

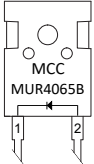
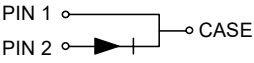
Features

- 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
- High Frequency Operation
- High Surge Forward Current Capability
- Planar Structure Die and Soft Recovery Characteristics

Maximum Ratings @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	650	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_R		
RMS Reverse Voltage	V_{RMS}	455	V
Average Rectified Forward Current	$I_{F(AV)}$	40	A
Non-Repetitive Peak Surge Current @8.3ms Half Sine Wave	I_{FSM}	450	A
Current Squared Time @ $1ms \leq t \leq 8.3ms$	I^2t	840	A ² s

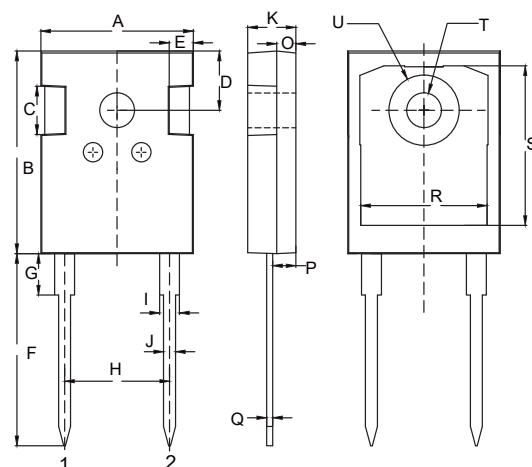
Internal Structure

Pin	Description	Simplified Outline	Graphic Symbol
1	Cathode		
2	Anode		

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

40 Amp Ultra Fast Recovery Rectifier 650 Volts

TO-247AD



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		175	°C
T_{stg}	Storage Temperature Range		-55		175	°C
$R_{th(J-C)}$	Thermal Resistance from Junction to Case			0.5		°C/W
$R_{th(J-A)}$	Thermal Resistance from Junction to Ambient	Free in Air		40		°C/W

Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=40A; T_J=25^{\circ}C$		1.46	1.80	V
		$I_F=40A; T_J=125^{\circ}C$		1.18	1.45	
Reverse Current	I_R	$V_R=650V; T_J=25^{\circ}C$			10	μA
		$V_R=650V; T_J=125^{\circ}C$			500	
Junction Capacitance	C_J	$V_R=4V; f=1MHz; T_J=25^{\circ}C$		195		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			40	50	ns	
		I _F =1A;d _{iF} /d _t =-100A/μs;V _{RM} =30V;T _J =25°C			37			
			T _J =25°C		52			
			T _J =125°C		80			
Peak Recovery Current	I _{RRM}	I _F =40A d _{iF} /d _t =-1000A/μs V _{RM} =400V	T _J =25°C		22		A	
			T _J =125°C		37			
Reverse Recovery Charge	Q _{rr}			T _J =25°C		732		nC
				T _J =125°C		2158		

Curve Characteristics

Fig. 1 - Forward Current Derating Curve

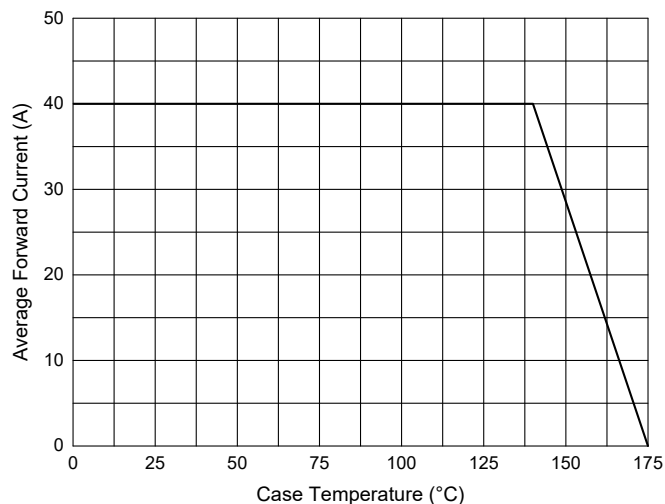


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

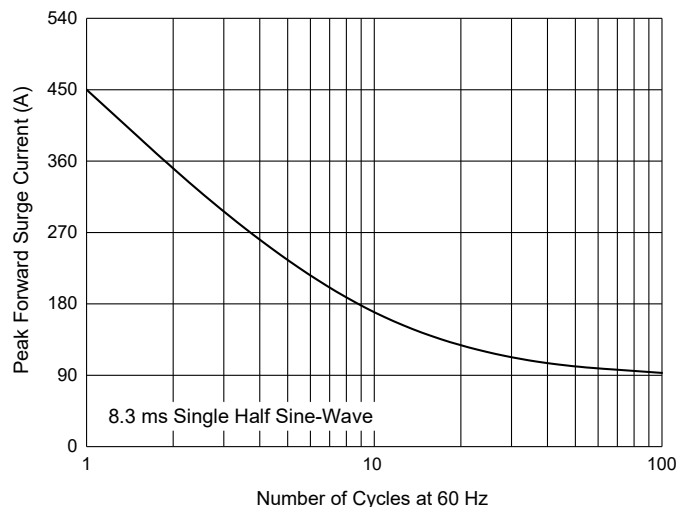


Fig. 3 - Typical Forward Characteristics

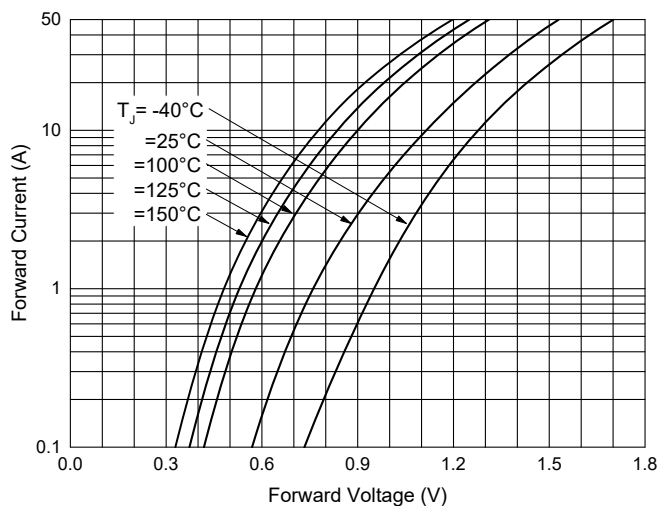


Fig. 4 - Typical Reverse Leakage Characteristics

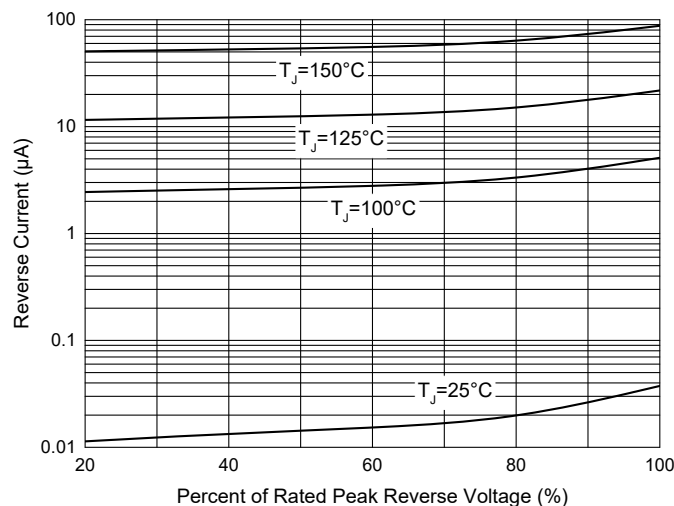


Fig. 5 - Typical Capacitance Characteristics

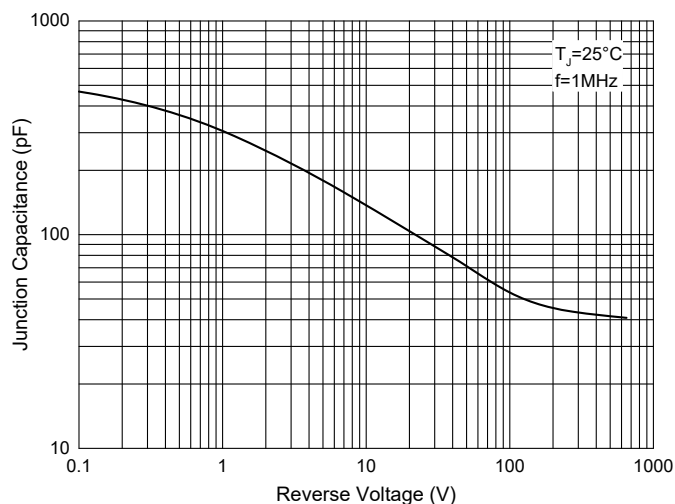
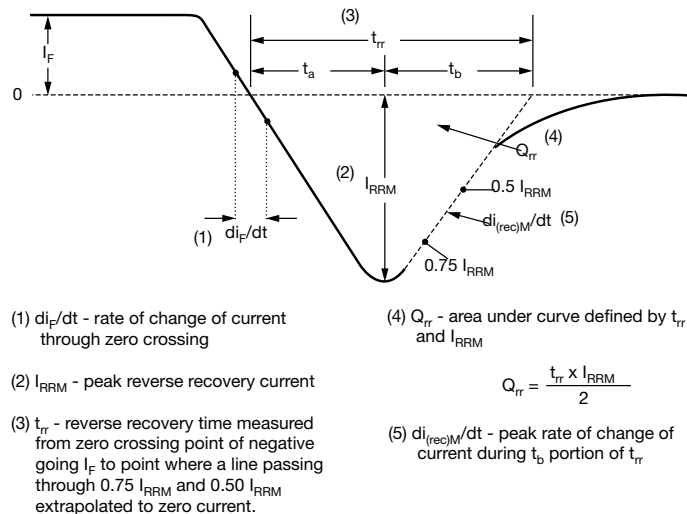


Fig. 6 - Reverse Recovery Waveform and Definitions



Ordering Information

Device	Packing
Part Number-BP	Bulk:30pcs/Tube,360pcs/Box,1.8Kpcs/Carton

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

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