

# International **IR** Rectifier

**15ETH06**  
**15ETH06S**  
**15ETH06-1**

## Hyperfast Rectifier

### Features

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

$t_{rr} = 35ns$
$I_{F(AV)} = 15Amp$
$V_R = 600V$

### 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	15	A
$I_{FSM}$ Non Repetitive Peak Surge Current	200	
$I_{FM}$ Peak Repetitive Forward Current	30	
$T_J, T_{STG}$ Operating Junction and Storage Temperatures	- 65 to 175	°C

Case Styles		
15ETH06  TO-220AC	15ETH06S  D²PAK	15ETH06-1  TO-262

**Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise specified)**

Parameters	Min	Typ	Max	Units	Test Conditions
V <sub>BR</sub> , V <sub>F</sub> Breakdown Voltage, Blocking Voltage	600	-	-	V	I <sub>R</sub> = 100μA
V <sub>F</sub> Forward Voltage	-	-	2.1	V	I <sub>F</sub> = 15A, T <sub>J</sub> = 25°C
	-	-	1.7	V	I <sub>F</sub> = 15A, T <sub>J</sub> = 150°C
I <sub>R</sub> Reverse Leakage Current	-	-	100	μA	V <sub>R</sub> = V <sub>R</sub> Rated
	-	-	500	μA	T <sub>J</sub> = 150°C, V <sub>R</sub> = V <sub>R</sub> Rated
C <sub>T</sub> Junction Capacitance	-	-	-	pF	V <sub>R</sub> = 600V
L <sub>S</sub> Series Inductance	-	-	-	nH	Measured lead to lead 5mm from package body

**Dynamic Recovery Characteristics @ T<sub>J</sub> = 25°C (unless otherwise specified)**

Parameters	Min	Typ	Max	Units	Test Conditions
t <sub>rr</sub> Reverse Recovery Time	-	25	35	ns	I <sub>F</sub> = 1.0A, di <sub>F</sub> /dt = 50A/μs, V <sub>R</sub> = 30V
	-	27	40		I <sub>F</sub> = 15A, di <sub>F</sub> /dt = 100A/μs, V <sub>R</sub> = 200V
	-	-	-	A	T <sub>J</sub> = 25°C
	-	-	-		T <sub>J</sub> = 125°C
I <sub>RRM</sub> Peak Recovery Current	-	1	-	A	T <sub>J</sub> = 25°C
	-	-	-		T <sub>J</sub> = 125°C
Q <sub>rr</sub> Reverse Recovery Charge	-	15	40	nC	T <sub>J</sub> = 25°C
	-	-	-		T <sub>J</sub> = 125°C

**Thermal - Mechanical Characteristics**

Parameters	Min	Typ	Max	Units
T <sub>J</sub> Max. Junction Temperature Range	-	-	-65 to 175	°C
T <sub>Stg</sub> Max. Storage Temperature Range	-	-	-65 to 175	
R <sub>thJC</sub> Thermal Resistance, Junction to Case Per Leg	-	1.2	1.5	°C/W
R <sub>thJA</sub> <sup>①</sup> Thermal Resistance, Junction to Ambient Per Leg	-	-	-	
R <sub>thCS</sub> <sup>②</sup> Thermal Resistance, Case to Heatsink	-	0.5	-	
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