DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

1N3085-1N3092, 1N3111, 1N5162

HIGH POWER RECTFIERS

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Part number	Maximum repetitive peak reverse voltage	Maximum direct reverse voltage	Maximum average reverse current at maximum rated $I_{F(AV)}$ and V_{RRM}
	T_C = -65° to +200°C	T_C = -65° to +200°C	T_C = 150°C
	V	V	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 CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Characteristic	Symbol	1N3111, 1N3085, 1N5162 SERIES	Unit	Test Condition	
Maximum average forward current	$I_{F(AV)}$	150	A	180° sinusoidal conduction max. T_C = 150°C	
Maximum peak one-cycle non-repetitive surge current	I_{FSM}	2850	A	Half cycle 50Hz sine wave or 6ms rectangular pulse	Following any rated load condition and with rated V_{RRM} applied
		3000		Half cycle 60Hz sine wave or 5ms rectangular pulse	
		3400		Half cycle 50Hz sine wave or 6ms rectangular pulse	Following any rated load condition and with V_{RRM} applied following surge = 0
		3550		Half cycle 60Hz sine wave or 5ms rectangular pulse	
Maximum I^2t for fusing	I^2t	41000	A^2s	t = 10ms	With rated V_{RRM} applied following surge, initial T = 200°C
		37500		t = 8.3ms	
		58000		t = 10ms	With V_{RRM} = 0 following surge, initial T = 200°C
		53000		t = 8.3ms	
Maximum $I^2\sqrt{t}$ for individual fusing	$I^2\sqrt{t}$	580000	$A^2\sqrt{s}$	t = 0.1 to 10ms, V_{RRM} = 0 following surge	
Maximum peak forward voltage	V_{FM}	1.2	V	$I_{F(AV)}$ = 150A, T_C = 150°C	
Maximum operating case temperature range	T_C	-65 to +200	°C		

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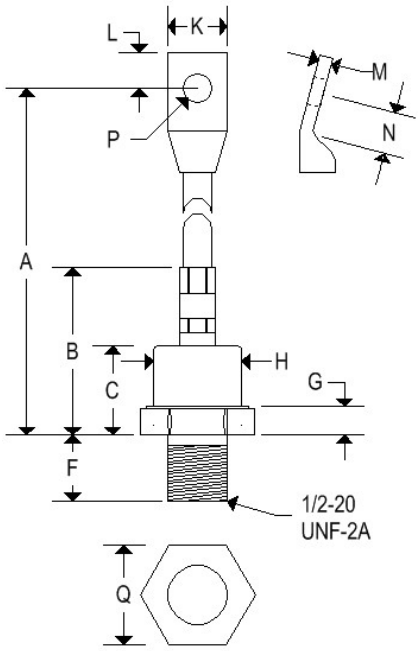
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Characteristic	Symbol	1N3111, 1N3085, 1N5162 SERIES	Unit	Test Condition
Maximum storage temperature range	T_{stg}	-65 to +200	°C	
Maximum internal thermal resistance, junction to case	R_{thjc}	0.25	°C/W	DC operation
Thermal resistance, case to sink	R_{thcs}	0.10	°C/W	Mounting surface flat, smooth, greased

MECHANICAL CHARACTERISTICS

Case	DO-30(R)
Marking	Body painted, alpha-numeric
Normal polarity	Cathode is stud
Reverse polarity	Anode is stud (add "R" suffix)



	DO-30(R)			
	Inches		Millimeters	
	Min	Max	Min	Max
A	4.375	4.625	111.13	117.47
B	-	1.625	-	41.270
C	0.875	0.960	22.230	24.380
F	0.610	0.640	15.500	16.250
G	0.327	0.347	8.310	8.810
H	0.900	0.910	22.860	23.110
K	0.500	0.600	12.700	15.240
L	0.297	0.327	7.550	8.300
M	0.070	0.100	1.780	2.540
N	0.350	0.410	8.900	10.410
P	0.271	0.291	6.890	7.390
Q	1.050	1.060	26.670	26.920

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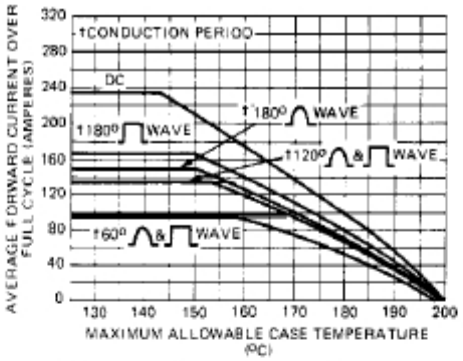

Fig. 1 – Average Forward Current Vs. Maximum Allowable Case Temperature

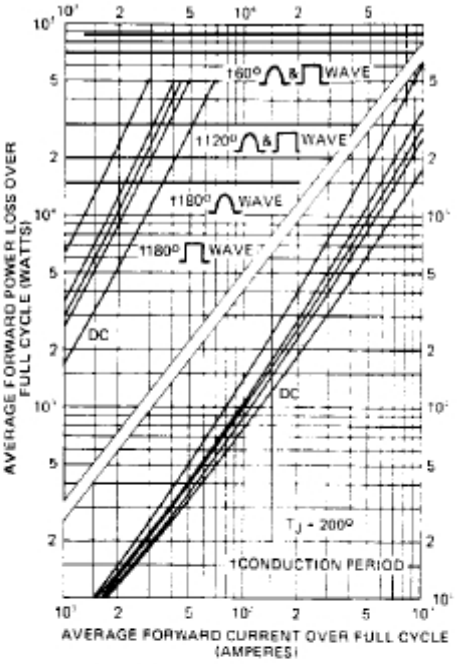

Fig. 2 – Maximum Forward Power Loss Vs. Average Forward Current

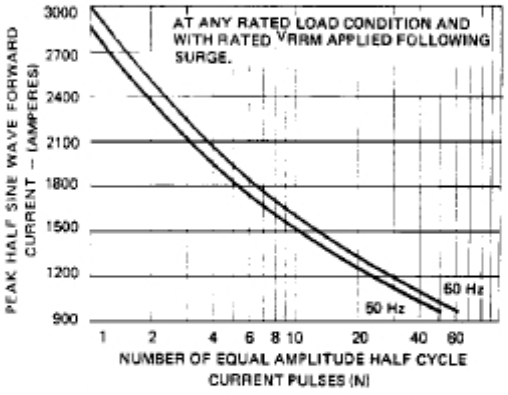

Fig. 3 – Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses

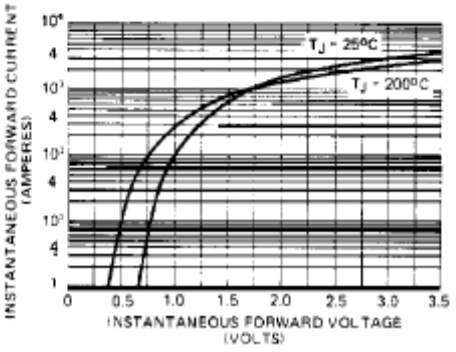

Fig. 4 – Maximum Forward Voltage Vs. Forward Current

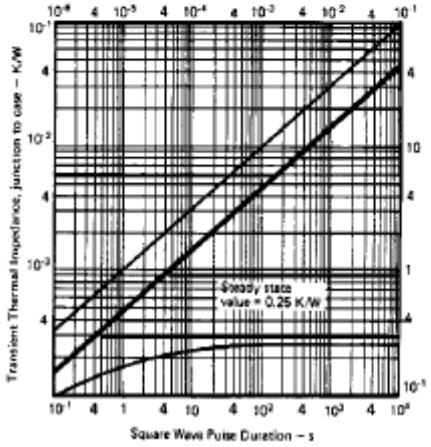

Fig. 5 – Maximum Transient Thermal Impedance, Junction-to-Case Vs. Pulse Duration