Features

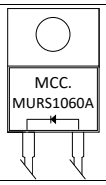
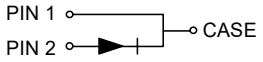
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix Designates Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Low Switching Losses and High Efficiency
- Low Reverse Leakage
- Ultrafast Recovery Time
- Planar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

10 Amp FRED Rectifiers 600 Volts

Maximum Ratings @ 25°C (Unless Otherwise Specified)

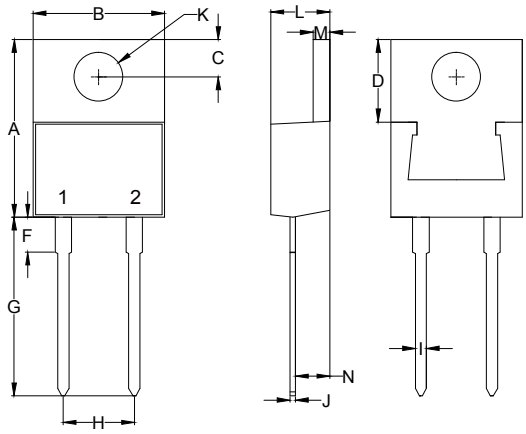
Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	600	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_R		
RMS Reverse Voltage	V_{RMS}	420	V
Average Rectified Forward Current	$I_{F(AV)}$	10	A
Non−Repetitive Peak Surge Current @8.3ms Half Sine Wave	I_{FSM}	120	A
Current Squared Time @ 1ms≤t≤8.3ms	I^2t	59.76	A^2s

Internal Structure

Pin	Description	Simplified Outline	Graphic Symbol
1	Cathode		
2	Anode		

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

TO-220AC



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.560	0.625	14.22	15.88	
B	0.380	0.420	9.65	10.67	
C	0.100	0.135	2.54	3.43	
D	0.230	0.270	5.84	6.86	
F	-----	0.250	-----	6.35	
G	0.500	0.580	12.70	14.73	
H	0.190	0.210	4.83	5.33	
I	0.020	0.045	0.51	1.14	
J	0.012	0.025	0.30	0.64	
K	0.139	0.161	3.53	4.09	Φ
L	0.140	0.190	3.56	4.83	
M	0.045	0.055	1.14	1.40	
N	0.080	0.115	2.03	2.92	

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=10A;T_J=25°C		1.40	1.60	V
		I_F=10A;T_J=150°C		1.18	1.30	
Reverse Current	I_R	V_R=600V;T_J=25°C			5	uA
		V_R=600V;T_J=150°C			200	
Junction Capacitance	C_J	V_R=4V;f=1MHz;T_J=25°C		45		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			20	35	ns
		I_F=10A d_{iF}/d_t=-200A/μs V_{RM}=400V	T_J=25°C		102		
			T_J=150°C		152		
Peak Recovery Current	I_{RRM}		T_J=25°C		3.52		A
			T_J=150°C		8.18		
Reverse Recovery Charge	Q_{rr}		T_J=25°C		180		nC
			T_J=150°C		623		

Curve Characteristics

Fig. 1 - Forward Current Derating Curve

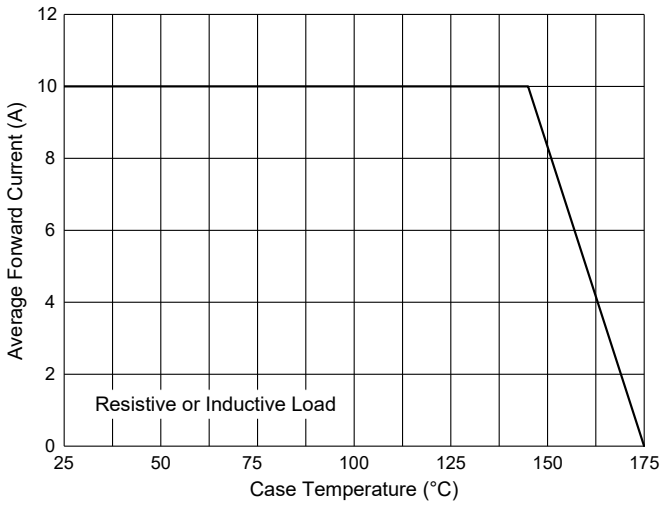


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

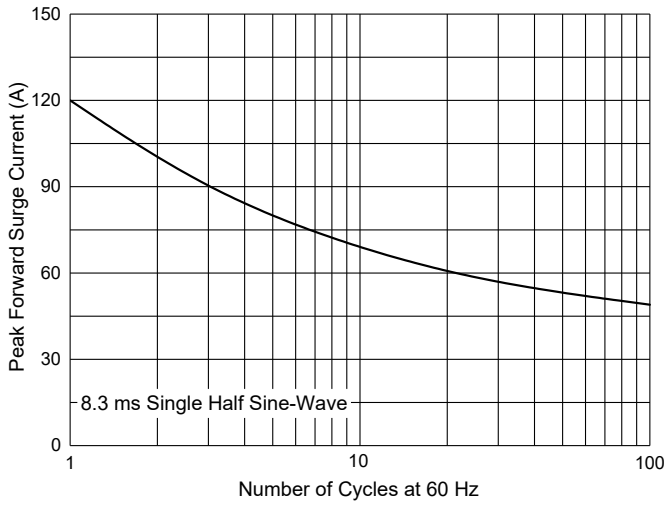


Fig. 3 - Typical Forward Characteristics

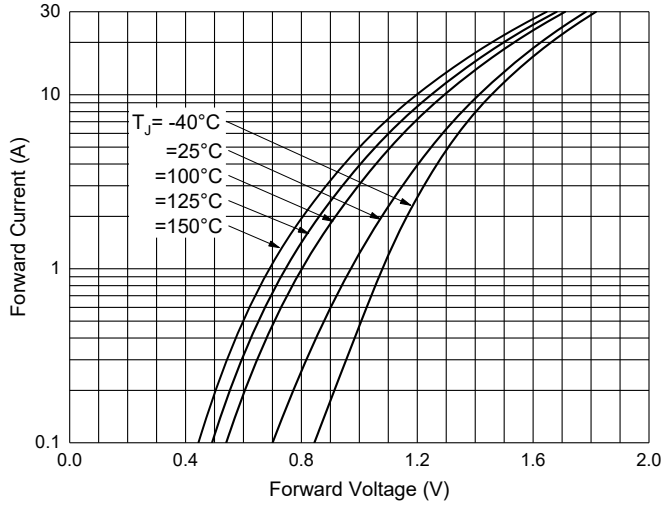


Fig. 4 - Typical Reverse Leakage Characteristics

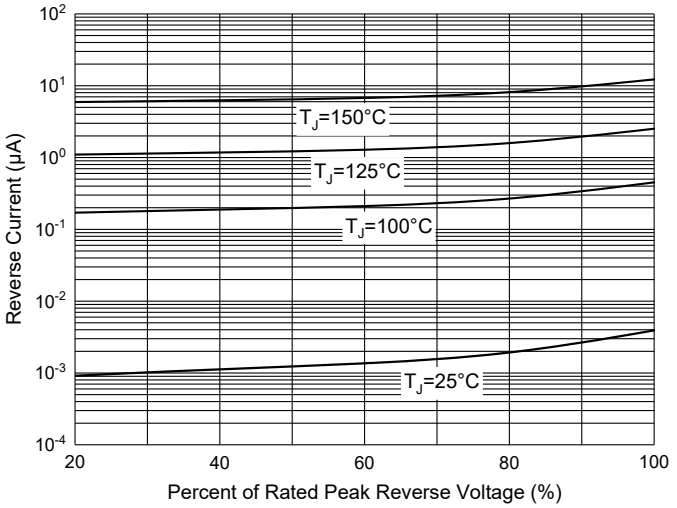


Fig. 5 - Typical Capacitance Characteristics

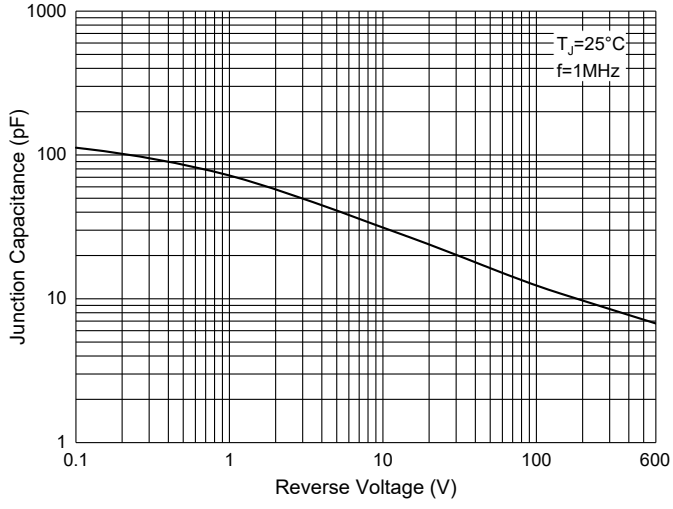
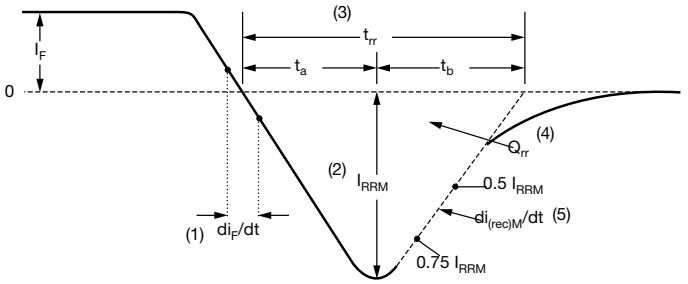


Fig. 6 - Reverse Recovery Waveform and Definitions



(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-BP	Bulk:50pcs/Tube,1Kpcs/Box,5Kpcs/Carton

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