

## Features

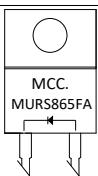
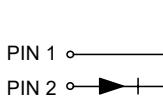
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant (Note 1) ("P" Suffix Designates Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Low Switching Losses and High Efficiency
- Low Reverse Leakage
- Ultrafast Recovery Time
-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

## 8 Amp FRED Rectifiers 650 Volts

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

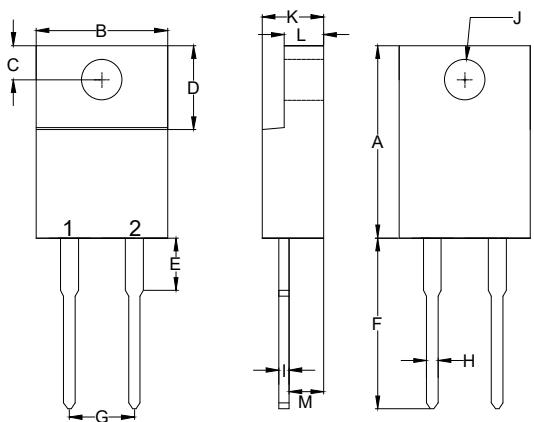
Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	650	V
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{RMS}$	455	V
Average Rectified Forward Current	$I_{F(AV)}$	8	A
Non-Repetitive Peak Surge Current @ 8.3ms Half Sine Wave	$I_{FSM}$	75	A
Current Squared Time @ 1ms $\leq t \leq 8.3\text{ms}$	$I^2t$	23.3	$\text{A}^2\text{s}$

### Internal Structure

Pin	Description	Simplified Outline	Graphic Symbol
1	Cathode		
2	Anode		
			

Note :1. High Temperature Solder Exemption Applied, See EU Directive Annex 7a.

### ITO-220AC



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.567	0.606	14.40	15.40	
B	-----	0.406	-----	10.30	
C	0.100	0.112	2.55	2.85	
D	0.248	0.272	6.30	6.90	
E	-----	0.161	-----	4.10	
F	0.500	0.543	12.70	13.80	
G	0.200		5.10		
H	-----	0.035	-----	0.90	
I	-----	0.032	-----	0.80	
J	0.102	0.134	2.60	3.40	Φ
K	-----	0.189	-----	4.80	
L	-----	0.123	-----	3.10	
M	0.098	0.114	2.50	2.90	

## 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			4		°C/W

## Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Voltage	$V_F$	$I_F=8A; T_J=25°C$		1.40	1.60	V
		$I_F=8A; T_J=150°C$		1.20	1.35	
Reverse Current	$I_R$	$V_R=650V; T_J=25°C$			5	$\mu A$
		$V_R=650V; T_J=150°C$			100	
Junction Capacitance	$C_J$	$V_R=4V; f=1MHz; T_J=25°C$		35		pF

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Recovery Time	$t_{rr}$	$I_F=0.5A; I_R=1.0A; I_{RR}=0.25A; T_J=25°C$		25	35	ns
		$T_J=25°C$		112		
		$T_J=150°C$		192		
Peak Recovery Current	$I_{RRM}$	$I_F=8A$				A
		$d_i/d_t=-200A/\mu s$		3.75		
		$V_{RM}=400V$		7.15		
Reverse Recovery Charge	$Q_{rr}$	$T_J=25°C$		210		nC
		$T_J=150°C$		690		

## Curve Characteristics

Fig. 1 - Forward Current Derating Curve

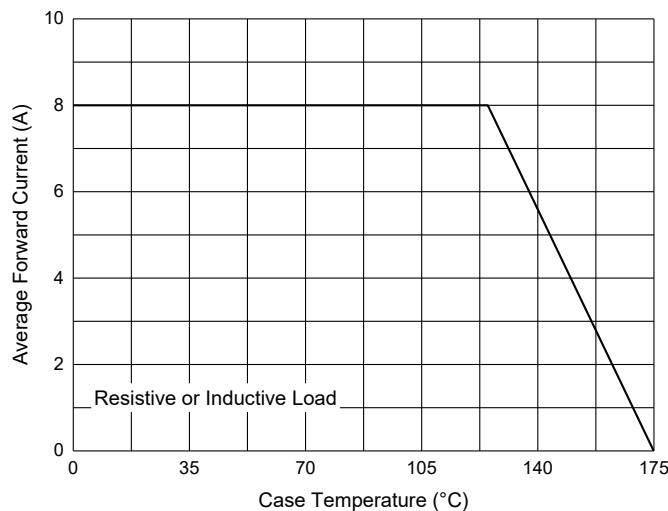


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

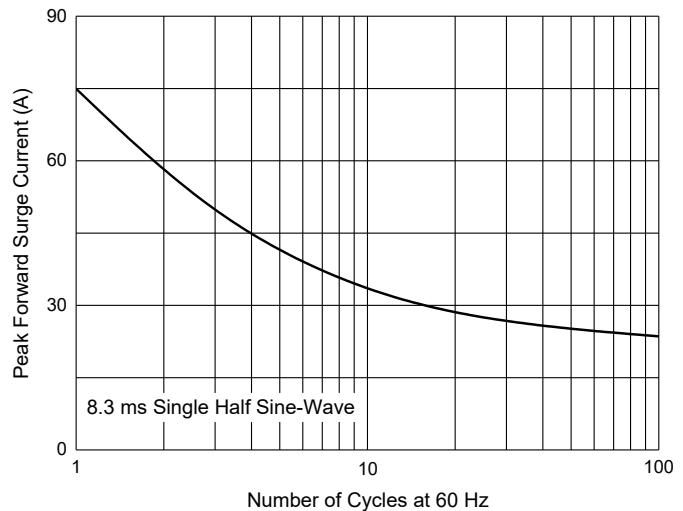


Fig. 3 - Typical Forward Characteristics

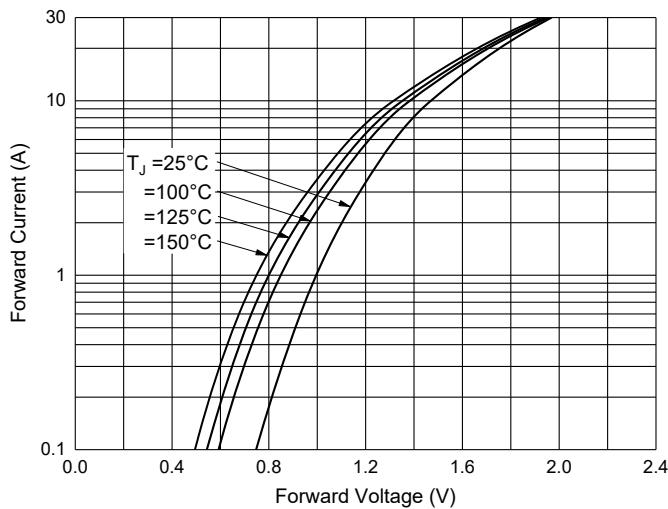


Fig. 4 - Typical Reverse Leakage Characteristics

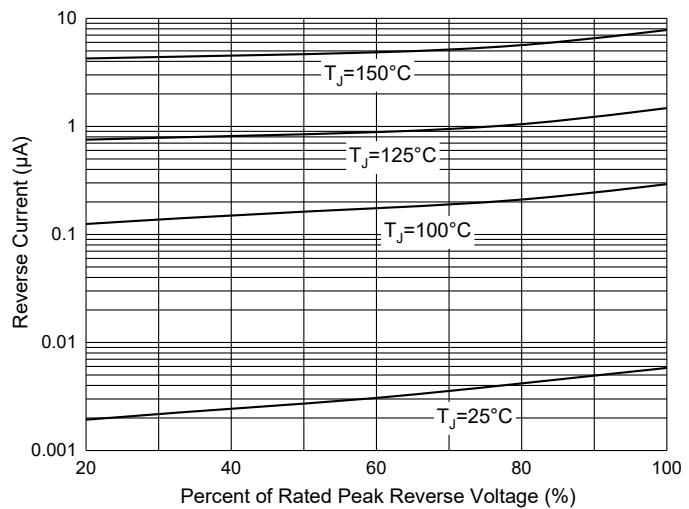


Fig. 5 - Typical Capacitance Characteristics

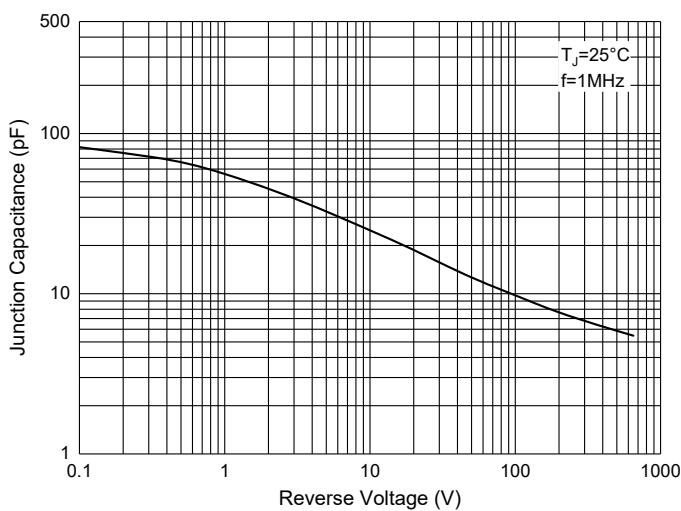
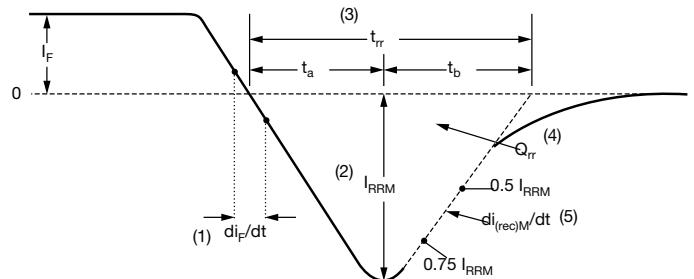


Fig. 6 - Reverse Recovery Waveform and Definitions



(1)  $\frac{dI_F}{dt}$  - 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)  $\frac{dI_{(rec)}M}{dt}$  - peak rate of change of current during  $t_b$  portion of  $t_{rr}$

## Ordering Information

Device	Packing
Part Number-BP	Bulk:50pcs/Tube,1Kpcs/Box,5Kpcs/Carton

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

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