

SFF10012P

Super Fast Recovery Rectifiers



Voltage: 1200 Volts

Current: 100 Amper

Polarity And Marking

Package: TO-247AC

Features

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

Mechanical Data

- **Case:** Molded With UL-94 ClassV-0 Recognized, RoHS-Compliant
- **Polarity:** Look At The Polarity And Marking On The Right
- **Terminals:** Tin Plated Leads,Solderable Per J-STD-002 And JESD22-B102
- **Weight:**App. 5.4 Grams (0.190476 Ounce)

Typical Applications

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



Remark:

- ①. NH=Niuhan Trademark
- ②. FF=Product Line Code,According To Actual Changes
YWW=Date Code,According To Actual Changes
LLWWF=Internal Code,According To Actual Changes
- ③. SFF10012P=Model

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	Ratings	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	1200	V
Maximum RMS Voltag		V_{RMS}	840	V
Maximum DC Blocking Voltage		V_{DC}	1200	V
Maximum Average Forward Rectified Current	@TC= 100 °C	$I_{F(AV)}$	100	A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	900	A
Current Squared Time	t< 8.3 ms	I^2t	3361.5	A ² sec
Maximum Mounting Torque	M3 screw	T_{MM}	1.1	N.m

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

Parameter	Test Conditions	Symbol	Ratings			Unit
			Min.	Typ.	Max.	
Maximum Instaneous Forward Voltage	$I_F=100.0\text{ A}$	V_F	--	1.60	2.60	V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C $V_R=V_{RRM}$	I_{RRM}	--	1	20	uA
	Ta=150°C $V_R=V_{RRM} * 80\%$		--	45	200	uA
Typical Junction Capacitance	4 V,1MHz	C_J	--	102	--	pF
Maximum Reverse Recovery Time	IF=0.5A, IR=1.0A, IRR=0.25A	T_{rr}	--	--	35	nS

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

Parameter	Test Conditions	Symbol	Typ.	Unit
Operating Junction Temperature Range		T_J	-55 to 175	°C
Storage Temperature Range		T_{STD}	-55 to 175	
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25°C	$R_{\theta JA}$	25.0	°C/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 75mm x 45mm x 2.5mm Alu. Heat.	$R_{\theta JC}$	0.4	

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

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Typical Characteristics Curves

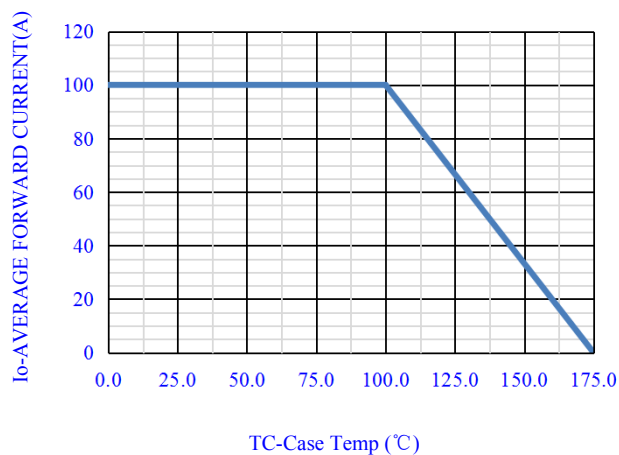


Fig.1-FORWARD CURRENT DERATING CURVE

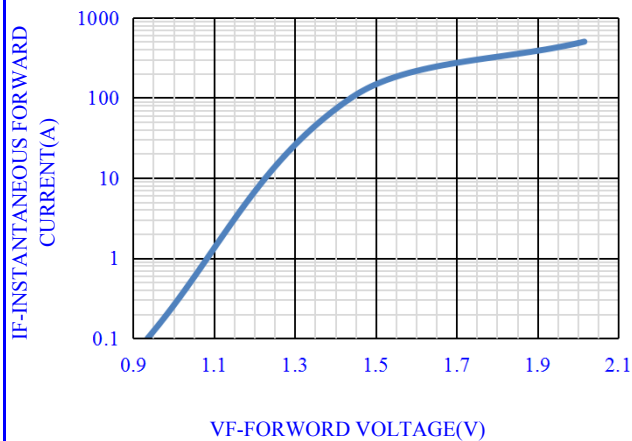


Fig.2- TYPICAL INSTANTANEOUS FORWARD

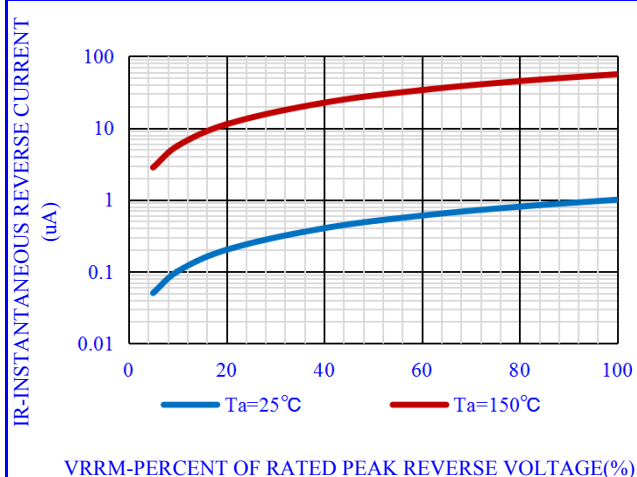


Fig.3- TYPICAL REVERSE CHARACTERISTICS

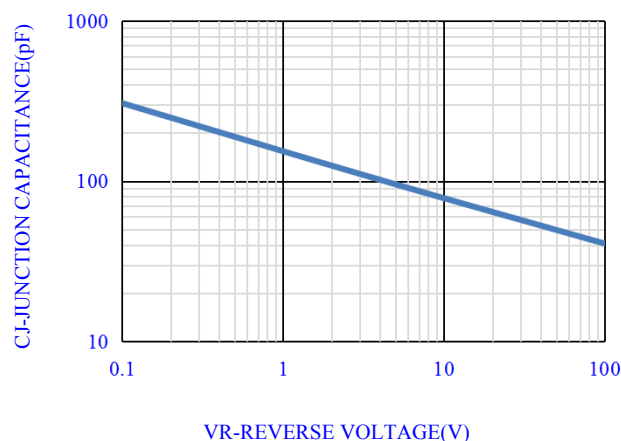


Fig.4- TYPICAL JUNCTION CAPACITANCE

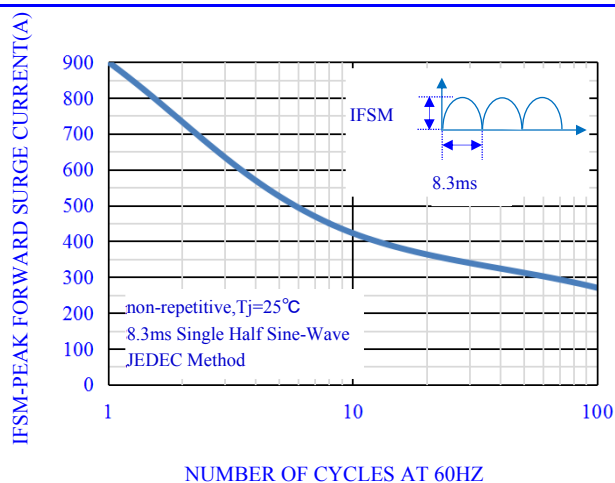


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

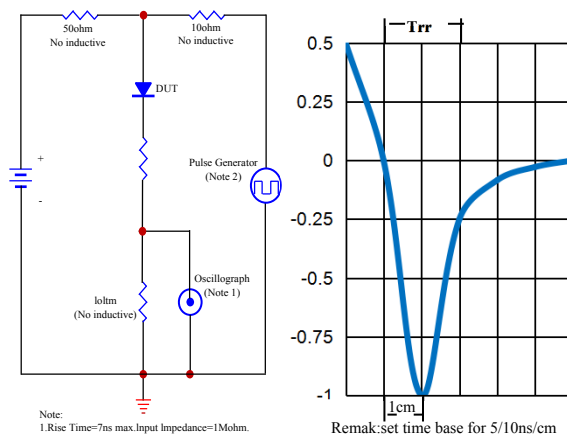


Fig.6-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT

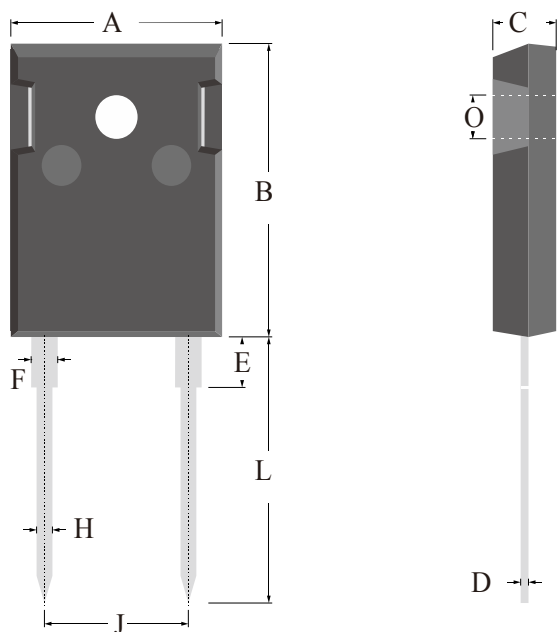
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OUTLINE DRAWINGS

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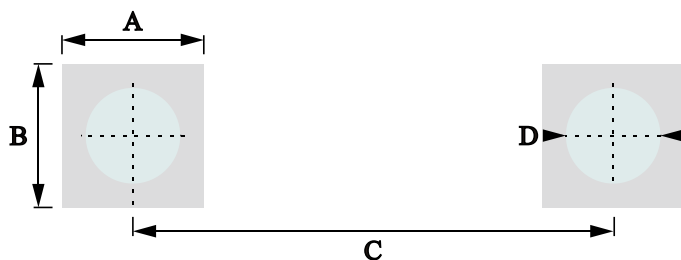


OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.25	-	16.75	0.6004	-	0.6594
B	20.50	-	22.50	0.8071	-	0.8858
C	4.50	-	5.10	0.1772	-	0.2008
D	0.40	-	0.80	0.0157	-	0.0315
E	3.60	-	4.20	0.1417	-	0.1654
F	1.80	-	2.20	0.0709	-	0.0866
H	1.00	-	1.40	0.0394	-	0.0551
J	10.30	-	11.50	0.4055	-	0.4528
L	18.50	-	20.50	0.7283	-	0.8071
O	2.85	-	3.15	0.1122	-	0.1240

RECOMMENDED LAYOUT DRAWINGS

TO-247AC



OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	2.00	-	-	0.0787	-
B	-	2.00	-	-	0.0787	-
C	-	11.00	-	-	0.4331	-
D	-	1.40	-	-	0.0551	-

PACKING INFORMATION

Package Code	Package Method	Min. Pack. Size (mm)	Quantity (Pcs/Min. Pack.)	Inner Box Size L×W×H(mm)	Quantity (Pcs/Inner Box)	Outer Carton Size L×W×H(mm)	Quantity (Pcs/Carton)
TO-247AC	T/B	505x45x7	30	530x165x55	600	550x250x195	2400

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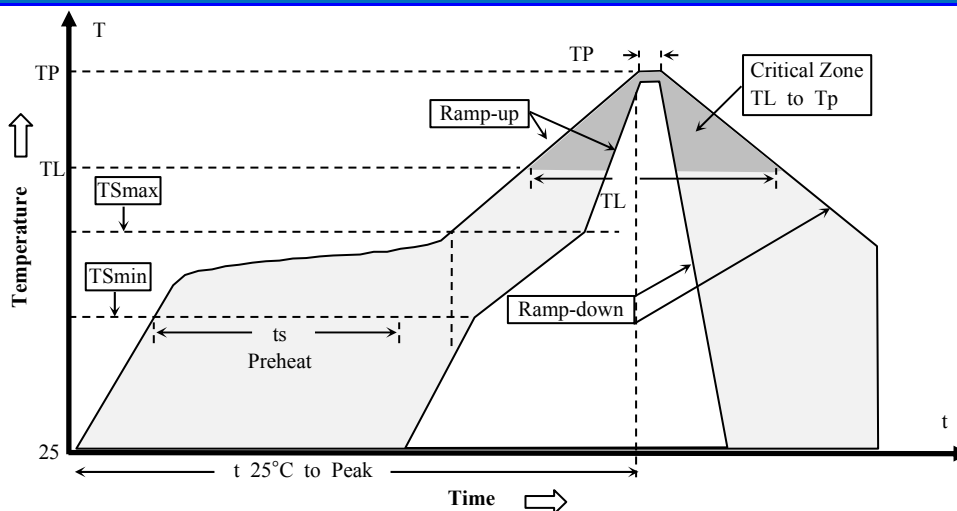
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Recommended wave soldering condition

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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