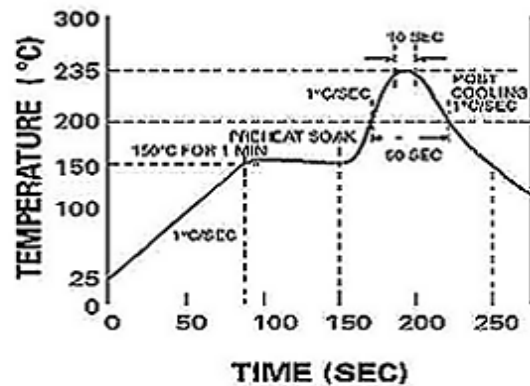


Figure 2



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 – Time	150-170°C 60-180 seconds	150-200°C 60-180 seconds
Time maintained above: – Temperature – Time	200°C 30-50 seconds	217°C 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.



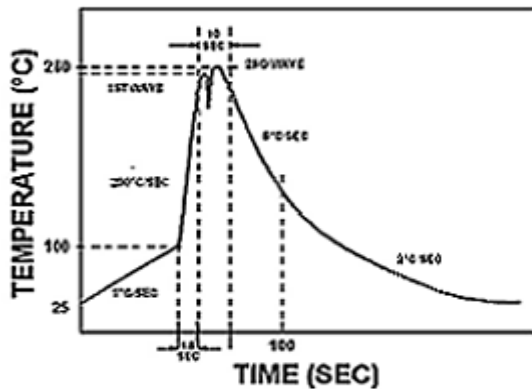
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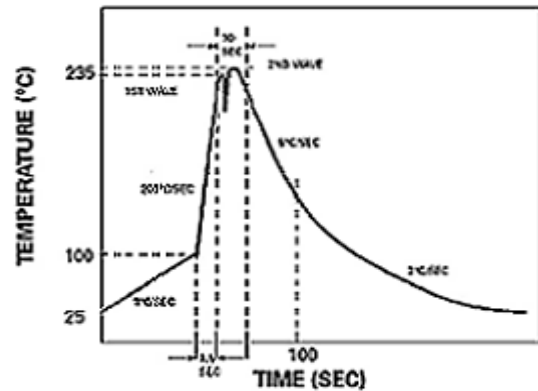


Recommended Wave Solder Profiles

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



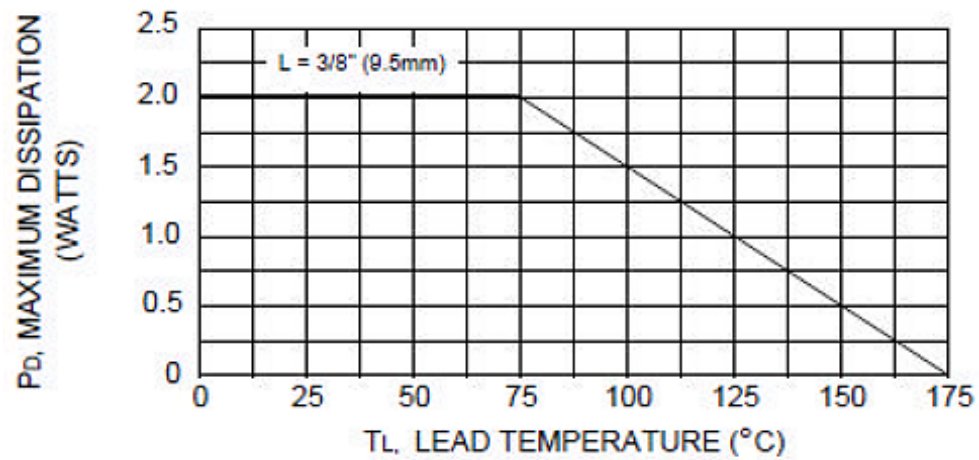
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TYPICAL CHARACTERISTICS CURVES

Fig 1: Power Temperature Derating Curve





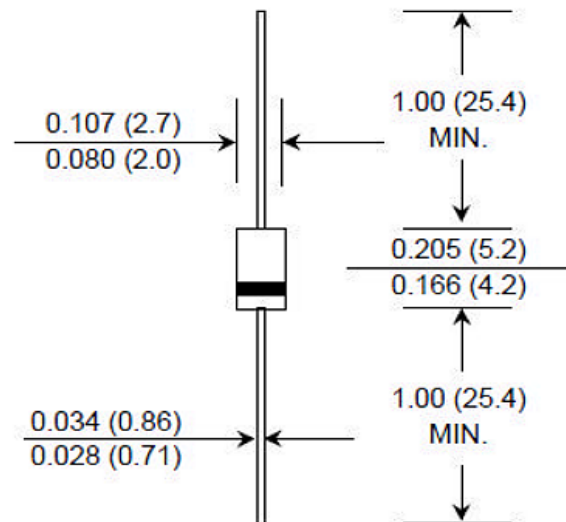
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PACKAGE DETAILS

DO-41P Package Outline and Dimension



All Dimensions are in Inches(mm)

Mechanical Data

Epoxy : UL94V-O rate flame retardant

Polarity : Color Band denotes Cathode end

Weight : 0.339 grams



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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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