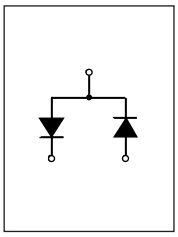
Bulletin I2103 rev. B 07/97

International
IOR Rectifier

*SAFE**IR*** Series
30DPS..

GLASS PASSIVATED PLASTIC RECTIFIER



$I_{F(AV)}$ = 30 Amp
I_{FSM} = 300 Amp
V_{RRM} up to 1200V

- 150° C T_J operation
- Glass Passivated chip junction
- Low forward voltage drop
- High Current Capabilities
- High Surge Current Capabilities
- SMD Series Available

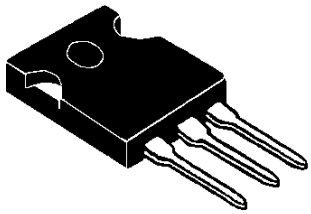
Description/Features

The 30DPS rectifier *SAFE**IR*** 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.
Typical applications are in input rectification.

Major Ratings and Characteristics

Characteristics	30DPS..	Units
$I_{F(AV)}$ Sinusoidal waveform	30	A
V_{RRM}	800 to 1200	V
I_{FSM}	300	A
V_{FM} @ 30 A_{pk}, T_J = 25°C	1.15	V
T_J	-40 to 150	°C

Package Outline



TO-247AC

Voltage Ratings

Type number	Code -	V_{RRM} , maximum peak reverse voltage V	V_{RSM} , maximum peak reverse voltage V	I_{RRM} 150°C mA
30DPS..	08	800	900	1
	12	1200	1300	

Provide terminals coating for voltages above 1200V

Absolute Maximum Ratings

	Parameters	30DPS..	Units	Conditions
$I_{F(AV)}$	Max. Average Forward Current	30	A	@ T_C = 90° C, 180° conduction half sine wave
I_{FSM}	Max. Peak One Cycle Non-Repetitive	250	A	10ms Sine pulse, rated V_{RRM} applied
	Surge Current Per Junction	300		10ms Sine pulse, no voltage reapplied
I^2t	Max. I^2t for fusing	316	A^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	30DPS..	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop	1.15	V	@ 30A, T_J = 25°C	
r_t	Forward slope resistance	9.28	mΩ	T_J = 150°C	
$V_{F(TO)}$	Threshold voltage	0.78	V		
I_{RM}	Max. Reverse Leakage Current	0.1	mA	T_J = 25 °C	V_R = rated V_{RRM}
		1.0		T_J = 150 °C	

Thermal-Mechanical Specifications

	Parameters		30DPS..	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 Ambient		40	°C/W	
R_{thJA}	Max. Thermal Resistance Junction to Case		0.95	°C/W	DC operation, per junction
R_{thCS}	Typical Thermal Resistance, Case to Heatsink		0.2	°C/W	Mounting surface , smooth and greased
wt	Approximate Weight		6 (0.21)	g (oz.)	
T	Mounting Torque	Min.	6 (5)	Kg-cm (lbf-in)	
		Max.	12 (10)		
	Case Style		TO-247AC		JEDEC

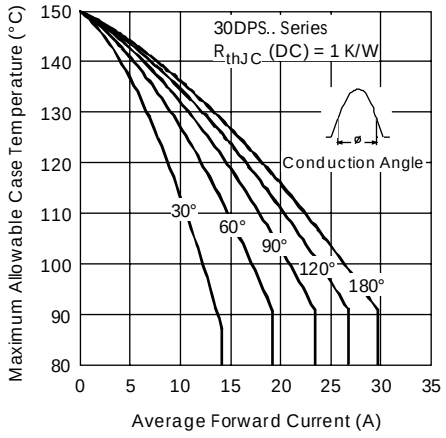


Fig.1-CurrentRatingCharacteristics(PerJunction)

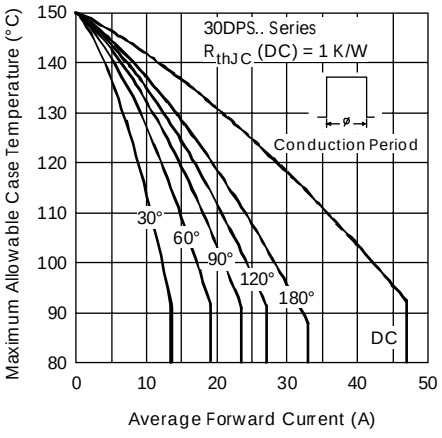


Fig.2-CurrentRatingCharacteristics(PerJunction)

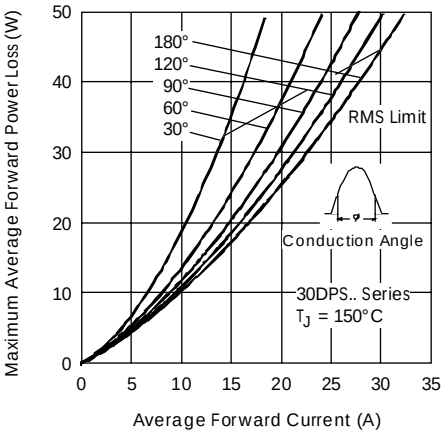


Fig.3-ForwardPowerLossCharacteristics
(PerJunction)

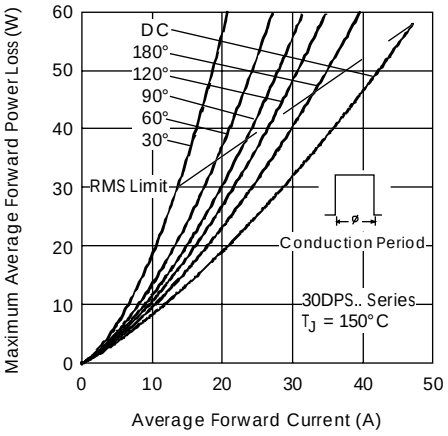


Fig.4-ForwardPowerLossCharacteristics
(PerJunction)

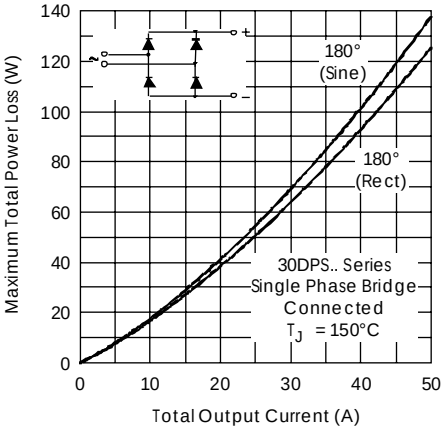


Fig.5-ForwardPowerLossCharacteristics

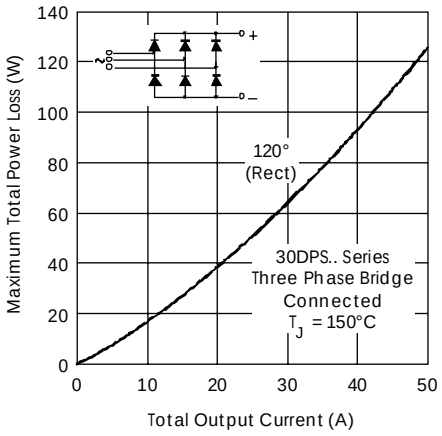


Fig.6-ForwardPowerLossCharacteristics

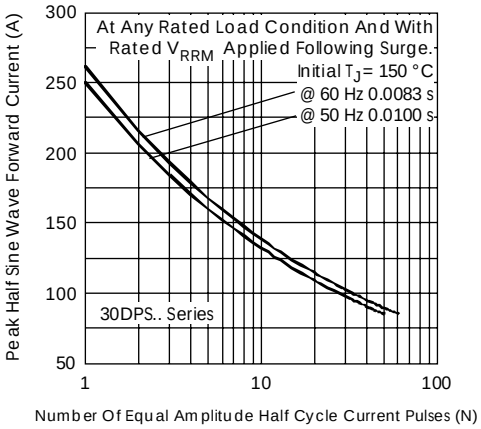


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Junction)

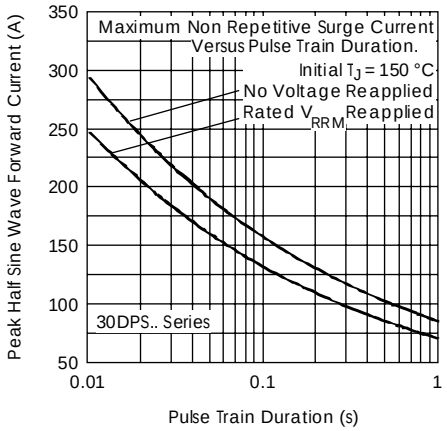


Fig. 8 - Maximum Non-Repetitive Surge Current (Per Junction)

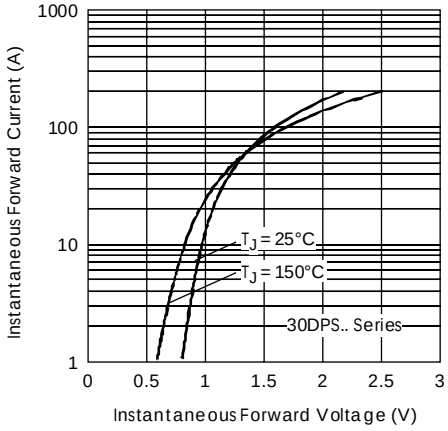


Fig. 9 - Forward Voltage Drop Characteristics (Per Junction)

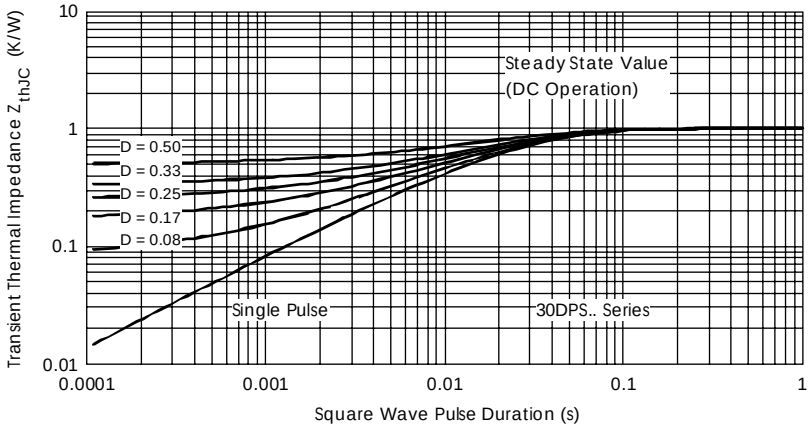
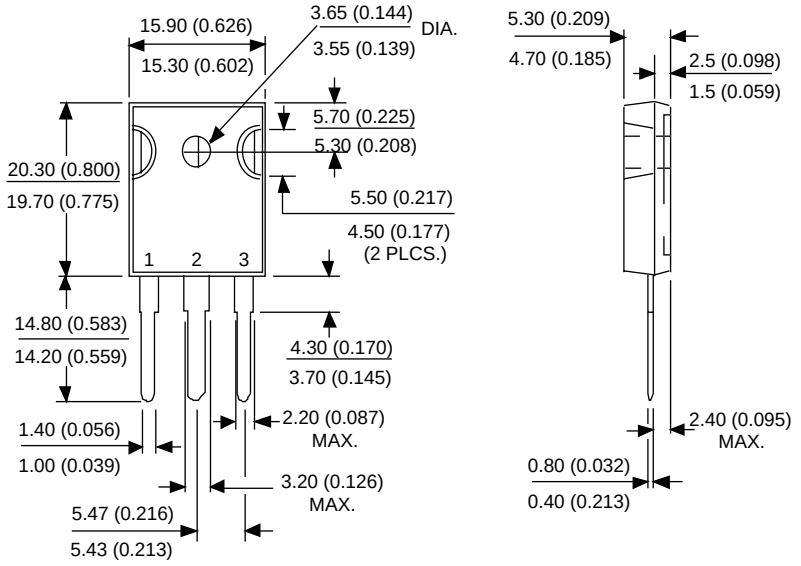


Fig. 10 - Thermal Impedance Z_{thJC} Characteristics (Per Junction)

Ordering Information Table

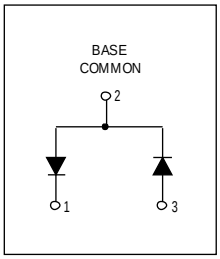


Dimensions in millimeters and inches

Ordering Information Table

Device Code

30	D	P	S	12
1	2	3	4	5



1 - Part Code

2 - Circuit Configuration:
D = Half Bridge Configuration

3 - Package:
P = TO-247AC

4 - Type of Silicon:
S = Silicon Recovery Rectifier

5 - Voltage code: Code x 100 = V_{RRM} (See Voltage Ratings table)