SMD Zener Diode (500mW)

BZT52CXX

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 ℃ Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation	P_d [1]	500	mW
Forward Voltage @IF=10mA	V_f [2]	0.9	V
Storage temperature range	T_s	-65 to +150	°C
Thermal resistance junction to ambient	R_{thA} [1]	400	°C/W

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 ℃ 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	
BZT52C2V0	WY	2.0	1.80	2.15	5	150	600	1.0	100	1.0	-3.5	0	5
BZT52C2V4	WX	2.4	2.2	2.6	5	100	600	1.0	50	1.0	-3.5	0	5
BZT52C2V7	W1	2.7	2.5	2.9	5	100	600	1.0	20	1.0	-3.5	0	5
BZT52C3V0	W2	3.0	2.8	3.2	5	95	600	1.0	10	1.0	-3.5	0	5
BZT52C3V3	W3	3.3	3.1	3.5	5	95	600	1.0	5	1.0	-3.5	0	5
BZT52C3V6	W4	3.6	3.4	3.8	5	90	600	1.0	5	1.0	-3.5	0	5

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

Device	Marking	Zener Voltage Range				Maximum Zener Impedance [3]			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			
		Nom (V)	Min (V)	Max (V)	mA	Ω		mA	uA	V	Min	Max	mA
BZT52C3V9	W5	3.9	3.7	4.1	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52C4V3	W6	4.3	4.0	4.6	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52C4V7	W7	4.7	4.4	5.0	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZT52C5V1	W8	5.1	4.8	5.4	5	60	480	1.0	2	2.0	-2.7	1.2	5
BZT52C5V6	W9	5.6	5.2	6.0	5	40	400	1.0	1	2.0	-2.0	2.5	5
BZT52C6V2	WA	6.2	5.8	6.6	5	10	150	1.0	0.7	4.0	0.4	3.7	5
BZT52C6V8	WB	6.8	6.4	7.2	5	15	80	1.0	0.5	4.0	1.2	4.5	5
BZT52C7V5	WC	7.5	7.0	7.9	5	15	80	1.0	0.2	5.0	2.5	5.3	5
BZT52C8V2	WD	8.2	7.7	8.7	5	15	80	1.0	0.1	5.0	3.2	6.2	5
BZT52C9V1	WE	9.1	8.5	9.6	5	15	100	1.0	0.1	6.0	3.8	7.0	5
BZT52C10	WF	10	9.4	10.6	5	20	150	1.0	0.1	7.0	4.5	8.0	5
BZT52C11	WG	11	10.4	11.6	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BZT52C12	WH	12	11.4	12.7	5	20	150	1.0	0.1	8.0	6.0	10.0	5
BZT52C13	WI	13	12.4	14.1	5	25	170	1.0	0.1	8.0	7.0	11.0	5
BZT52C15	WJ	15	13.8	15.6	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BZT52C16	WK	16	15.3	17.1	5	30	200	1.0	0.1	11.2	10.4	14.0	5
BZT52C18	WL	18	16.8	19.1	5	40	225	1.0	0.1	12.6	12.4	16.0	5
BZT52C20	WM	20	18.8	21.2	5	45	225	1.0	0.1	14.0	14.4	18.0	5
BZT52C22	WN	22	20.8	23.3	5	55	250	1.0	0.1	15.4	16.4	20.0	5
BZT52C24	WO	24	22.8	25.6	5	70	250	1.0	0.1	16.8	18.4	22.0	5
BZT52C27	WP	27	25.1	28.9	2	80	300	0.5	0.1	18.9	21.4	25.3	2
BZT52C30	WQ	30	28.0	32.0	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZT52C33	WR	33	31.0	35.0	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52C36	WS	36	34.0	38.0	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52C39	WT	39	37.0	41.0	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BZT52C43	WU	43	40.0	46.0	2	100	700	1.0	0.1	32.0	10.0	12.0	5
BZT52C47	WV	47	44.0	50.0	2	100	750	1.0	0.1	35.0	10.0	12.0	5
BZT52C51	WW	51	48.0	54.0	2	125	750	1.0	0.1	38.0	10.0	12.0	5
BZT52C56	XW	56	52.0	60.0	2	135	700	1.0	0.1	39.0	10.0	12.0	5
BZT52C62	6E	62	58.0	66.0	2	200	1000	1.0	0.2	47.0	10.0	12.0	5
BZT52C68	6F	68	64.0	72.0	2	250	1000	1.0	0.2	52.0	10.0	12.0	5
BZT52C75	6H	75	70.0	79.0	2	300	1000	1.0	0.2	57	10.0	12.0	5

TYPICAL CHARACTERISTICS CURVES

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

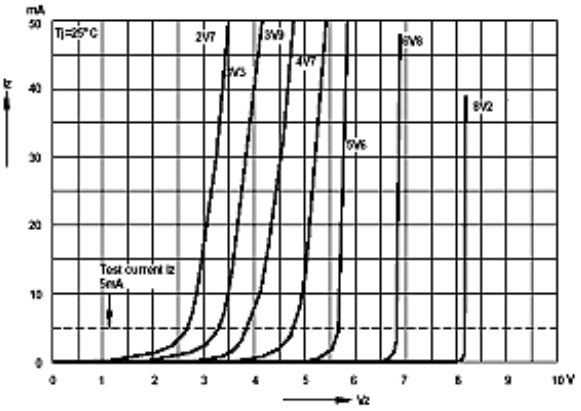


Fig 2: Forward characteristics

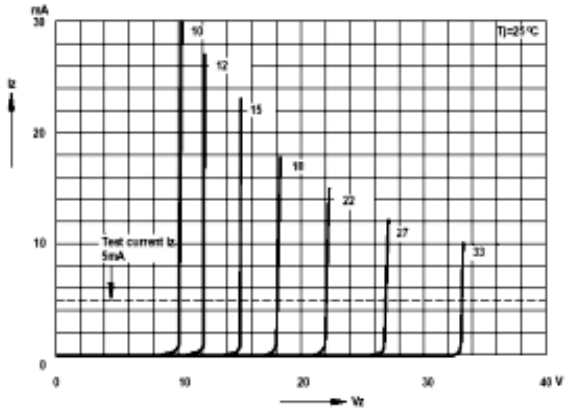
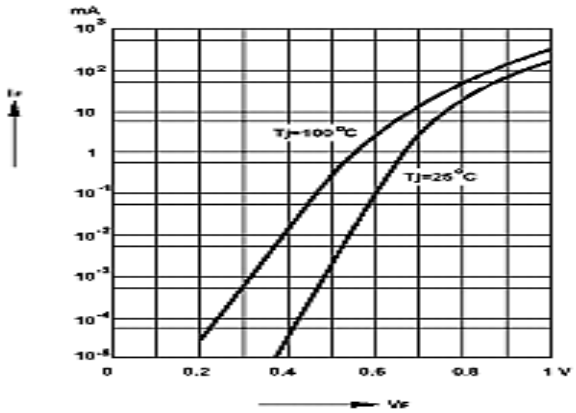
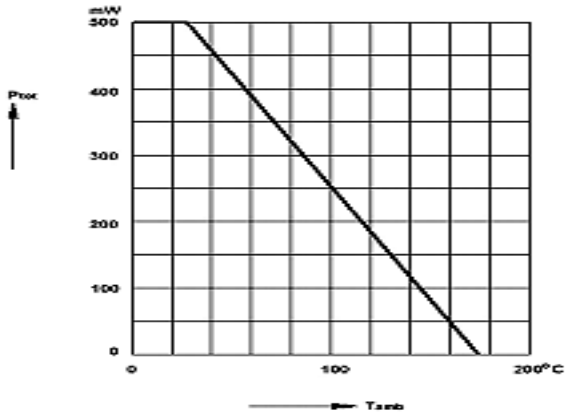


Fig 3: Admissible power dissipation versus ambient temperature





TYPICAL CHARACTERISTICS CURVES

Fig 4: Pulse thermal resistance versus pulse duration

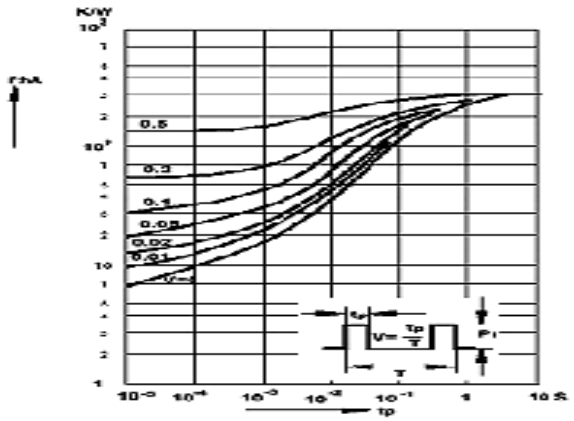


Fig 5: Capacitance versus Zener voltage

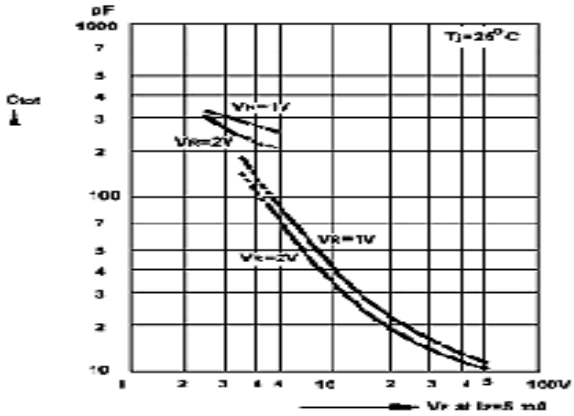


Fig 6: Dynamic resistance versus Zener current

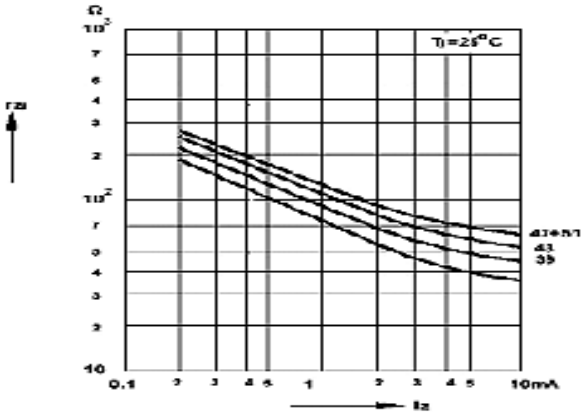


Fig 7: Dynamic resistance versus Zener current

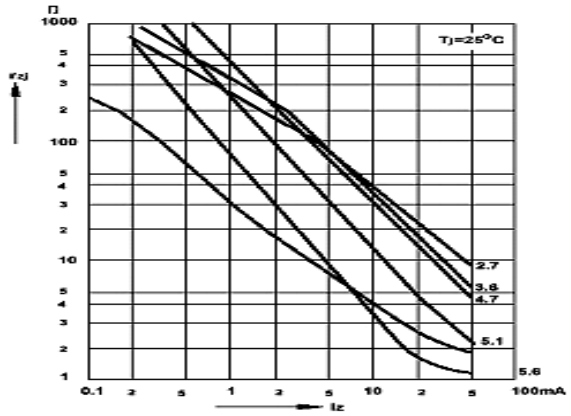


Fig 8: Dynamic resistance versus Zener current

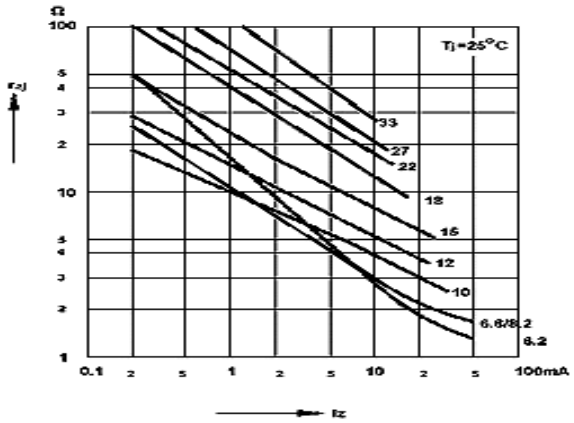
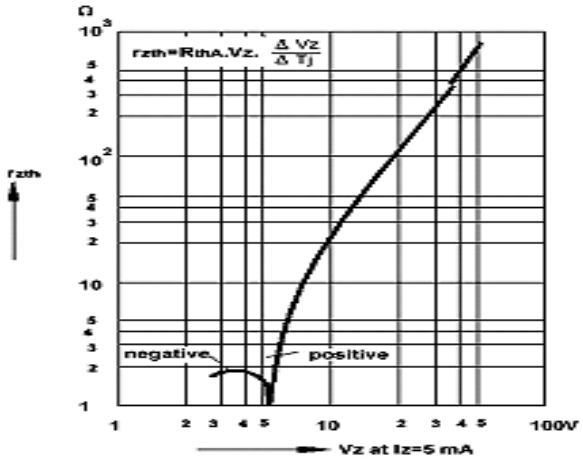


Fig 9: Thermal differential resistance versus Zener voltage



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TYPICAL CHARACTERISTICS CURVES

Fig 10: Dynamic resistance versus Zener voltage

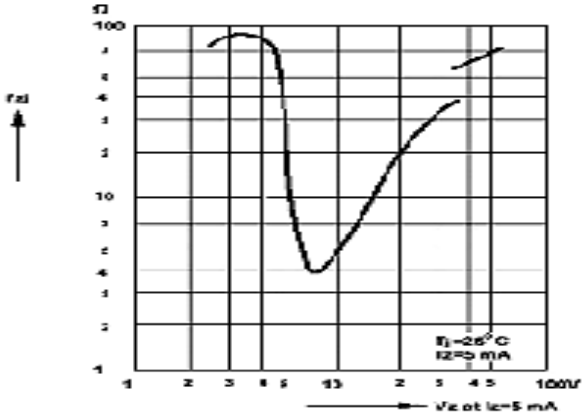


Fig 11: Temperature dependence of Zener voltage versus Zener voltage

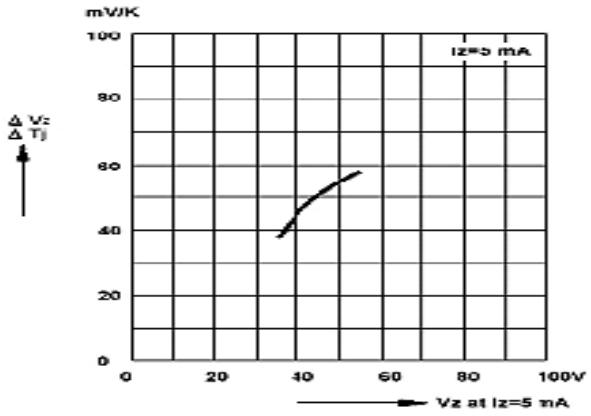


Fig 12: Change of Zener voltage versus junction temperature

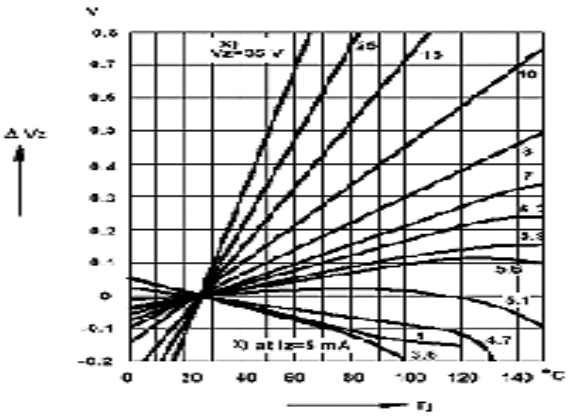


Fig 13: Temperature dependence of Zener voltage versus Zener voltage

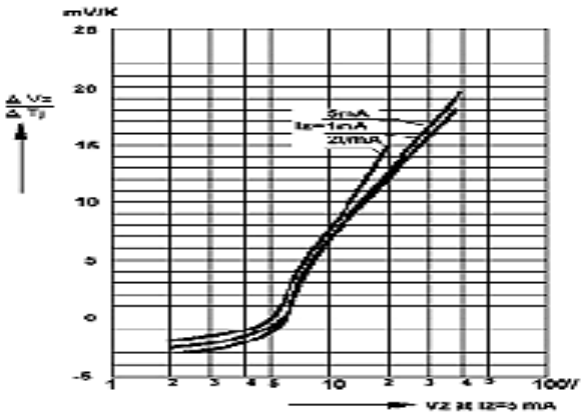


Fig 14: Change of Zener voltage versus junction temperature

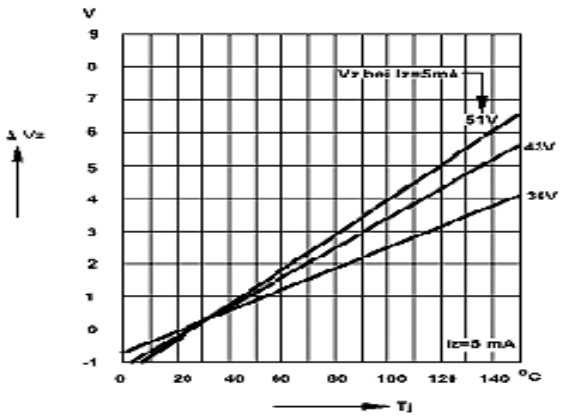
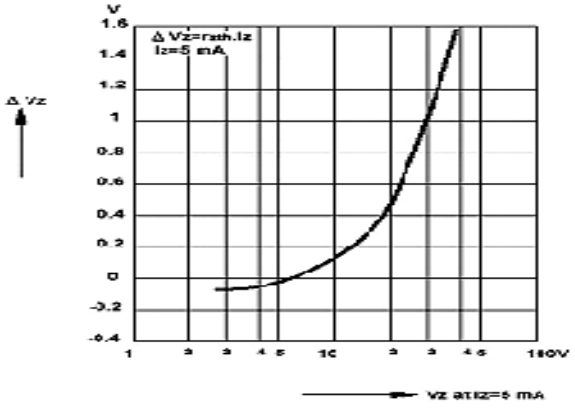
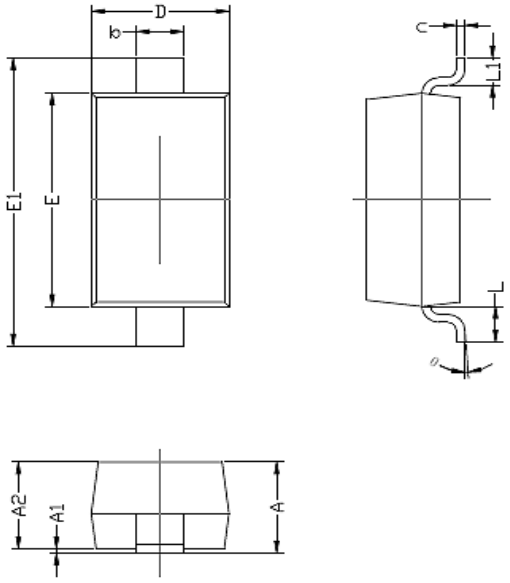


Fig 15: Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage



Package Details

SOD-123GW PACKAGE



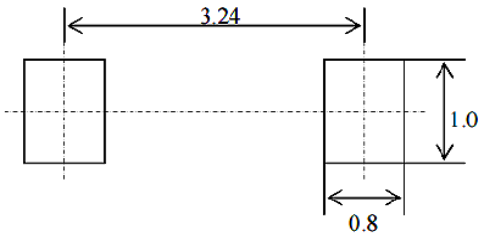
Symbol	Dimensions	
	Min	Max
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.450	0.650
C	0.080	0.150
D	1.500	1.700
E	2.600	2.800
E1	3.550	3.850
L	0.500 REF	
L1	0.250	0.450
θ	0°	8°

All dimensions are in mm

Mechanical Data

SOD-123 Small Outline Plastic Package
Polarity: Color band denotes cathode end
Epoxy UL: 94V-0
Mounting Position: Any

Recommended PCB pad layout



Center distance:	3.24
Foot width:	0.55
Pad width:	1.00
Foot length:	0.50
Pad length:	0.80

All dimensions are in mm

General Instructions:

1. Plastic package size: 2.70 X 1.60 sq. mm
2. General tolerances are: ±0.05mm

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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

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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