

Features

- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant(Note 2) ("P" Suffix Designates Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- 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	$I_{F(AV)}$	8	A
Per Diode Per Device		16	
Non-Repetitive Peak Surge Current (Per Diode) @8.3ms Half Sine Wave	I_{FSM}	120	A
Current Squared Time(Per Diode) @ 1ms≤t≤8.3ms	I^2t	59.76	A ² s

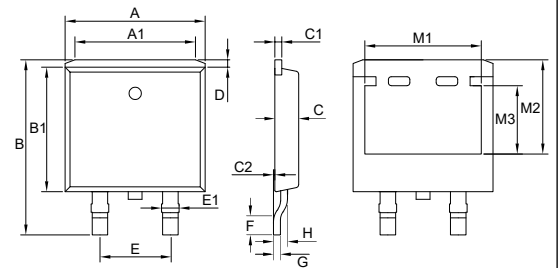
Internal Structure

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

- Note :
- 1.Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 2. High temperature solder exemption applied, see EU directive annex 7a.

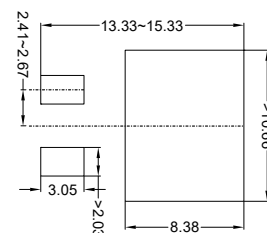
**16 Amp
FRED Rectifiers
600 Volts**

TO-263AC



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.388	0.407	9.85	10.35	
A1	0.323	0.339	8.20	8.60	
B	0.467	0.490	11.85	12.45	
B1	0.346	0.361	8.78	9.18	
C	0.062	0.074	1.57	1.87	
C1	0.014	0.026	0.35	0.65	
C2	0.000	0.008	0.00	0.20	
D	0.015	0.027	0.39	0.69	
E	0.196	0.204	4.98	5.18	
E1	0.044	0.056	1.12	1.42	
F	0.051	0.059	1.30	1.50	
G	0.014	0.026	0.35	0.65	
H	0.033	0.049	0.85	1.25	
M1	0.327	0.343	8.30	8.70	
M2	0.264	0.280	6.70	7.10	
M3	0.185	0.201	4.70	5.10	

Suggested Solder Pad Layout(mm)



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	$I_F=8A; T_J=25^\circ C$		1.20	1.50	V
		$I_F=8A; T_J=125^\circ C$		1.00	1.20	
Reverse Current	I_R	$V_R=600V; T_J=25^\circ C$			10	uA
		$V_R=600V; T_J=125^\circ C$			100	
Junction Capacitance	C_J	$V_R=600V; f=1MHz; T_J=25^\circ C$		12.5		pF

Dynamic Recovery Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Reverse Recovery Time	t_{rr}	$I_F=0.5A; I_R=1.0A; I_{RR}=0.25A; T_J=25^\circ C$		25	35	ns	
		$I_F=1A, di_F/dt=-50A/us, V_R=30V; T_J=25^\circ C$		45			
		$I_F=8A$ $di_F/dt=-200A/\mu s; V_{RM}=400V$	$T_J=25^\circ C$		58		
			$T_J=125^\circ C$		85		
Peak Recovery Current	I_{RRM}	$I_F=8A$ $di_F/dt=-200A/\mu s; V_{RM}=400V$	$T_J=25^\circ C$		4.60	A	
			$T_J=125^\circ C$		8.75		
Reverse Recovery Charge	Q_{rr}	$I_F=8A$ $di_F/dt=-200A/\mu s; V_{RM}=400V$	$T_J=25^\circ C$		133	nC	
			$T_J=125^\circ C$		373		

Curve Characteristics

Fig. 1 - Forward Current Derating Curve

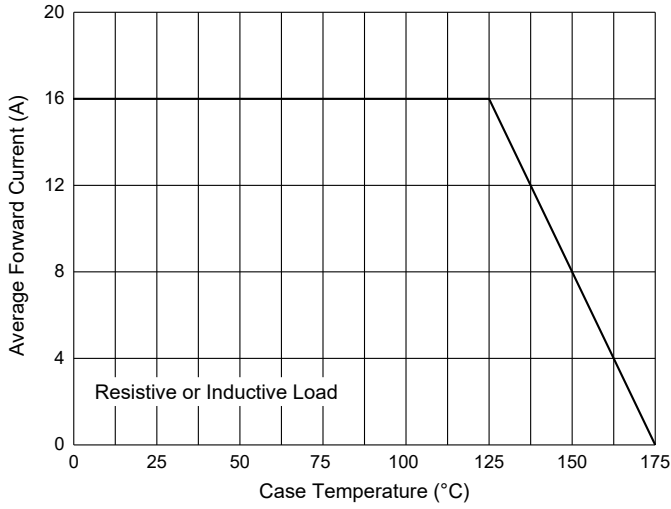


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

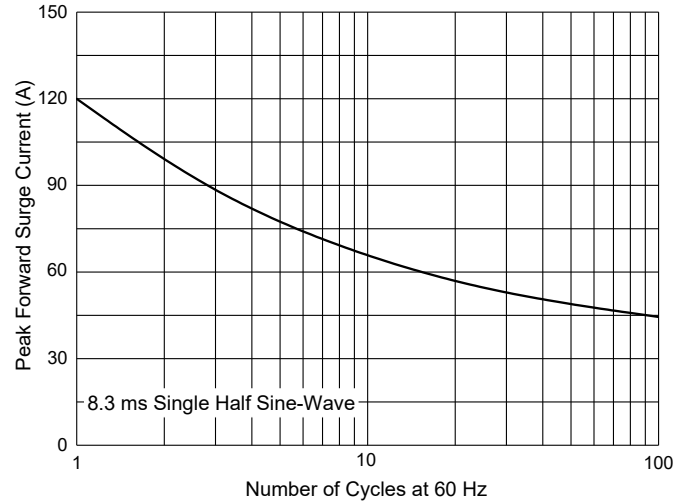


Fig. 3 - Typical Forward Characteristics

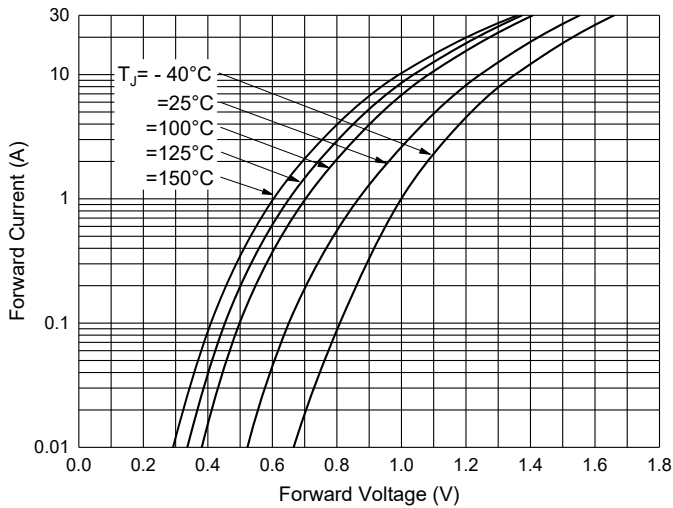


Fig. 4 - Typical Reverse Leakage Characteristics

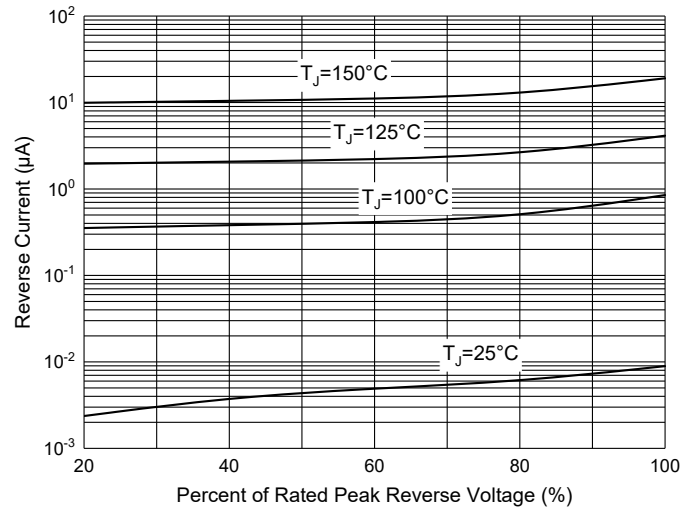


Fig. 5 - Typical Capacitance Characteristics

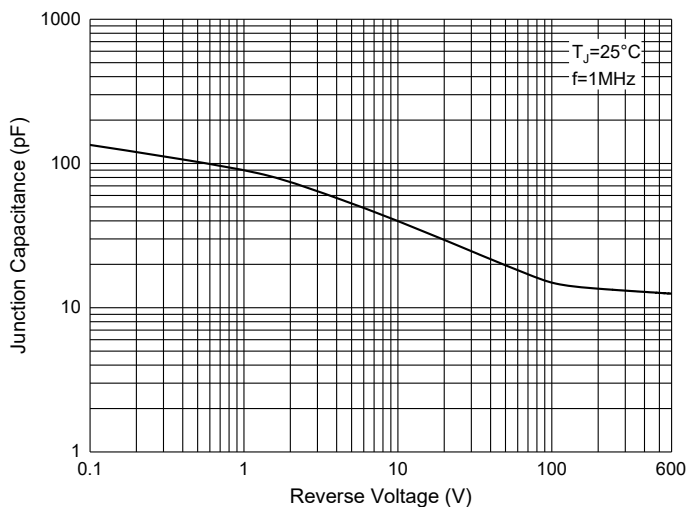
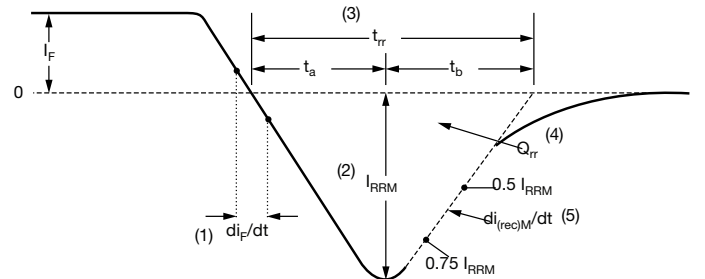


Fig. 6 - Reverse Recovery Waveform and Definitions



- (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}
- (5) $di_{(rec)M}/dt$ - peak rate of change of current during t_b portion of t_{rr}

$$Q_{rr} = \frac{t_{rr} \times I_{RRM}}{2}$$

Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 1500pcs/Reel

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