



SILICON PLANAR ZENER DIODES (200mW)

BZX384C 4V7 ~ 75V



SOD-323

SOD-323
Surface Mount
Plastic Package
RoHS compliant

Marking: As indicated below with cathode band

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

DESCRIPTION	SYMBOL	VALUE	UNIT
Power Dissipation	P_{tot}^1	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-65 to +150	°C
Thermal Resistance - Junction to Ambient in free air	$R_{th(j-a)}^1$	650	°C/W

Note:1.Valid that electrodes are kept at ambient temperature

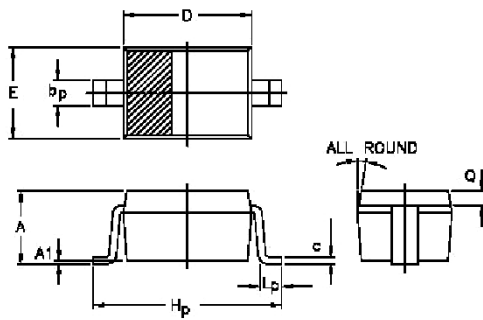
ELECTRICAL CHARACTERISTICS (at Ta = 25 °C Unless otherwise specified) V_F @ 100mA <1.0 V

Device	Zener Voltage Range		Dynamic Resistance		Test Current	Temperature Coefficient of Zener Voltage		Test Current	Reverse Leakage Current		Marking Code
	V _Z @ I _{ZT}		r _{Zj} @ I _{ZT} ¹	r _{Zj} @ I _{ZT} ²	I _{ZT} ¹	αV _Z @ I _{ZT} ¹		@ I _{ZT} ²	I _R @	V _R	
	(V)		(Ω)	(Ω)	(mA)	10 ⁻⁴ /°C		(mA)	(μA)	(V)	
	min	max	max	max		max	min		max		
BZX384C4V7	4.40	5.00	80	500	5	-5	2	1.0	3.0	2.0	W8
BZX384C5V1	4.80	5.40	60	480	5	-3	4	1.0	2.0	2.0	W9
BZX384C5V6	5.20	6.00	40	400	5	-2	6	1.0	1.0	2.0	WA
BZX384C6V2	5.80	6.60	10	150	5	-1	7	1.0	3.0	4.0	WB
BZX384C6V8	6.40	7.20	15	80	5	2	7	1.0	2.0	4.0	WC
BZX384C7V5	7.00	7.90	15	80	5	3	7	1.0	1.0	5.0	WD
BZX384C8V2	7.70	8.70	15	80	5	4	7	1.0	0.7	5.0	WE
BZX384C9V1	8.50	9.60	15	100	5	5	8	1.0	0.5	6.0	WF
BZX384C10	9.40	10.60	20	150	5	5	8	1.0	0.2	7.0	WG
BZX384C11	10.40	11.60	20	150	5	5	9	1.0	0.1	8.0	WH
BZX384C12	11.40	12.70	25	150	5	6	9	1.0	0.1	8.0	WI
BZX384C13	12.40	14.10	30	170	5	7	9	1.0	0.1	8.0	WK
BZX384C15	13.80	15.60	30	200	5	7	9	1.0	0.05	10.5	WL
BZX384C16	15.30	17.10	40	200	5	8	9.5	1.0	0.05	11.2	WM
BZX384C18	16.80	19.10	45	225	5	8	9.5	1.0	0.05	12.6	WN
BZX384C20	18.80	21.20	55	225	5	8	10	1.0	0.05	14	WO
BZX384C22	20.80	23.30	55	250	5	8	10	1.0	0.05	15.4	WP
BZX384C24	22.80	25.60	70	250	5	8	10	1.0	0.05	16.8	WR
BZX384C27	25.10	28.90	80	300	2	8	10	0.5	0.05	18.9	WS
BZX384C30	28.00	32.00	80	300	2	8	10	0.5	0.05	21	WT
BZX384C33	31.00	35.00	80	325	2	8	10	0.5	0.05	23.1	WU
BZX384C36	34.00	38.00	90	350	2	8	10	0.5	0.05	25.2	WW
BZX384C39	37.00	41.00	130	350	2	10	12	0.5	0.05	27.3	WX
BZX384C43	40.00	46.00	150	375	2	10	12	0.5	0.05	30.1	WY
BZX384C47	44.00	50.00	170	375	2	10	12	0.5	0.05	32.9	WZ
BZX384C51	48.00	54.00	180	400	2	10	12	0.5	0.05	35.7	X1
BZX384C56	52.00	60.00	200	425	2	9	11	0.5	0.05	39.2	X2
BZX384C62	58.00	66.00	215	450	2	9	12	0.5	0.05	43.4	X3
BZX384C68	64.00	72.00	240	475	2	10	12	0.5	0.05	47.6	X4
BZX384C75	70.00	79.00	255	500	2	10	12	0.5	0.05	52.5	X5

Note: 2. Measured with pulse t_p=5ms

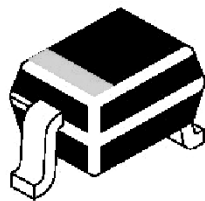
PACKAGE DETAILS

SOD-323 PACKAGE



DIM	MIN.	MAX.
A	0.95	1.05
A1	0.0	0.1
bp	0.3	0.4
c	0.127	0.135
D	1.65	1.75
E	1.2	1.3
Hp	2.3	2.7
Lp	0.2	0.4
Q	0.15	0.25

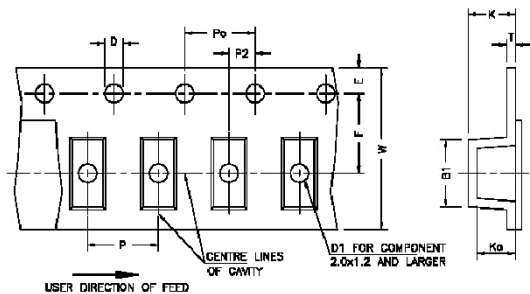
Cathode is marked by Band



All dimensions are in mm

PACKING DETAILS

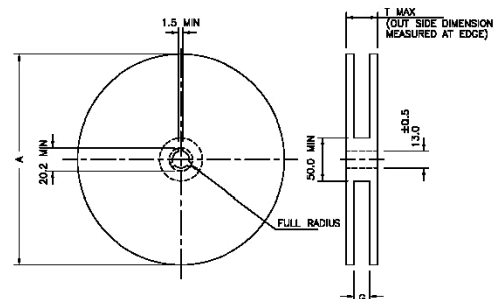
EMBOSSED TAPE & REEL DATA FOR DISCRETES CARRIER TAPE SPECIFICATIONS



DIMENSIONS										
TAPE SIZE	B1 MAX	D	D1	E	F	K	Po	P2	T MAX	W MAX
8.0	4.55	1.5 ±0.1	1.0 MIN	1.75 ±0.1	3.5 ±0.05	2.4 MAX	4.0 ±0.1	2.0 ±0.1	0.8	8.3

ALL DIMENSIONS ARE IN mm

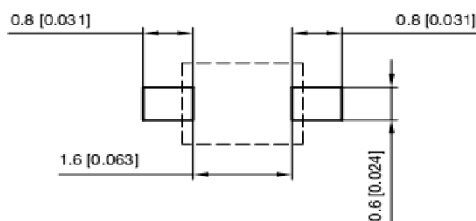
EMBOSSED TAPE & REEL DATA FOR DISCRETES



DIMENSIONS			
SIZE	A MAX	G	T MAX
8.0	330.0	8.4 +1.5, -0.0	14.4

ALL DIMENSIONS ARE IN mm
DEVICES PER REEL :- 10,000 Pcs

Recommended footprint



All dimensions are in mm(inches)

TYPICAL CHARACTERISTIC CURVES

Fig. 1 - Forward Characteristics

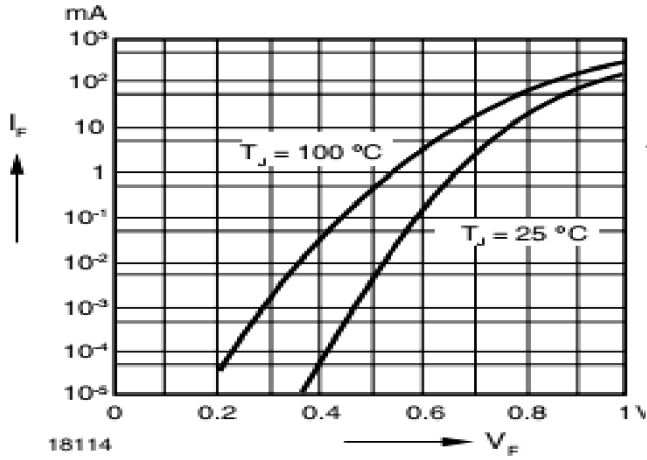


Fig. 4 - Change of Zener Voltage vs. Junction Temperature

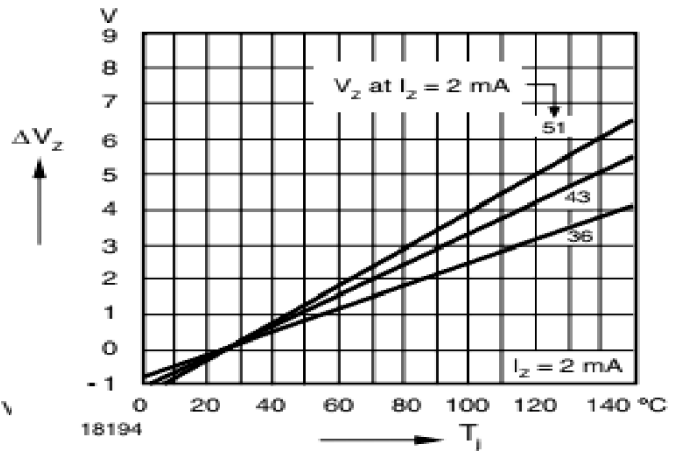


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

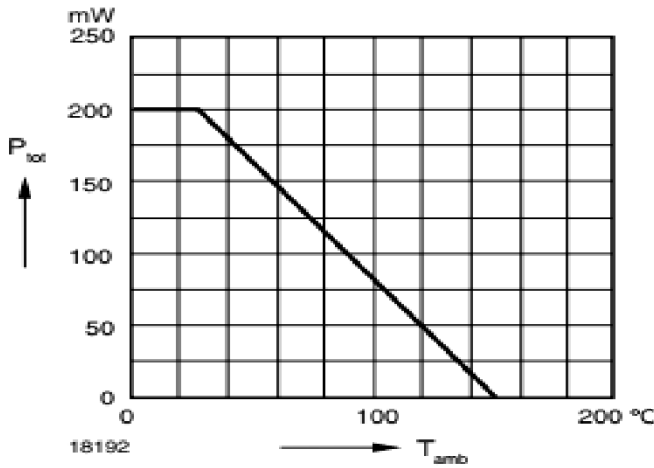


Fig. 5 - Thermal Differential Resistance vs. Zener Voltage

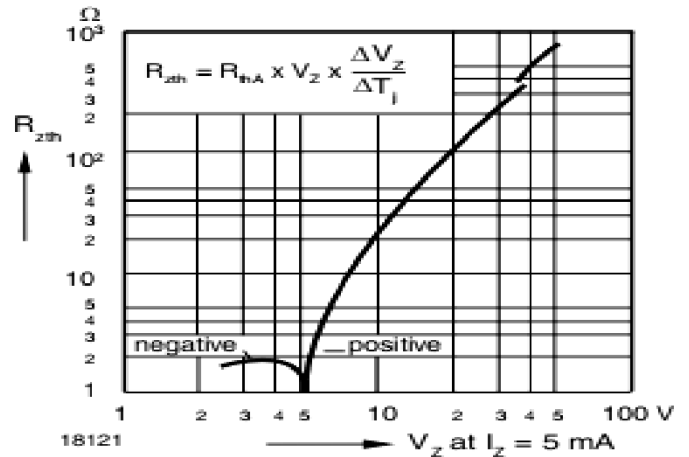


Fig. 3 - Dynamic Resistance vs. Zener Current

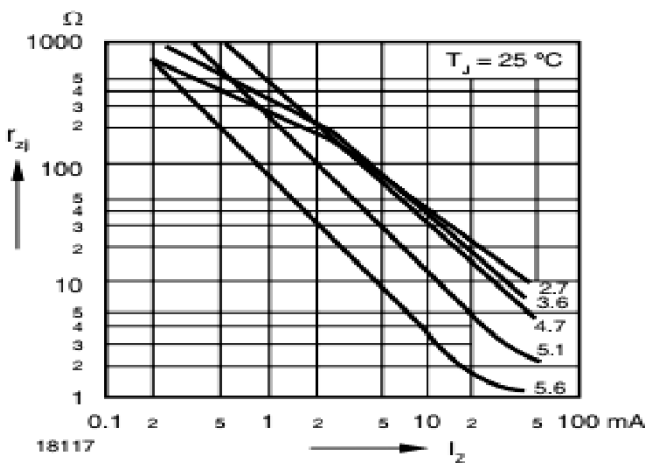
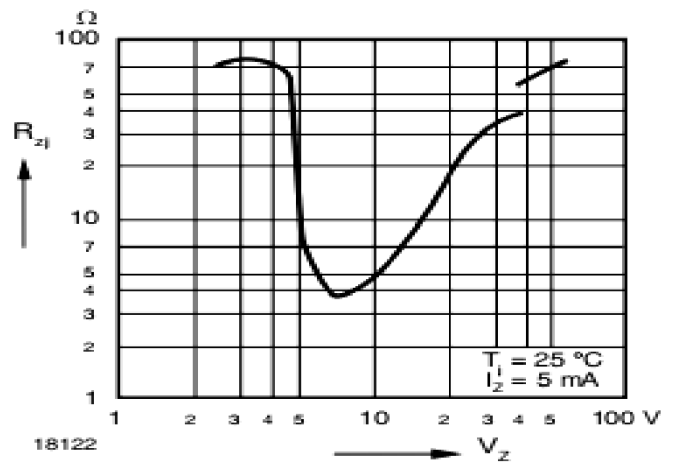


Fig. 6 - Dynamic Resistance vs. Zener Voltage



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

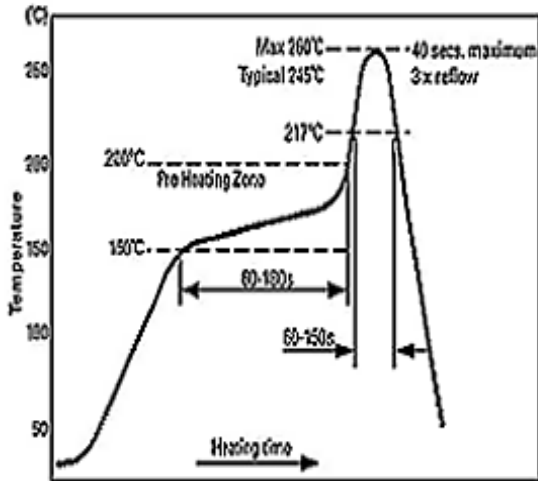
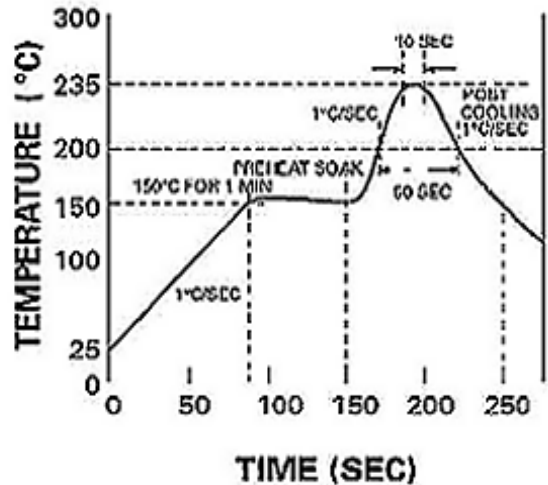


Figure 2

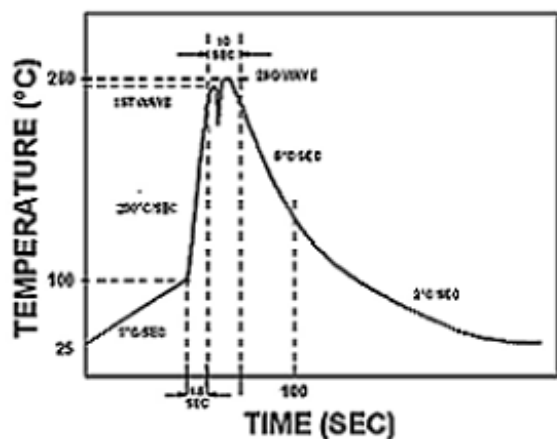


Reflow profiles in tabular form

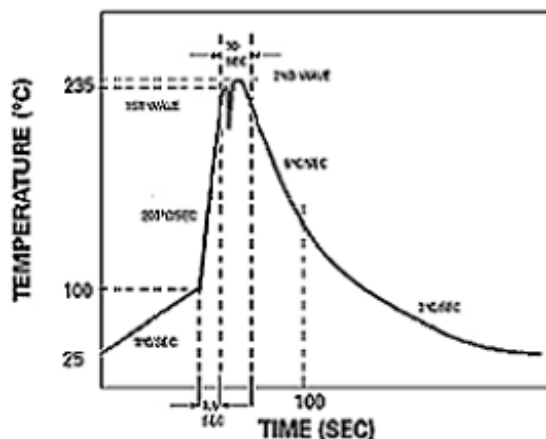
Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~3°C/second	~3°C/second
Preheat – Temperature Range – Time	150-170°C 60-180 seconds	150-200°C 60-180 seconds
Time maintained above: – Temperature – Time	200°C 30-50 seconds	217°C 60-150 seconds
Peak Temperature	235°C	260°C max.
Time within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

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

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.



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