



Continental Device India Pvt. Limited

An IATF 16949, ISO9001 and ISO 14001 Certified Company



1.0 Amp Ultra Fast Recovery Rectifiers GLASS PASSIVATED

US1AF-US1MF



SMAF

**Package:SMAF
Surface Mounted
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

APPLICATIONS:

Power Supply, LED drivers, Charger , Motor drive etc

US1AF-US1MF
Rev0 07122019ESW



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ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified. Single phase half-wave 60Hz, resistive or inductive load for capacitive load current derate by 20%.

Parameter		Symbol	US1 AF	US1 BF	US1 DF	US1 GF	US1 JF	US1 KF	US1 MF	Unit
Maximum repetitive peak reverse voltage		V _{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage		V _{RMS}	35	70	140	280	420	560	700	
Maximum DC blocking voltage		V _{DC}	50	100	200	400	600	800	1000	
Maximum average forward rectified current at TL=100 C		I _(AV)	1.0							A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load		I _{FSM}	30.0							A
Maximum instantaneous forward voltage at 1.0A		V _F	1.0			1.4	1.7			V
Maximum DC reverse current at rated DC blocking voltage	TA =25 C	I _R	5.0							μA
	TA=125 C		500							μA
Maxinum reverse recovery time(Note 1)		T _{rr}	50				75			ns
Typical junction capacitance (Note2)		C _J	20.0							pF
Typical thermal resistance		R _{θJA}	70.0							°C/W
Operating junction and storage temperature range		T _J , T _{STG}	-55 to +150							°C

- Notes:**
- 1.Reverse recovery time test condition: $I_F=0.5A$ $I_R=1.0A$ $I_{rr}=0.25A$
 - 2.Measured at 1MHz and applied reverse voltage of 4.0V D.C.



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Typical Characteristic curves

FIG. 1- DERATING CURVE OUTPUT RECTIFIED CURRENT

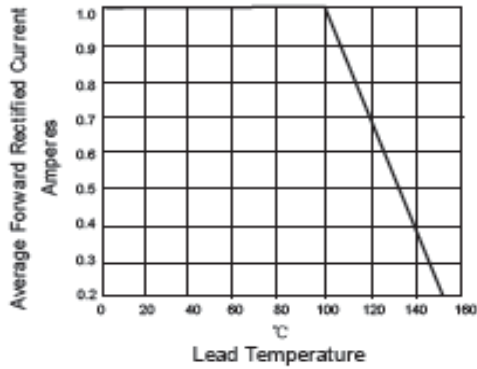


FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PER LEG

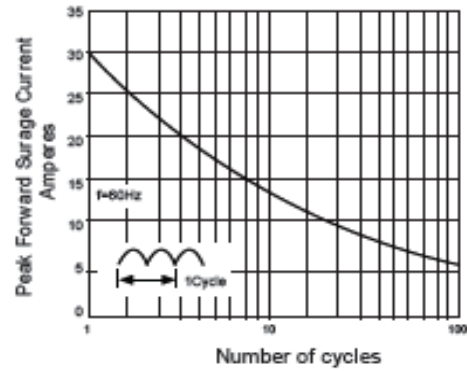


FIG. 3-TYPICAL FORWARD VOLTAGE CHARACTERISTICS

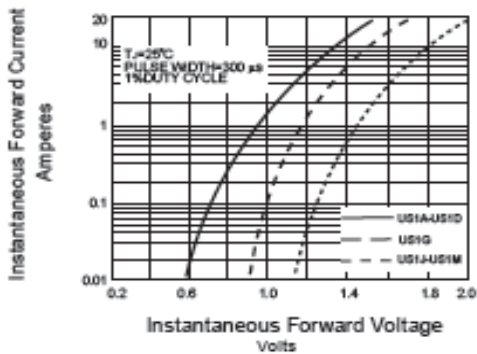
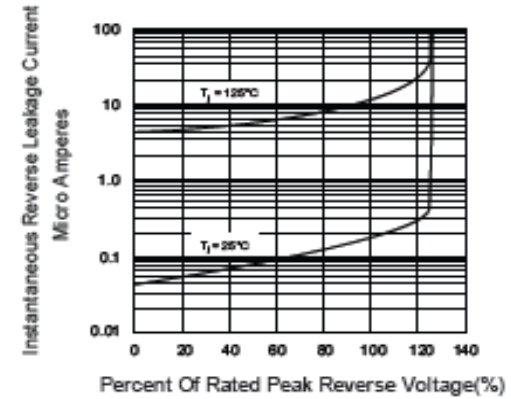
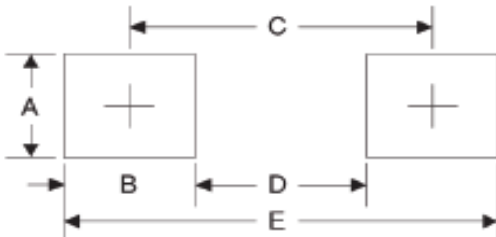


FIG. 4-TYPICAL REVERSE LEAKAGE CHARACTERISTICS



Suggested Pad Layout



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.90	0.154
D	2.00	0.078
E	5.10	0.200

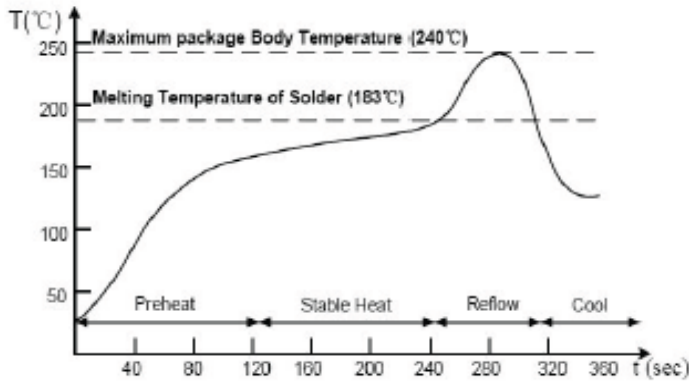


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Suggested Soldering Temperature Profile

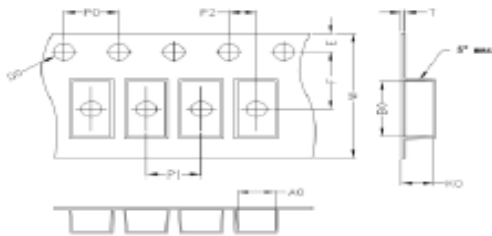


Note

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

Package Information

Carrier Dimension(mm)



A0	B0	K0	D0	E	F
2.83	4.75	1.42	1.55	1.75	5.50
P0	P1	P2	T	W	Tolerance
4.0	4.0	2.0	0.25	12	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)
SMAF	7'	178	3	180	12	380*200*200	120
	11'	278	7.5	285	15	355*310*310	120



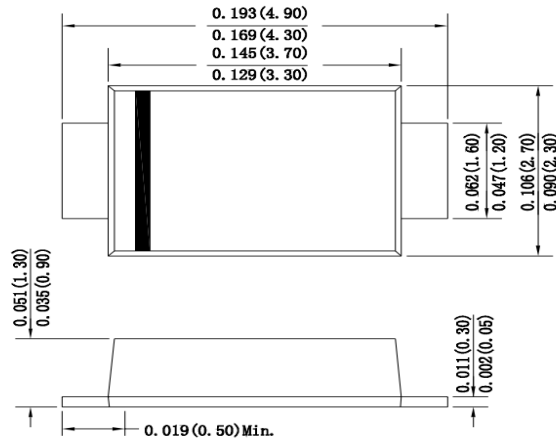
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Package Details

Package:SMAF



Dimensions in inches and (millimeters)

Mechanical Data

Case : Molded plastic body

Terminals : Solder plated, solderable per MIL-

Polarity : Polarity symbol marking on body

Mounting Position : Any

Weight : 0.0014 ounce, 0.038 grams

Note: For AECQ compliant products, please suffix **-AH** in the part number while ordering



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Recommended Product Storage Environment for Diode and Transistors

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	$\leq 30^{\circ}\text{C} / 85\% \text{ RH}$
2	1 Year	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
2a	4 Weeks	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
3	168 Hours	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
4	72 Hours	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
5	48 Hours	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
5a	24 Hours	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$
6	Time on Label(TOL)	$\leq 30^{\circ}\text{C} / 60\% \text{ RH}$

Figure 1 Floor Life according to JEDEC MSL Level



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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



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