

INTERNATIONAL RECTIFIER 

30HFU... SERIES

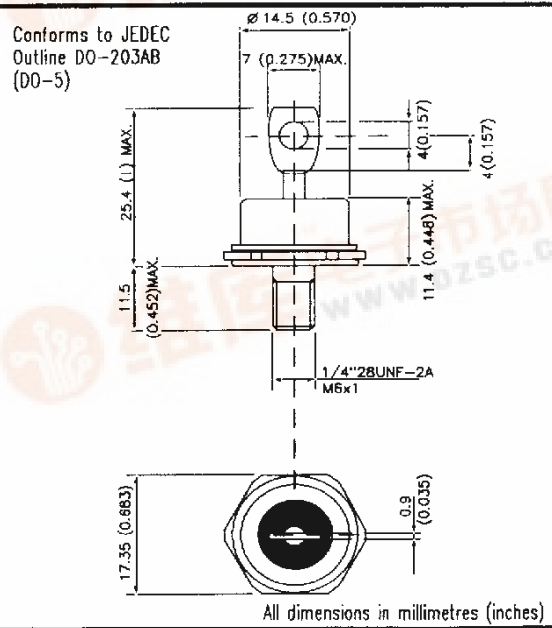
SUPER FAST RECTIFIER DIODE 30 Amp 60ns

Major ratings and characteristics

	30HFU	Units
$I_{F(AVG)}$	30	A
T_c	91	°C
I_{RMS}	47	A
I_{FSM} @ 10ms	475	A
I_{FSM} @ 8.3ms	500	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.



ELECTRICAL SPECIFICATIONS

Forward Conduction

Parameters	Value	Units	Conditions
$I_{F(AV)}$ Maximum average forward current	30	A	180° conduction, half sine cond @ Case temperature = 91°C
	33	A	180° conduction, rect cond @ Case temperature = 91°C
I_{RMS} Maximum RMS current	47	A	
I_{FSM} Maximum peak, one-cycle non-repetitive forward current Initial $T_j = T_j \text{ max.}$	475	A	$t = 10\text{ms}$ No voltage reapplied
	500	A	$t = 8.3\text{ms}$
	400	A	$t = 10\text{ms}$ 100% V_{RRM} reapplied
	420	A	$t = 8.3\text{ms}$
PI Maximum PI for fusing Initial $T_j = T_j \text{ max.}$	1130	A ² s	$t = 10\text{ms}$ No voltage reapplied
	1030	A ² s	$t = 8.3\text{ms}$
	800	A ² s	$t = 10\text{ms}$ 100% V_{RRM} reapplied
	730	A ² s	$t = 8.3\text{ms}$
I^2t Maximum I^2t for fusing	11300	A ² √s	$t = 0$ to 10ms, no voltage reapplied
$V_{F(T0)}$ Maximum value of threshold voltage	1.08	V	$T_j = 125^\circ\text{C}$
r_f Maximum value of forward slope resistance	6.33	mΩ	$T_j = 125^\circ\text{C}$
V_{FM} Maximum forward voltage drop	1.45	V	$I_M = 30 \text{ Apk}$ $T_j = 25^\circ\text{C}$
	1.25	V	$I_M = 30 \text{ Apk}$ $T_j = 125^\circ\text{C}$

Thermal and Mechanical Specifications

T_j Junction temperature range	-40 to 125	°C	
T_{stg} Storage temperature range	-40 to 150	°C	
R_{thJC} Maximum thermal resistance, junction to case	0.60	K/W	DC operation per junction
R_{thCS} Maximum thermal resistance, case to heatsink	0.25	K/W	Mounting surface, smooth and greased
T Mounting torque, base to heatsink ±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	$T_j = 25^\circ\text{C}$ $I_F = 1\text{A}$, $diF/dt = -100 \text{ A}/\mu\text{s}$, $V_r = -30\text{V}$
Q_{rr} Recovered charge	200	250	nC	$T_j = 25^\circ\text{C}$ $I_F = 1\text{A}$, $diF/dt = -100 \text{ A}/\mu\text{s}$, $V_r = -30\text{V}$

Voltage ratings ($T_j = T_j \text{ max.}$)

Type number	V_{RRM} , maximum repetitive peak reverse voltage	V_{RSM} , maximum non-repetitive peak reverse voltage	I_{RRM} Max	I_{RRM} Max	I_{RRM}
			@ 100°C	@ 150°C	Typ. @ 25°C
	V	V	mA	mA	μA
30HFU(R)-100	100	110	2.5	10	35
30HFU(R)-200	200	220	2.5	10	35
30HFU(R)-300	300	330	2.5	10	35
30HFU(R)-400	400	440	2.5	10	35
30HFU(R)-500	500	550	2.5	15	35
30HFU(R)-600	600	660	2.5	15	35

ΔR Conduction (per junction)

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

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.09	0.08	K/W	
120°	0.12	0.14	K/W	
90°	0.16	0.18	K/W	
60°	0.23	0.24	K/W	
30°	0.35	0.36	K/W	

Fig.1 - Maximum Forward Energy Loss Per Pulse Characteristics

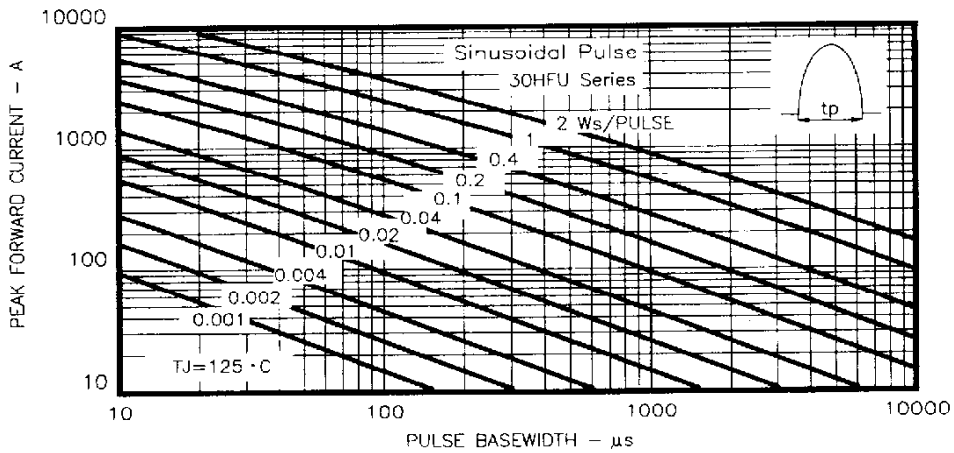
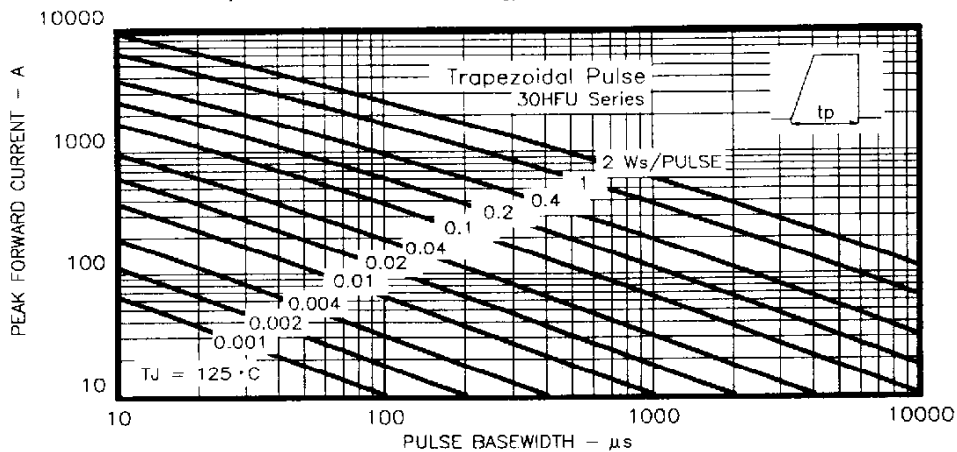
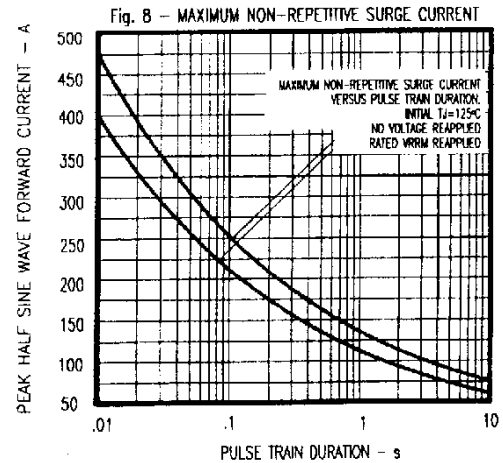
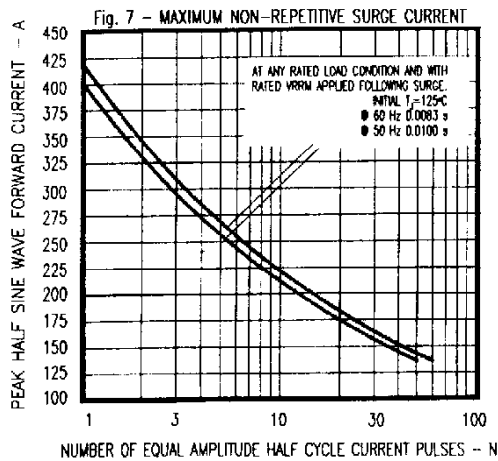
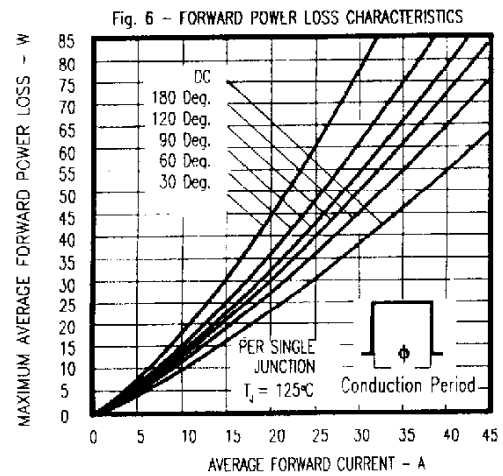
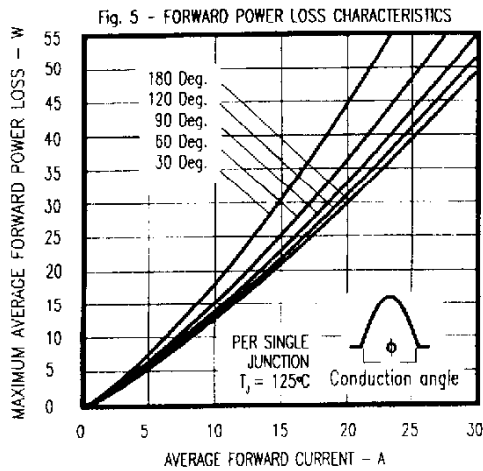
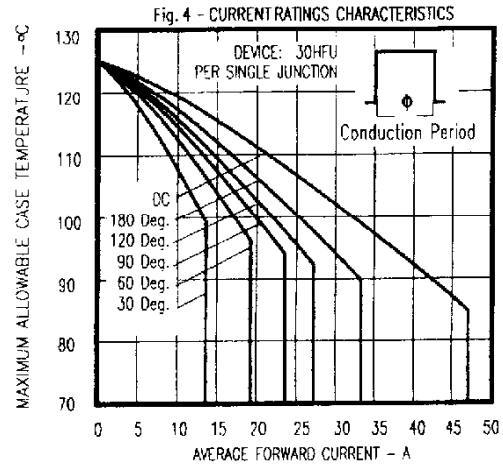
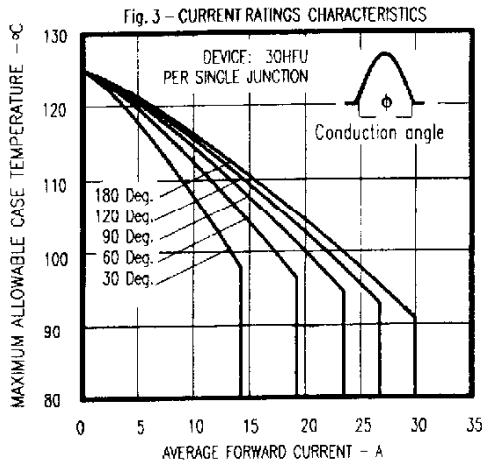
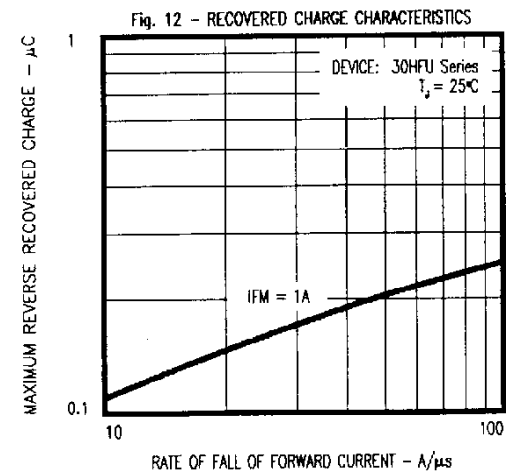
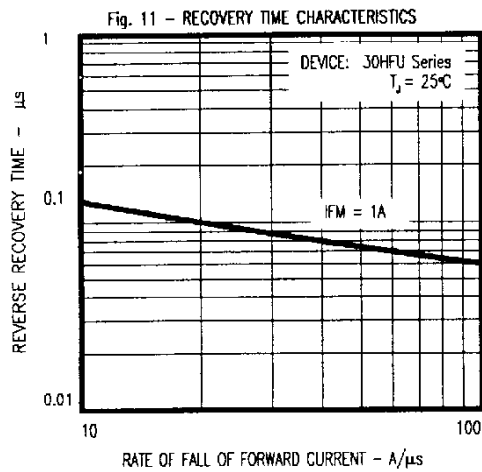
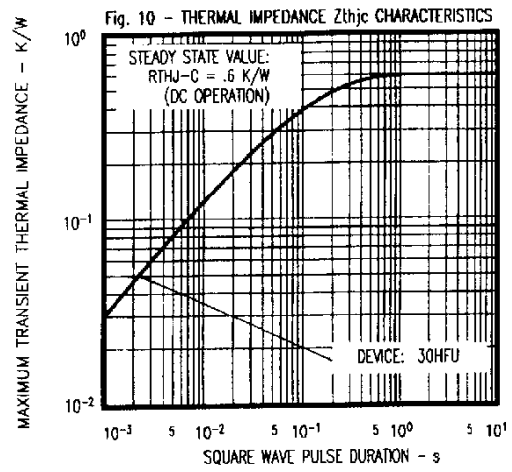
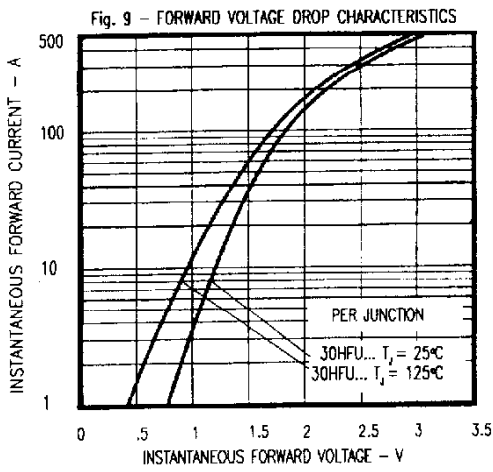


Fig.2 - Maximum Forward Energy Loss Per Pulse Characteristics





30HFU Series



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Sales Offices, Agents and Distributors in Major Cities throughout the World.

In the interest of product improvement INTERNATIONAL RECTIFIER reserves the right to change specifications at any time without notice 9/88