Preliminary Data Sheet PD-20748 09/00

International
IOR Rectifier

30ETH06
30ETH06S
30ETH06-1

Hyperfast Rectifier

Features

- Hyperfastfast Recovery Time
- Low Forward Voltage Drop
- Low Leakage Current
- 175°C Operating Junction Temperature

t_{rr} = 40ns
$I_{F(AV)}$ = 30Amp
V_R = 600V

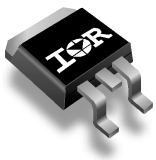
Description/ Applications

State of the art Hyperfast recovery rectifiers designed with optimized performance of forward voltage drop, Hyperfast recover time, and soft recovery.
The planar structure and the platinum doped life time control guarantee the best overall performance, ruggedness and reliability characteristics.
These devices are intended for use in PFC Boost stage in the AC-DC section of SMPS, inverters or as freewheeling diodes.
The IR extremely optimized stored charge and low recovery current minimize the switching losses and reduce over dissipation in the switching element and snubbers.

Absolute Maximum Ratings

	Parameters	Max	Units
V_{RRM}	Peak Repetitive Peak Reverse Voltage	600	V
$I_{F(AV)}$	Average Rectified Forward Current	30	A
I_{FSM}	Non Repetitive Peak Surge Current	325	
I_{FM}	Peak Repetitive Forward Current	70	
T_J, T_{STG}	Operating Junction and Storage Temperatures	- 65 to 175	°C

Case Styles

30ETH06	30ETH06S	30ETH06-1
		
TO-220AC	D^2PAK	TO-262

Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

Parameters		Min	Typ	Max	Units	Test Conditions
V_{BR}, V_r	Breakdown Voltage, Blocking Voltage	600	-	-	V	I_R = 100µA
V_F	Forward Voltage	-	-	2.1	V	I_F = 30A, T_J = 25°C
		-	-	1.7	V	I_F = 30A, T_J = 150°C
I_R	Reverse Leakage Current	-	-	250	µA	V_R = V_R Rated
		-	-	1.0	mA	T_J = 150°C, V_R = V_R Rated
C_T	Junction Capacitance	-	-	-	pF	V_R = 600V
L_S	Series Inductance	-	-	-	nH	Measured lead to lead 5mm from package body

Dynamic Recovery Characteristics @ T_J = 25°C (unless otherwise specified)

Parameters		Min	Typ	Max	Units	Test Conditions	
t_{rr}	Reverse Recovery Time	-	-	40	ns	I_F = 1.0A, di_F/dt = 50A/µs, V_R = 30V	
		-	-	-		I_F = 30A, di_F/dt = 200A/µs, V_R = 200V	
		-	-	-		T_J = 25°C	I_F = 30A V_R = 200V di_F/dt = 200A/µs
			-	-		T_J = 125°C	
I_{RRM}	Peak Recovery Current	-	-	-	A	T_J = 25°C	
		-	-	-		T_J = 125°C	
Q_{rr}	Reverse Recovery Charge	-	-	100	nC	T_J = 25°C	
		-	-	-		T_J = 125°C	

Thermal - Mechanical Characteristics

Parameters			Min	Typ	Max	Units
T_J	Max. Junction Temperature Range		-	-	-65 to175	°C
T_{Stg}	Max. Storage Temperature Range		-	-	-65 to175	
R_{thJC}	Thermal Resistance, Junction to Case	Per Leg	-	-	1.2	°C/W
R_{thJA} ①	Thermal Resistance, Junction to Ambient	Per Leg	-	-	-	
R_{thCS} ②	Thermal Resistance, Case to Heatsink		-	-	-	
Wt	Weight		-	2.0	-	g
			-	0.07	-	(oz)
	Mounting Torque		6.0	-	12	Kg-cm
			5.0	-	10	lbf.in

① Typical Socket Mount
② Mounting Surface, Flat, Smooth and Greased