500mW ZENER DIODE

CTZ 2.6 ~ 47

DO-35

DO-35 Leaded
Plastic Package
RoHS compliant

GENERAL DISCRIPTION:

These Zeners Are Best Suited For Industrial Purpose , Military & Space applications.
Hermetically Sealed Glass With Double Stud And Glass Passivated Chip Provides Excellent Stability and Reliability.

FEATURE:

1. This product is available in AEC-Q101 Compliant and PPAP Capable also.

Note: For AEC-Q101 compliant products, please use suffix -AQ in the part number while ordering.

ABSOLUTE MAXIMUM RATINGS (Ta = 25 ℃ Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation @T_A=25ºC	P_{TA}	500	mW
Surge Power Dissipation t_p=8.3mS	P_S	5	W
Junction Temperature	T_j	175	°C
Storage Temperature	T_{stg}	-65 to +175	°C
Thermal Resistance Junction Ambient	$R_{th(j-a)}$	0.3	°C/mW

ELECTRICAL CHARACTERISTICS (Ta=25ºC unless specified otherwise)

PARAMETER	SYMBOL	TEST CONDITION	VALUE	UNIT
Forward Voltage	V_F	at I_F=200mA	1.5	V

ELECTRICAL CHARACTERISTICS at (Ta = 25 ℃ Unless otherwise specified)

Device	V_{ZT} @ I_{ZT} [1]	r_{ZT} @ I_{ZT} [1]	I_{ZT}	r_{ZK} @ I_{ZK} [1]	I_{ZK}	Temp. Coeff of Zener Voltage typ	I_R @ V_R	V_R	I_{ZM}	I_{ZM}
	Min (V)	Max (Ω)	(mA)	Max (Ω)	(mA)	(%/°C)	(µA)	(V)	MAX (mA)	Max (mA)
CTZ2.6	2.6	30	20	600	1	-0.085	75	1	147.8	
CTZ2.7	2.7	30	20	600	1	-0.085	75	1	168.3	
CTZ3.0	3.0	48	20	600	1	-0.075	20	1	148.5	1500
CTZ 3.3	3.3	44	20	600	1	-0.070	10	1	135	1375
CTZ 3.6	3.6	42	20	600	1	-0.065	5	1	126	1260
CTZ3.9	3.9	40	20	600	1	-0.060	5	1	115	1165
CTZ 4.3	4.3	36	20	600	1	-0.055	0.5	1	105	1060
CTZ 4.7	4.7	32	20	600	1	-0.043	10	2	95	965
CTZ 5.1	5.1	28	20	550	1	+/-0.030	5	2	87	890
CTZ 5.6	5.6	16	20	450	1	+/-0.028	10	3	80	810
CTZ 6.2	6.2	6	20	200	1	0.045	10	4	72	730
CTZ 6.8	6.8	6	20	150	1	0.050	5	5	65	665
CTZ 7.5	7.5	8	10	50	1	0.058	1.0	6	60	605
CTZ 8.2	8.2	10	10	50	1	0.062	0.52	7	55	555
CTZ9.1	9.1	12	10	50	1	0.068	0.1	7	49	500
CTZ 10	10	14	10	70	1	0.075	0.1	8	45	455
CTZ 11	11	15	10	700	0.25	0.073	0.1	9	41	410
CTZ 12	12	19	10	700	0.25	0.076	0.1	10	37	380
CTZ 13	13	23	5	700	0.25	0.079	0.1	11	35	350
CTZ 15	15	27	5	700	0.25	0.082	0.1	13	30	300
CTZ 16	16	31	5	700	0.25	0.083	0.1	14	28	285
CTZ 18	18	35	5	750	0.25	0.085	0.1	16	25	250
CTZ 20	20	39	5	750	0.25	0.086	0.1	18	22	225
CTZ 22	22	67	5	750	0.25	0.087	0.1	19	20	205
CTZ 24	24	75	5	750	0.25	0.088	0.1	20	18.6	190
CTZ27	27	77	5	750	0.25	0.090	0.1	22	16.5	170
CTZ30	30	93	5	1000	0.25	0.091	0.1	24	15	150
CTZ33	33	96	5	1000	0.25	0.092	0.1	26	13.5	135
CTZ36	36	146	5	1000	0.25	0.093	0.1	28	12.4	125
CTZ39	39	192	5	1000	0.25	0.094	0.1	30	11.4	115
CTZ43	43	246	5	1500	0.25	0.095	0.1	35	10.4	105
CTZ 47	47	286	5	1500	0.25	0.095	0.1	42	9.5	95

Note:

1. Pulse Condition : 20ms < 50ms, Duty Cycle <2%
2. Available in +/-10% Tolerance. Add Suffix "A" for +/- 5% Tolerance

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

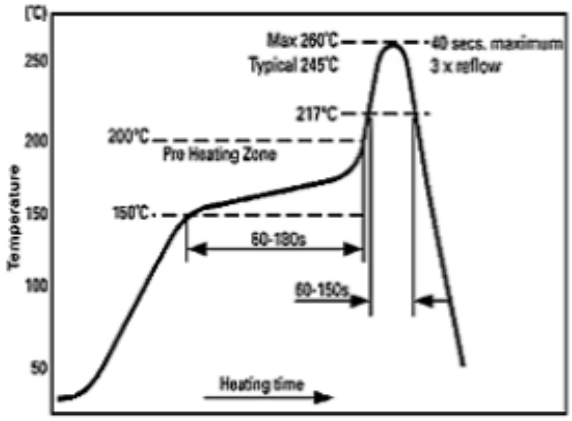
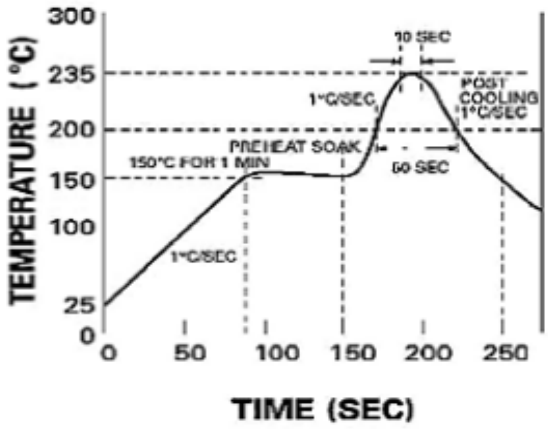


Figure 2

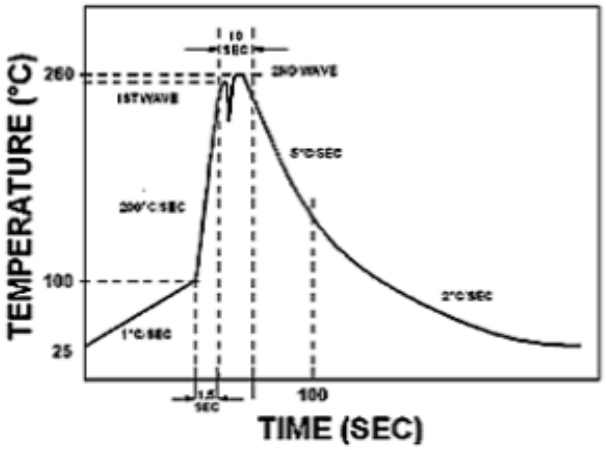


Reflow profiles in tabular form

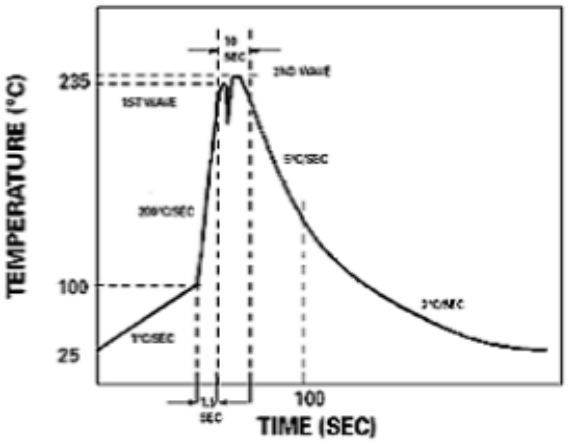
Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~3°C/second	~3°C/second
Preheat – Temperature Range – Time	 150-170°C 60-180 seconds	 150-200°C 60-180 seconds
Time maintained above: – Temperature – Time	 200°C 30-50 seconds	 217°C 60-150 seconds
Peak Temperature	235°C	260°C max.
Time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

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

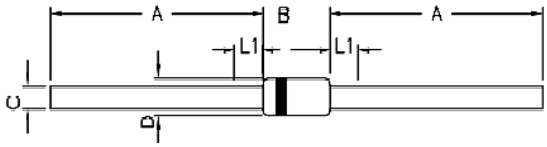


Wave Profiles in Tabular Form

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

PACKAGE DETAILS

DO-35 Glass Axial Package



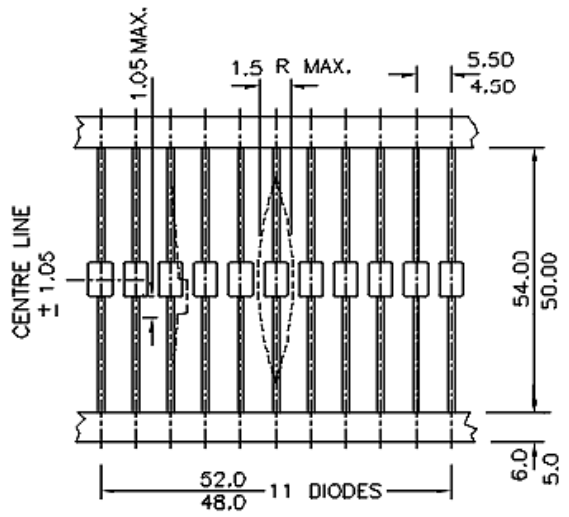
DIM	MIN	MAX
A	27.5	--
B	--	3.9
C	--	0.5
D	--	1.9

All Dimensions are in mm

Note:

Cathode is Marked by Band

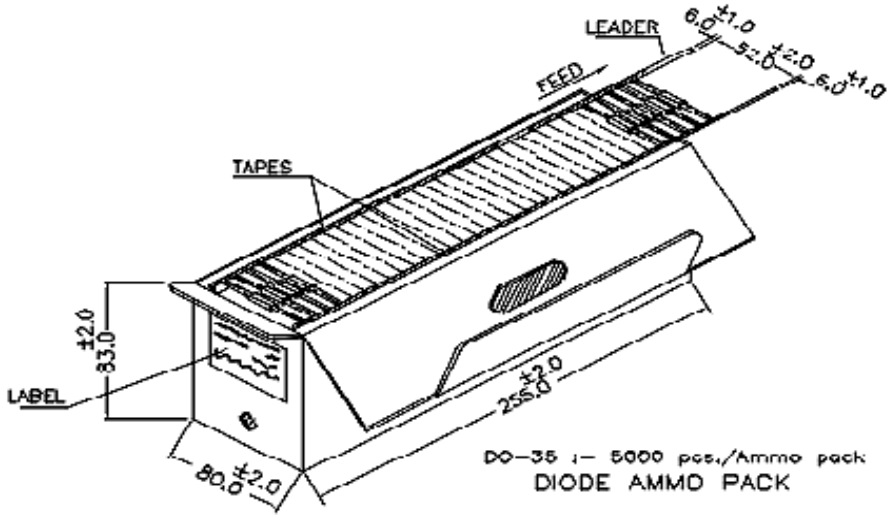
DO-35, 52mm Taping Specification



All Dimensions are in mm

52mm Taping Specification

1. T & A Indicates Axial Tape & Ammo Packing (52 mm Tape Spacing)
2. 300 mm(min) leader tape on every spool
3. No. of empty places allowed 0.25% without Consecutive empty places
4. Ends of leads shall preferably not protrude beyond the tapes
5. Components shall be help sufficiently in the tape or tapes so that they can not come free in normal handling.



on request also available in 26 mm Tape and Ammo Pack

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Qty
DO-35 T&A	5K/ammo box	0.88kg/5K pcs	10"X3.5"X3.5"	5.0K	12.7"X12.7"X20"	125.0K	25Kgs

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

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).
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