

MURF30120P

Ultrafast Soft Recovery Rectifier



Voltage: 1200 Volts

Current: 30 A

Package: TO-247AC

Features

- NH'S Epiraxial Chip Technology
- Low Switching Loss For High Efficiency
- Low Leakage Current For High Reliability
- Ultra Fast Soft Switching Feature

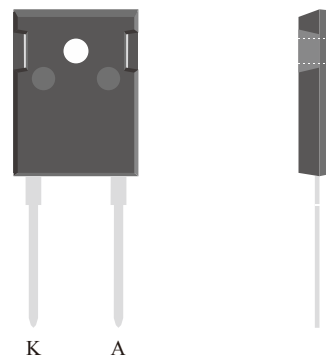
Mechanical Data

- **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	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		$I_{F(AV)}$	30	A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	300	A
Current Squared Time	$t < 8.3ms$	I^2t	373.5	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.	
Instaneous Forward Voltage Per Diode	$I_F=30A$	V_F	--	1.95	2.4	V
Maximum DC Reverse Current at Rated DC Blocking Voltage	$T_a=25^{\circ}C, V_R=V_{RRM}$	I_{RRM}	--	2	10	uA
	$T_a=125^{\circ}C, V_R=V_{RRM}*80\%$		--	200	1000	uA
Typical Junction Capacitance	4 V,1MHz	C_J	--	15	--	pF
Maximum Reverse Recovery Time	$I_F=0.5A, I_R=1.0A, I_{RR}=0.25A$	T_{rr}	--	57	75	nS

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

Parameter	Test Conditions	Symbol	Ratings			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 _{θJA}	45			°C/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 75mm x 45mm x 2.5mm Alu. Heat.	R _{θJC}	0.9			

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

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Typical Characteristics Curves

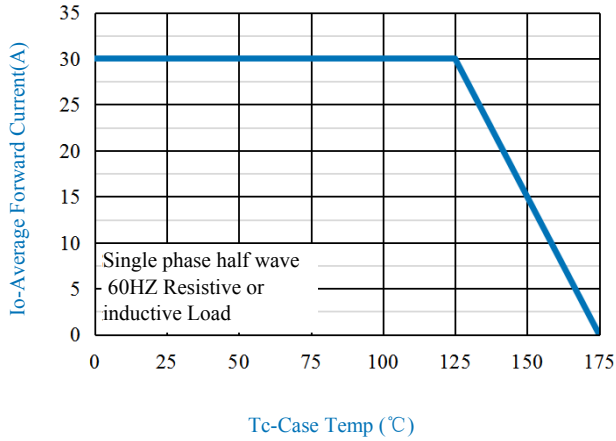


Fig.1-Forward Current Derating Curve

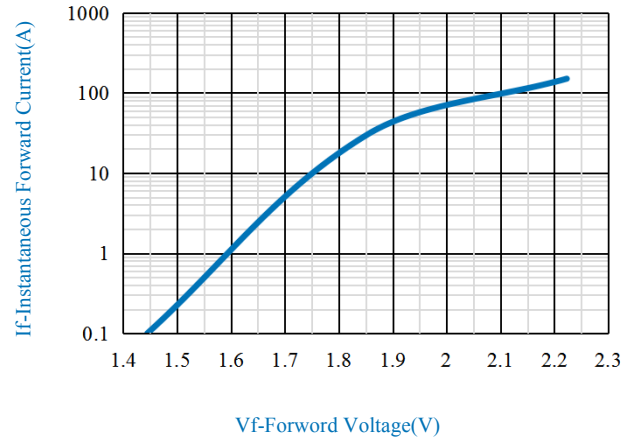


Fig.2-Typical Instantaneous Forward

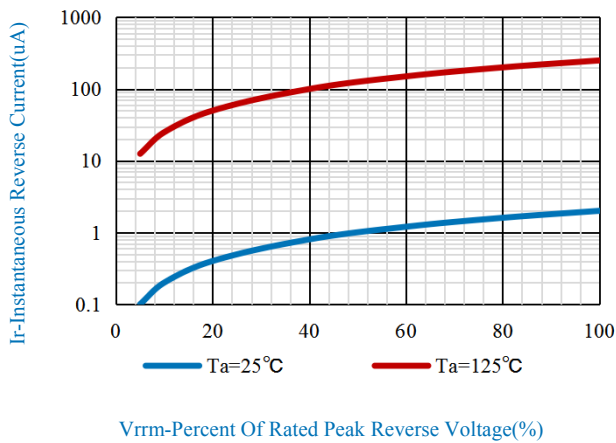


Fig.3-Typical Reverse Characteristics

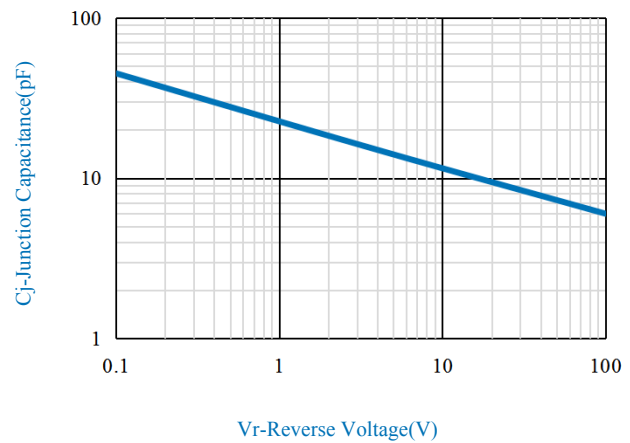


Fig.4-Typical Junction Capacitance

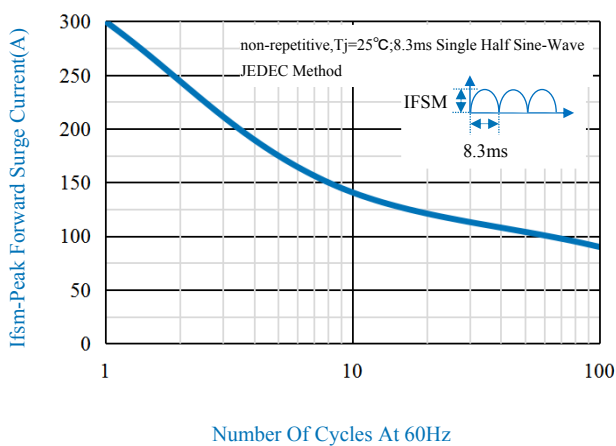


Fig.5-Max. Non-Repetitive Surge Current

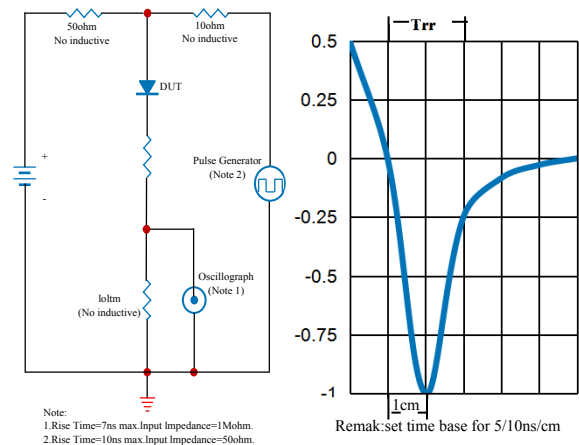


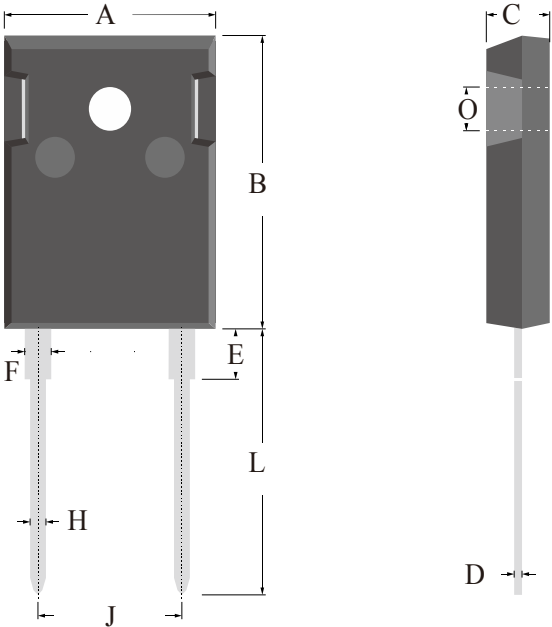
Fig.6-Reverse Recovery Time Characteristic And Test Circuit

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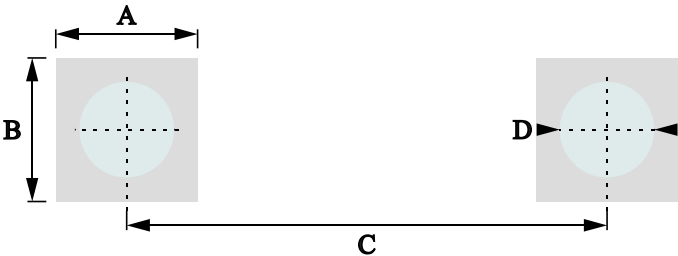
OUTLINE DRAWINGS



TO-247AC

OUTLINE DIMENSIONS						
Dim.	Milimeters			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	3.40	-	4.00	0.1339	-	0.1575
F	1.80	-	2.20	0.0709	-	0.0866
H	1.00	-	1.40	0.0394	-	0.0551
J	5.15	-	5.75	0.2028	-	0.2264
L	18.50	-	20.50	0.7283	-	0.8071
O	2.85	-	3.15	0.1122	-	0.1240

RECOMMEDND LAYOUT DRAWINGS



TO-247AC

OUTLINE DIMENSIONS						
Dim.	Milimeters			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	-

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MARKING



MARKING INSTRUCTION

NH=Niuhan Trademark
FF=Product Line Code,According To Actual Changes
YWW=Date Code,According To Actual Changes
LLWWF=Inernal Code,According To Actual Changes
MURF30120P=Model

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
TO-247AC	P1	5.4	Tube	30	450	2250

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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 (T _S min) -Temperature Max (T _S max) -Time(t _s min to t _s max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
	Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 60-150 seconds
	Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C
	Time within 5°C of actual peak temperature (t _p)	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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Specification Revision History

Rev.	Date	Changed Items	Pre-Changed Content	Changed Content
A/1	2014-10-20	First Issue		
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