

INTERNATIONAL RECTIFIER 

30HFU... SERIES

SUPER FAST RECTIFIER DIODE 30 Amp 60ns

Major ratings and characteristics

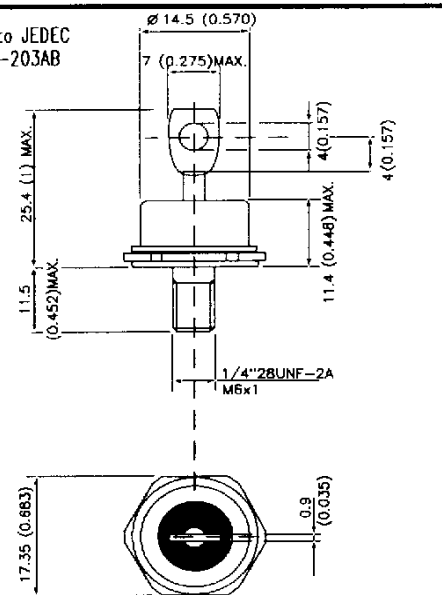
	30HFU	Units
$I_{F(AVG)}$	30	A
T_c	91	°C
I_{RMS}	47	A
I_{FSM} @ 10ms	475	A
I_{FSM} @ 8.3ms	500	A
V_{RRM}	100 to 600	V
T_J	-40 to 125	°C

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.



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



All dimensions in millimetres (inches)

ELECTRICAL SPECIFICATIONS

Forward Conduction

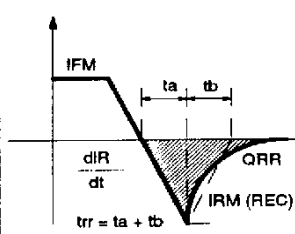
Parameters	Value	Units	Conditions
$I_{F(AV)}$ Maximum average forward current	30	A	180° conduction, half sine cond @ Case temperature = 91°C
	33	A	180° conduction, rect cond @ Case temperature = 91°C
I_{RMS} Maximum RMS current	47	A	
I_{FSM} Maximum peak, one-cycle non-repetitive forward current Initial $T_j = T_j \text{ max.}$	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	$t = 8.3\text{ms}$
$P\sqrt{t}$ Maximum $P\sqrt{t}$ for fusing	11300	A ² \sqrt{s}	$t = 0$ to 10ms, no voltage reapplied
$V_{F(10)}$ Maximum value of threshold voltage	1.08	V	$T_j = 125^\circ\text{C}$
r_l Maximum value of forward slope resistance	6.33	m Ω	$T_j = 125^\circ\text{C}$
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 $\pm 10\%$	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
wl 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 @ 100°C	I_{RRM} Max @ 150°C	I_{RRM} Typ. @ 25°C
	V	V	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 $R_{th\ J-C}$ 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

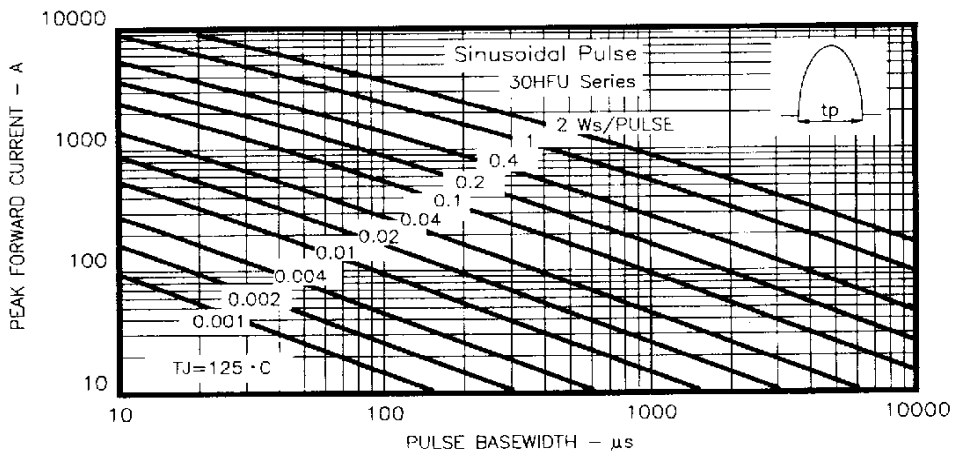
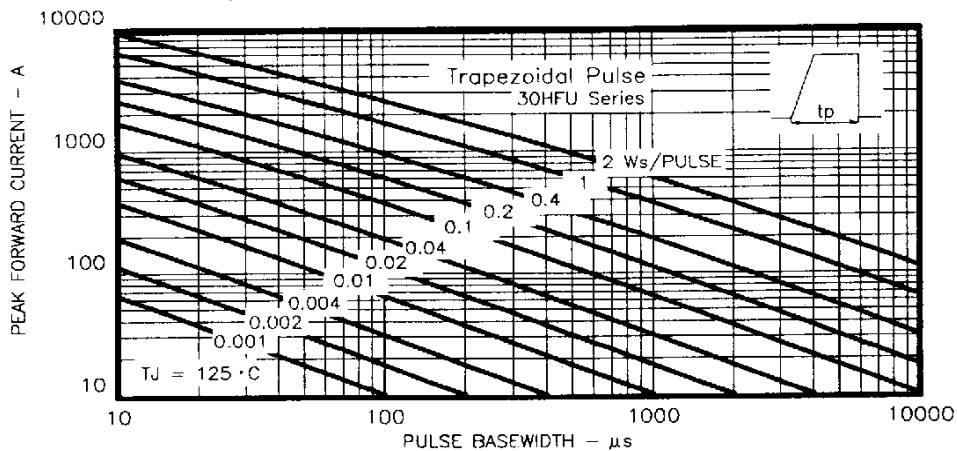
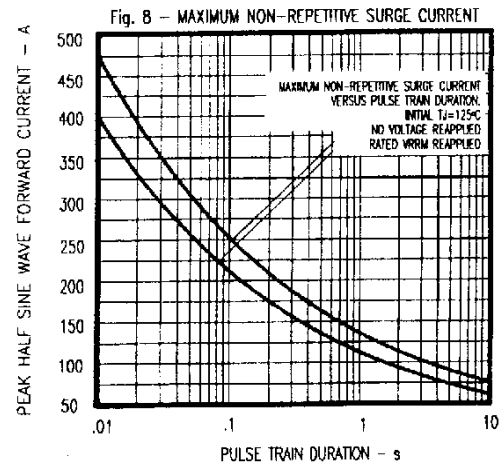
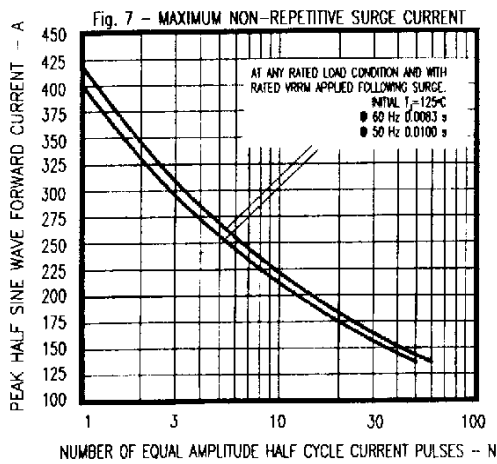
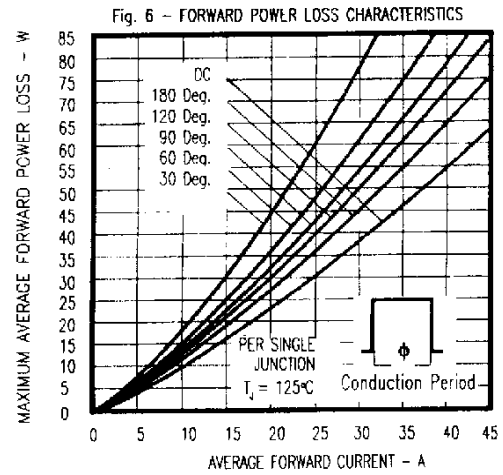
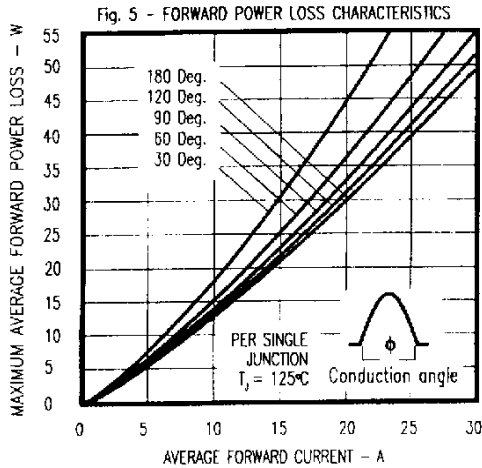
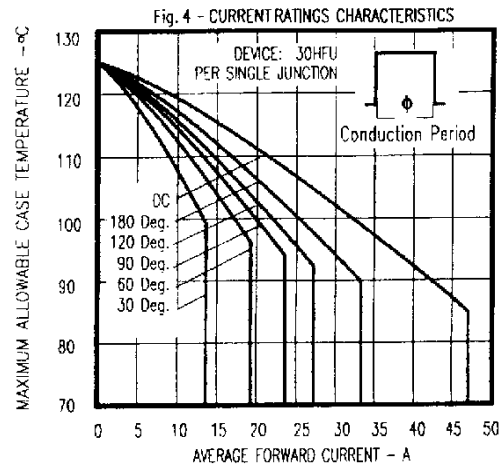
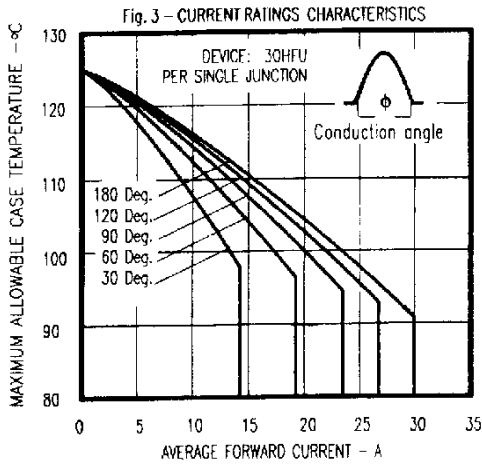
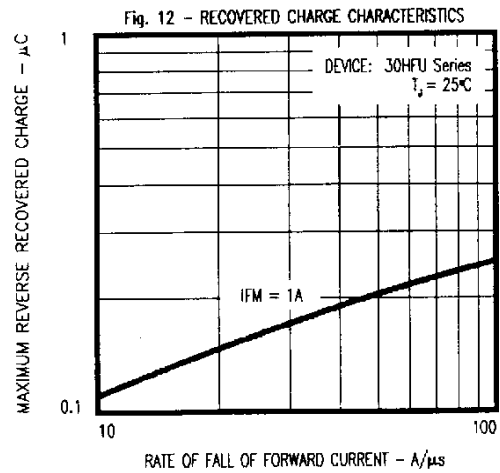
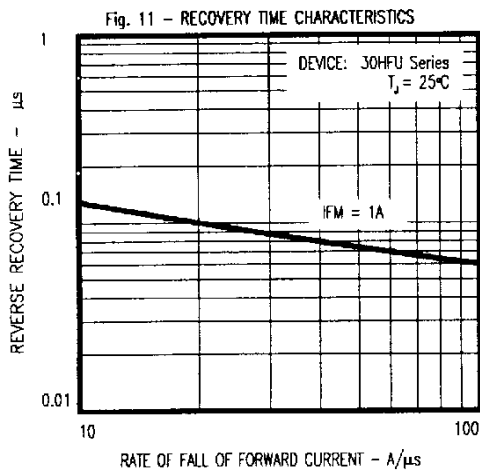
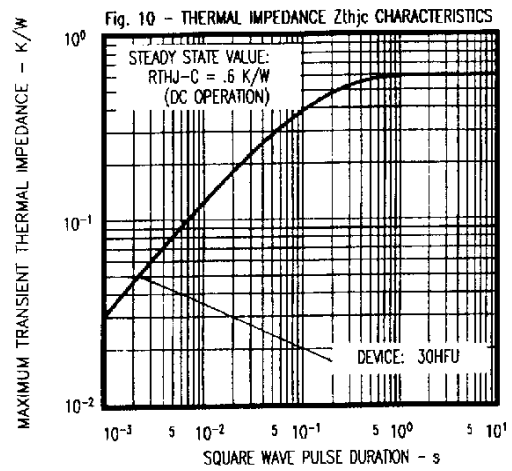
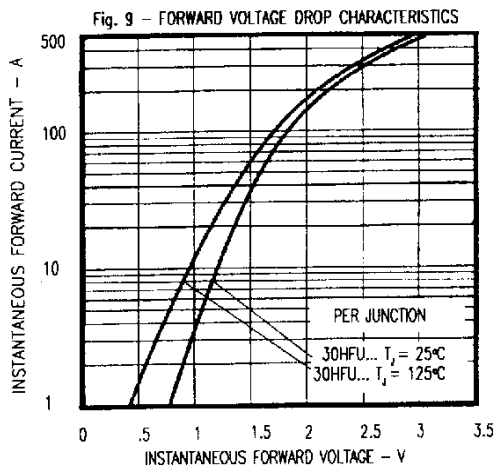


Fig.2 - Maximum Forward Energy Loss Per Pulse Characteristics







INTERNATIONAL RECTIFIER

WORLD HEADQUARTERS: 233 Kansas St. EL SEGUNDO, California 90245 USA. Tel: (213) 772-2000. Tlx: 4720403. Fax: (213) 772-9028.
EUROPEAN HEADQUARTERS: Hurst Green, OXTED, Surrey RH8 9BB, UK. Tel: (0883) 713215. Tlx: 95219. Fax: (0883) 714234.

CANADA: 101 Bentley St. Markham, ONTARIO L3R3L1. Tel: (416) 475-1897. Tlx: 06-966-650.
FRANCE: 123 Rue de Petit Vaux, 91360 Epinay sur Orge. Tel: (1) 64548029. Tlx: 600943. Fax: (1) 64548330.
GERMANY: Saalburgstr. 157, D-6380 BAD HOMBURG. Tel: (06172) 37066. Tlx: 410404. Fax: (06172) 37065.
ITALY: Via Liguria 49, 10071 Borgaro TORINO. Tel: (011) 4703703/4701484. Tlx: 221257. Fax: (011) 4704290.
Via Kovistka 11, 21054 MILANO. Tel: (02) 340790/312946.
Via Arno 1, 40139 BOLOGNA. Tel: (051) 493307.

INDIA: International House, LBS Marg, Vikhroli, Bombay 400-083. Tel: (022) 581584. Tlx: 011-2388.
JAPAN: K&H Bldg. 2F3-30-4 Nishi-Ikebukuro Toshima-ku, TOKYO, Japan 171. Tel: (03) 9830641. Fax: (03) 9830642.
SINGAPORE: Ruby Industrial Complex, 80 Genting Lane 03-09A, Genting Block SINGAPORE 1334.
SWEDEN: Box 86, S-162 12 Vallingby 1 STOCKHOLM. Tel: (08) 870035. Tlx: 13164. Fax: (08) 874242.

U.S.A
CENTRAL ZONE: 2401 Plum Grove Road, Suite 111, Palatine, IL 60067. Tel: (312) 397-0002. Tlx: 206-426. Fax: (312) 397-0114.
EASTERN ZONE: 71 Grand Ave., Palisades Park, NJ 07650. Tel: (201) 943-4545. Tlx: 13-5477.

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