

F1S THRU F7S
Fast Recovery Rectifiers



Voltage: 50~1000 Volts

Current: 1 A

Package: SOD-323

Features

- NH'S Fast Recovery Rectifiers Chip Technology
- Low Switching Loss For High Efficiency
- Low Leakage Current For High Reliability
- Fast Switching Speed

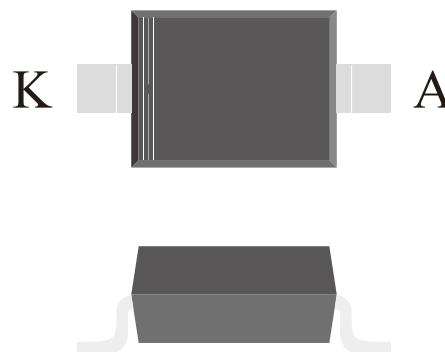
Mechanical Data

- **Case:** Molded With UL-94 ClassV-0 Recognized, RoHS-Compliant
- **Polarity:** Look At The Diagram And Polarity On The Right
- **Terminals:** Tin Plated Leads,Solderable Per J-STD-002 And JESD22-B102

Typical Applications

- Switch Mode Power Supplies (SMPS)
- Fast Chargers
- LED Driver And Monitor Lighting
- Automotive Electronics And Charging Posts

Diagram:



Polarity:



Single Phase,Half Wave,60Hz,Resistive Or Inductive Load.For Capacitive Load,Derate Current By 20%

Maximum Ratings (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	F1S	F2S	F3S	F4S	F5S	F6S	F7S	Unit
Marking		C _{ODE}	1R	2R	3R	4R	5R	6R	7R	
Maximum Repetitive Peak Reverse Voltage		V _{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltag		V _{RMS}	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage		V _{DC}	50	100	200	400	600	800	1000	V
Maximum Average Forward Rectified Current		I _{F(AV)}	1							A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I _{FSM}	15							A
Current Squared Time	t < 8.3ms	I ² t	0.9							A ² sec

Electrical Characteristics (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	F1S	F2S	F3S	F4S	F5S	F6S	F7S	Unit
Maximum Instantaneous Forward Voltage	I _F = 1.0 A	V _F	1.3							V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C ,V _R =VRRM Ta=125°C ,V _R =VRRM*80%	I _{RRM}	5 200							uA uA
Typical Junction Capacitance	4 V,1MHz	C _J	8			6		5		pF
Maximum Reverse Recovery Time	IF=0.5A, IR=1.0A, IRR=0.25A	T _{rr}	150			250		500		nS

Thermal Characteristics (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	F1S	F2S	F3S	F4S	F5S	F6S	F7S	Unit
Operating Junction Temperature Range		T _J	-55~150							℃
Storage Temperature Range		T _{STD}	-55~150							
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25℃	R _{θJA}	70.0							℃/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	R _{θJC}	20.0							

Notes: 1.Pulse Test: 300 Us Pulse Width,1% Duty Cycle

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Typical Characteristics Curves

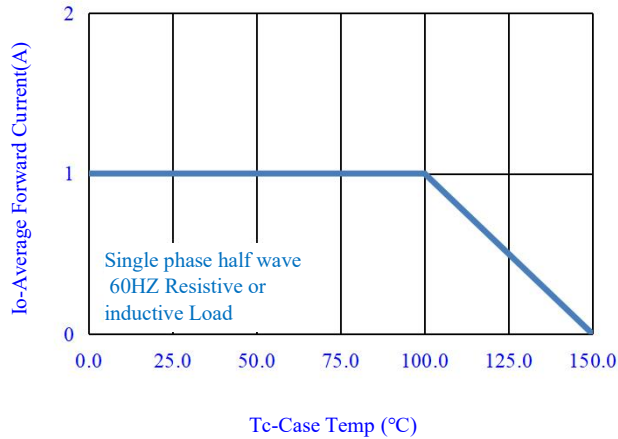


Fig.1-Forward Current Derating Curve

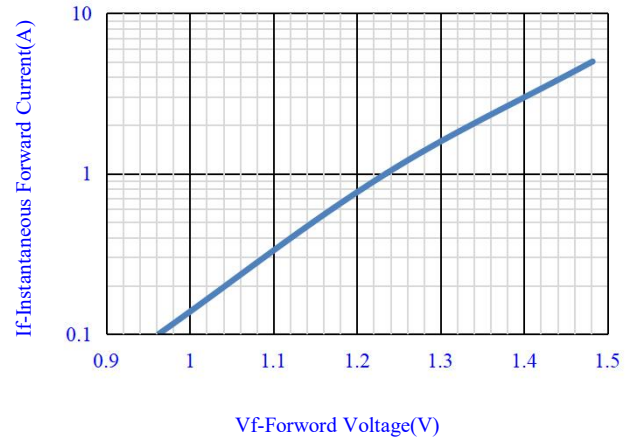


Fig.2-Typical Instantaneous Forward

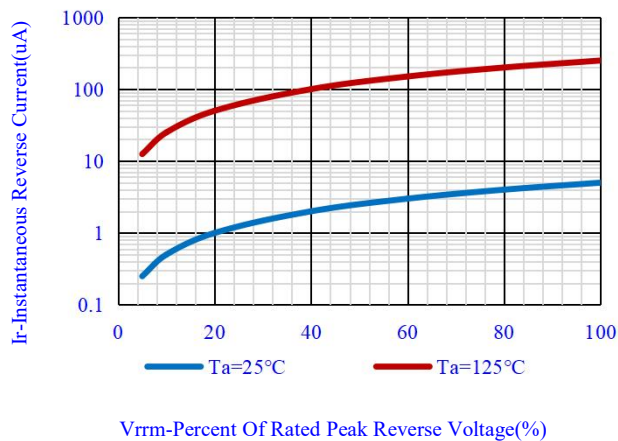


Fig.3-Typical Reverse Characteristics

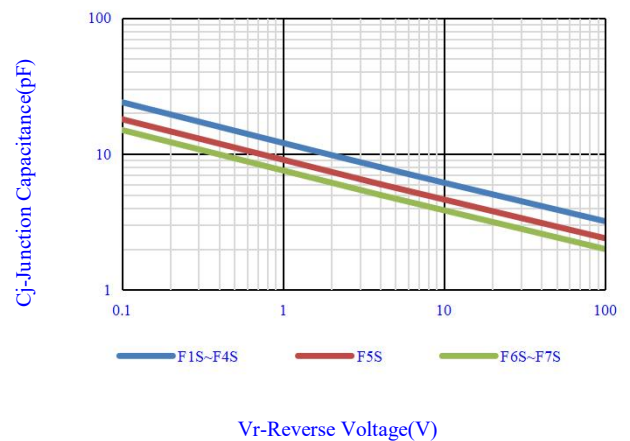


Fig.4-Typical Junction Capacitance

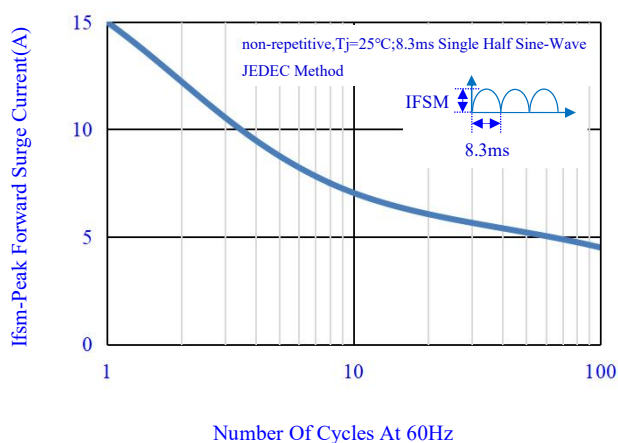


Fig.5-Max. Non-Repetitive Surge Current

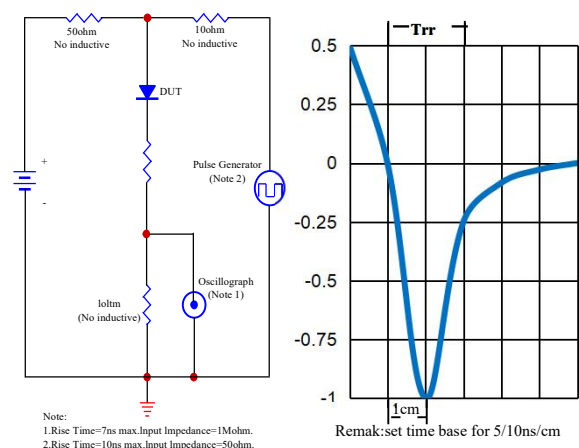


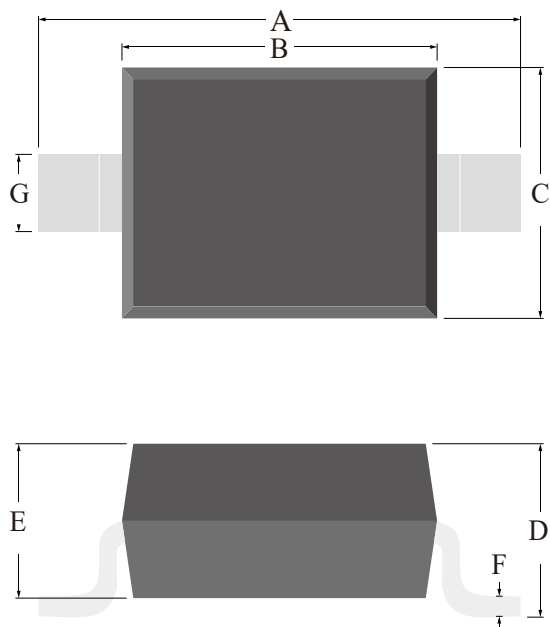
Fig.6-Reverse Recovery Time Characteristic And Test Circuit

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OUTLINE DRAWINGS

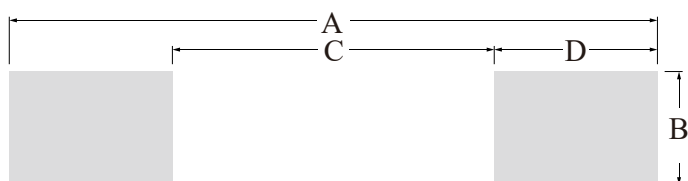
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OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.40	-	2.70	0.0945	-	0.1063
B	1.55	-	1.85	0.0610	-	0.0728
C	1.15	-	1.45	0.0453	-	0.0571
D	0.75	-	1.10	-	-	0.0433
E	0.70	-	1.00	0.0276	-	0.0394
F	-	0.10	-	-	0.0039	-
G	0.25	-	0.55	0.0098	-	0.0217

RECOMMENDED LAYOUT DRAWINGS

SOD-323



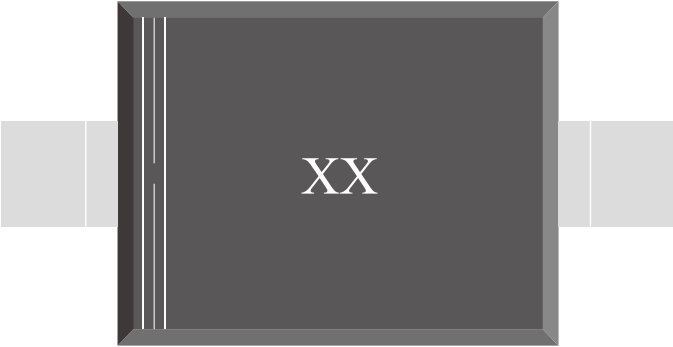
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	2.90	-	-	0.1142	-
B	--	0.50	--	--	0.0197	--
C	--	1.44	--	--	0.0567	--
D	--	0.73	--	--	0.0287	--

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MARKING



MARKING INSTRUCTION

XX=Model
F1S=1R
F2S=2R
F4S=4R
F5S=5R
F6S=6R
F7S=7R
White band denotes cathode

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
SOD-323	P1	0.0041	7" Reel	3000	45000	180000

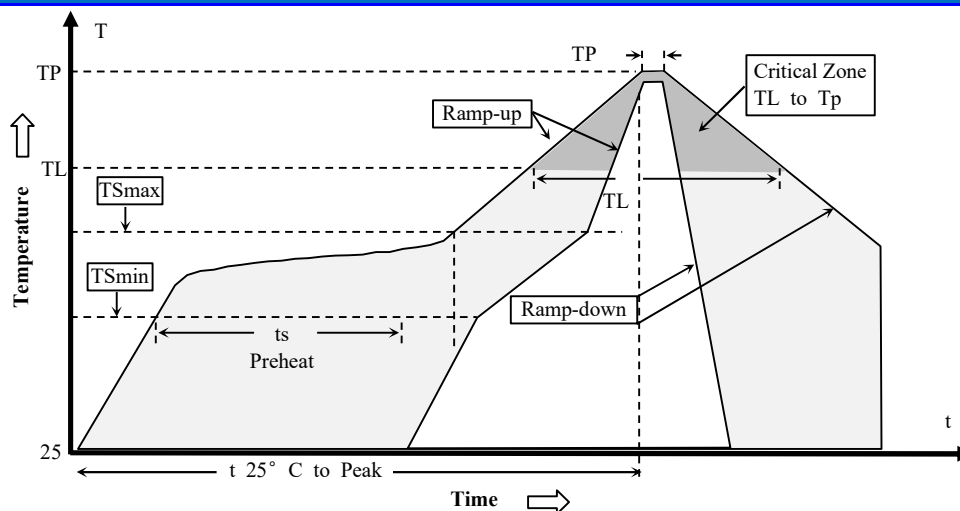
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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