Features

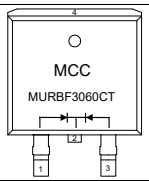
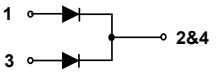
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant(Note 2) ("P" Suffix Designates Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Low Switching Losses and High Efficiency
- Low Reverse Leakage
- Ultrafast Recovery Time
- Planar Structure Die and Soft Recovery Characteristics

30 Amp FRED Rectifiers 600 Volts

Maximum Ratings @ 25°C (Unless Otherwise Specified)

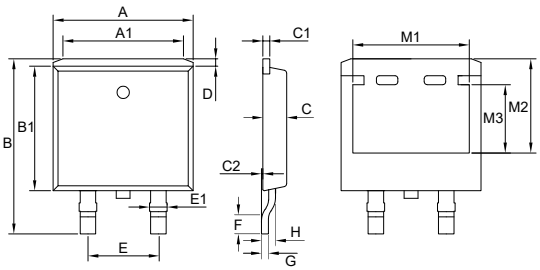
Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	600	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_R		
RMS Reverse Voltage	V_{RMS}	420	V
Average Rectified Forward Current Per Diode Per Device	$I_{F(AV)}$	 15 30	A
Non−Repetitive Peak Surge Current @8.3ms Half Sine Wave	I_{FSM}	200	A
Current Squared Time @ 1ms≤t≤8.3ms	I^2t	166	A^2s

Internal Structure

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

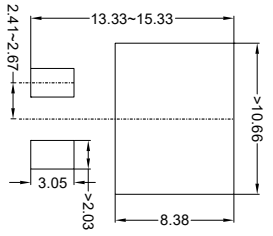
Note :
1.Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High temperature solder exemption applied, see EU directive annex 7a.

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
$Rth_{(J-C)}$	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=15A;T_J=25°C		1.08	1.25	V
		I_F=15A;T_J=125°C		0.91	1.15	
Reverse Current	I_R	V_R=600V;T_J=25°C			10	uA
		V_R=600V;T_J=125°C			100	
Junction Capacitance	C_J	V_R=600V;f=1MHz;T_J=25°C		20		pF

Dynamic Recovery Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Reverse Recovery Time	t_{rr}	I_F=0.5A; I_R=1.0A;I_{RR}=0.25A;T_J=25°C			50	55	ns
		I_F=1A,di_F/dt=-50A/us,V_R=30V;T_J=25°C			57		
		I_F=15A di_F/dt=-200A/µs V_{RM}=400V	T_J=25°C		92		
			T_J=125°C		138		
Peak Recovery Current	I_{RRM}		T_J=25°C		9.24		A
			T_J=125°C		16.12		
Reverse Recovery Charge	Q_{rr}		T_J=25°C		425		nC
			T_J=125°C		1115		

Curve Characteristics

Fig. 1 - Forward Current Derating Curve

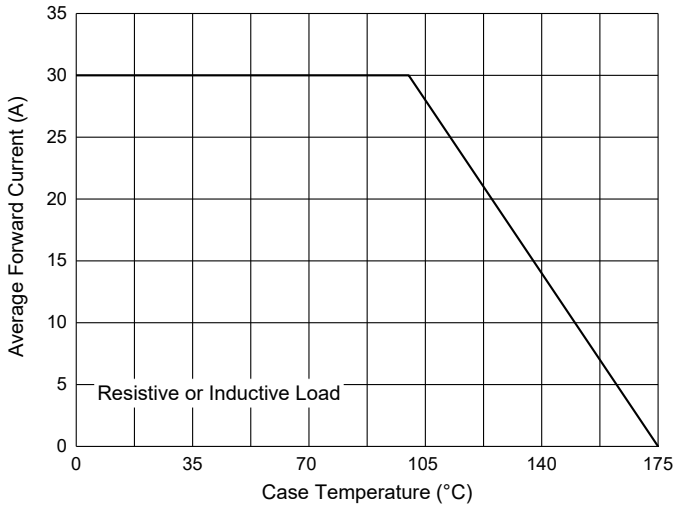


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

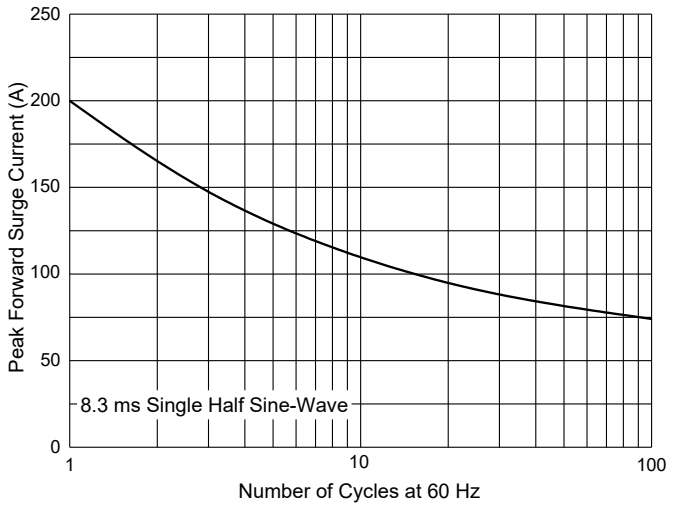


Fig. 3 - Typical Forward Characteristics

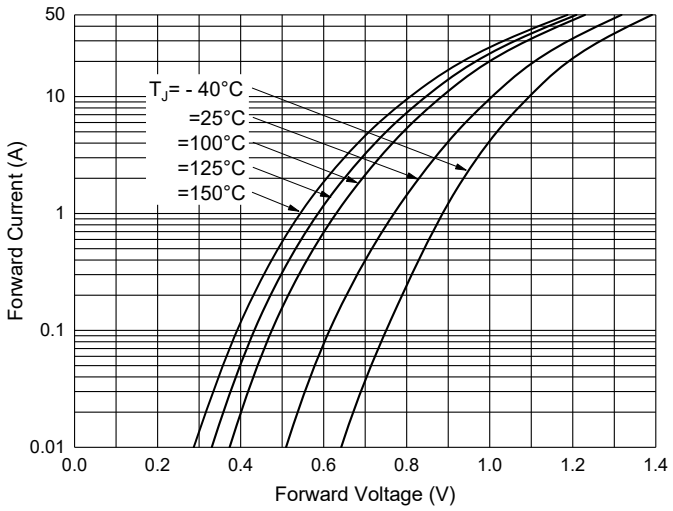


Fig. 4 - Typical Reverse Leakage Characteristics

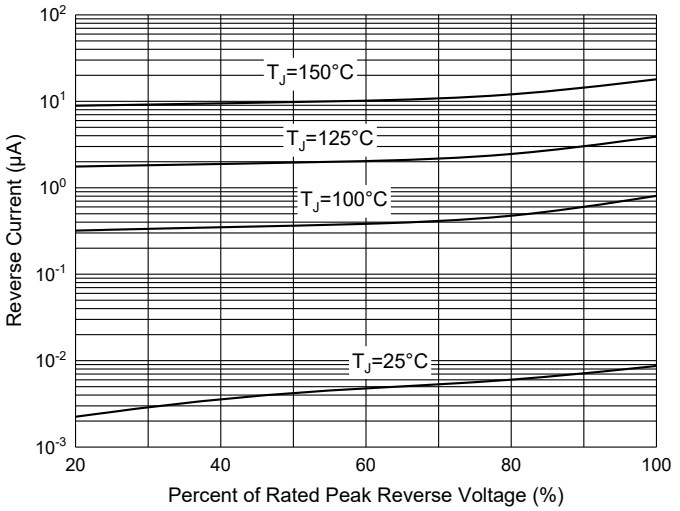


Fig. 5 - Typical Capacitance Characteristics

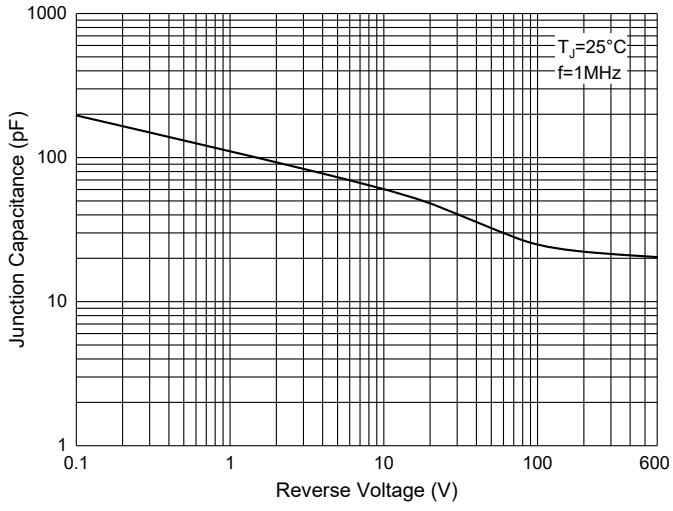
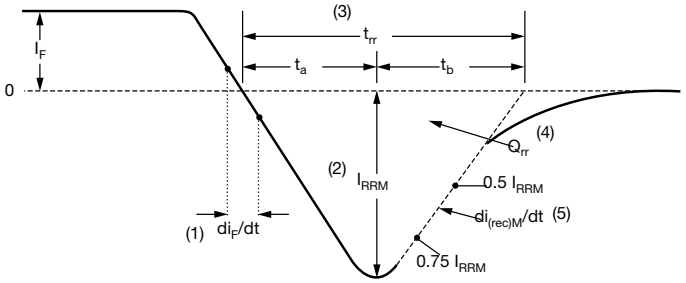


Fig. 6 - Reverse Recovery Waveform and Definitions



(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-TP	Tape&Reel: 1500pcs/Reel