INTERNATIONAL RECTIFIER IOR

30HFU... SERIES

SUPER FAST RECTIFIER DIODE 30 Amp 60ns

Major ratings and characteristics

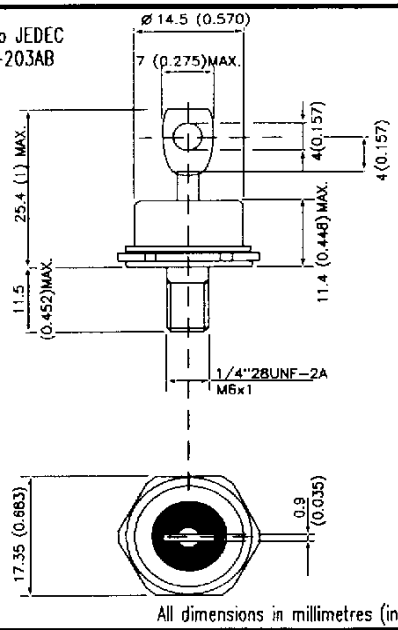
	30HFU	Units
$I_{F(AVG)}$	30	A
T_c	91	°C
I_{RMS}	47	A
I_{FSM} @10ms	475	A
I_{FSM} @8.3ms	500	A
V_{RRM}	100 to 600	V
T_J	-40 to 125	°C

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

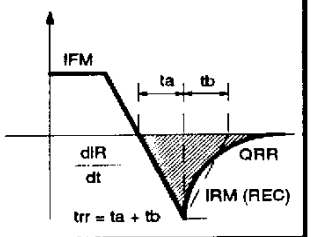
	Parameters	Value	Units	Conditions
$I_{F(AV)}$	Maximum average forward current	30	A	180° conduction, half sine cond @ Case temperature = 91°C
		33	A	180° conduction, rect cond @ Case temperature = 91°C
I_{RMS}	Maximum RMS current	47	A	
I_{FSM}	Maximum peak, one-cycle non-repetitive forward current Initial $T_J = T_J$ max.	475	A	t = 10ms No voltage reapplied
		500	A	t = 8.3ms
		400	A	t = 10ms 100% V_{RRM} reapplied
		420	A	t = 8.3ms
I^2t	Maximum I^2t for fusing Initial $T_J = T_J$ max.	1130	A^2s	t = 10ms No voltage reapplied
		1030	A^2s	t = 8.3ms
		800	A^2s	t = 10ms 100% V_{RRM} reapplied
		730	A^2s	t = 8.3ms
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	11300	$A^2\sqrt{s}$	t = 0 to 10ms, no voltage reapplied
$V_{F(TO)}$	Maximum value of threshold voltage	1.08	V	T_J=125°C
r_t	Maximum value of forward slope resistance	6.33	mΩ	T_J=125°C
V_{FM}	Maximum forward voltage drop	1.45	V	I_{FM} = 30 Apk T_J = 25 °C
		1.25	V	I_{FM} = 30 Apk T_J = 125 °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 °C IF = 1A, diF/dt = -100 A/µs, Vr = -30V
Q_{rr}	Recovered charge	200	250	nC	T_J = 25 °C IF = 1A, diF/dt = -100 A/µs, Vr = -30V



Voltage ratings ($T_J = T_J$ 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	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 Rth_{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

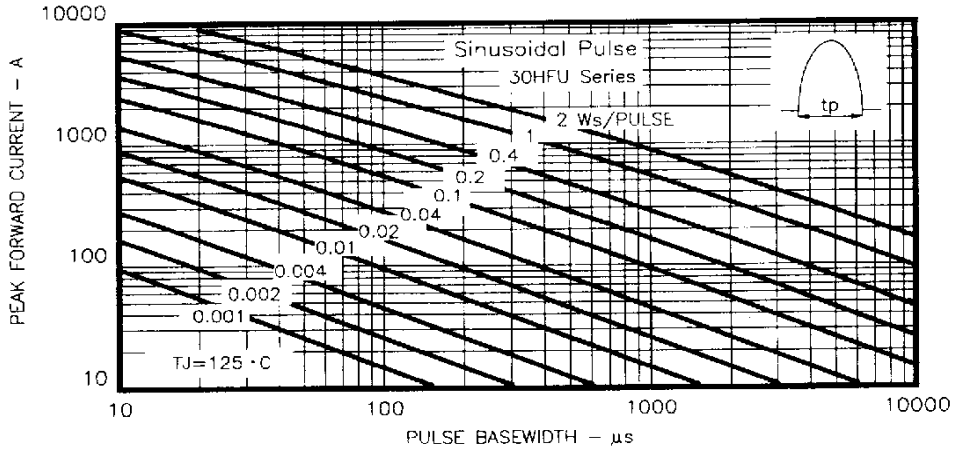


Fig.2 - Maximum Forward Energy Loss Per Pulse Characteristics

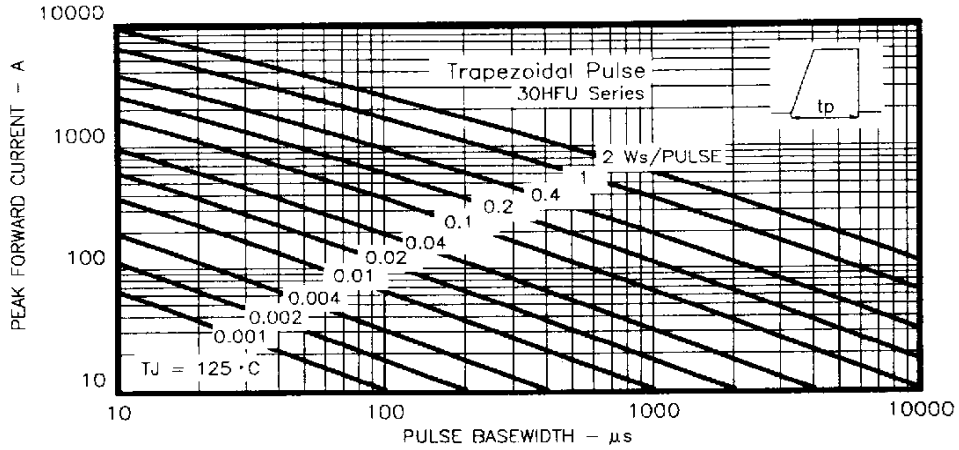


Fig. 3 – CURRENT RATINGS CHARACTERISTICS

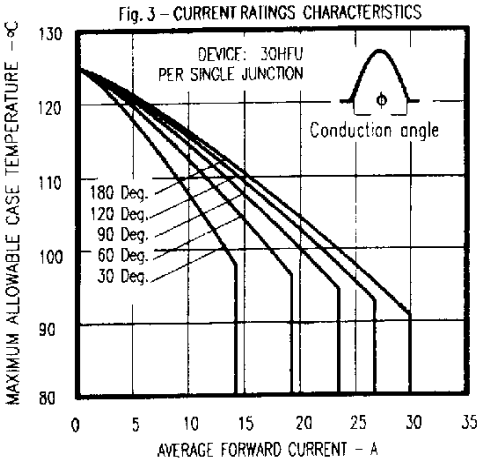


Fig. 4 – CURRENT RATINGS CHARACTERISTICS

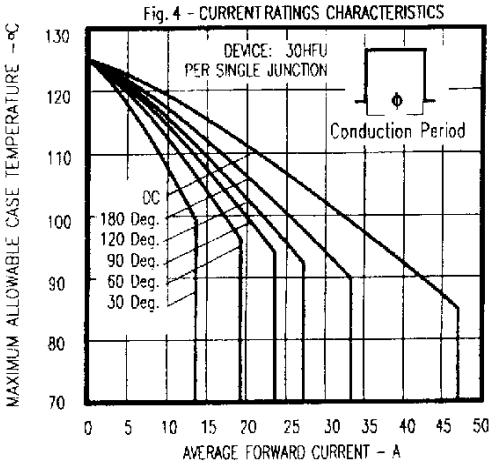


Fig. 5 – FORWARD POWER LOSS CHARACTERISTICS

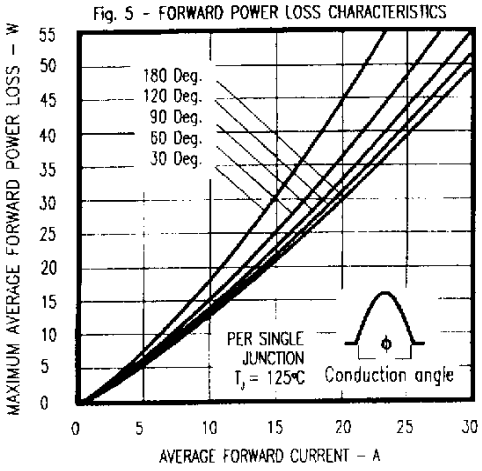


Fig. 6 – FORWARD POWER LOSS CHARACTERISTICS

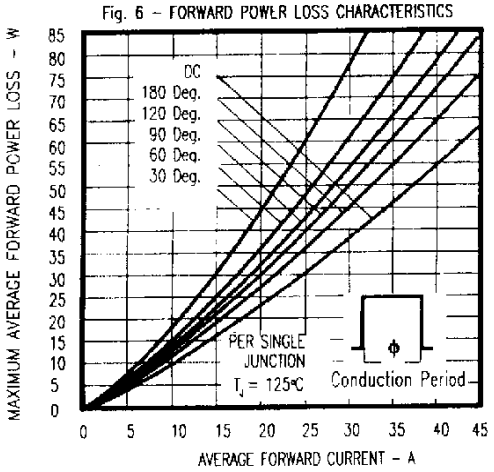


Fig. 7 – MAXIMUM NON-REPETITIVE SURGE CURRENT

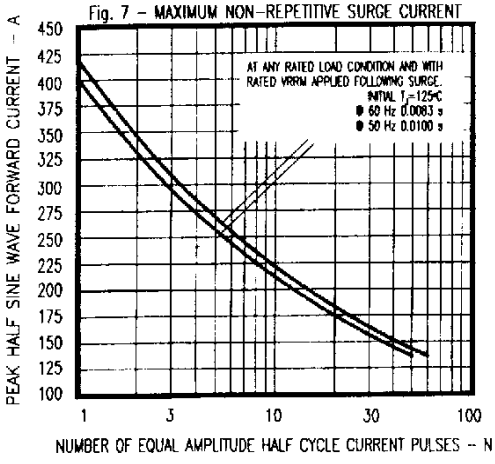


Fig. 8 – MAXIMUM NON-REPETITIVE SURGE CURRENT

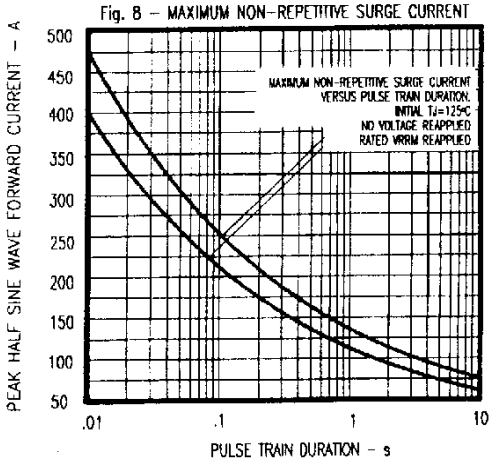


Fig. 9 – FORWARD VOLTAGE DROP CHARACTERISTICS

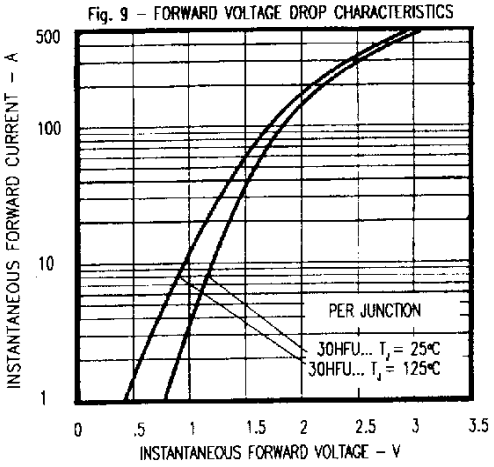


Fig. 10 – THERMAL IMPEDANCE Zthjc CHARACTERISTICS

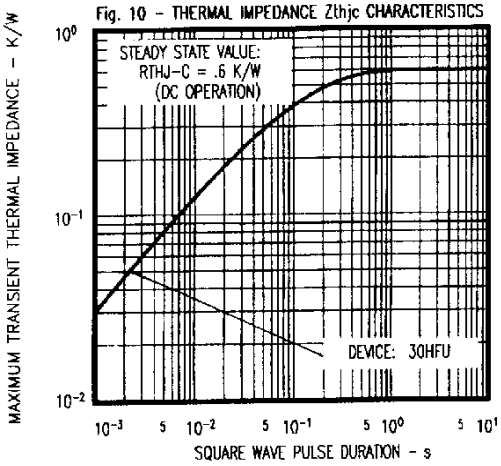


Fig. 11 – RECOVERY TIME CHARACTERISTICS

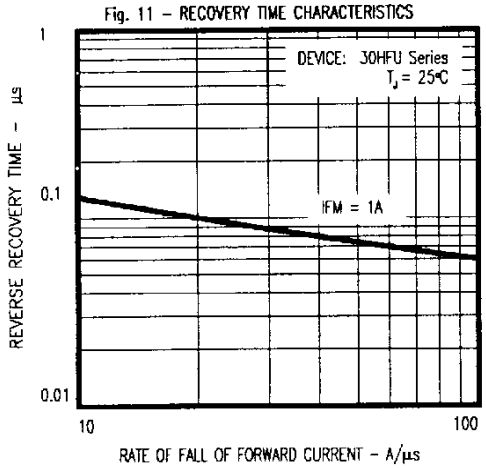
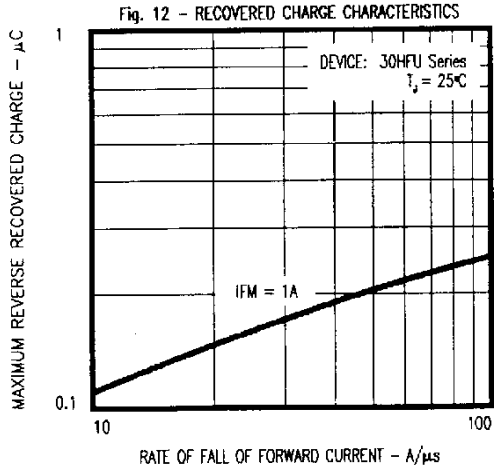


Fig. 12 – RECOVERED CHARGE CHARACTERISTICS



INTERNATIONAL RECTIFIER IOR

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 Koristka 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, NJ07650. Tel: (201) 943-4545. Tlx: 13-5477.

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

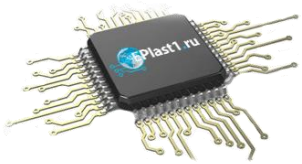
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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.