Data Sheet No. PD-2.089

INTERNATIONAL RECTIFIER IOR

1N3085, 1N3111, 1N5162 SERIES

150 Amp Avg Silicon Rectifier Diodes

Major Ratings and Characteristics

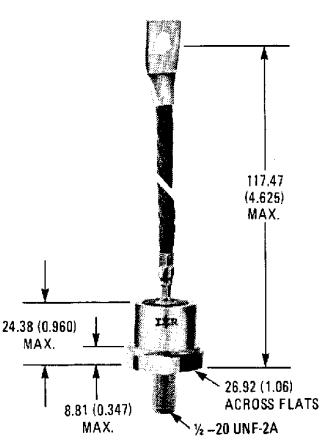
		1N3111	1N3085	1N5162	Units
$I_{F(AV)}$		150*			A
@ Max. T_C		150*			°C
I_{FSM}	@ 50 Hz	2,850			A
	@ 60 Hz	3,000*			
I^2t	@ 50 Hz	41,000			A^2s
	@ 60 Hz	37,500			
$I^2\sqrt{t}$		580,000			$A^2\sqrt{t}$
V_{RRM} Range		50	100 – 1000	1200	V

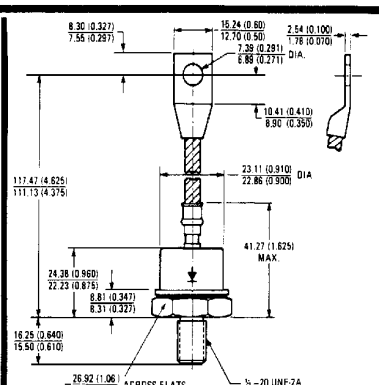
*JEDEC registered value

Description and Features

- Alloy junction for soft recovery characteristics
- Rugged device for duty cycle applications
- Reverse voltage ratings up to 1200 volts
- Applications include power rectification in extreme environmental conditions

CASE STYLE AND DIMENSIONS





Conforms to JEDEC Outline DO-205AC (DO-30)
All dimensions in Millimeters and (Inches)

VOLTAGE RATINGS

① Part Number	V_{RRM} Max. Repetitive Peak Reverse Voltage (V) T_C = −65°C to 200°C	V_R Max. Direct Reverse Voltage (V) T_C = −65°C to 200°C	$I_{R(AV)}$ Max. Average Reverse Current at Max. Rated $I_{F(AV)}$ and V_{RRM}, T_C = 150°C 1 Phase Operation (mA)
1N3111	50*	40*	25*
1N3085	100*	80*	25*
1N3086	200*	160*	17*
1N3087	300*	240*	17*
1N3088	400*	320*	17*
1N3089	500*	400*	17*
1N3090	600*	480*	17*
1N3091	800*	640*	16*
1N3092	1000*	800*	12*
1N5162	1200*	960*	10*

ELECTRICAL SPECIFICATIONS

		1N3111, 1N3085, 1N5162 Series	Units	Conditions
$I_{F(AV)}$	Max. average forward current	150*	A	180° sinusoidal conduction Max. T_C = 150°C
I_{FSM}	Max. peak one-cycle non-repetitive surge current	2,850	A	*Half cycle* 50 Hz sine wave or 5 ms rectangular pulse — Following any rated load condition and with rated V_{RRM} applied
		3,000*		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
		3,400		Half cycle 50 Hz sine wave or 5 ms rectangular pulse — Following any rated load condition and with V_{RRM} applied following surge = 0
		3,550		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
I^2t	Max. I^2t for fusing	41,000	A^2s	t = 10 ms — With rated V_{RRM} applied following
		37,500		t = 8.3 ms surge, initial T = 200°C.
	Max. I^2t for individual device fusing	58,000		t = 10 ms — With V_{RRM} = 0 following surge,
		53,000		t = 8.3 ms initial T = 200°C
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for individual ② device fusing	580,000	$A^2\sqrt{s}$	t = 0.1 to 10 ms, V_{RRM} = 0 following surge.
V_{FM}	Max. peak forward voltage	1.2*	V	$I_{F(AV)}$ = 150 A (471 A peak), T_C = 150°C

THERMAL-MECHANICAL SPECIFICATIONS

T_C	Max. operating case temperature range		−65* to 200*	°C	
T_{stg}	Max. storage temperature range		−65* to 200*	°C	
R_{thJC}	Max. internal thermal resistance, junction-to-case		0.25*	deg C/W	DC operation
R_{thCS}	Thermal resistance, case-to-sink		0.10	deg C/W	Mounting surface flat, smooth, and greased
T	Mounting torque	Min.	14.1 (125)	Nm (lbf-in)	
		Max.	17.0 (150)		
wt	Approximate weight		91 (3.2)	g (oz)	
·	Case style		DO-205AC (DO-30)		JEDEC

① Basic part number indicates cathode-to-case. For anode-to-case, add "R" to part number, e.g. 1N3086R.

*JEDEC registered values. ② I^2t for time $t_x = I^2\sqrt{t} \cdot \sqrt{t_x}$

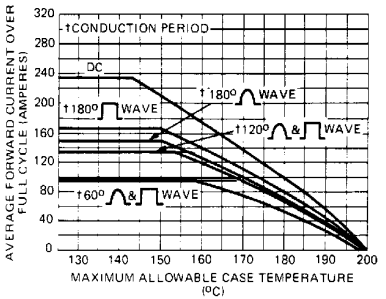


Fig. 1 – Average Forward Current Vs. Maximum Allowable Case Temperature

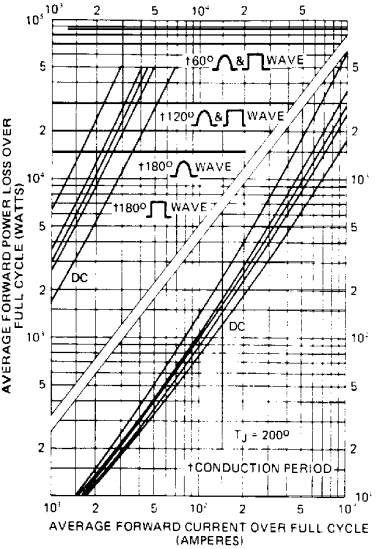


Fig. 2 – Maximum Forward Power Loss Vs. Average Forward Current

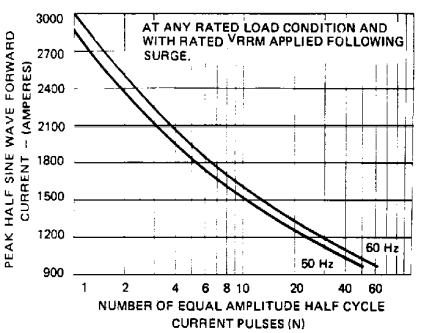


Fig. 3 – Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses

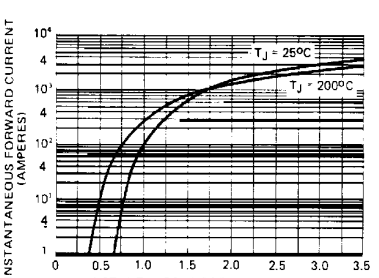


Fig. 4 – Maximum Forward Voltage Vs. Forward Current

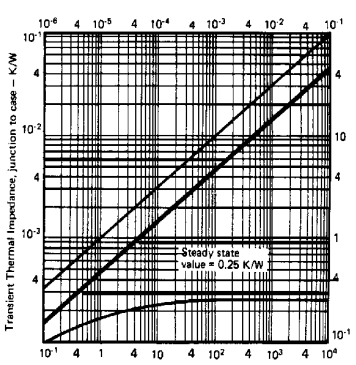


Fig. 5 – Maximum Transient Thermal Impedance, Junction-to-Case Vs. Pulse Duration