

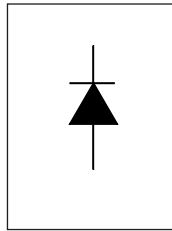
**INPUT RECTIFIER DIODE**

**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

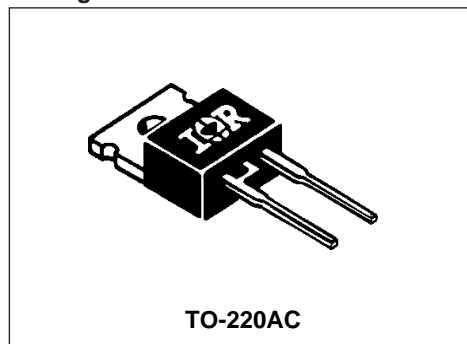
**Output Current in Typical Applications**

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 $1^\circ\text{C/W}$	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)

## 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 reapplied
$I^2t$ Max. $I^2t$ for fusing	130	$A^2s$	10ms Sine pulse, rated $V_{RRM}$ applied
	145		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing	1450	$A^2\sqrt{s}$	$t = 0.1$ to 10ms, no voltage reapplied

## 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	$m\Omega$	$T_J = 150^\circ\text{C}$
$V_{F(TO)}$ 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
$wt$ Approximate Weight	2(0.07)	g(oz.)	
T Mounting Torque	Min.	6(5)	Kg-cm (lb-in)
	Max.	12(10)	
Case Style	TO-220AC		

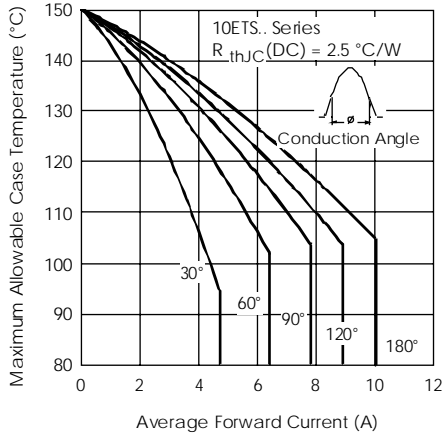


Fig. 1 - Current Rating Characteristics

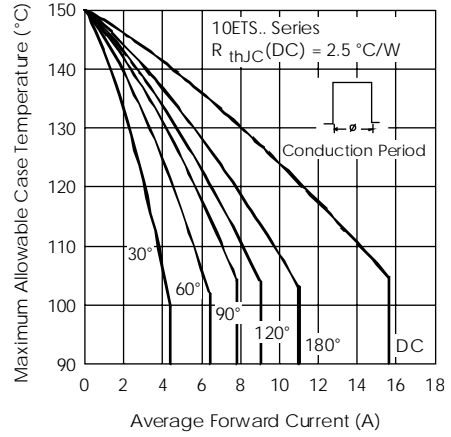


Fig. 2 - Current Rating Characteristics

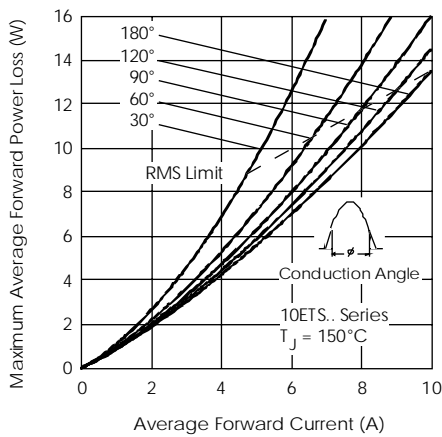


Fig. 3 - Forward Power Loss Characteristics

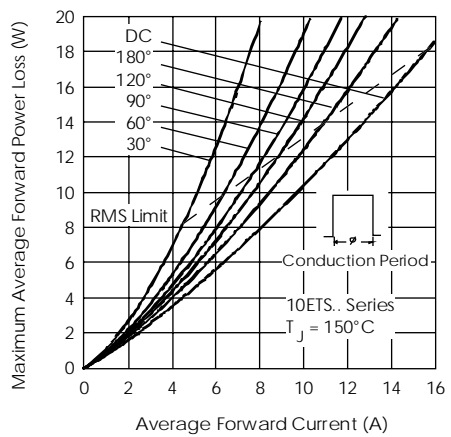


Fig. 4 - Forward Power Loss Characteristics

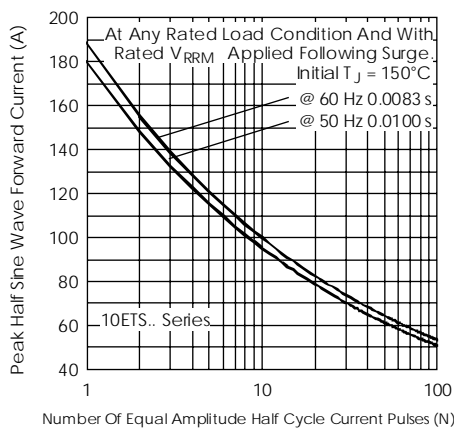


Fig. 5 - Maximum Non-Repetitive Surge Current

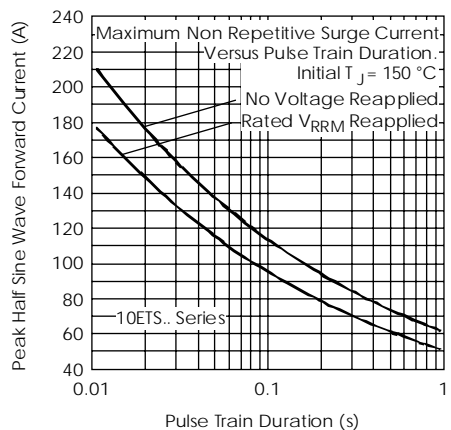


Fig. 6 - Maximum Non-Repetitive Surge Current

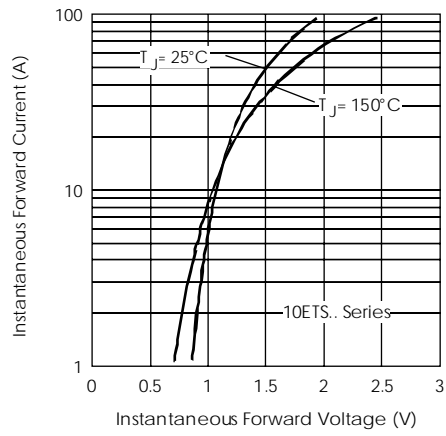


Fig.8-Forward Voltage Drop Characteristics

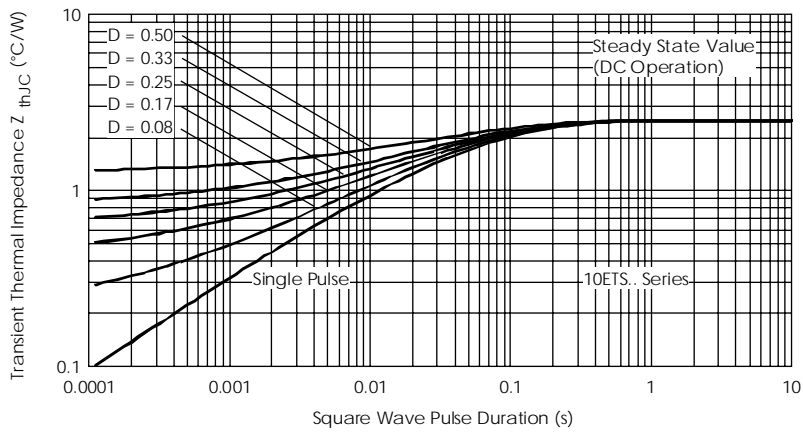


Fig.9- Thermal Impedance  $Z_{thJC}$  Characteristics

Ordering Information Table

Device Code				
10	E	T	S	16
①	②	③	④	⑤

<p><b>1</b> - Current Rating</p> <p><b>2</b> - Circuit Configuration: E = Single Diode</p> <p><b>3</b> - Package: T = TO-220AC</p> <p><b>4</b> - Type of Silicon: S = Standard Recovery Rectifier</p> <p><b>5</b> - Voltage code: Code x 100 = <math>V_{RRM}</math></p>	<p>08 = 800V</p> <p>12 = 1200V</p> <p>16 = 1600V</p>
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Outline Table

