

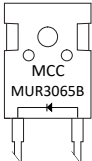
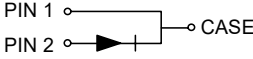
## Features

- 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	$V_{RRM}$	650	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{RMS}$	455	V
Average Rectified Forward Current	$I_{F(AV)}$	30	A
Non-Repetitive Peak Surge Current @8.3ms Half Sine Wave	$I_{FSM}$	300	A
Current Squared Time @ 1ms≤t≤8.3ms	$I^2t$	373.5	A <sup>2</sup> s

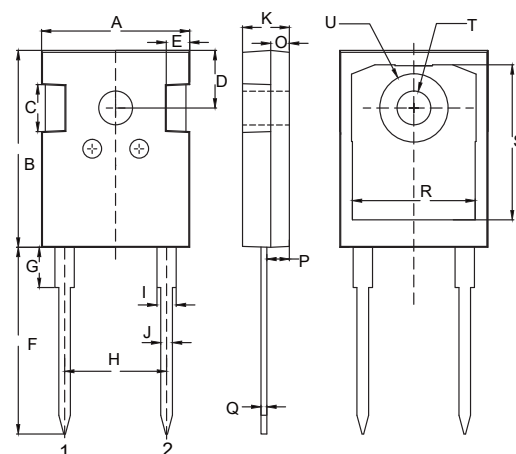
## Internal Structure

Pin	Description	Simplified Outline	Graphic Symbol
1	Cathode		
2	Anode		

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

# 30 Amp FRED Rectifiers 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

## Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Voltage	$V_F$	$I_F=30A; T_J=25^{\circ}C$		1.50	1.80	V
		$I_F=30A; T_J=150^{\circ}C$		1.15	1.40	
Reverse Current	$I_R$	$V_R=650V; T_J=25^{\circ}C$			10	uA
		$V_R=650V; T_J=150^{\circ}C$			500	
Junction Capacitance	$C_J$	$V_R=4V; f=1MHz; T_J=25^{\circ}C$		170		pF

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

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =0.5A; I <sub>R</sub> =1.0A; I <sub>RR</sub> =0.25A; T <sub>J</sub> =25°C			38	50	ns
		I <sub>F</sub> =30A d <sub>iF</sub> /d <sub>t</sub> =-200A/μs V <sub>RM</sub> =400V	T <sub>J</sub> =25°C		81		
			T <sub>J</sub> =150°C		170		
Peak Recovery Current	I <sub>RRM</sub>		T <sub>J</sub> =25°C	5.8	A		
			T <sub>J</sub> =150°C	18			
Reverse Recovery Charge	Q <sub>rr</sub>		T <sub>J</sub> =25°C		238	nC	
			T <sub>J</sub> =150°C		1535		

## Curve Characteristics

Fig. 1 - Forward Current Derating Curve

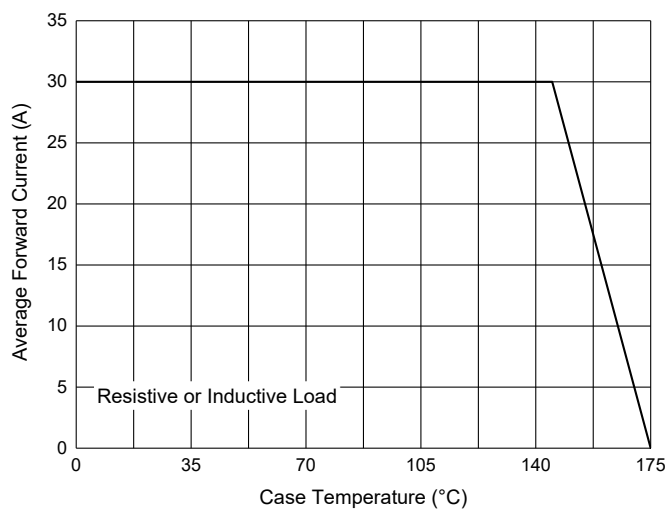


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

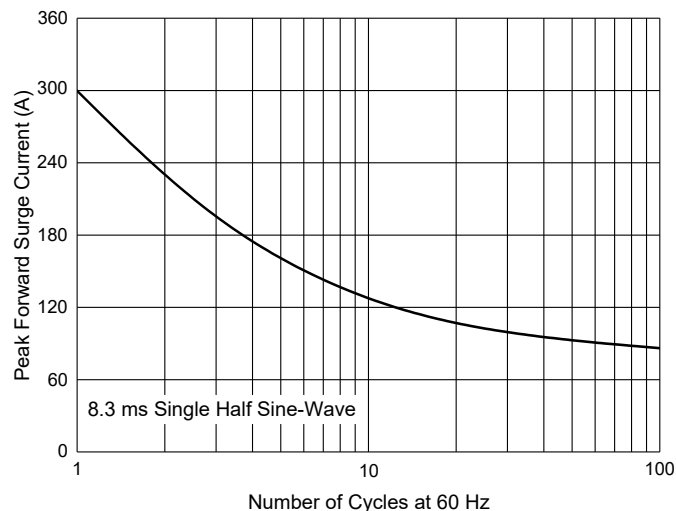


Fig. 3 - Typical Forward Characteristics

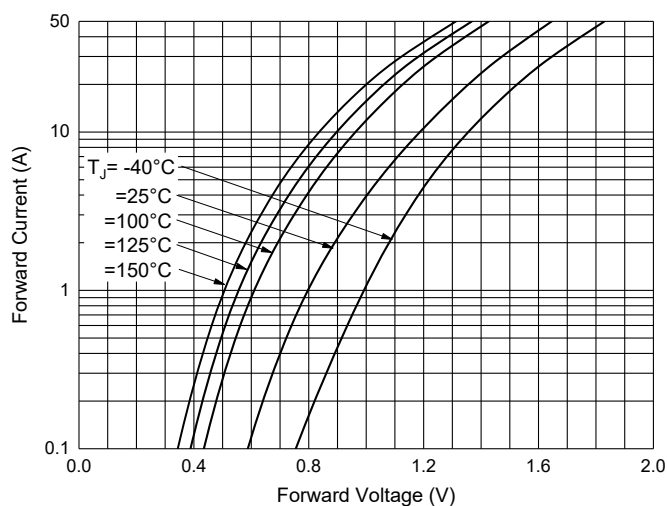


Fig. 4 - Typical Reverse Leakage Characteristics

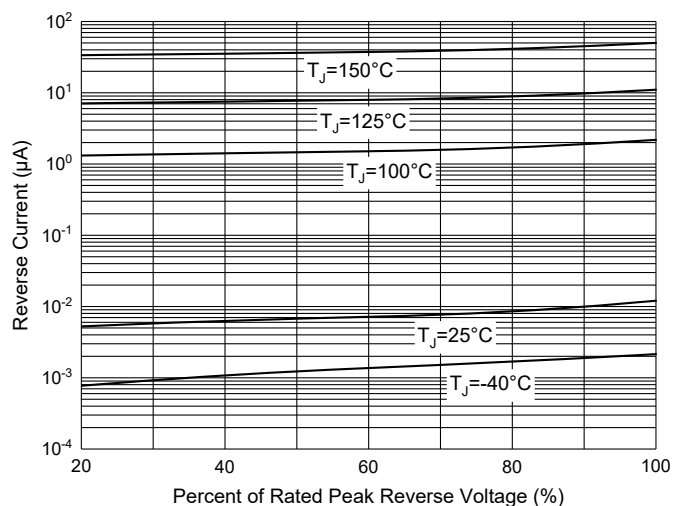


Fig. 5 - Typical Capacitance Characteristics

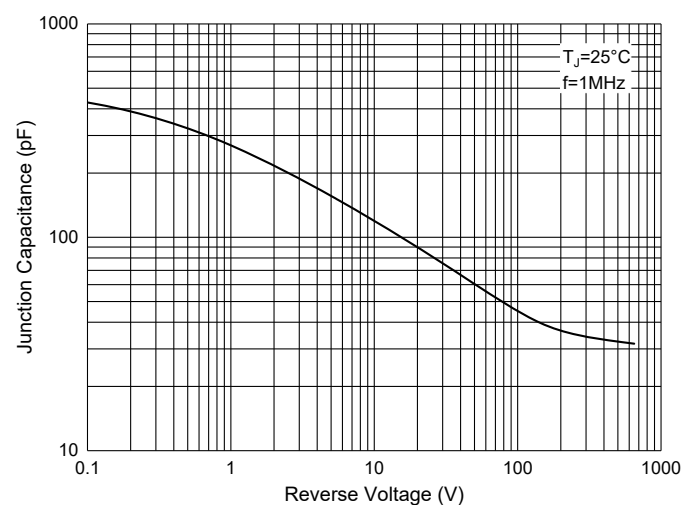
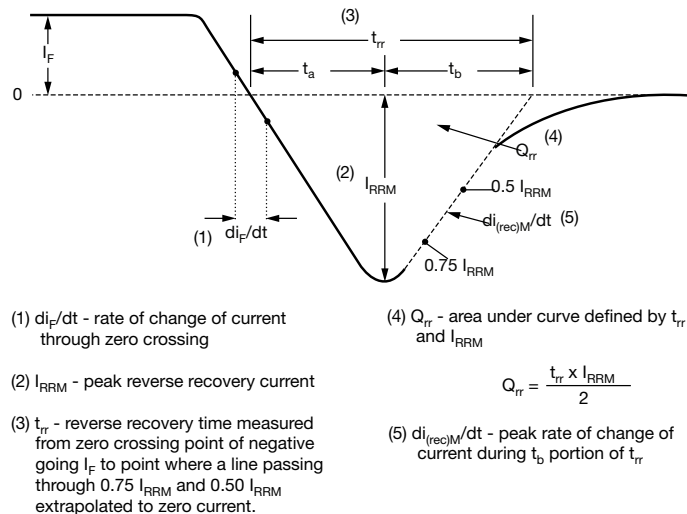


Fig. 6 - Reverse Recovery Waveform and Definitions



## 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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