

Bulletin I2120 rev. A 07/97

International IOR Rectifier

SAFEIR Series 10ETS..

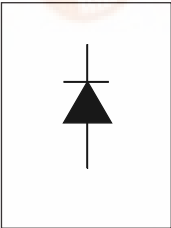
INPUT RECTIFIER DIODE

Description/Features

The 10ETS.. rectifier **SAFEIR** series has been optimized for very low forward voltage drop, with moderate leakage. The glass passivation technology used has reliable operation up to 150°C junction temperature.

The **High Reverse Voltage** range available allows design of input stage primary rectification with **Outstanding Voltage Surge** capability.

Typical applications are in input rectification and these products are designed to be used with International Rectifier Switches and Output Rectifiers which are available in identical package outlines.



V_F	< 1.1V @ 10A
I_{FSM}	= 200A
V_{RRM}	800 to 1600V

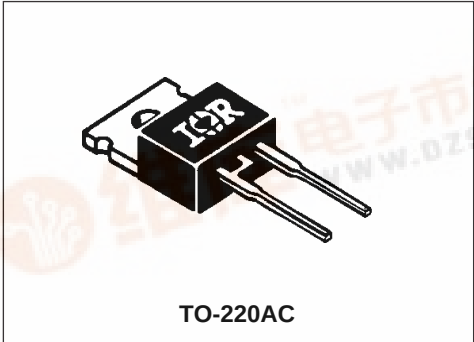
Output Current in Typical Applications

Applications	Single-phase Bridge	Three-phase Bridge	Units
Capacitive input filter $T_A=55^{\circ}\text{C}$, $T_J=125^{\circ}\text{C}$ common heatsink of 1°C/W	12.0	16.0	A

Major Ratings and Characteristics

Characteristics	10ETS..	Units
$I_{F(AV)}$ Sinusoidal waveform	10	A
V_{RRM}	800 to 1600	V
I_{FSM}	200	A
V_F @ 10A, $T_J=25^{\circ}\text{C}$	1.1	V
T_J	-40 to 150	$^{\circ}\text{C}$

Package Outline



Also available in D-pak (8EWS Series)



10ETS.. *SAFEIR* Series

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International
IOR Rectifier

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
10ETS08	800	900	0.5
10ETS12	1200	1300	
10ETS16	1600	1700	

Provide terminal coating for voltages above 1200V

Absolute Maximum Ratings

Parameters	10ETS..	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	10	A	@ $T_c = 105^\circ\text{C}$, 180° conduction half sine wave
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current	170	A	10ms Sine pulse, rated V_{RRM} applied
	200		10ms Sine pulse, no voltage reappplied
I^2t Max. I^2t for fusing	130	A^2s	10ms Sine pulse, rated V_{RRM} applied
	145		10ms Sine pulse, no voltage reappplied
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing	1450	$A^2\sqrt{s}$	$t = 0.1$ to 10ms, no voltage reappplied

Electrical Specifications

Parameters	10ETS..	Units	Conditions
V_{FM} Max. Forward Voltage Drop	1.1	V	@ 10A, $T_J = 25^\circ\text{C}$
r_t Forward slope resistance	20	mΩ	$T_J = 150^\circ\text{C}$
$V_{F(TO)}$ Threshold voltage	0.82	V	
I_{RM} Max. Reverse Leakage Current	0.05	mA	$T_J = 25^\circ\text{C}$
	0.50		$T_J = 150^\circ\text{C}$

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

Thermal-Mechanical Specifications

Parameters	10ETS..	Units	Conditions
T_J Max. Junction Temperature Range	-40 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-40 to 150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case	2.5	$^\circ\text{C/W}$	DC operation
R_{thJA} Max. Thermal Resistance Junction to Ambient	62	$^\circ\text{C/W}$	
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.5	$^\circ\text{C/W}$	Mounting surface, smooth and greased
w_t Approximate Weight	2(0.07)	g(oz.)	
T Mounting Torque	Min.	6(5)	Kg-cm (lbf-in)
	Max.	12(10)	
Case Style	TO-220AC		

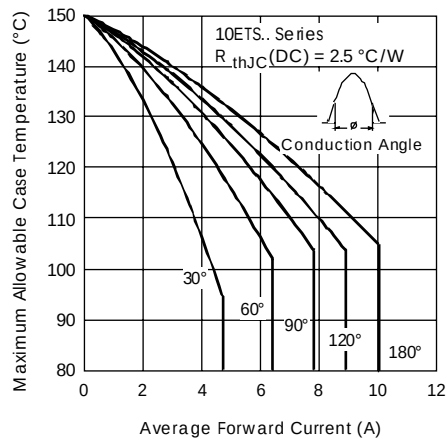


Fig. 1 - Current Rating Characteristics

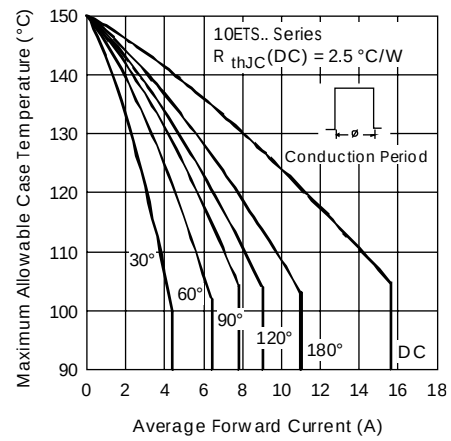


Fig. 2 - Current Rating Characteristics

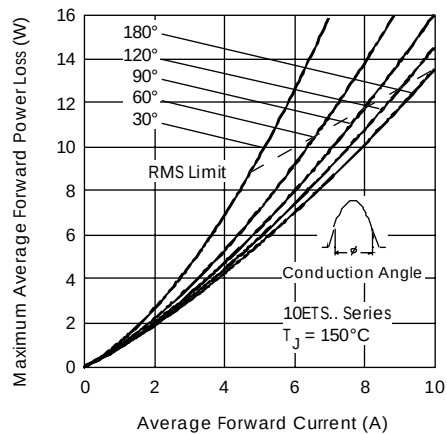


Fig. 3 - Forward Power Loss Characteristics

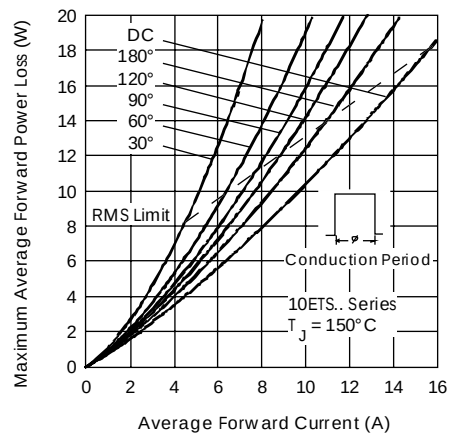


Fig. 4 - Forward Power Loss Characteristics

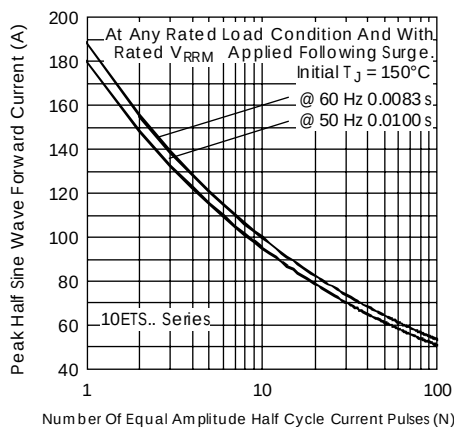


Fig. 5 - Maximum Non-Repetitive Surge Current

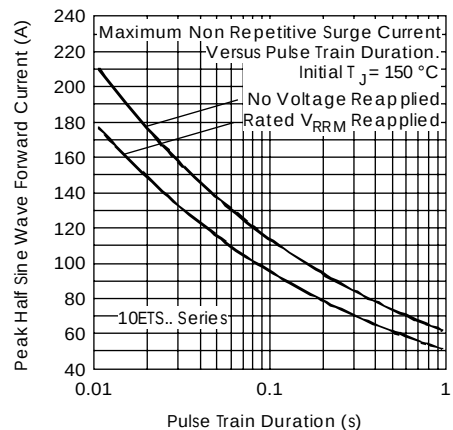


Fig. 6 - Maximum Non-Repetitive Surge Current

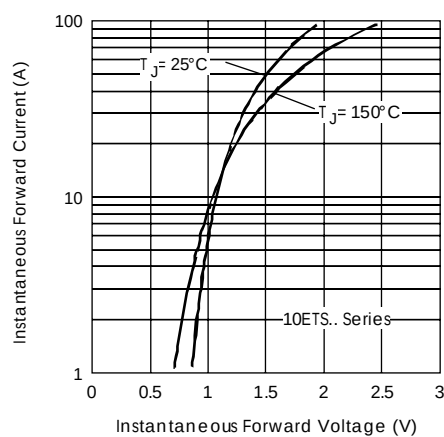


Fig.8- Forward Voltage Drop Characteristics

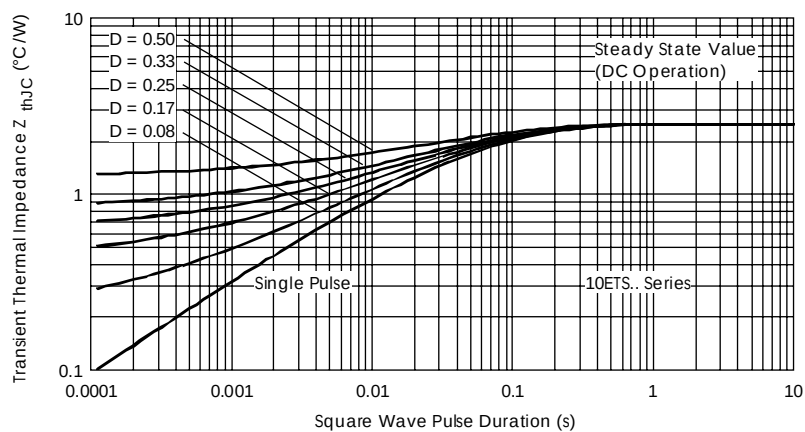


Fig.9- Thermal Impedance Z_{thJC} Characteristics

Ordering Information Table

Device Code				
10	E	T	S	16
①	②	③	④	⑤
1	-	Current Rating		
2	-	Circuit Configuration:		
		E = Single Diode		
3	-	Package:		
		T = TO-220AC		
4	-	Type of Silicon:		
		S = Standard Recovery Rectifier		
5	-	Voltage code: Code x 100 = V _{RRM}		
			08	= 800V
			12	= 1200V
			16	= 1600V

BASE
CATHODE

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1 3

CATHODE ANODE

Outline Table

