



MURF6060P

PLASTIC HIGH-EFFICIENCY RECTIFIERS



VOLTAGE: 600 Volts

CURRENT: 60 Amperes

Package: TO-247AC

Marking And Polarity

FEATURES

- Glass Passivated Chip Junction
- Low Forward Voltage Drop For High Efficiency
- Low Leakage Current For High Reliability
- High Forward Surge Capability For High Reliability
- Fast Reverse Recovery Time

MECHANICAL DATA

- **Package:** Molding Compound Meets UL 94 V-0 Flammability Rating, RoHS-Compliant
- **Polarity:** As Marked On Case
- **Mounting Position:** Any
- **Weight:** App. 4.98 Grams (0.17566 Ounce)

TYPICAL APPLICATIONS

- Typical Applications Are In Switching Power Supplies, High Frequency Converter, UPS, Freewheeling Diodes, PFC Boost And LED Driver Etc.



Remark:

- ①. NH=niuhan trademark
- ②. FF=Product line code, According to actual changes
YWW=Date code, According to actual changes
EDDKF=Internal code, According to actual changes
- ③. MURF6060P=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	MURF6060P	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	600	V
Maximum RMS Voltage		V_{RMS}	420	V
Maximum DC Blocking Voltage		V_{DC}	600	V
Maximum Average Forward Rectified Current	@TC= 100 °C	$I_{F(AV)}$	60	A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	600	A
Current Squared Time Per Diode	t<8.3ms	I^2t	1494.0	A ² sec

Electrical Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions		Symbol	MURF6060P			Unit
				Min.	Typ.	Max.	
Instantaneous forward voltage per diode (note1)	Ta=25°C	$I_F = 60.0 A$	V_F	--	1.35	1.60	V
	Ta=125°C			--	1.25	1.50	
Maximum DC Reverse Current at Rated DC Blocking Voltage (Note 1)	Ta=25°C	$V_R = V_{RRM}$	I_{RRM}	--	1	5	uA
	Ta=125°C	$V_R = 80\% \cdot V_{RRM}$		--	50	500	
Typical Junction Capacitance Per Diode	4.0 V, 1MHz		C_J	--	24	--	pF
Maximum Reverse Recovery Time	$I_F = 0.5A, I_R = 1.0A, I_{RR} = 0.25A$		T_{RR}	--	--	75	nS

Thermal Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Symbol	MURF6060P	Unit
Operating Junction Temperature Range	T_J	-55 to 150	°C
Storage Temperature Range	T_{STD}	-55 to 150	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	35	°C/W
	$R_{\theta JC}$	0.8	

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

2. Device Mounted On Device Mounted On 10cm*10cm*1mm copper pad areas.

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Typical Characteristics Curves

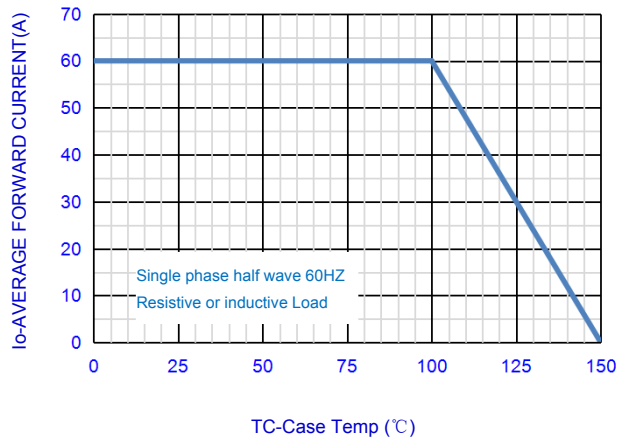


Fig.1-FORWARD CURRENT DERATING CURVE

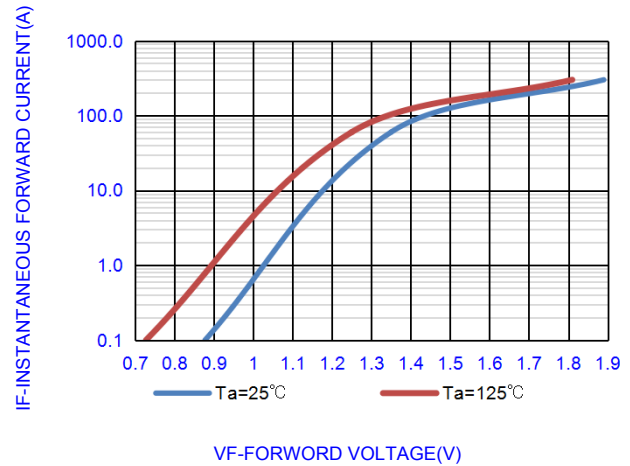


Fig.2- TYPICAL INSTANTANEOUS FORWARD

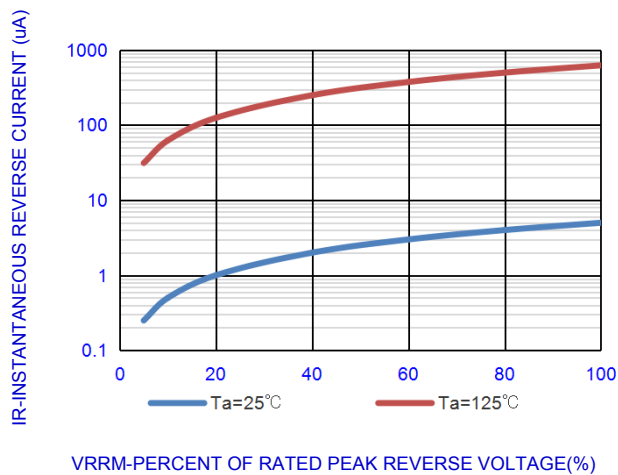


Fig.3- TYPICAL REVERSE CHARACTERISTICS

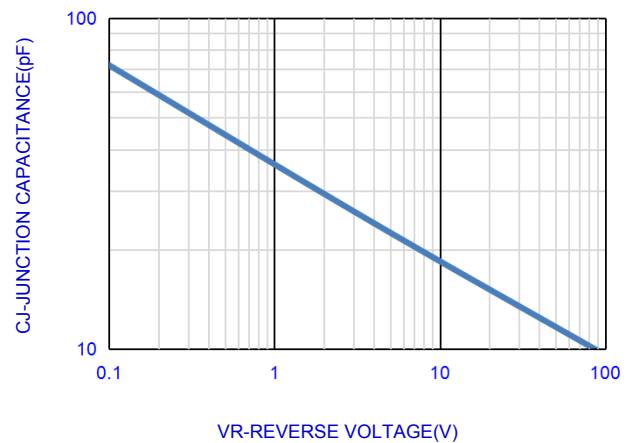


Fig.4- TYPICAL JUNCTION CAPACITANCE

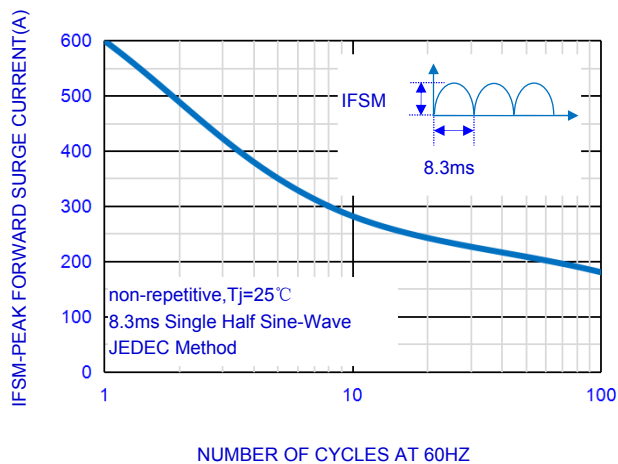


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

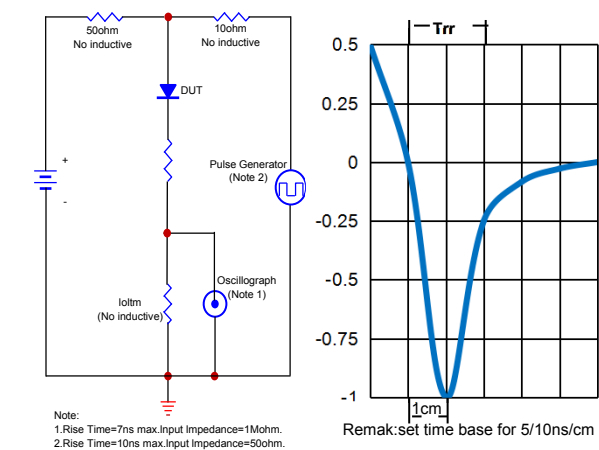


Fig.6-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT

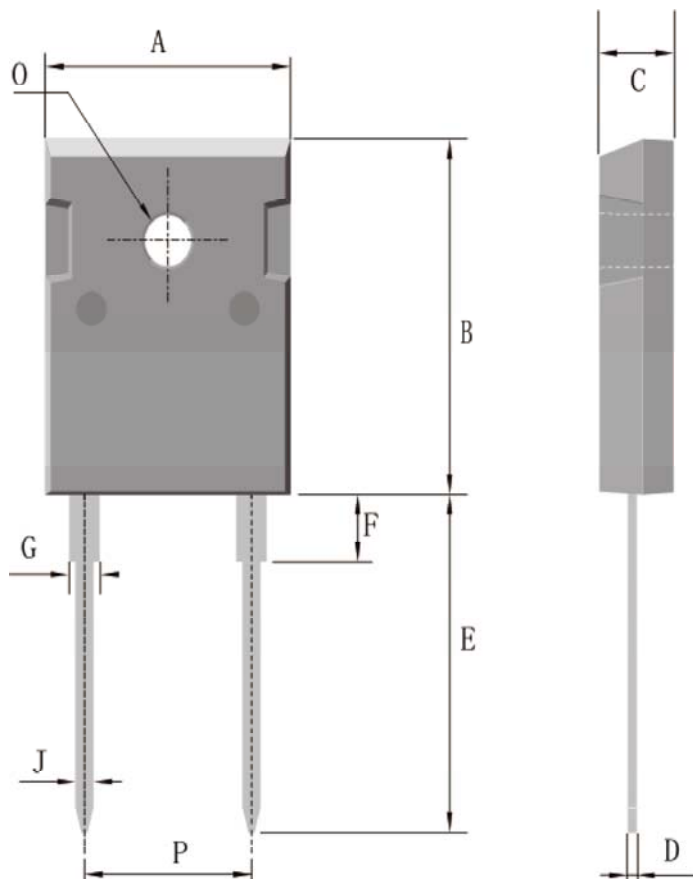
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OUTLINE DRAWINGS

TO-247AC



OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.25	-	16.75	0.600	-	0.659
B	20.50	-	22.50	0.807	-	0.886
C	4.50	-	5.10	0.177	-	0.201
D	0.40	-	0.80	0.016	-	0.031
E	18.50	-	20.50	0.728	-	0.807
F	3.40	-	4.00	0.134	-	0.157
G	1.80	-	2.20	0.071	-	0.087
J	1.00	-	1.40	0.039	-	0.055
P	5.15	-	5.75	0.203	-	0.226
O	3.00	-	3.40	0.118	-	0.134

PACKING INFORMATION

Package Code	Package Method	Inner Box Size L×W×H(mm)	Quantity (Pcs/Inner Box)	Outer Carton Size L×W×H(mm)	Quantity (Pcs/Carton)
TO-247AC	T/R	540x165x55	600	550×190x240	2400

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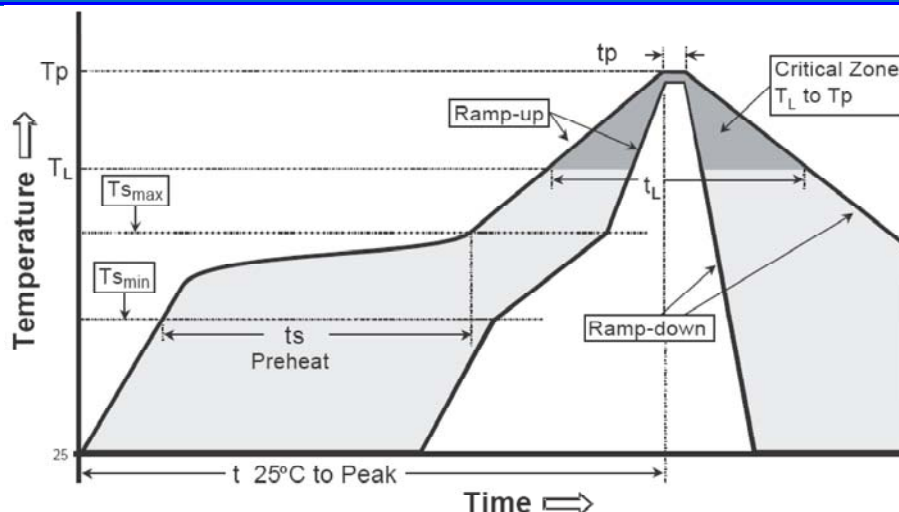
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Recommended wave soldering condition

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(T_{smin}) -Temperature Max(T_{smax}) -Time(t_{smin} to t_{smax})	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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