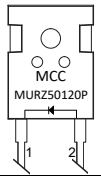
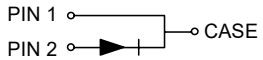
Features

- 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
- Ultrafast and Ultrasoft Recovery
- Near Zero Temperature Coefficient
- Planar Structure Die

50 Amp Ultrafast Recovery Rectifier 1200 Volts

Maximum Ratings @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	1200	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_R		
RMS Reverse Voltage	V_{RMS}	840	V
Average Rectified Forward Current	$I_{F(AV)}$	50	A
Non−Repetitive Peak Surge Current @8.3ms Half Sine Wave	I_{FSM}	400	A
Current Squared Time @ 1ms≤t≤8.3ms	I^2t	664	A^2s

Marking Diagram	Internal Structure
 Marking Code: MURZ50120P	

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

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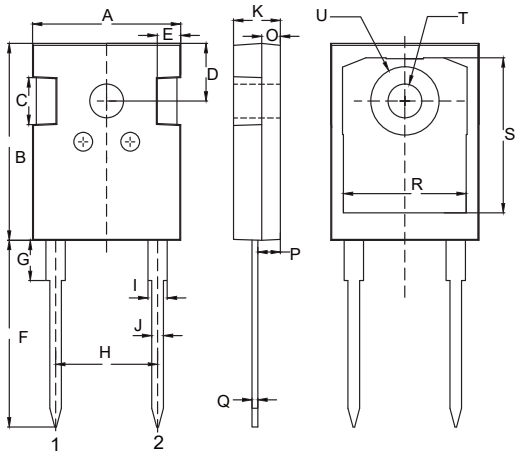


DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.602	0.642	15.30	16.30	
B	0.799	0.839	20.30	21.30	
C	0.189	0.205	4.80	5.20	
D	0.242		6.15		BSC.
E	0.091	0.106	2.30	2.70	
F	0.768	0.807	19.50	20.50	
G	-----	0.189	-----	4.80	
H	0.428		10.88		BSC.
I	0.075	0.087	1.91	2.21	
J	0.044	0.054	1.11	1.36	
K	0.189	0.205	4.80	5.20	
O	0.073	0.085	1.85	2.15	
P	0.087	0.103	2.21	2.61	
Q	0.020	0.030	0.51	0.75	
R	0.512	0.535	13.00	13.60	
S	0.640	0.663	16.25	16.85	
T	0.134	0.150	3.40	3.80	Φ
U	-----	0.287	-----	7.30	Φ

Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
T_J	Operating Junction Temperature Range		-55		150	°C
T_{stg}	Storage Temperature Range		-55		150	°C
$Rth_{(J-C)}$	Thermal Resistance from Junction to Case			0.65		°C/W
$Rth_{(J-A)}$	Thermal Resistance from Junction to Ambient	Free in Air		38		°C/W

Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Voltage	V_F	I_F=50A;T_J=25°C		1.65	1.85	V
		I_F=50A;T_J=125°C		1.64		
Reverse Current	I_R	V_R=1200V;T_J=25°C			10	μA
		V_R=1200V;T_J=125°C			2	mA
Junction Capacitance	C_J	V_R=4V;f=1MHz;T_J=25°C		180		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			150	200	ns
		I_F=1A; dI_F/dt=-200A/μs; V_R=30V; T_J=25°C			50		
		I_F=50A; dI_F/dt=-200A/μs; V_R=200V	T_J=25°C		265		
			T_J=125°C		420		
Peak Recovery Current	I_{RRM}		T_J=25°C		23.9		A
			T_J=125°C		32.6		
Reverse Recovery Charge	Q_{rr}		T_J=25°C		2728		nC
			T_J=125°C		5945		

Curve Characteristics

Fig. 1 - Forward Current Derating Curve

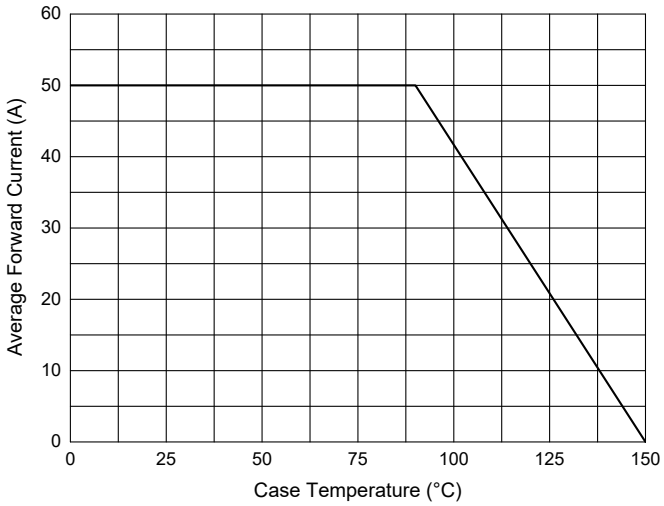


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

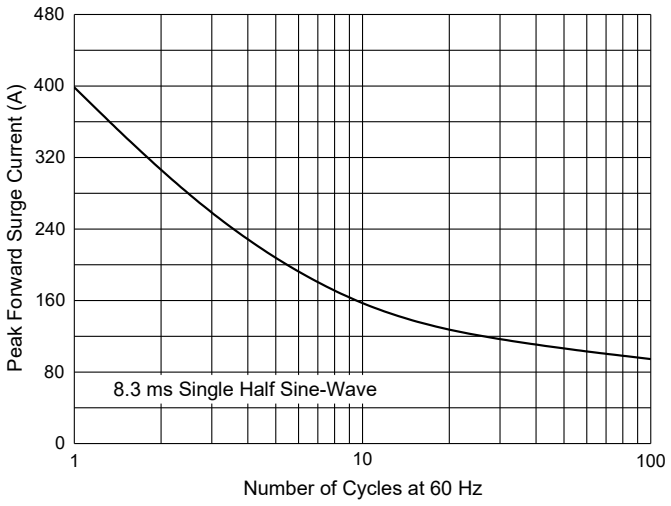


Fig. 3 - Typical Forward Characteristics

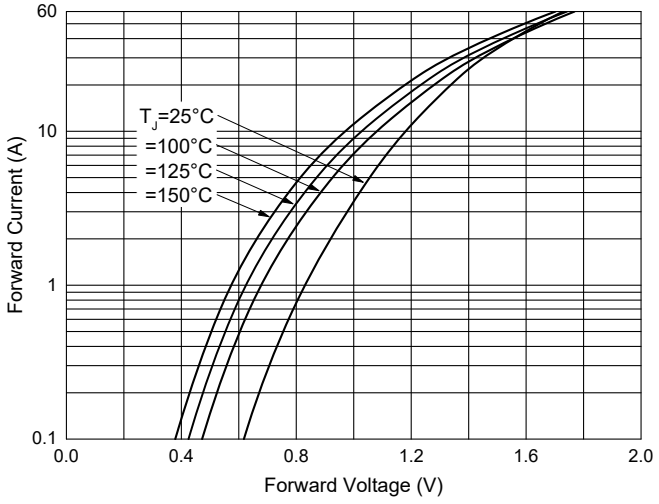


Fig. 4 - Typical Reverse Leakage Characteristics

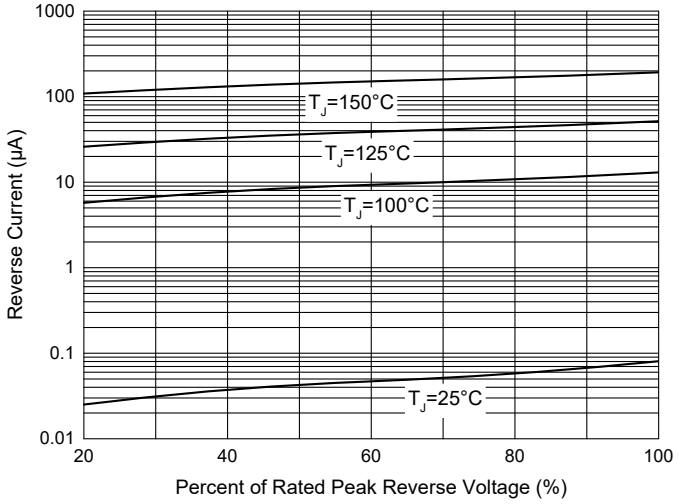


Fig. 5 - Typical Capacitance Characteristics

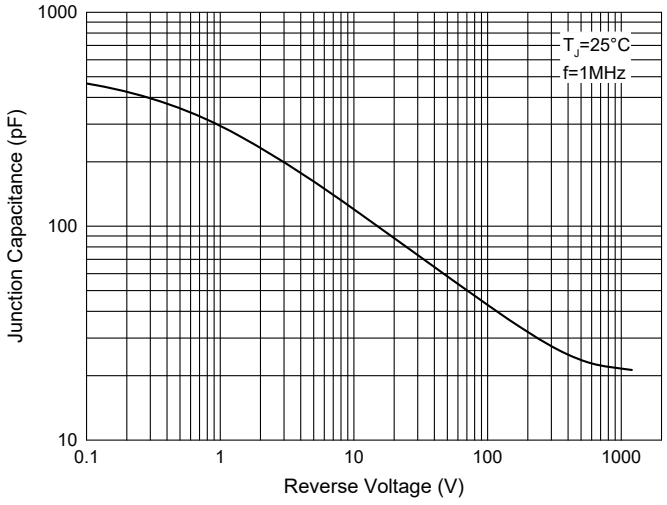
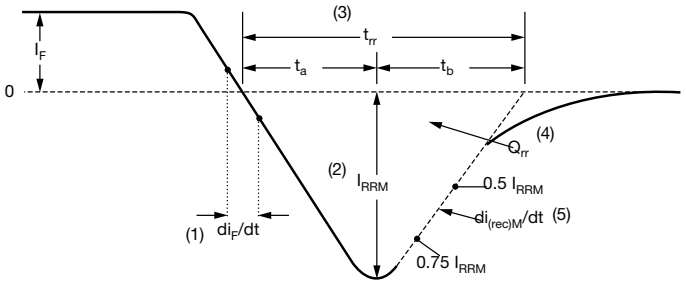


Fig. 6 - Reverse Recovery Waveform and Definitions



(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
MURZ50120P-BP	Bulk:30pcs/Tube,360pcs/Box,1.8Kpcs/Carton

Note : Adding "-HF" Suffix For Halogen Free, eg. MURZ50120P-BP-HF