

MURF20120UF

High Efficiency Rectifier



Voltage: 1200 Volts

Current: 20 Amperes

Package: ITO-220AC

Features

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

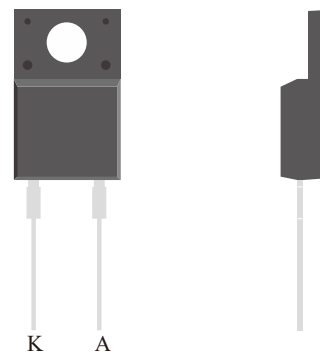
Mechanical Data

- **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	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		$I_{F(AV)}$	20	A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	200	A
Current Squared Time	$t < 8.3ms$	I^2t	166.0	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	$I_F = 20.0 A$	V_F	--	1.90	2.40	V
Maximum DC Reverse Current at Rated DC Blocking Voltage	$T_a = 25^\circ C, V_R = V_{RRM}$	I_{RRM}	--	0.5	2	uA
	$T_a = 125^\circ C, V_R = V_{RRM} * 80\%$		--	30	500	uA
Typical Junction Capacitance	4 V,1MHz	C_J	--	80	--	pF
Maximum Reverse Recovery Time	$I_F = 0.5A, I_R = 1.0A, I_{RR} = 0.25A$	T_{rr}	--	50	70	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 $T_a = 25^\circ C$	$R_{\theta JA}$	45	°C/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 75mm x 45mm x 2.5mm Alu. Heat.	$R_{\theta JC}$	0.8	

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

MURF20120UF

High Efficiency Rectifier



Typical Characteristics Curves

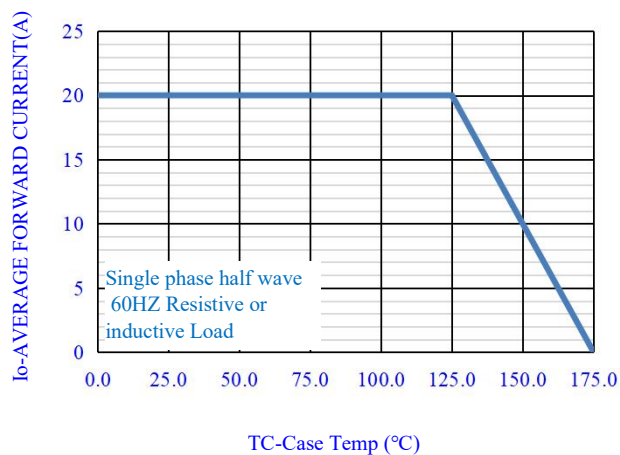


Fig.1-FORWARD CURRENT DERATING CURVE

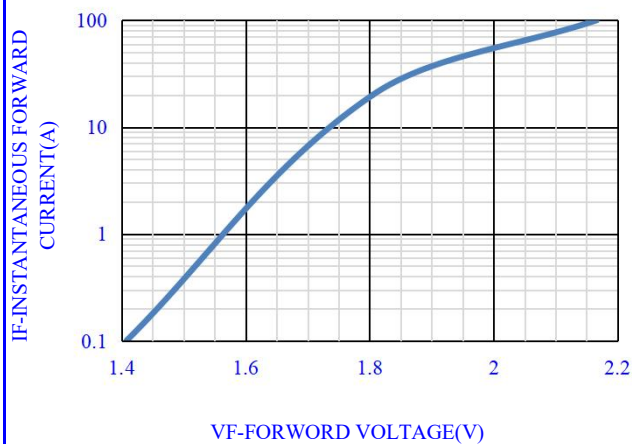


Fig.2- TYPICAL INSTANTANEOUS FORWARD

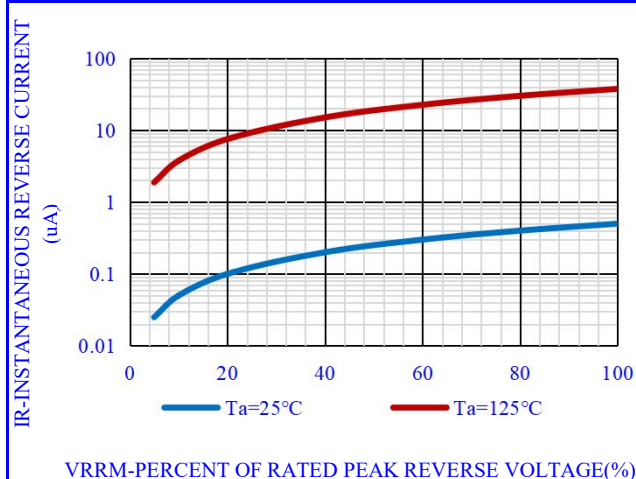


Fig.3- TYPICAL REVERSE CHARACTERISTICS

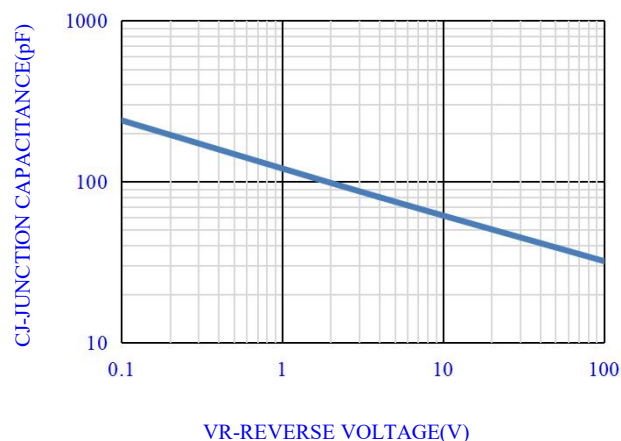


Fig.4- TYPICAL JUNCTION CAPACITANCE

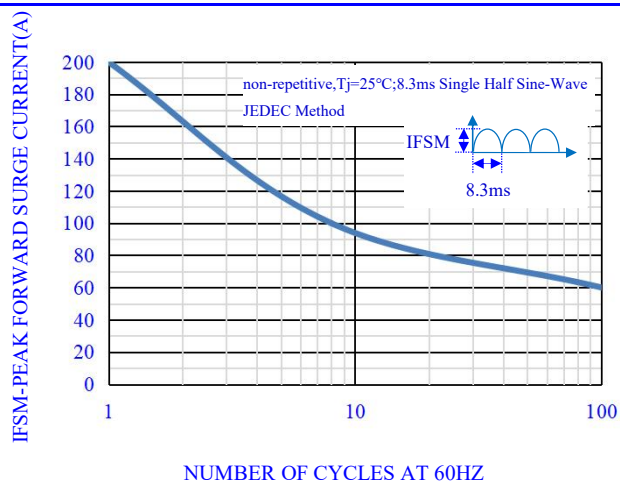


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

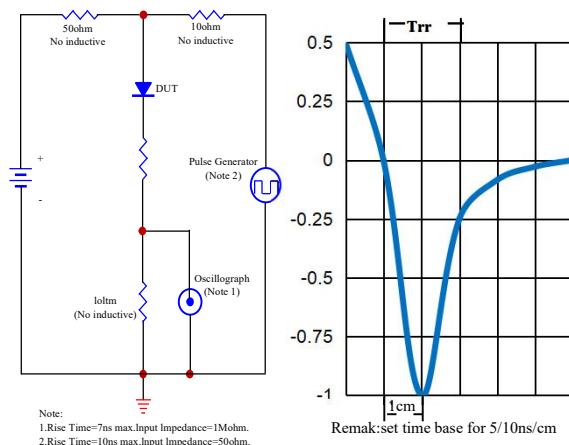


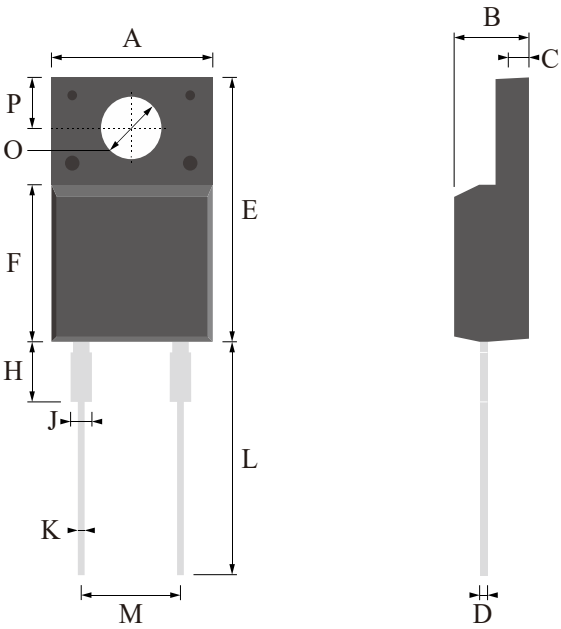
Fig.6-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT

MURF20120UF

High Efficiency Rectifier



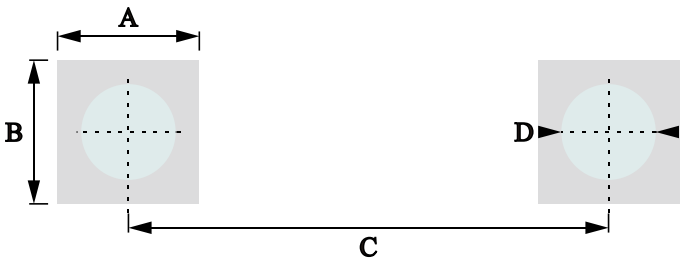
OUTLINE DRAWINGS



ITO-220AC

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.25	-	10.75	0.3642	-	0.4232
B	2.50	-	3.00	0.0984	-	0.1181
C	4.10	-	4.70	0.1614	-	0.1850
D	0.45	-	0.75	0.0177	-	0.0295
E	14.20	-	16.20	0.5591	-	0.6378
F	7.95	-	9.45	0.3130	-	0.3720
L	12.50	-	14.50	0.4921	-	0.5709
H	3.70	-	4.30	0.1457	-	0.1693
J	1.15	-	1.65	0.0453	-	0.0650
K	0.45	-	0.75	0.0177	-	0.0295
M	4.80	-	5.40	0.1890	-	0.2126
O	2.90	-	3.40	0.1142	-	0.1339
P	3.00	-	3.50	0.1181	-	0.1378

RECOMMEDND LAYOUT DRAWINGS



ITO-220AC

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	1.60	-	-	0.0630	-
B	-	1.60	-	-	0.0630	-
C	-	5.08	-	-	0.2000	-
D	-	1.00	-	-	0.0394	-

MURF20120UF

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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
MURF20120UF=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)
ITO-220AC	P1	1.665	Tube	50	1000	5000

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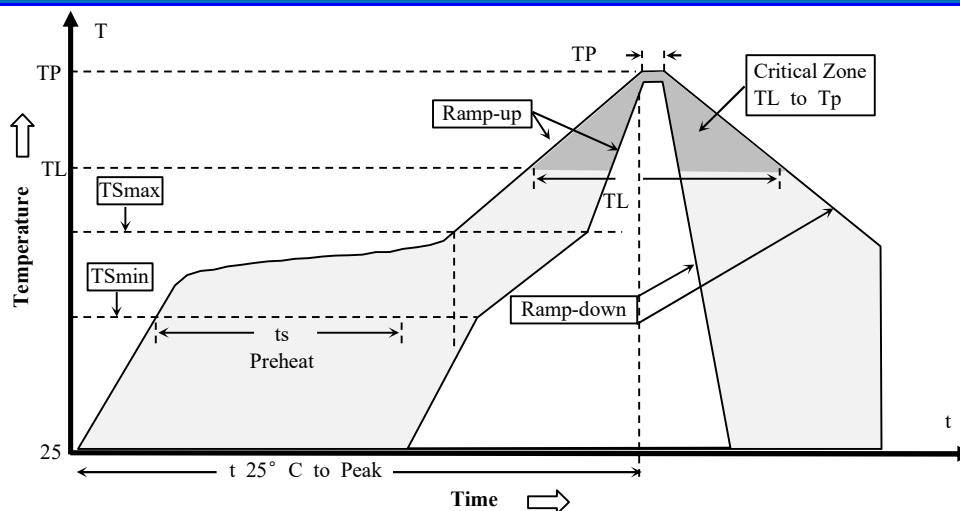
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Recommended wave soldering condition

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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