

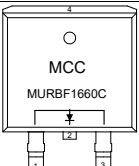
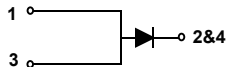
## Features

- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant(Note 2) ("P" Suffix Designates Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- 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	$I_{F(AV)}$	16	A
Non-Repetitive Peak Surge Current @8.3ms Half Sine Wave	$I_{FSM}$	200	A
Current Squared Time @ $1ms \leq t \leq 8.3ms$	$I^2t$	166	A <sup>2</sup> s

## Internal Structure

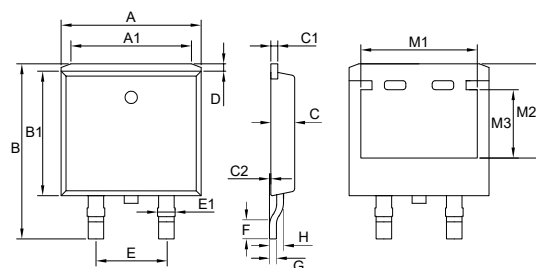
Pin	Description	Simplified Outline	Graphic Symbol
2&4	Cathode		
1&3	Anode		

Note :

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High temperature solder exemption applied, see EU directive annex 7a.

# 16 Amp FRED Rectifiers 600 Volts

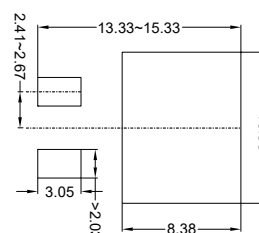
## TO-263AC



### DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.388	0.407	9.85	10.35	
A1	0.323	0.339	8.20	8.60	
B	0.467	0.490	11.85	12.45	
B1	0.346	0.361	8.78	9.18	
C	0.062	0.074	1.57	1.87	
C1	0.014	0.026	0.35	0.65	
C2	0.000	0.008	0.00	0.20	
D	0.015	0.027	0.39	0.69	
E	0.196	0.204	4.98	5.18	
E1	0.044	0.056	1.12	1.42	
F	0.051	0.059	1.30	1.50	
G	0.014	0.026	0.35	0.65	
H	0.033	0.049	0.85	1.25	
M1	0.327	0.343	8.30	8.70	
M2	0.264	0.280	6.70	7.10	
M3	0.185	0.201	4.70	5.10	

### Suggested Solder Pad Layout(mm)



## 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			2		°C/W

## Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Voltage	$V_F$	$I_F=16A; T_J=25^{\circ}C$		1.10	1.30	V
		$I_F=16A; T_J=125^{\circ}C$		0.92	1.20	
Reverse Current	$I_R$	$V_R=600V; T_J=25^{\circ}C$			10	uA
		$V_R=600V; T_J=125^{\circ}C$			100	
Junction Capacitance	$C_J$	$V_R=600V; f=1MHz; T_J=25^{\circ}C$		20		pF

## Dynamic Recovery Characteristics @ 25°C Unless Otherwise Specified

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			50	55	ns	
		I <sub>F</sub> =1A,di <sub>F</sub> /dt=-50A/us,V <sub>R</sub> =30V;T <sub>J</sub> =25°C			57			
			T <sub>J</sub> =25°C		94			
			T <sub>J</sub> =125°C		142			
Peak Recovery Current	I <sub>RRM</sub>	I <sub>F</sub> =16A di <sub>F</sub> /dt=-200A/ μs V <sub>RM</sub> =400V	T <sub>J</sub> =25°C		9.36		A	
			T <sub>J</sub> =125°C		16.34			
Reverse Recovery Charge	Q <sub>rr</sub>			T <sub>J</sub> =25°C		442		nC
				T <sub>J</sub> =125°C		1163		

## Curve Characteristics

Fig. 1 - Forward Current Derating Curve

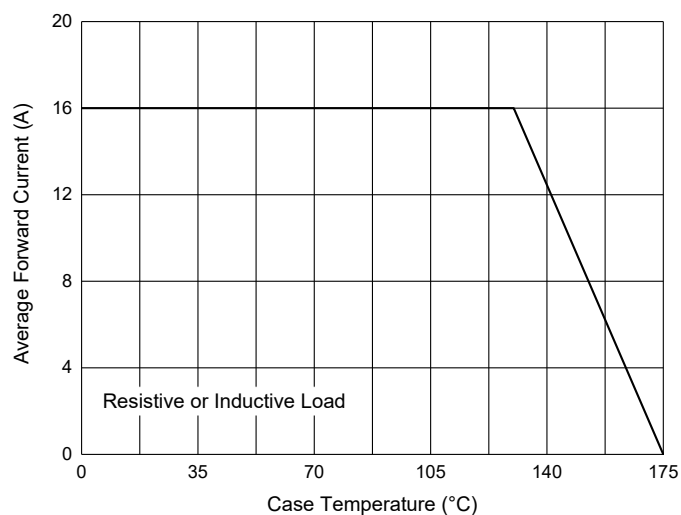


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

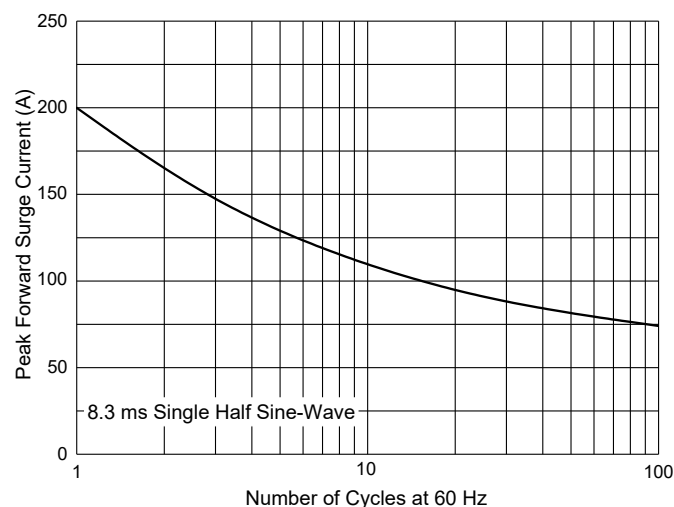


Fig. 3 - Typical Forward Characteristics

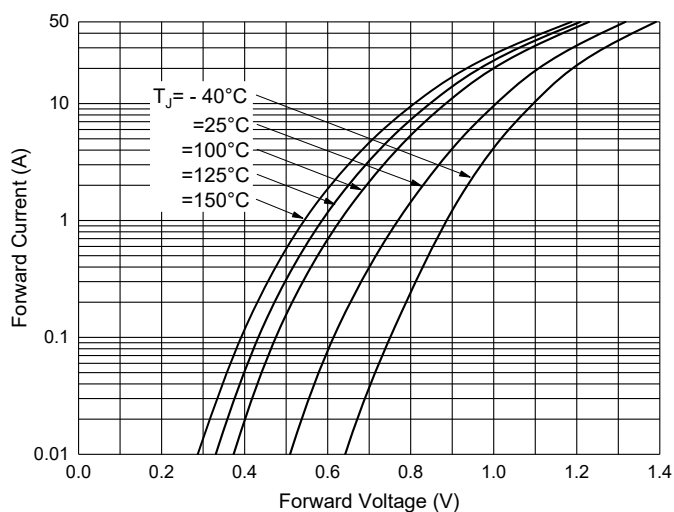


Fig. 4 - Typical Reverse Leakage Characteristics

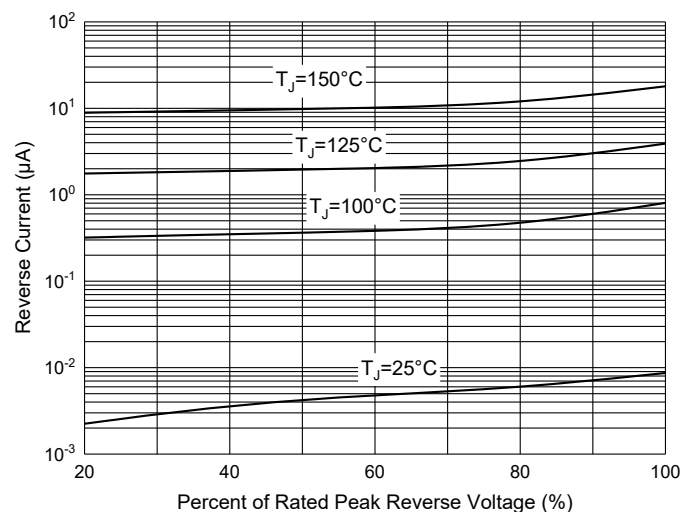


Fig. 5 - Typical Capacitance Characteristics

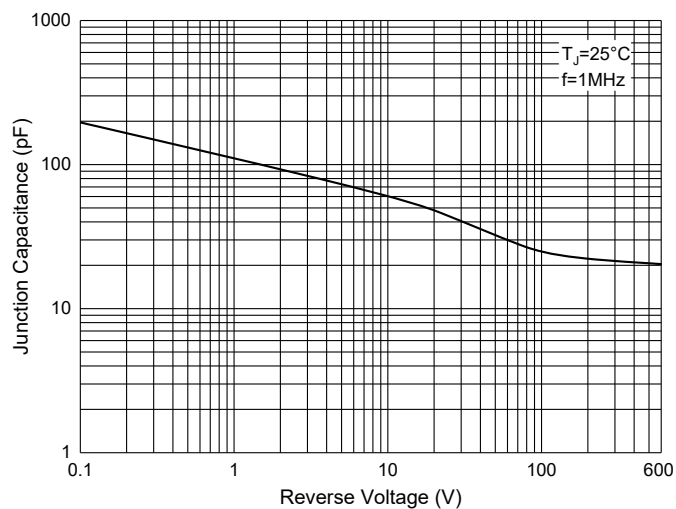
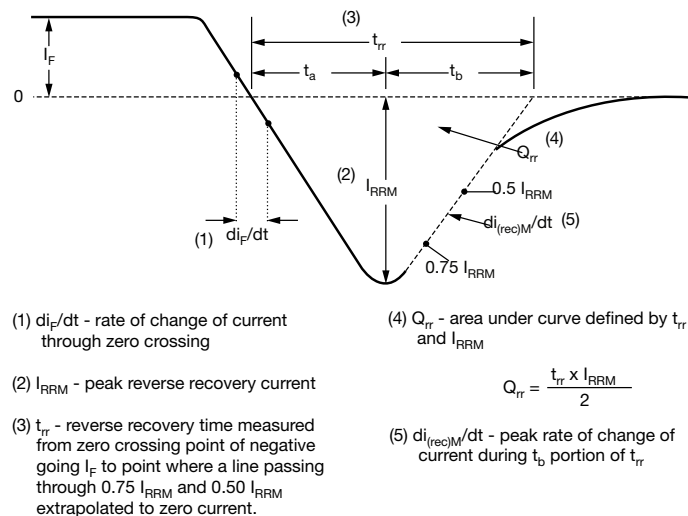


Fig. 6 - Reverse Recovery Waveform and Definitions



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 1500pcs/Reel

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