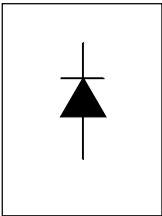




QUIETIR Series
20ETF..FP

**FAST SOFT RECOVERY
RECTIFIER DIODE
TO-220 FULLPAK**



V_F	$< 1.2V @ 10A$
I_{FSM}	$= 300A$
V_{RRM}	$200 \text{ to } 600V$

The 20ETF.. FP soft recovery **QUIETIR** rectifier series has been optimized for combined short reverse recovery time and low forward voltage drop.
The glass passivation ensures stable reliable operation in the most severe temperature and power cycling conditions.

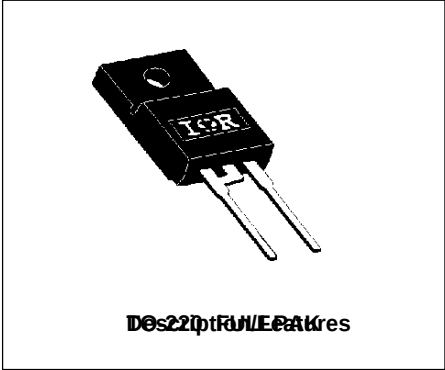
- Typical applications are:
- output rectification and freewheeling in inverters, choppers and converters
 - and input rectifications where severe restrictions on conducted EMI should be met
 - fully isolated package ($V_{INS} = 2500 V_{RMS}$) UL E78996 approved



Major Ratings and Characteristics

Characteristics	20ETF..FP	Units
$I_{F(AV)}$ Sinusoidal waveform	20	A
V_{RRM}	200to 600	V
I_{FSM}	300	A
$V_F @ 10A, T_J = 25^{\circ}C$	1.2	V
$t_{rr} @ 1A, 100A/\mu s$	60	ns
T_J	-40to150	$^{\circ}C$

Package Outline



Voltage Ratings

Part Number	V_{RRM} , maximum peak reverse voltage V	V_{RSM} , maximum non repetitive peak reverse voltage V	I_{RRM} 150°C mA
20ETF02FP	200	300	5
20ETF04FP	400	500	
20ETF06FP	600	700	

Absolute Maximum Ratings

Parameters	20ETF..FP	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	20	A	@ $T_C = 94^\circ\text{C}$, 180° conduction half sine wave
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current	250	A	10ms Sine pulse, rated V_{RRM} applied
	300		10ms Sine pulse, no voltage reapplied
I^2t Max. I^2t for fusing	316	2s	10ms Sine pulse, rated V_{RRM} applied
	442		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing	4420	$A^2\sqrt{s}$	$t = 0.1$ to 10ms, no voltage reapplied

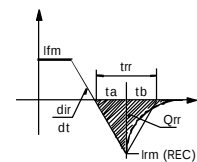
Electrical Specifications

Parameters	20ETF..FP	Units	Conditions
V_{FM} Max. Forward Voltage Drop	1.30	V	@ 20A, $T_J = 25^\circ\text{C}$
	1.67	V	@ 60A, $T_J = 25^\circ\text{C}$
r_t Forward slope resistance	12.5	mΩ	
$V_{F(TO)}$ Threshold voltage	0.9	V	$T_J = 150^\circ\text{C}$
I_{RM} Max. Reverse Leakage Current	0.1	mA	$T_J = 25^\circ\text{C}$
	5.0	mA	$T_J = 150^\circ\text{C}$

$V_R = \text{rated } V_{RRM}$

Recovery Characteristics

Parameters	20ETF..FP	Units	Conditions
t_{rr} Reverse Recovery Time	160	ns	I_F @ 20A pk @ 100A/μs @ 25°C
I_{rr} Reverse Recovery Current	10	A	
Q_{rr} Reverse Recovery Charge	1.25	μC	
S Snap Factor t_b/t_a	0.6	typical	



Thermal-Mechanical Specifications

Parameters		20ETF..FP	Units	Conditions
T _J	Max. Junction Temperature Range	-40 to 150	°C	
T _{stg}	Max. Storage Temperature Range	-40 to 150	°C	
R _{thJC}	Max. Thermal Resistance Junction to Case	1.5	°C/W	DC operation
R _{thJA}	Max. Thermal Resistance Junction to Ambient	62	°C/W	
R _{thCS}	Typical Thermal Resistance Case to Heatsink	1.5	°C/W	Mounting surface, smooth and greased
wt	Approximate Weight	2 (0.07)	g (oz.)	
T	Mounting Torque	Min.	6 (5)	Kg-cm (lbf-in)
		Max.	12 (10)	
Case Style		TO-220FULLPAK		

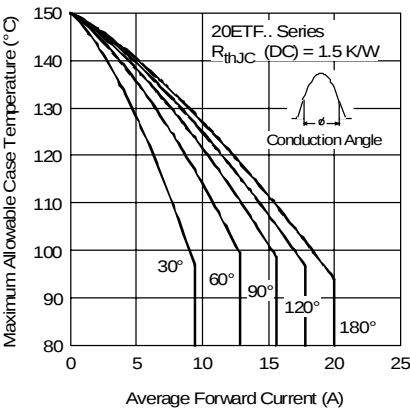


Fig. 1 - Current Rating Characteristics

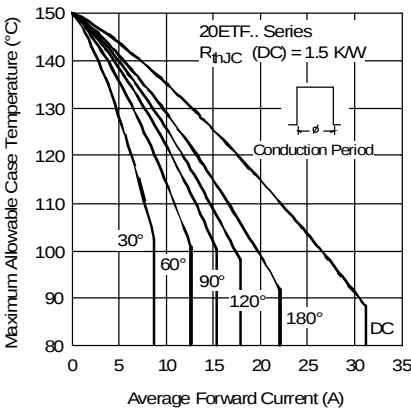


Fig. 2 - Current Rating Characteristics

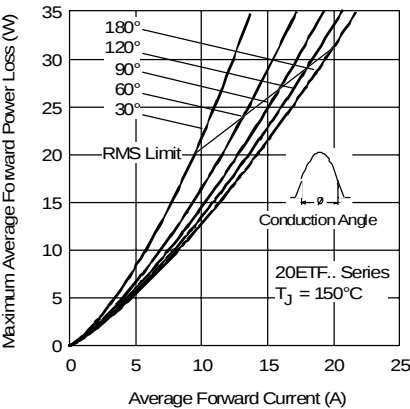


Fig. 3 - Forward Power Loss Characteristics

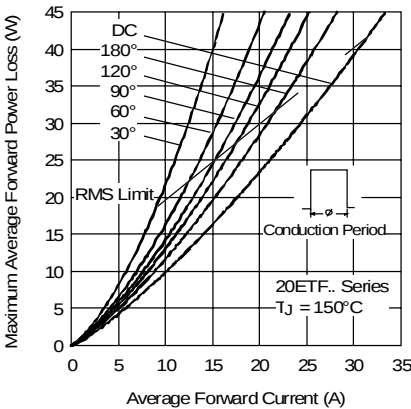


Fig. 4 - Forward Power Loss Characteristics

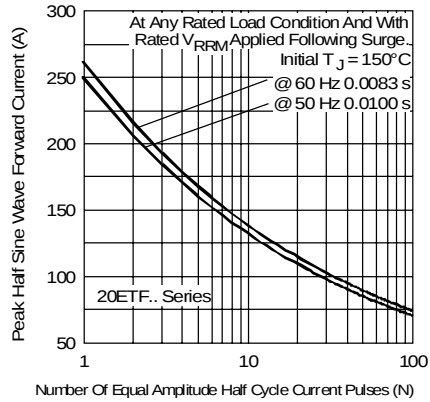


Fig. 5 - Maximum Non-Repetitive Surge Current

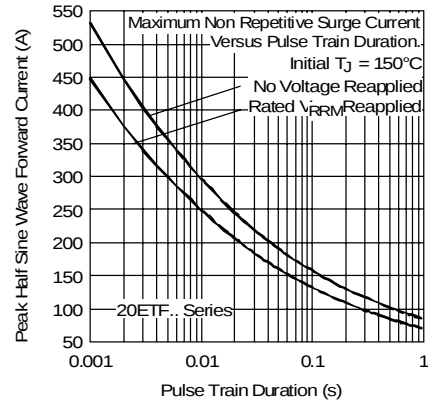


Fig. 6 - Maximum Non-Repetitive Surge Current

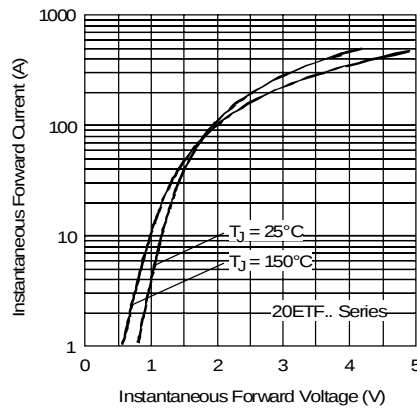


Fig. 7 - Forward Voltage Drop Characteristics

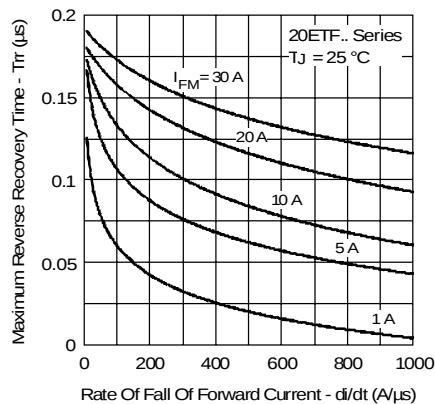


Fig. 8 - Recovery Time Characteristics, $T_J = 25^\circ\text{C}$

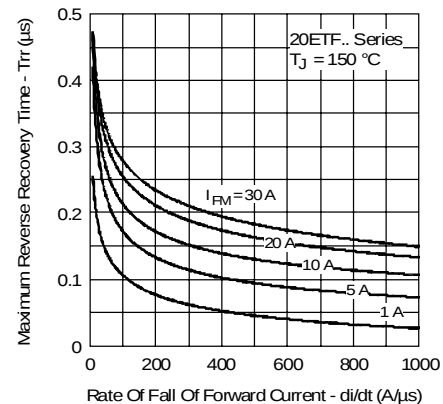


Fig. 9 - Recovery Time Characteristics, $T_J = 150^\circ\text{C}$

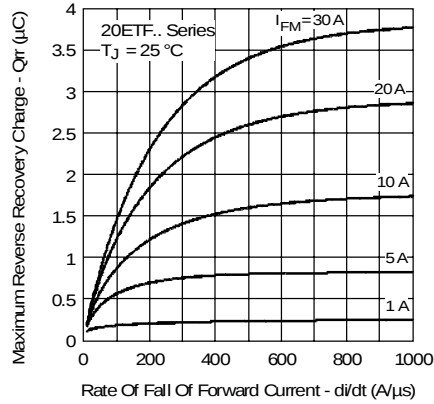


Fig. 10 - Recovery Charge Characteristics, $T_j = 25^\circ\text{C}$

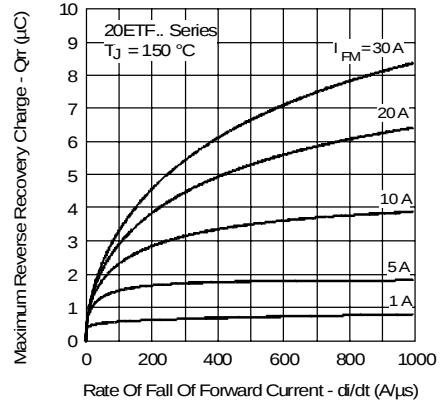


Fig. 11 - Recovery Charge Characteristics, $T_j = 150^\circ\text{C}$

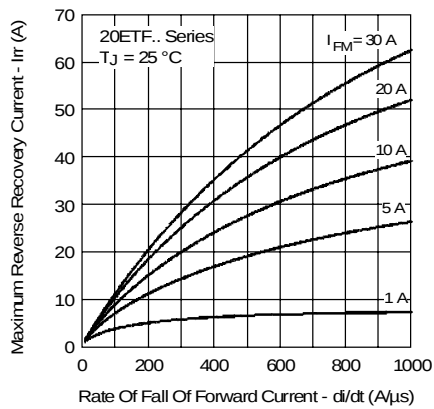


Fig. 12 - Recovery Current Characteristics, $T_j = 25^\circ\text{C}$

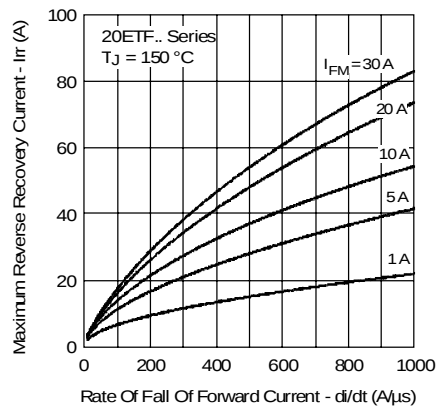


Fig. 13 - Recovery Current Characteristics, $T_j = 150^\circ\text{C}$

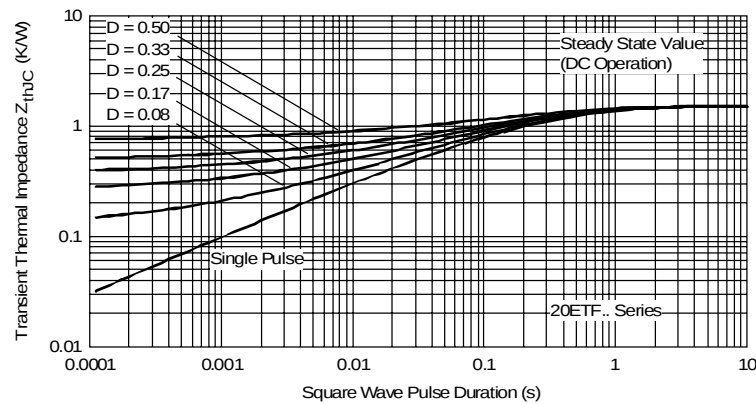
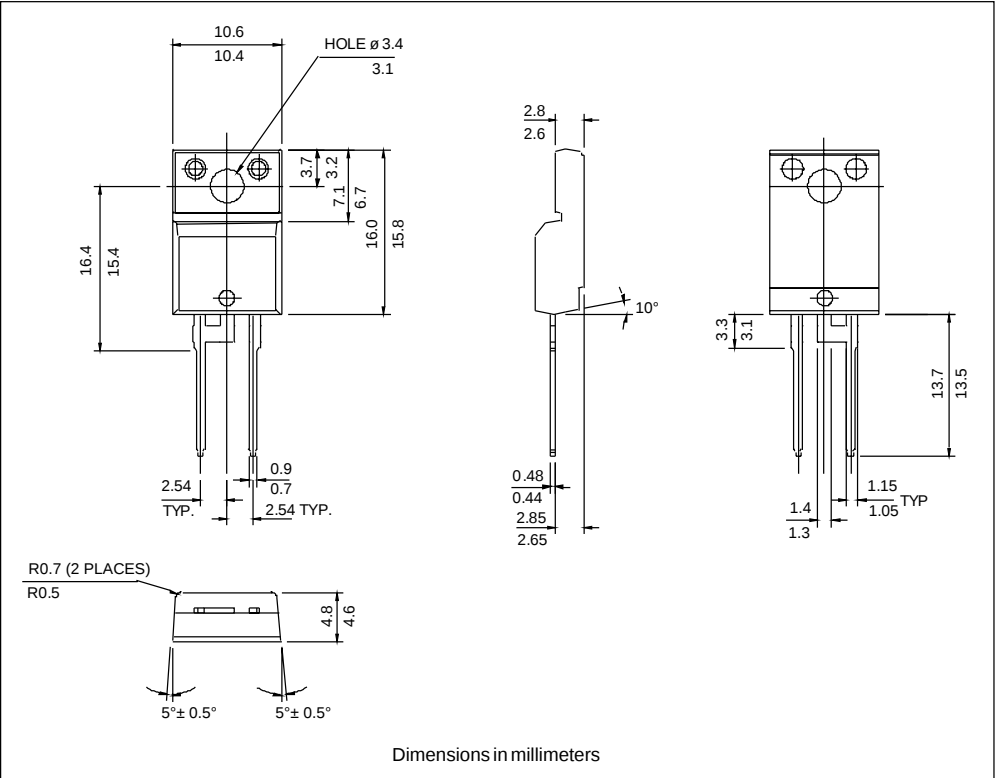
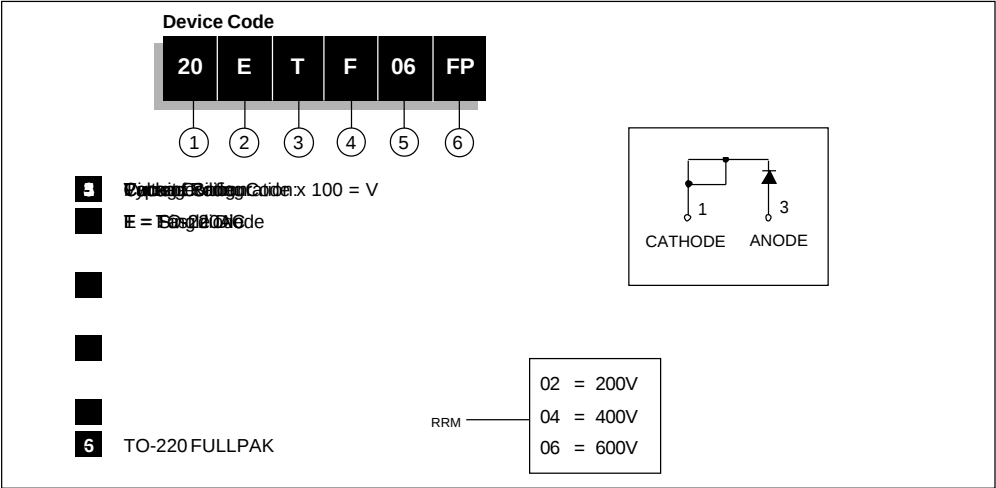


Fig. 14 - Thermal Impedance Z_{thJC} Characteristics

Outline Table



Ordering Information Table



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Data and specifications subject to change without notice.



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