

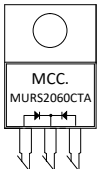
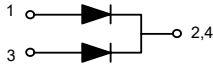
Features

- 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	$I_{F(AV)}$	10	A
Per Diode Per Device		20	
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 ² s

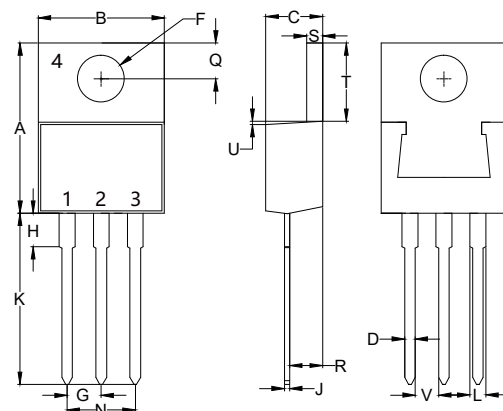
Internal Structure

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

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

20 Amp FRED Rectifiers 600 Volts

TO-220AB



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.560	0.625	14.22	15.88	
B	0.380	0.429	9.65	10.90	
C	0.140	0.201	3.56	5.10	
D	0.020	0.045	0.51	1.14	
F	0.131	0.170	3.34	4.31	Φ
G	0.079	0.121	2.01	3.07	
H	-----	0.250	-----	6.35	
J	0.011	0.025	0.28	0.64	
K	0.500	0.580	12.70	14.73	
L	0.045	0.060	1.14	1.52	
N	0.158	0.242	4.02	6.14	
Q	0.087	0.135	2.22	3.43	
R	0.080	0.126	2.04	3.19	
S	0.045	0.055	1.14	1.39	
T	0.230	0.270	5.84	6.86	
U	-----	0.050	-----	1.27	
V	0.045	-----	1.15	-----	

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	$I_F=10A; T_J=25^\circ C$		1.40	1.60	V
		$I_F=10A; T_J=150^\circ C$		1.18	1.30	
Reverse Current	I_R	$V_R=600V; T_J=25^\circ C$			5	uA
		$V_R=600V; T_J=150^\circ C$			200	
Junction Capacitance	C_J	$V_R=4V; f=1MHz; T_J=25^\circ C$		45		pF

Dynamic Recovery Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Reverse Recovery Time	t_{rr}	$I_F=0.5A; I_R=1.0A; I_{RR}=0.25A; T_J=25^\circ C$		20	35	ns	
			$T_J=25^\circ C$		102		
			$T_J=150^\circ C$		152		
Peak Recovery Current	I_{RRM}	$I_F=10A$ $d_{IF}/d_t=-200A/\mu s$ $V_{RM}=400V$	$T_J=25^\circ C$		3.52	A	
			$T_J=150^\circ C$		8.18		
Reverse Recovery Charge	Q_{rr}		$T_J=25^\circ C$		180	nC	
			$T_J=150^\circ C$		623		

Curve Characteristics

Fig. 1 - Forward Current Derating Curve

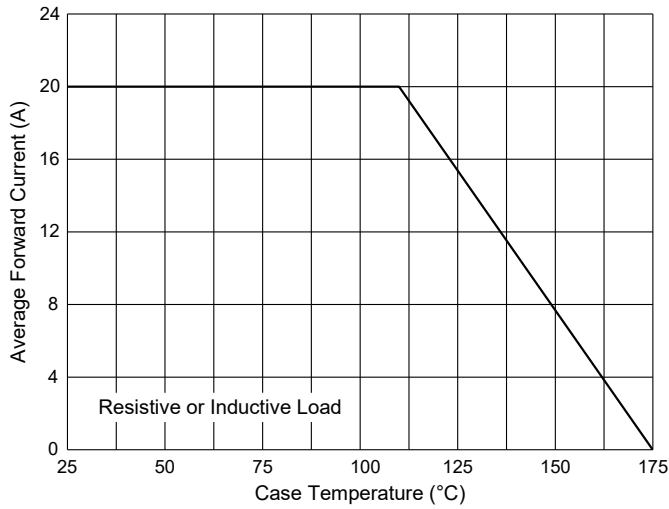


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

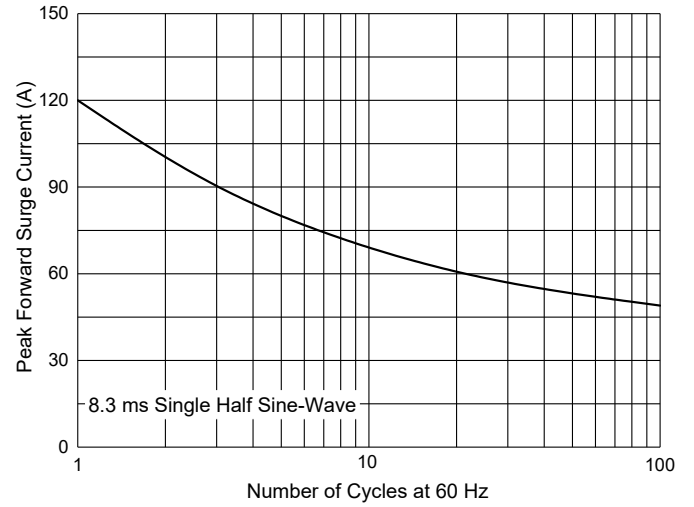


Fig. 3 - Typical Forward Characteristics

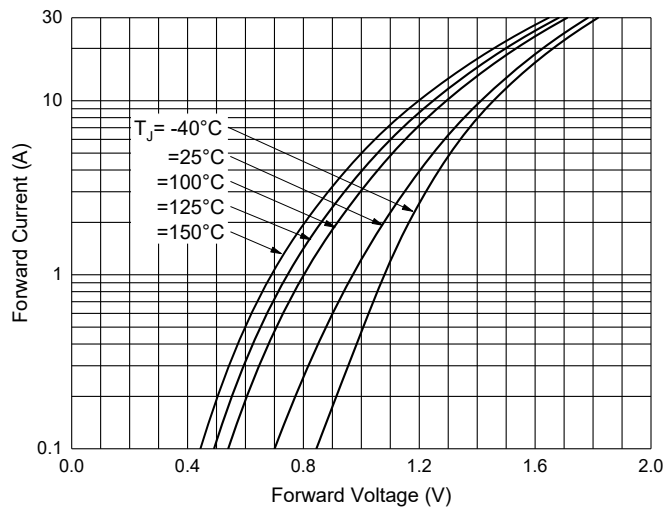


Fig. 4 - Typical Reverse Leakage Characteristics

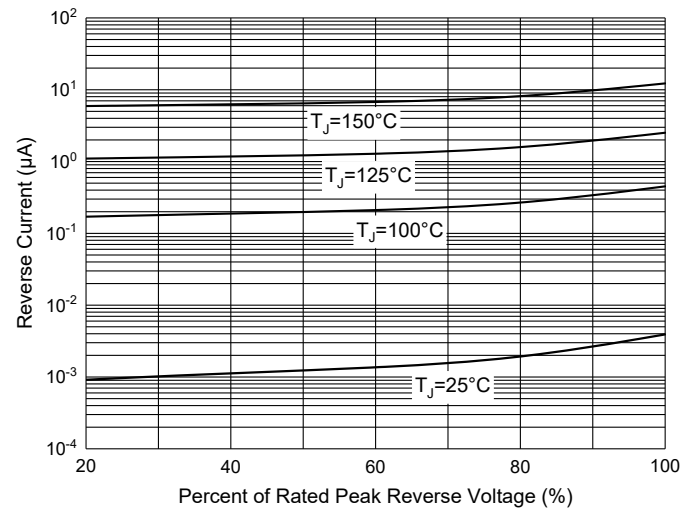


Fig. 5 - Typical Capacitance Characteristics

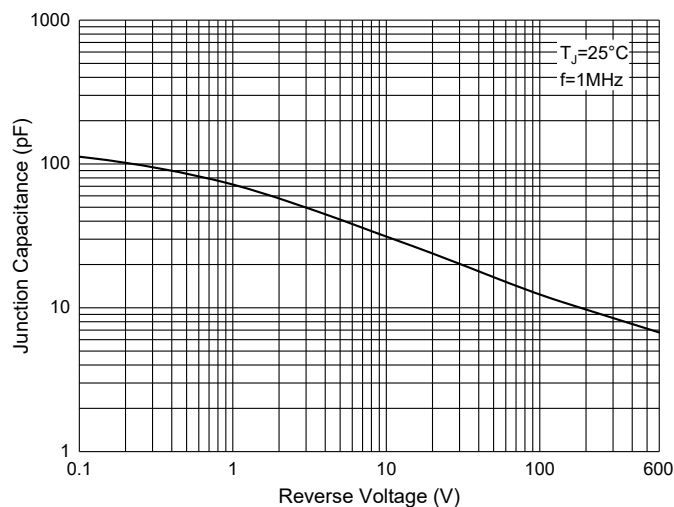
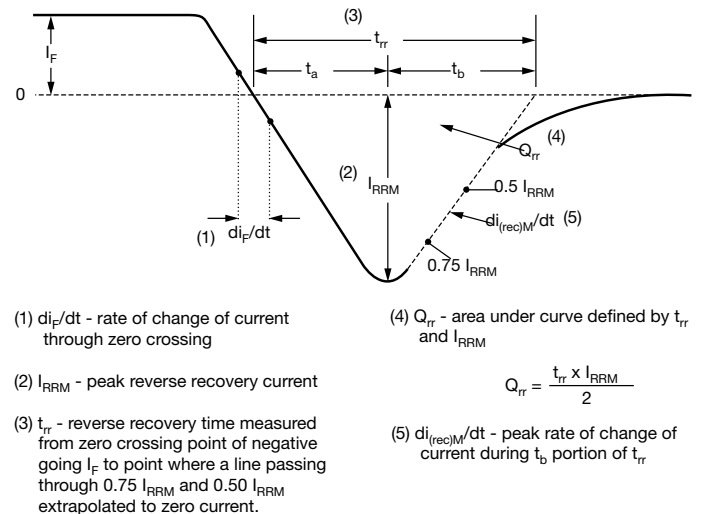


Fig. 6 - Reverse Recovery Waveform and Definitions



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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