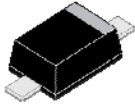


## 1.0Amp Super Fast Recovery Surface Mounted Rectifiers

ES1AFL ~ ES1JFL



SOD-123

**SOD-123FL**  
**Surface mount**  
**Plastic Package**  
**RoHS compliant**

### FEATURES

1. The plastic package carries Underwriters Laboratory Flammability Classification 94V-0.
2. Ideal for printed circuit board.
3. Glass passivated Junction chip.
4. Low reverse leakage.
5. High forward surge current capability.
6. High temperature soldering guaranteed 250 °C/10 seconds at terminals.

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

PARAMETER	SYMBOL	ES1 AFL	ES1 BFL	ES1 CFL	ES1 DFL	ES1 EFL	ES1 GFL	ES1 JFL	UNIT	
	Marking code	E1A	E1B	E1C	E1D	E5	E1G	E1J		
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	150	200	300	400	600	V	
Maximum RMS voltage	V <sub>RMS</sub>	35	70	105	140	210	280	420	V	
Maximum DC blocking voltage	V <sub>DC</sub>	50	100	150	200	300	400	600	V	
Maximum average forward rectified current at T <sub>L</sub> =100°C	I <sub>(AV)</sub>	1.0							A	
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	35.0							A	
Maximum instantaneous forward voltage at 1.0A	V <sub>F</sub>	0.95			1.25		1.7		V	
Maximum DC reverse current at T <sub>A</sub> =25°C rated DC blocking voltage T <sub>A</sub> =125°C	I <sub>R</sub>	5.0			500				µA	
Maximum reverse recovery time <sup>1</sup>	T <sub>rr</sub>	35								ns
Typical junction capacitance <sup>2</sup>	C <sub>J</sub>	7.0								pF
Typical thermal resistance	R <sub>qJA</sub>	85.0								°C/W
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150							°C	

**Note:**

1. Reverse recovery time test condition: I<sub>F</sub>=0.5A I<sub>R</sub>=1.0A I<sub>rr</sub>=0.25A
2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.

### TYPICAL CHARACTERISTICS CURVE

Fig 1: Derating Curve output Rectifier current

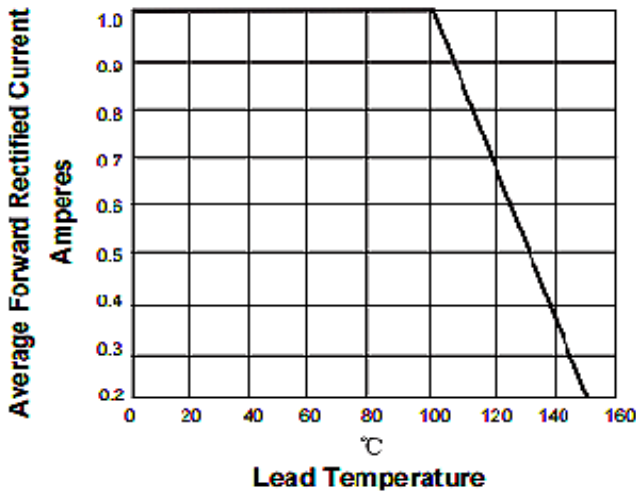


Fig 3: Maximum Non-Repetitive Peak Forward Surge Current Per leg

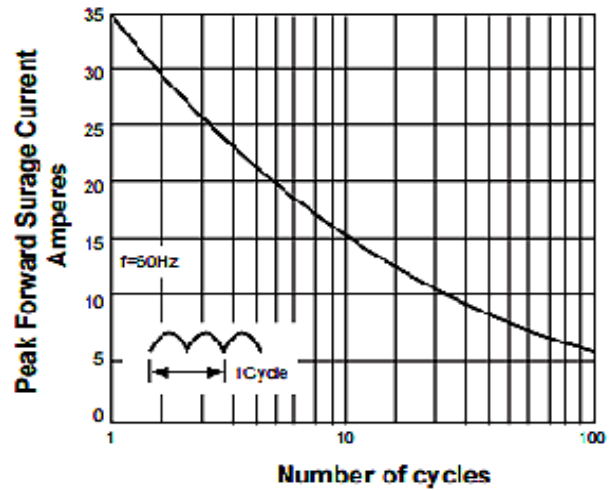


Fig 2: Typical forward voltage Characteristics

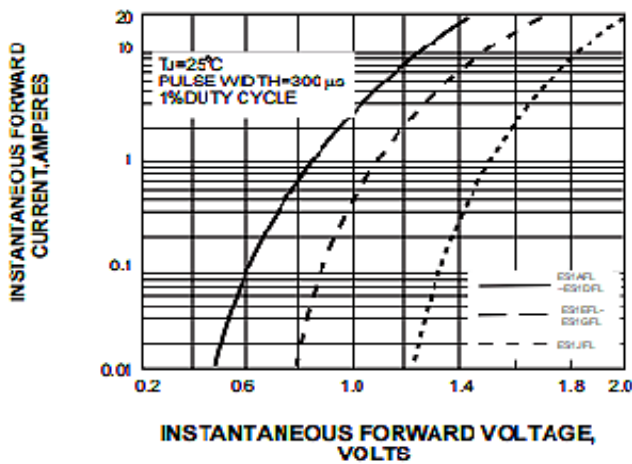
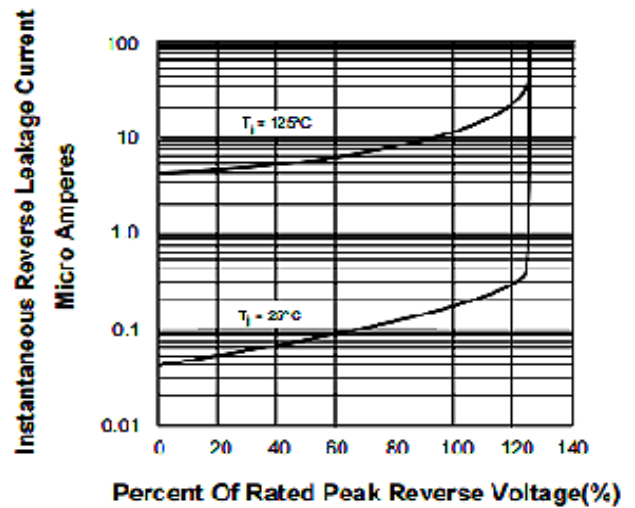
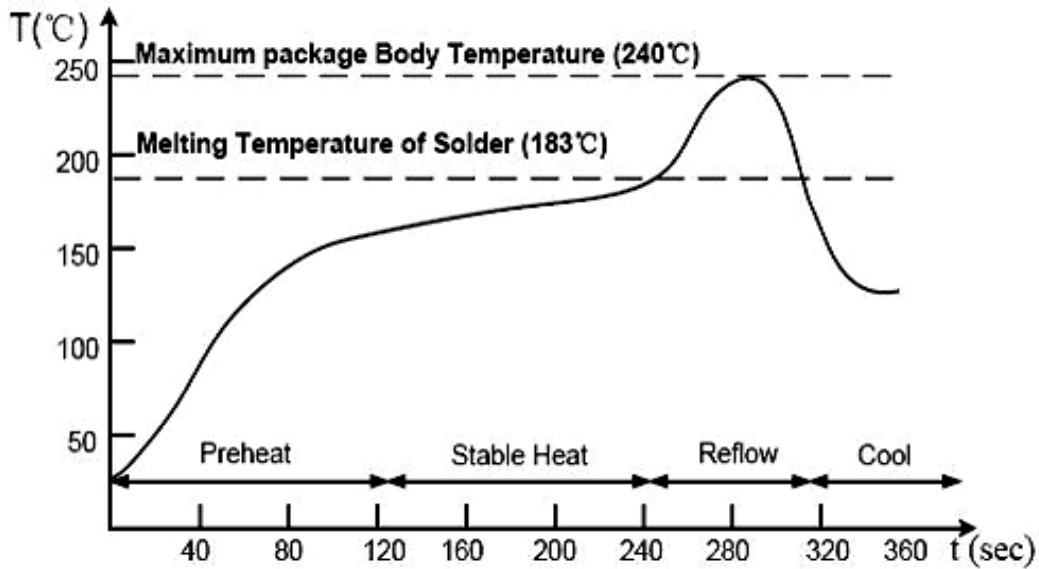


Fig 4: Typical reverse leakage characteristics



### Suggested Soldering Temperature profile

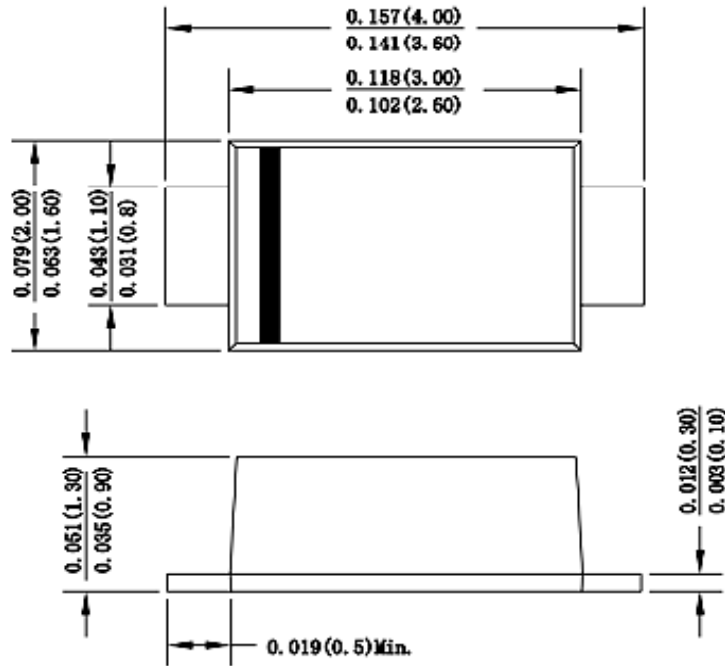


#### Notes:

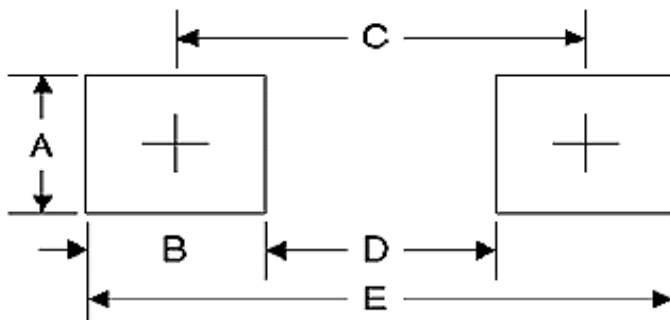
1. Recommended reflow methods: IR, vapor phase oven, hot air oven, wave solder.
2. The device can be exposed to a maximum temperature of 265°C for 10 seconds.
3. Devices can be cleaned using standard industry methods and solvents.
4. If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

## PACKAGE DETAILS

### SOD-123FL Surface mount Plastic Package



### Suggested Pad Layout



SYMBOL	Unit(mm)	Unit(inch)
A	1.2	0.048
B	1.15	0.045
C	3.10	0.122
D	1.95	0.077
E	4.25	0.167

### Mechanical Data

**Case** : Molded plastic body

**Terminals** : Solder plated, solderable per MIL-STD-750, Method 2026

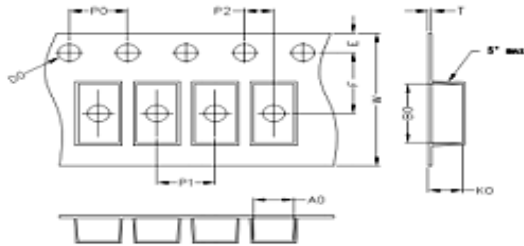
**Polarity** : Polarity symbol marking on body

**Mounting Position** : Any

**Weight** : 0.0007 ounce, 0.02 grams

## Package information

### Carrier Dimensions(mm)



<b>A0</b>	<b>B0</b>	<b>K0</b>	<b>D0</b>	<b>E</b>	<b>F</b>
2.15	3.95	1.35	1.55	1.75	3.50
<b>P0</b>	<b>P1</b>	<b>P2</b>	<b>T</b>	<b>W</b>	<b>Tolerance</b>
4.0	4.0	2.0	0.25	8	0.1

### Package Specifications

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOD123FL	7'	178	3	180	15	380*200*200	150



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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.

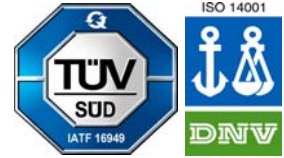
For this, the following JEDEC table may be referred:

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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