

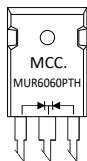
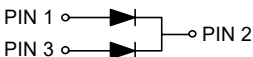
## Features

- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix Designates Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Low Switching Losses and High Efficiency
- Low Reverse Leakage
- Ultrafast Recovery Time
- Planar Structure Die and Soft Recovery Characteristics

## Maximum Ratings @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	600	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{RMS}$	420	V
Average Rectified Forward Current	$I_{F(AV)}$	30	A
Per Diode Per Device		60	
Non-Repetitive Peak Surge Current @8.3ms Half Sine Wave(Per Diode)	$I_{FSM}$	300	A
Current Squared Time @ 1ms≤t≤8.3ms(Per Diode)	$I^2t$	373	A <sup>2</sup> s

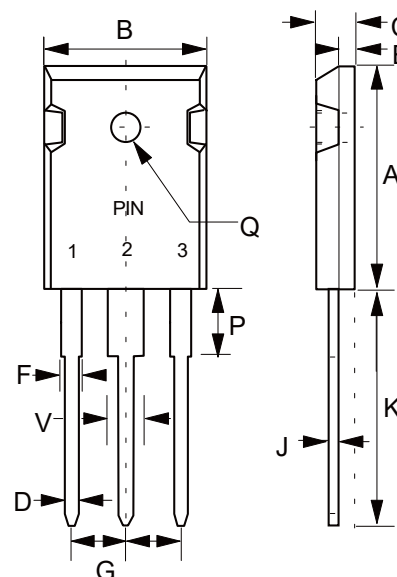
## Internal Structure

Pin	Description	Simplified Outline	Graphic Symbol
1&3	Anode		
2	Cathode		

Note :1. High temperature solder exemption applied, see EU directive annex 7a.

# 60 Amp Super Fast Recovery Rectifier 600 Volts

## TO-247



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.787	0.866	20.00	22.00	
B	0.598	0.638	15.20	16.20	
C	0.185	0.208	4.70	5.30	
D	0.035	0.059	0.90	1.50	
E	0.059	0.094	1.50	2.40	
F	0.067	0.091	1.70	2.30	
J	0.019	0.031	0.48	0.80	
K	0.748	0.833	19.00	21.15	
P	0.122	0.189	3.10	4.80	
Q	0.118	0.150	3.00	3.80	Φ
V	0.106	0.134	2.70	3.40	
G	0.197	0.224	5.00	5.70	

## Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$T_J$	Operating Junction Temperature Range		-55		175	°C
$T_{stg}$	Storage Temperature Range		-55		175	°C
$R_{th(J-C)}$	Thermal Resistance from Junction to Case	Per Diode			1.0	°C/W
$R_{th(J-C)}$	Thermal Resistance from Junction to Case	Per Device			0.7	°C/W

## Electrical Characteristics @ 25°C Unless Otherwise Specified(Per Diode)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Voltage	$V_F$	$I_F=30A; T_J=25^{\circ}C$			1.60	V
		$I_F=30A; T_J=150^{\circ}C$			1.45	
Reverse Current	$I_R$	$V_R=600V; T_J=25^{\circ}C$			5	$\mu A$
		$V_R=600V; T_J=150^{\circ}C$			200	
Junction Capacitance	$C_J$	$V_R=4V; f=1MHz; T_J=25^{\circ}C$		197		pF

## Dynamic Recovery Characteristics @ 25°C Unless Otherwise Specified(Per Diode)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =0.5A; I <sub>R</sub> =1.0A;I <sub>RR</sub> =0.25A;T <sub>J</sub> =25°C			38	50	ns
			T <sub>J</sub> =25°C		100		
			T <sub>J</sub> =125°C		168		
Peak Recovery Current	I <sub>RRM</sub>	I <sub>F</sub> =30A d <sub>iF</sub> /d <sub>t</sub> = -200A/μs V <sub>RM</sub> =400V	T <sub>J</sub> =25°C		7.5		A
	T <sub>J</sub> =125°C			16.7			
Reverse Recovery Charge	Q <sub>rr</sub>		T <sub>J</sub> =25°C		373		nC
			T <sub>J</sub> =125°C		1406		

## Curve Characteristics

Fig. 1 - Forward Current Derating Curve

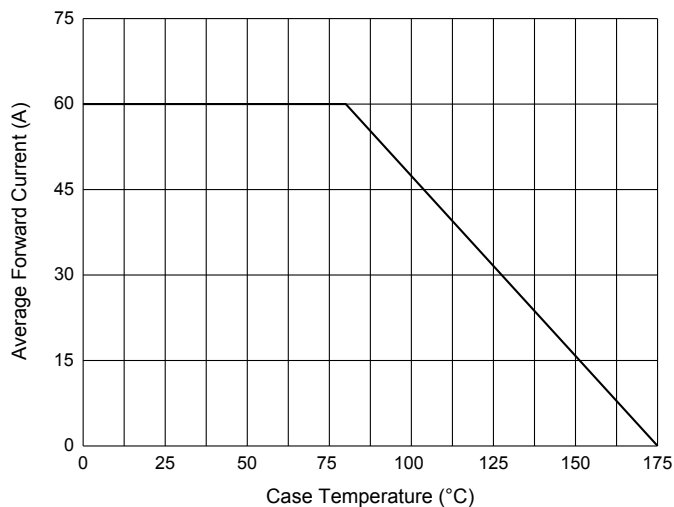


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

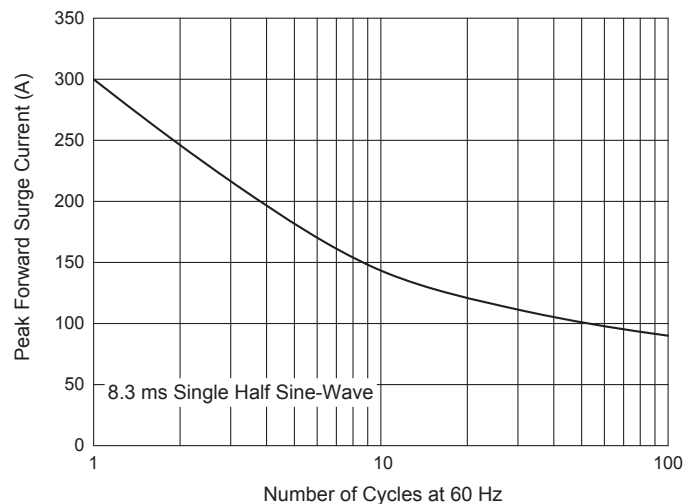


Fig. 3 - Typical Forward Characteristics

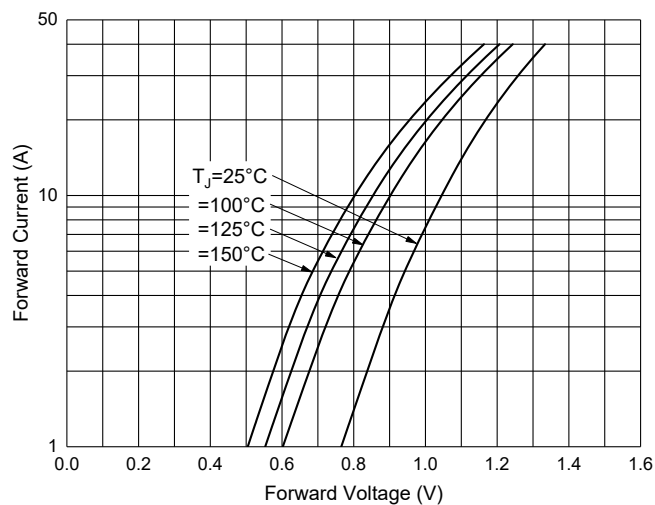


Fig. 4 - Typical Reverse Leakage Characteristics

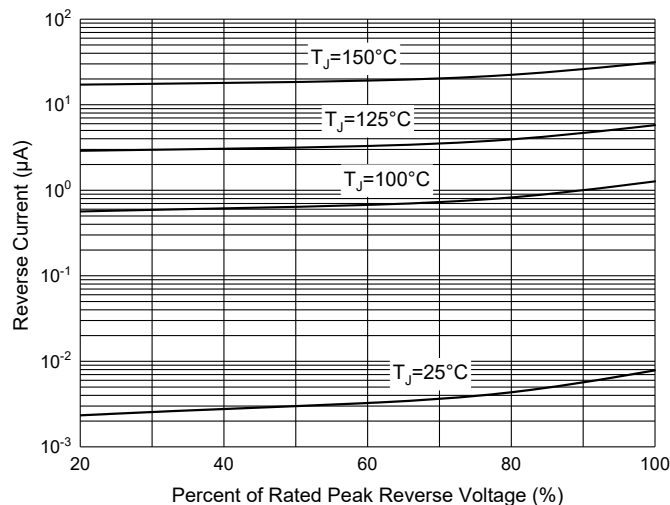
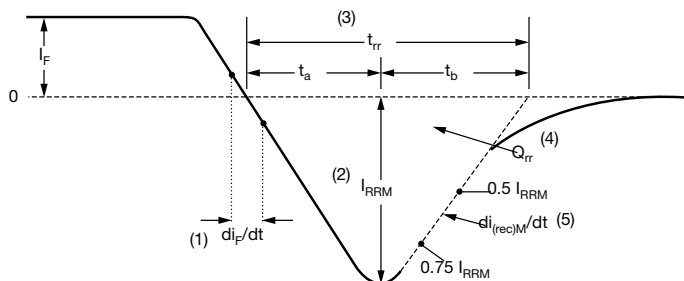


Fig. 5 - Reverse Recovery Waveform and Definitions



(1)  $di_F/dt$  - rate of change of current through zero crossing

(2)  $I_{RRM}$  - peak reverse recovery current

(3)  $t_{rr}$  - reverse recovery time measured from zero crossing point of negative going  $I_F$  to point where a line passing through  $0.75 I_{RRM}$  and  $0.50 I_{RRM}$  extrapolated to zero current.

(4)  $Q_{rr}$  - area under curve defined by  $t_{rr}$  and  $I_{RRM}$

$$Q_{rr} = \frac{t_{rr} \times I_{RRM}}{2}$$

(5)  $di_{(rec)M}/dt$  - peak rate of change of current during  $t_b$  portion of  $t_{rr}$

## Ordering Information

Device	Packing
Part Number-BP	Bulk:30pcs/Tube,360pcs/Box,1.8Kpcs/Carton

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-BP-HF

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