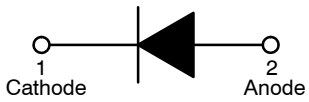
Surface Mount Ultrafast Rectifier

ES1JFL



Ultrafast Rectifier

SOD−123F
CASE 425AD

Features

- Fast Switching Speed – Maximum T_{rr} 35 ns
- Ultra Thin Profile – Maximum Height of 1.08 mm
- Glass Passivated Junction
- UL Flammability 94V−0 Classification
- MSL 1
- Green Mold Compound
- These Devices are Pb−Free, Halogen Free Free and are RoHS Compliant

Specifications

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	600	V
V_{RMS}	RMS Voltage	420	V
V_{DC}	DC Blocking Voltage	600	V
$I_{F(AV)}$	Average Forward Current at T_L = 120°C	1	A
I_{FSM}	Peak Forward Surge Current, 8.3 ms Single Half Sine−Wave at T_L = 25°C	30	A
T_J, T_{STG}	Operating and Storage Temperature Range	−55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

MARKING DIAGRAMS

Band Indicates Cathode

&Y	= Binary Calendar Year Coding Scheme
&Z	= Assembly Plant Code
E1J	= Specific Device Code
&G	= Single Digit Weekly Data Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

THERMAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Characteristic	Value	Unit
$R_{\theta JA}$	Typical Thermal Resistance, Junction−to−Ambient (Note 1)	200	°C/W
$R_{\theta JC}$	Typical Thermal Resistance, Junction−to−Case (Note 2)	30	°C/W

1. Mounted on an FR4 PCB, single−sided copper, mini pad.
2. Mounted on an FR4 PCB, single−sided copper, with 10 cm x 10 cm copper pad area.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	Forward Voltage	I_F = 1 A	−	−	1.7	V
I_R	Reverse Current	V_R = 600 V	−	−	0.5	μA
		V_R = 600 V, T_A = 100°C	−	−	10	
C_J	Capacitance	V_R = 4 V, f = 1.0 MHz	−	7	−	pF
T_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A	−	22.55	35.00	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping†
ES1JFL	E1J	SOD−123F (Pb−Free/Halogen Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

TYPICAL PERFORMANCE CHARACTERISTICS

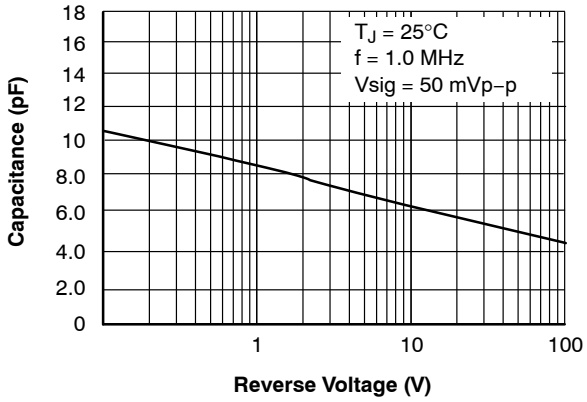


Figure 1. Typical Junction Capacitance

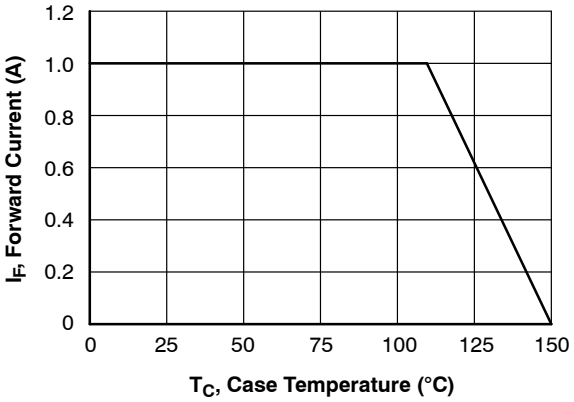


Figure 2. Forward Current Derating Curve

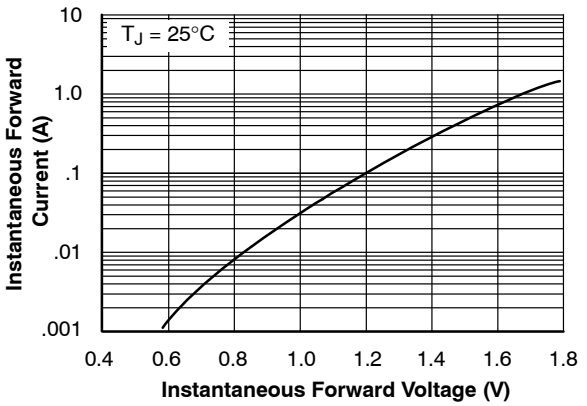


Figure 3. Typical Forward Characteristics

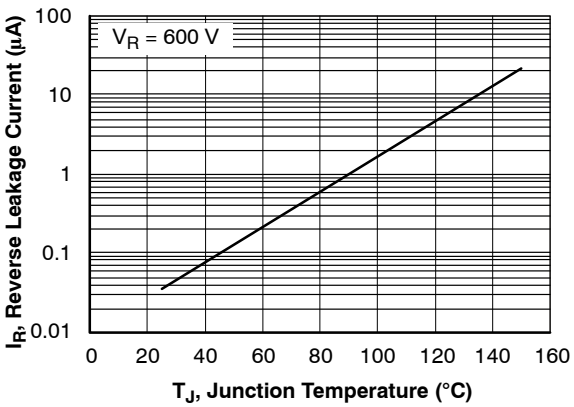
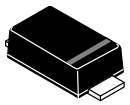


Figure 4. Typical Leakage Current vs. Junction Temperature

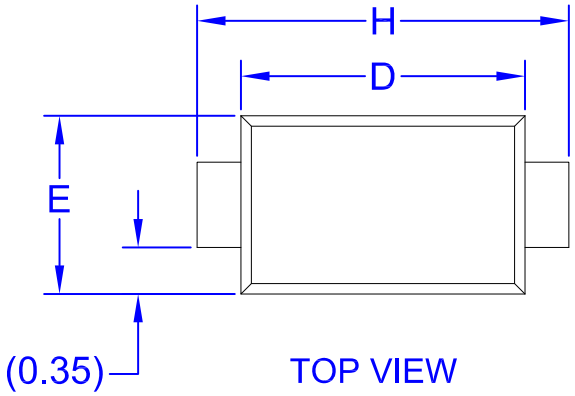


SCALE 4:1

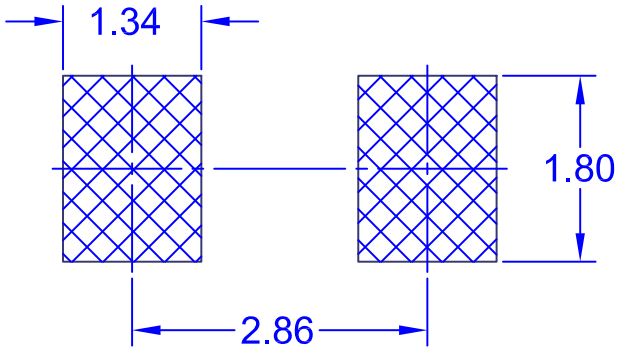
SOD−123FL
CASE 425AD
ISSUE A

DATE 04 AUG 2017

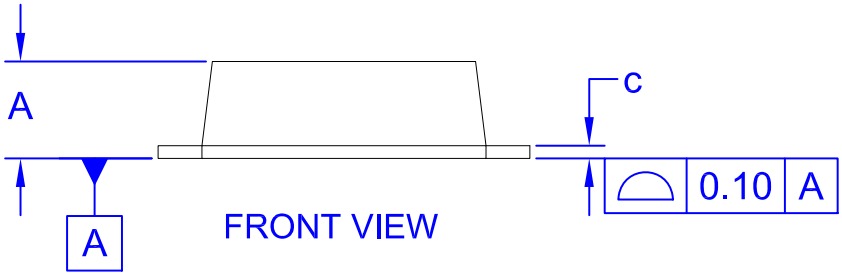
NOTES:
A. NO INDUSTRY STANDARD APPLIES TO THIS PACKAGE
B. ALL DIMENSIONS ARE IN MILLIMETERS
C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.



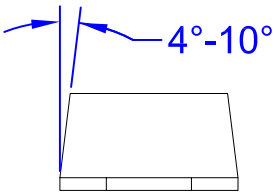
TOP VIEW



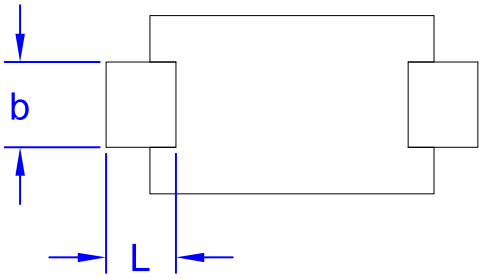
LAND PATTERN RECOMMENDATION



FRONT VIEW



SIDE VIEW



BOTTOM VIEW

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.031	0.043	0.80	1.08
b	0.020	0.045	0.50	1.15
c	0.002	0.008	0.05	0.20
D	0.098	0.118	2.50	3.00
E	0.059	0.077	1.50	1.95
H	0.130	0.154	3.30	3.90
L	0.018	0.035	0.45	0.90

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