SOD-123 Plastic-Encapsulate Zener Diode

BZT52BXXX

2.4V ~ 62V, 500mW

SOD-123 GW

SOD-123GW
Surface Mount
Plastic Package
RoHS compliant

FEATURES:

1. Low Zener Impedance
2. 500mW; Power Dissipation of 500mW
3. High Stability and High Reliability

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

PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation	P_d [1]	500	mW
Forward Voltage @IF=10mA	V_f [2]	0.9	V
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	357	°C/W
Junction/Operating Temperature	T_j	150	°C
Storage temperature range	T_{stg}	-65 to +150	°C

Notes:

1. Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm²
2. Short duration test pulse used to minimize self-heating effect, f=1KHz

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

Device	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature coefficient @ I_{ZTC} (mV/°C)		Test Current I_{ZTC}
		V_z @ I_{zt}			I_{zt}	Z_{zt} @I_{zt}	Z_{zk} @I_{zk}	I_{zk}	I_R	V_R			
		V			mA	Ω		mA	uA	V			mA
		Nom	Min	Max							Min	Max	
BZT52B2V4	2WX	2.4	2.35	2.45	5	100	600	1.0	50	1.0	-3.5	0	5
BZT52B2V7	2W1	2.7	2.65	2.75	5	100	600	1.0	20	1.0	-3.5	0	5
BZT52B3V0	2W2	3.0	2.94	3.06	5	95	600	1.0	10	1.0	-3.5	0	5
BZT52B3V3	2W3	3.3	3.23	3.37	5	95	600	1.0	5	1.0	-3.5	0	5
BZT52B3V6	2W4	3.6	3.53	3.67	5	90	600	1.0	5	1.0	-3.5	0	5
BZT52B3V9	2W5	3.9	3.82	3.98	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V3	2W6	4.3	4.21	4.4	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V7	2W7	4.7	4.61	4.8	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZT52B5V1	2W8	5.1	5.00	5.20	5	60	480	1.0	2	2.0	-2.7	1.2	5
BZT52B5V6	2W9	5.6	5.49	5.71	5	40	400	1.0	1	2.0	-2.0	2.5	5
BZT52B6V2	2WA	6.2	6.08	6.32	5	10	150	1.0	3	4.0	0.4	3.7	5
BZT52B6V8	2WB	6.8	6.66	6.94	5	15	80	1.0	2	4.0	1.2	4.5	5
BZT52B7V5	2WC	7.5	7.35	7.65	5	15	80	1.0	1	5.0	2.5	5.3	5
BZT52B8V2	2WD	8.2	8.0	8.36	5	15	80	1.0	0.7	5.0	3.2	6.2	5
BZT52B9V1	2WE	9.1	8.92	9.28	5	15	100	1.0	0.5	6.0	3.8	7.0	5
BZT52B10	2WF	10.0	9.8	10.20	5	20	150	1.0	0.2	7.0	4.5	8.0	5
BZT52B11	2WG	11	10.78	11.22	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BZT52B12	2WH	12	11.76	12.24	5	25	150	1.0	0.1	8.0	6.0	10.0	5
BZT52B13	2WI	13	12.74	13.26	5	30	170	1.0	0.1	8.0	7.0	11.0	5
BZT52B15	2WJ	15	14.7	15.30	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BZT52B16	2WK	16	15.68	16.32	5	40	200	1.0	0.1	11.2	10.4	14.0	5
BZT52B18	2WL	18	17.64	18.36	5	45	225	1.0	0.1	12.6	12.4	16.0	5
BZT52B20	2WM	20	19.60	20.40	5	55	225	1.0	0.1	14.0	14.4	18.0	5
BZT52B22	2WN	22	21.56	22.44	5	55	250	1.0	0.1	15.4	16.4	20.0	5
BZT52B24	2WO	24	23.52	24.48	5	70	250	1.0	0.1	16.8	18.4	22.0	5
BZT52B27	2WP	27	26.46	27.54	2	80	300	0.0	0.1	18.9	21.4	25.3	2
BZT52B30	2WQ	30	29.40	30.60	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZT52B33	2WR	33	32.34	33.66	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52B36	2WS	36	35.28	36.72	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52B39	2WT	39	38.22	39.78	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BZT52B43	2WU	43	41.16	43.84	2	100	700	1.0	0.1	32.0	10.0	12.0	2
BZT52B47	2WV	47	46.06	47.94	2	100	750	1.0	0.1	35.0	10.0	12.0	2
BZT52B51	2WW	51	49.98	52.02	2	100	750	1.0	0.1	38.0	10.0	12.0	2
BZT52B56	2XW	56	54.88	57.12	2	135	700	1.0	0.1	39.0	10.0	12.0	2
BZT52B62	2W3	62	60.76	63.24	2	150	1000	1.0	0.1	46.0	10.0	12.0	2

TYPICAL CHARACTERISTICS CURVES

Fig. 1. Breakdown characteristics at T_j=constant (pulsed)

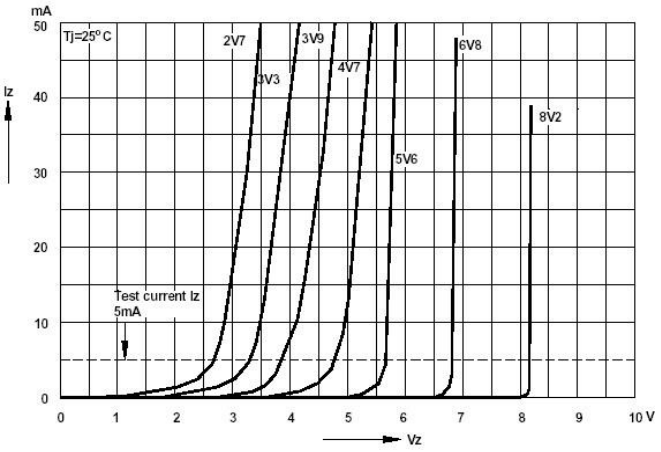


Fig 2: Forward characteristics

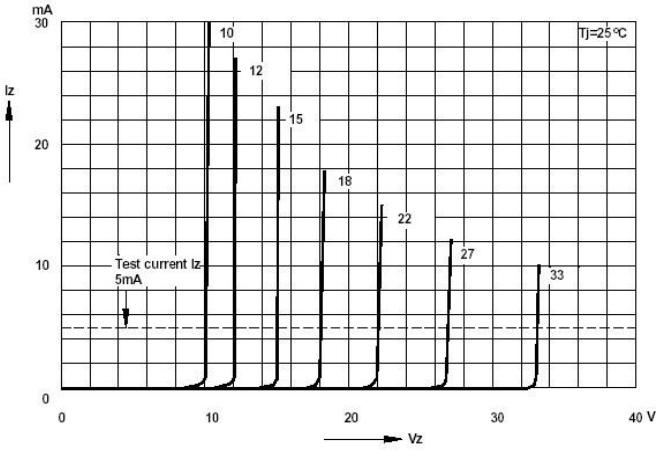
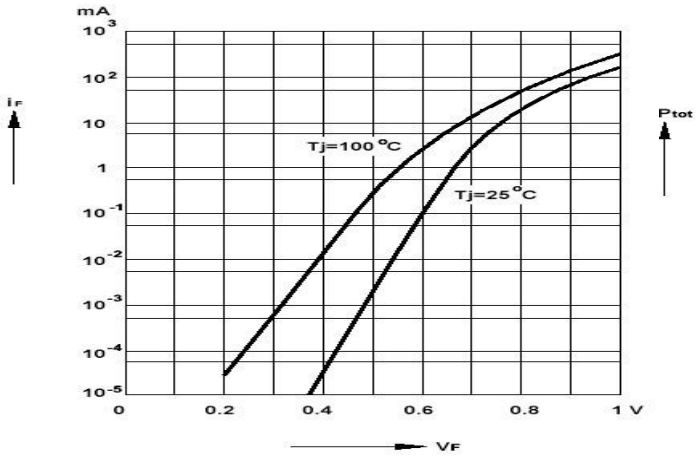
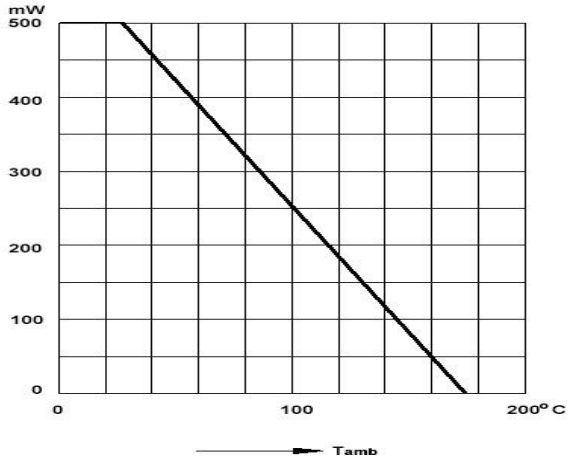


Fig 3: Admissible power dissipation versus ambient temperature





TYPICAL CHARACTERISTICS CURVES

Fig 4: Pulse thermal resistance versus pulse duration

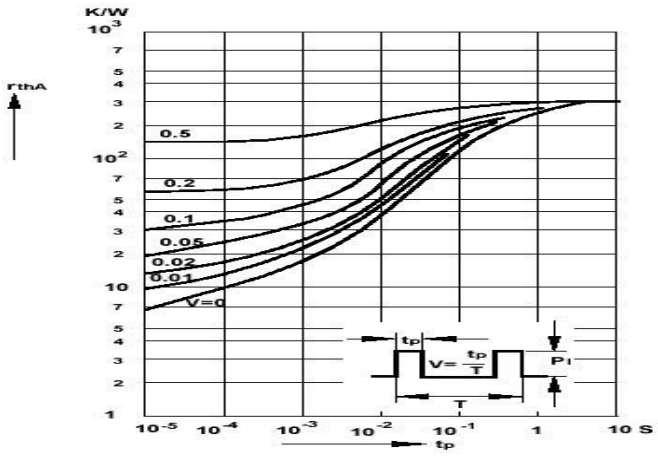


Fig 5: Capacitance versus Zener voltage

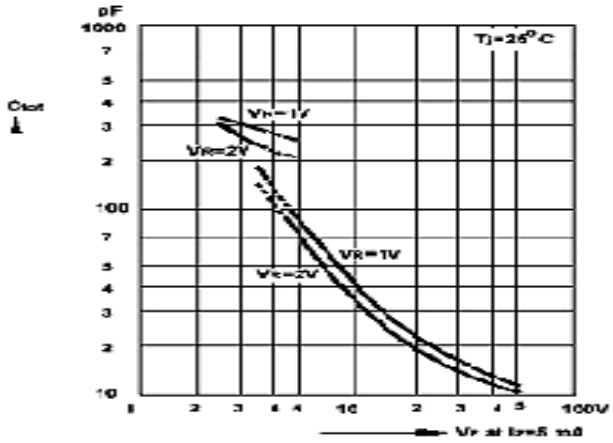


Fig 6: Dynamic resistance versus Zener current

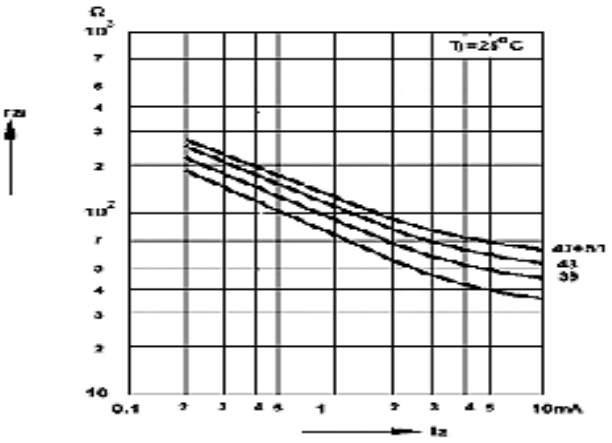


Fig 7: Dynamic resistance versus Zener current

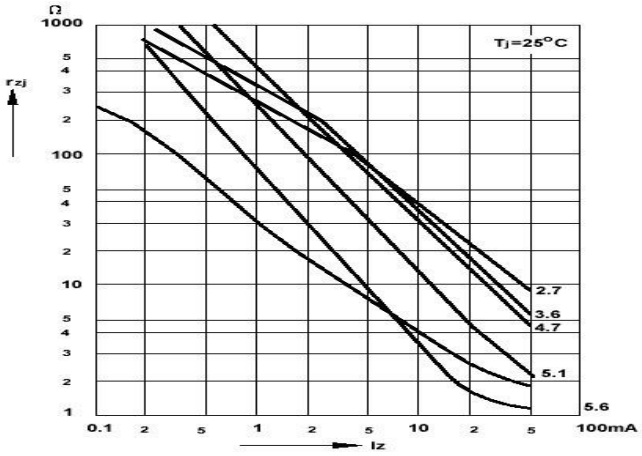


Fig 8: Dynamic resistance versus Zener current

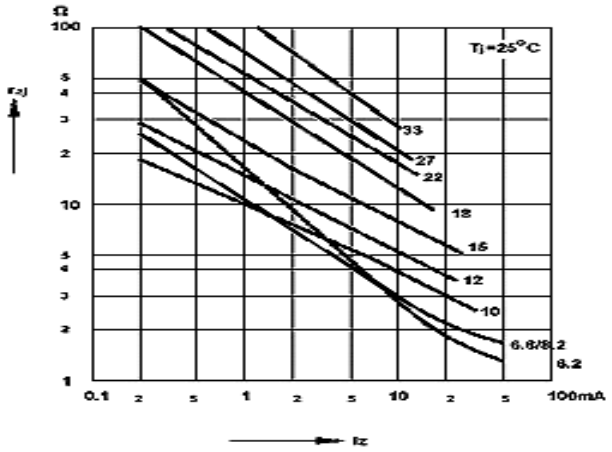
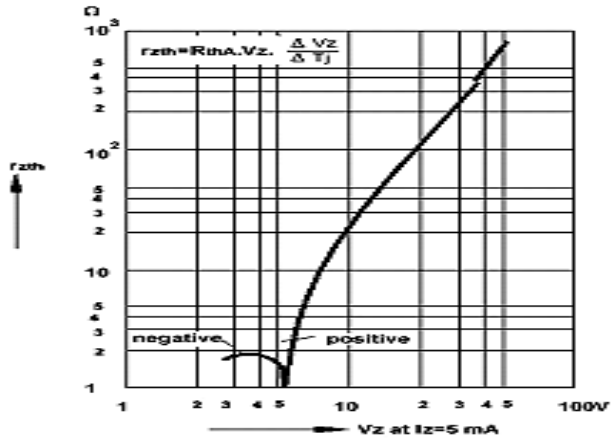


Fig 9: Thermal differential resistance versus Zener voltage



TYPICAL CHARACTERISTICS CURVES

Fig 10: Dynamic resistance versus Zener voltage

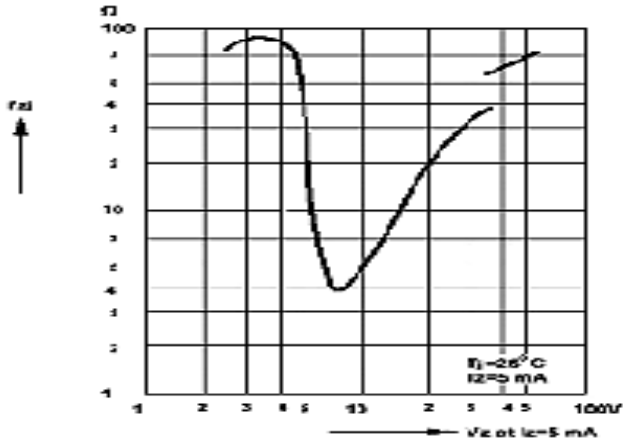


Fig 11: Temperature dependence of Zener voltage versus Zener voltage

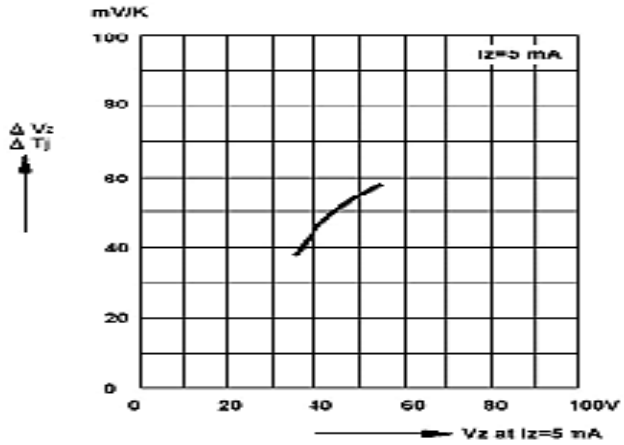


Fig 12: Change of Zener voltage versus junction temperature

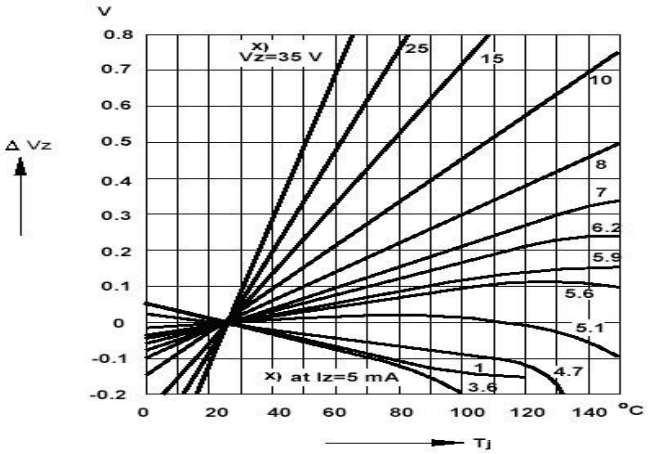


Fig 13: Temperature dependence of Zener voltage versus Zener voltage

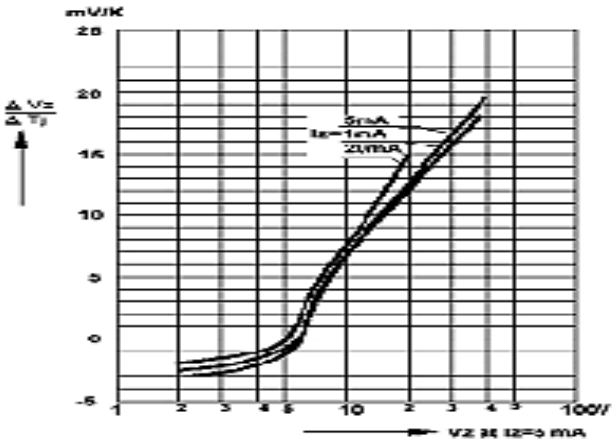


Fig 14: Change of Zener voltage versus junction temperature

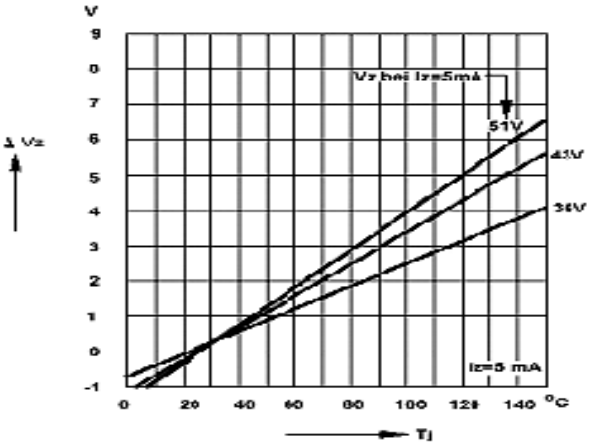
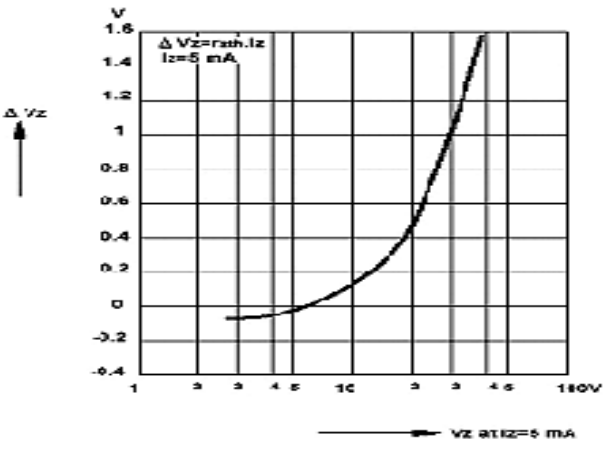
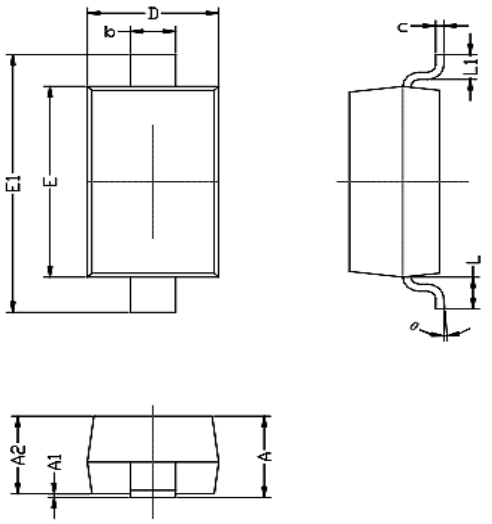


Fig 15: Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage



Package Details

SOD-123GW PACKAGE



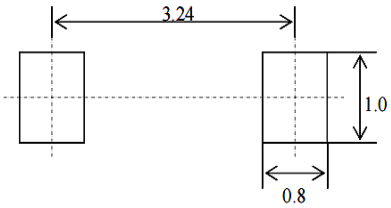
Symbol	Dimensions	
	Min	Max
A	1.05	1.25
A1	0.00	0.10
A2	1.05	1.15
b	0.45	0.65
C	0.08	0.15
D	1.50	1.70
E	2.60	2.80
E1	3.55	3.85
L	0.500REF	
L1	0.25	
θ	0°	8°

All dimensions are in mm

Mechanical Data

SOD-323GW Small Outline Plastic Package
Polarity: Color band denotes cathode end
Mounting Position: Any

Recommended PCB layout



Center distance	Feet wide	Pad width	Foot length	Pad length
3.24	0.55	1.00	0.50	0.80
Plastic package size		**Unmarked tolerances are**		**All units**
2.70 X 1.60		±0.05		mm

BZT52BXXX
Rev1_10052024FZ

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).

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

CDIL is a registered trademark of
Continental Device India Pvt. Limited
C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone +91-11-2579 6150, 4141 1112 Fax +91-11-2579 5290, 4141 1119
email@cdil.com www.cdil.com
CIN No. U32109DL1964PTC004291