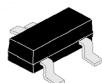


PNP SILICON PLANAR EPITAXIAL TRANSISTORS

BC807
BC808



SOT-23

SOT-23
SMD Package
RoHS compliant

FEATURES:

1. Marking

BC807 = 5D
BC807-16 = 5A
BC807-25 = 5B
BC807-40 = 5C
BC808 = 5H
BC808-16 = 5E
BC808-25 = 5F
BC808-40 = 5G

2. 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 °C Unless otherwise specified)

PARAMETER	SYMBOL	Min/Max	BC807	BC808	UNIT
Collector-emitter voltage (VBE = 0)	V _{CES}	Max	50	30	V
Collector-emitter voltage (open base)	V _{CE0}	Max	45	25	V
Collector-emitter voltage (open base) I _C = 10mA	V _{CE0}	Max	45	25	V
Emitter-base voltage (open collector)	V _{EB0}	Max	5	5	V
Collector current (peak value)	I _{CM}	Max	1000		mA
Collector current (DC)	I _C	Max	500		mA
Emitter current (peak value)	I _{EM}	Max	1000		mA
Base current (DC)	I _B	Max	100		mA
Base current (peak value)	I _{BM}	Max	200		mA
Total power dissipation at T _{amb} = 25°C	P _{tot}	Max	250		mW
Transition frequency at f = 100 MHz I _C = 10mA; V _{CE} = 5V	f _T	Min	80		MHz
Storage temperature	T _{stg}		-55 to +150		°C
Junction temperature	T _J	Max	150		°C
From junction to ambient	R _{th j-a}		500		K/W



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

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE			UNIT
			MIN	TYP	MAX	
Collector cut-off current	I_{CB0}	$I_E = 0; V_{CB} = 20V; T_j = 25^\circ C$	--	--	100	nA
		$I_E = 0; V_{CB} = 20V; T_j = 150^\circ C$	--	--	5	μA
Emitter cut-off current	I_{EB0}	$I_C = 0; V_{EB} = 5V$	--	--	10	μA
Base emitter voltage ¹	V_{BE}	$I_C = 500mA; V_{CE} = 1V$	--	--	1.2	V
Saturation voltage	V_{CEsat}	$I_C = 500mA; I_B = 50mA$	--	--	700	mV
D.C. current gain	h_{FE}	$I_C = 500mA; V_{CE} = 1V$	40	--	--	
		$I_C = 100mA; V_{CE} = 1V$	BC807; BC808	100~600		
			BC807-16	100~250		
			BC808-16			
			BC807-25	160~400		
			BC808-25			
BC807-40	250~600					
BC808-40						
Transition frequency at f = 100MHz	f_T	$I_C = 10mA; V_{CE} = 5V$	80	--	--	MHz
Collector capacitance at f = 1MHz	C_c	$I_E = I_e = 0; V_{CB} = 10V$	--	8	--	pF

BC807_808
Rev01 22082022E

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

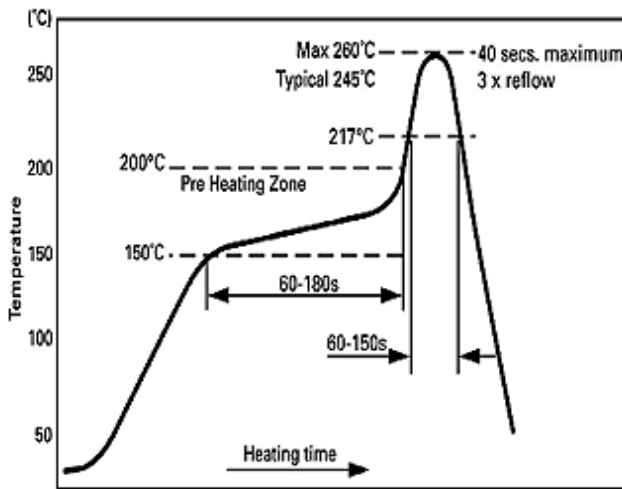
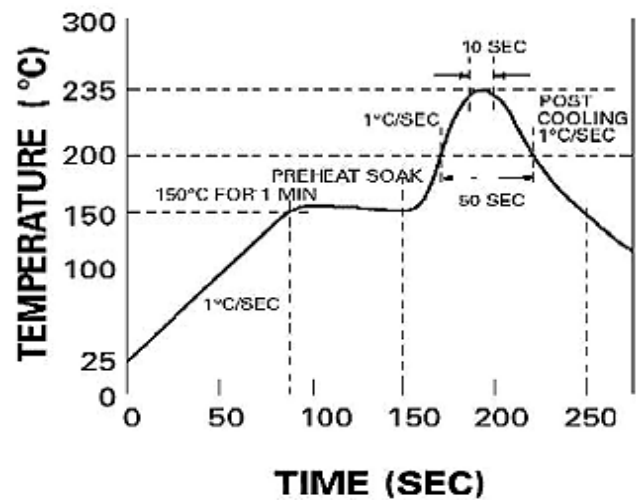


Figure 2

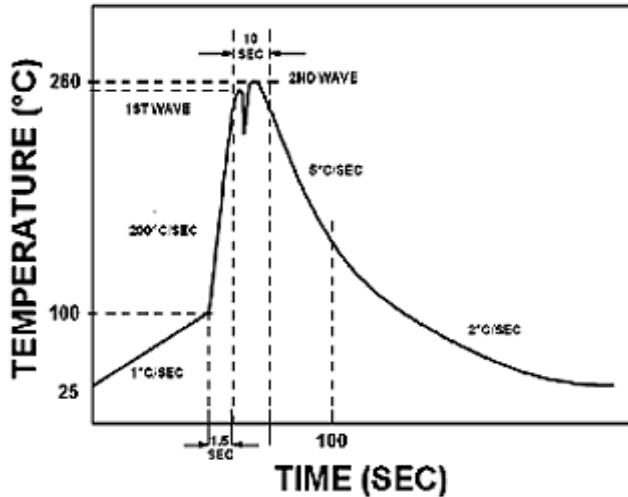


Reflow profiles in tabular form

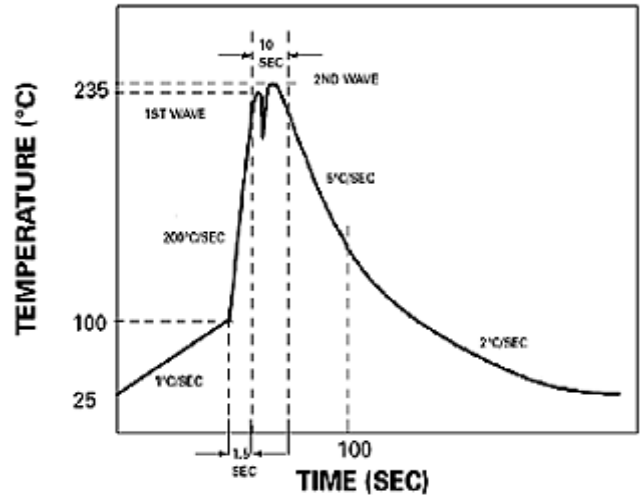
Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~3°C/second	~3°C/second
Preheat		
– Temperature Range	150-170°C	150-200°C
– Time	60-180 seconds	60-180 seconds
Time maintained above:		
– Temperature	200°C	217°C
– Time	30-50 seconds	60-150 seconds
Peak Temperature	235°C	260°C max.
Time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

TYPICAL CHARACTERISTICS CURVES

Fig 1: Static Characteristic

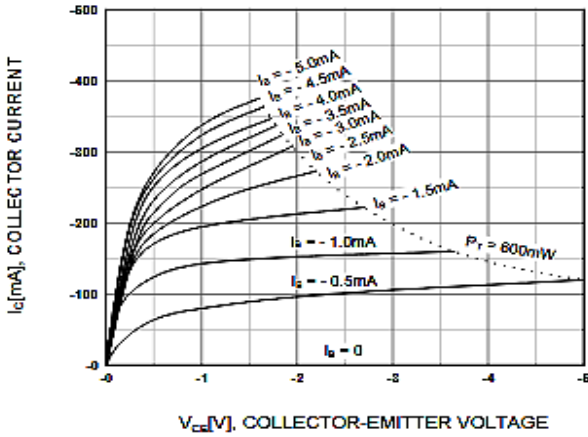


Fig 4: Static Characteristic

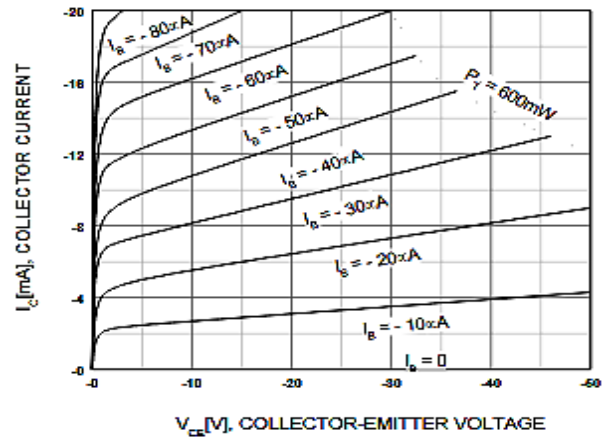


Fig 2: DC current Gain

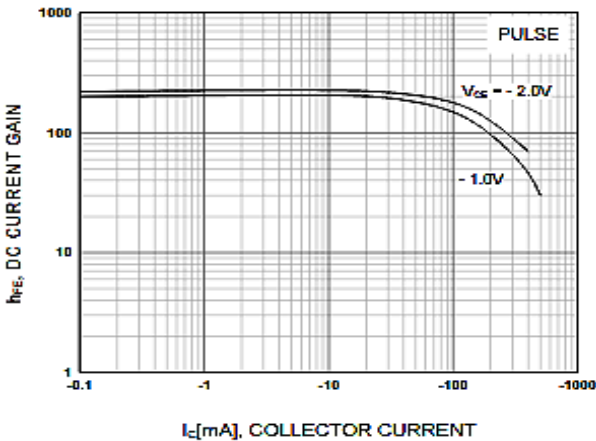


Fig 5: Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

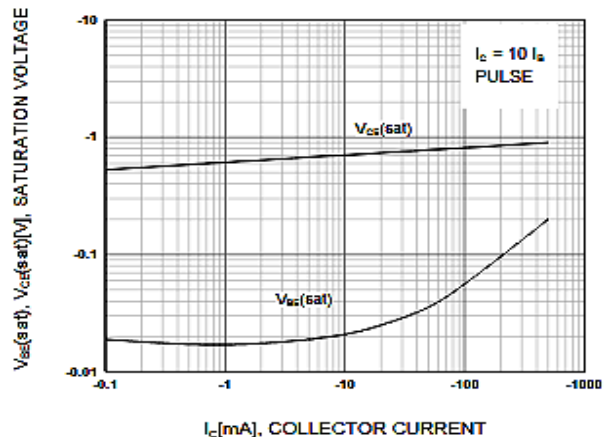


Fig 3: Base-Emitter On Voltage

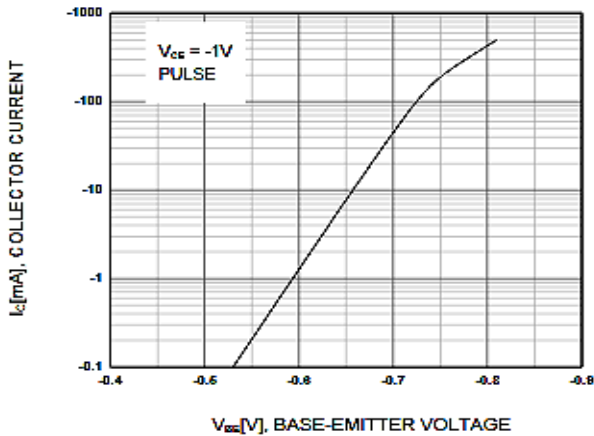
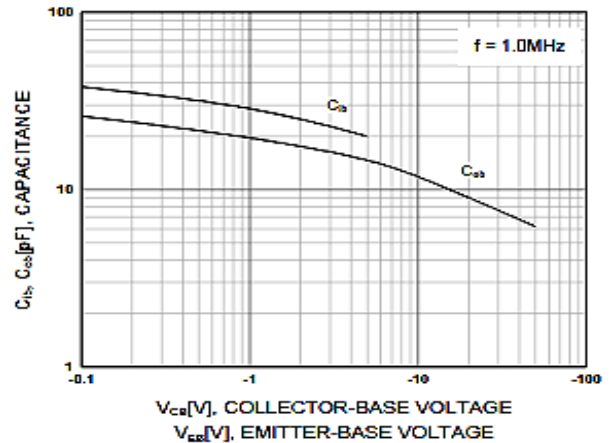
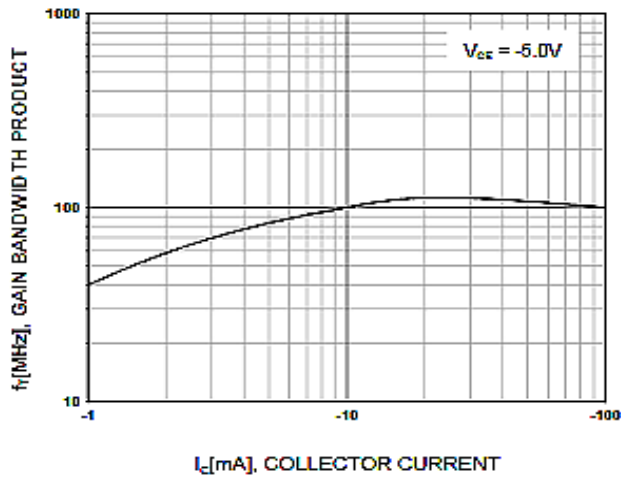


Fig 6: Input Output Capacitance



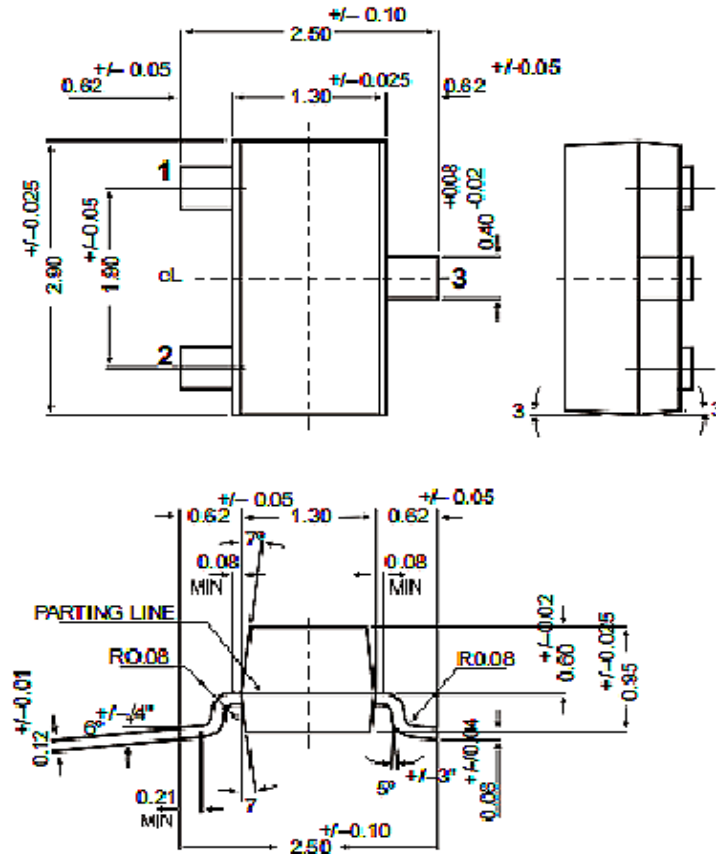
TYPICAL CHARACTERISTICS CURVES

Fig 7: Current Gain Bandwidth Product



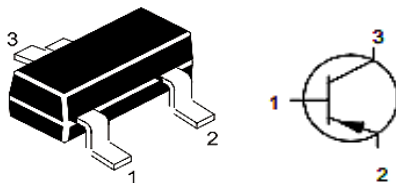
Package Details

SOT-23 SMD Package

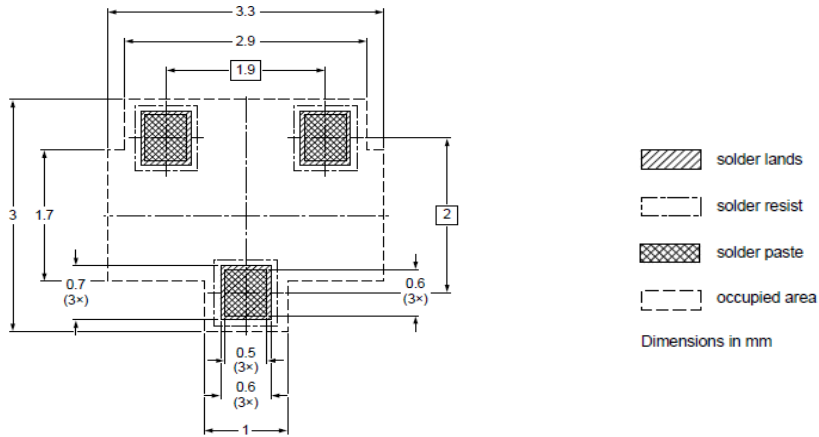


Pin configuration

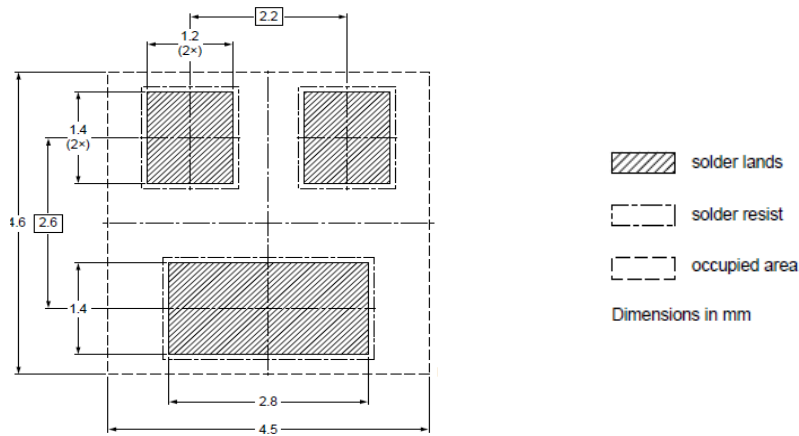
1. Base
2. Emitter
3. Collector



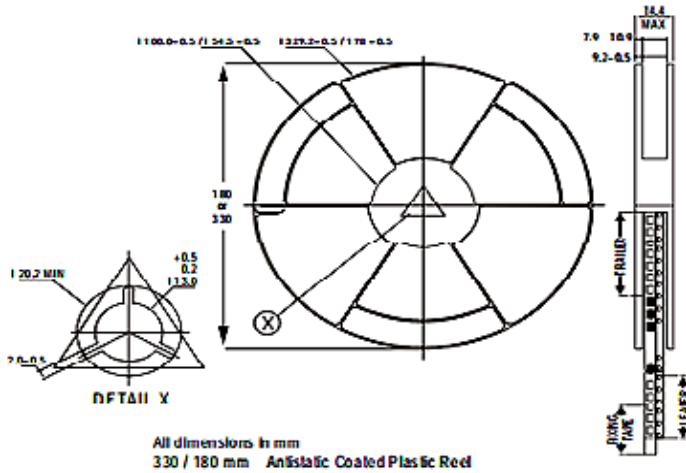
Recommended Reflow soldering footprint



Recommended Wave soldering footprint



SOT-23 Package Reel Information Reel specifications for Packing (13"/7" reels)

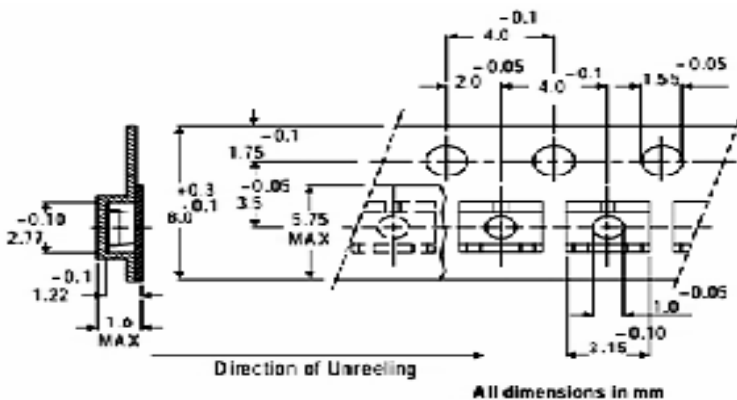


Size of Tape	8mm	8mm
Size of reel	330mm (13")	180mm (7")
No. of Device	10,000 Pcs	3,000 Pcs

NOTES:

1. The bandoier of 330mm reel contains at least 10,000 device.
2. The bandoier of 180mm reel contains at least 3,000 device.
3. No more than 0.5% missing device/reel 50 empty compartments for 330mm reel. 15 empty compartments for 180mm reel.
4. Three consecutive empty places might be found provided this gap is followed by 6 consecutive devices.
5. The carrier tape (leader) starts with at least 75 empty positions (equivalent to 330 mm). In order to fix the carrier tape a self adhesive tape of 20 to 50 mm is applied. At the end of the bandolier at least 40 empty positions (equivalent to 160 mm) are there.

Tape Specification for SOT-23 Surface Mount Device



Packing Detail

PACKAGE	STANDARDPACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
SOT-23 T&R	3K/reel	136 gm/3K pcs	3" x 7.5" x 7.5"	12 K	17" x 15" x 13.5"	192 K	12 kgs
	5K/reel	227 gm/5K pcs	9" x 9" x 9"	51 K	19" x 19" x 19"	408 K	28 kgs
	10K/reel	415 gm/10K pcs	13" x 13" x 0.5"	10 K	17" x 15" x 13.5"	300 K	16 kgs



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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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