

INTERNATIONAL RECTIFIER



60HFU... SERIES

SUPER FAST RECTIFIER DIODE 60 Amp 60ns

Major ratings and characteristics

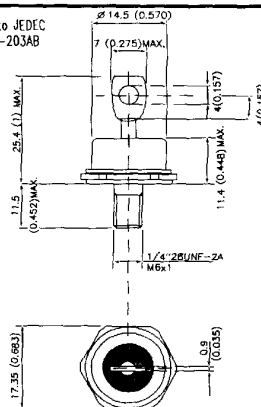
	60HFU	Units
$I_T(\text{AVG})$	60	A
T_c	82	°C
I_{RMS}	94	A
I_{FSM} @ 10ms	830	A
I_{FSM} @ 8.3ms	870	A
V_{RRM}	100 to 600	V
T_J	-40 to 125	°C

Description and Features

- Very low reverse recovery time
- Reduced switching losses
- Soft recovery characteristics
- High surge current capability
- No voltage derating up to 150°C
- Stud cathode and stud anode versions
- Designed for switching applications:
Free wheeling diode in converters and control circuits
Rectifier in S.M.P.S.



Conforms to JEDEC
Outline DO-203AB
(00-5)



All dimensions in millimetres (inches)

ELECTRICAL SPECIFICATIONS
Forward Conduction

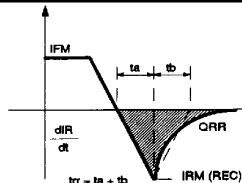
Parameters	Value	Units	Conditions
I_{FM} Maximum average forward current	60	A	180° conduction, half sine cond @ Case temperature = 82°C
	67	A	180° conduction, rect cond @ Case temperature = 82°C
I_{RMS} Maximum RMS current	94	A	
I_{FSM} Maximum peak, one-cycle non-repetitive forward current Initial $I_T = T_J$ max.	830	A	$t = 10ms$ No voltage reapplied
	870	A	$t = 8.3ms$
	700	A	$t = 10ms$ 100% V_{RSM} reapplied
	730	A	$t = 8.3ms$
P_T Maximum P_T for fusing Initial $T_J = T_J$ max.	3460	A ² s	$t = 10ms$ No voltage reapplied
	3160	A ² s	$t = 8.3ms$
	2450	A ² s	$t = 10ms$ 100% V_{RSM} reapplied
	2240	A ² s	$t = 8.3ms$
P_{VT} Maximum P_{VT} for fusing	34600	A ² $\sqrt{s}$	$t = 0$ to 10ms, no voltage reapplied
$V_{FT(0)}$ Maximum value of threshold voltage	1.08	V	$T_J = 125^\circ C$
r_f Maximum value of forward slope resistance	3.40	m Ω	$T_J = 125^\circ C$
V_{FM} Maximum forward voltage drop	1.50	V	$I_M = 60$ Apk $T_J = 25^\circ C$
	1.30	V	$I_M = 60$ Apk $T_J = 125^\circ C$

Thermal and Mechanical Specifications

T_J Junction temperature range	-40 to 125	°C	
T_{stg} Storage temperature range	-40 to 150	°C	
R_{JC} Maximum thermal resistance junction to case	0.36	K/W	DC operation per junction
R_{JHS} Maximum thermal resistance, case to heatsink	0.25	K/W	Mounting surface, smooth and greased
T Mounting torque, base to heatsink $\pm 10\%$	2.5	Nm	A mounting compound is recommended and the torque should be rechecked after a period of about 3 hours to allow for the spread of the compound
wt Approximate weight	25	g	

Recovery Characteristics

Parameters	Typ.	Max.	Units	Conditions
t_{rr} Recovery time	60	80	ns	$T_J = 25^\circ C$ $I_F = 1A$, $dI/dt = -100 A/\mu s$, $V_r = -30V$
Q_{rr} Recovered charge	250	300	nC	$T_J = 25^\circ C$ $I_F = 1A$, $dI/dt = -100 A/\mu s$, $V_r = -30V$


Voltage ratings ($T_J = T_J$ max.)

Type number	V_{RSM} - maximum repetitive peak reverse voltage	V_{FSM} - maximum non-repetitive peak reverse voltage	I_{RSM} Max @ 100°C	I_{RSM} Max @ 150°C	I_{FSM} Typ. @ 25°C
	V	V	mA	mA	μA
60HFU(R)-100	100	110	5	15	50
60HFU(R)-200	200	220	5	15	50
60HFU(R)-300	300	330	5	15	50
60HFU(R)-400	400	440	5	15	50
60HFU(R)-500	500	550	5	25	50
60HFU(R)-600	600	660	5	25	50

ΔR Conduction (per junction)

(The following table shows the increment of thermal resistance $R_{th_{J-C}}$ when devices operate at different conduction angles than DC.)

Conduction angle	Sinusoidal Conduction	Rectangular Conduction	Units	Conditions
180°	0.06	0.05	K/W	
120°	0.08	0.09	K/W	
90°	0.10	0.12	K/W	
60°	0.15	0.16	K/W	
30°	0.24	0.24	K/W	

Fig.1 - Maximum Forward Energy Loss Per Pulse Characteristics

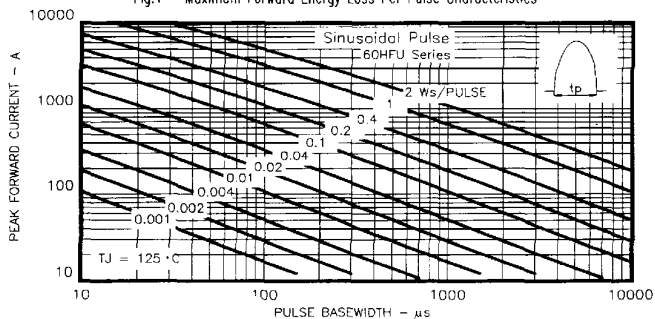


Fig.2 - Maximum Forward Energy Loss Per Pulse Characteristics

