DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

A180 SERIES

HIGH POWER RECTIFIERS

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

Rating	Symbol	A180	Unit
RMS forward current	$I_{F(RMS)}$	236	A
Average forward current	$I_{F(AV)}$	150	A
One cycle surge current	I_{FSM}	3400	A
I^2t for fusing, times ≥ 1.0 milliseconds	I^2t	22000	A^2s
Operating and storage temperature range	T_J, T_{stg}	-40 to +200	°C
Mounting torque		90 to 100 10.2 to 11.3	In-lbs N-m

VOLTAGE RATINGS

Parameter	A180A	A180B	A180C	A180D	A180E	A180M	A180S	A180N	A180T	A180P	A180PA	A180PB	A180PC	A180PD	A180PE
Voltage	100V	200V	300V	400V	500V	600V	700V	800V	900V	1000V	1100V	1200V	1300V	1400V	1500V

ELECTRICAL CHARACTERISTICS (T_C = 25°C)

Characteristic	Symbol	Test Condition	A180	Unit
Current – conducting state maximums				
Forward voltage drop	V_{FM}	T_C = 143°C, $I_{F(AV)}$ = 150A, 471A peak	1.3	V
Voltage – blocking state maximums				
Repetitive peak reverse voltage (rated limit)	V_{RRM}		1600	V
Non-repetitive peak reverse voltage (rated limit)	V_{RSM}	V ≤ 5.0msec	1800	V
Reverse leakage current, mA peak	I_{RRM}	T_J at max., V_{RRM} = Rated	20	mA
Thermal characteristics				
Maximum resistance, junction to case	$R_{\Theta JC}$		0.3	°C/W

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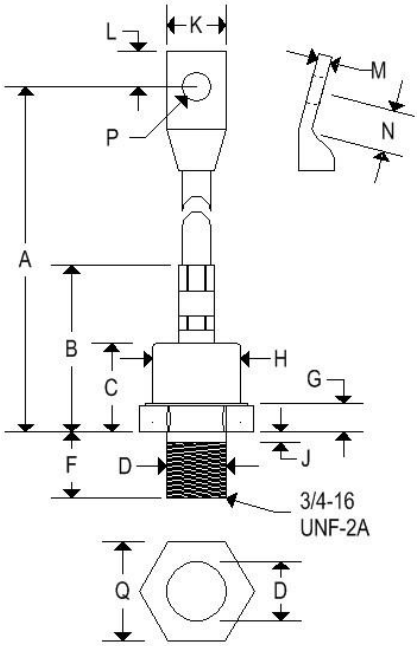
MECHANICAL CHARACTERISTICS

Case	DO-9(R)
Marking	Alpha-numeric
Normal polarity	Cathode is stud
Reverse polarity	Anode is stud (add "R" suffix)



	DO-9(R)			
	Inches		Millimeters	
	Min	Max	Min	Max
A	5.300	5.900	134.60	149.90
B	-	2.100	-	53.340
C	-	1.120	-	28.450
D	-	0.749	-	19.020
F	0.793	0.828	20.140	21.030
G	0.310	0.400	7.870	9.140
H	-	1.100	-	27.940
J	-	0.125	-	3.180
K	-	0.755	-	19.180
L	0.275	0.453	10.740	11.510
M	-	0.170	-	4.320
N	0.470	0.530	11.940	13.460
P	0.338	0.350	8.580	8.890
Q	1.218	1.250	30.940	31.750

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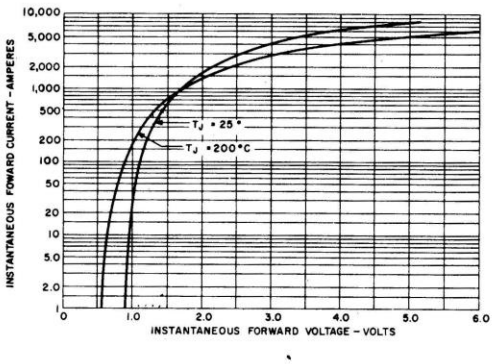
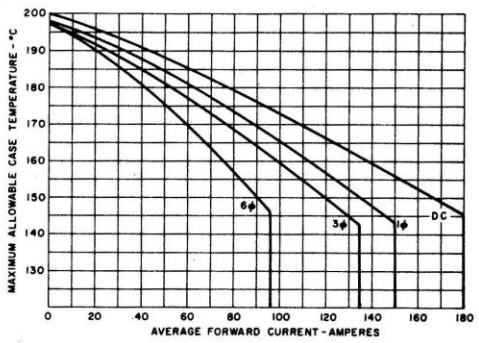
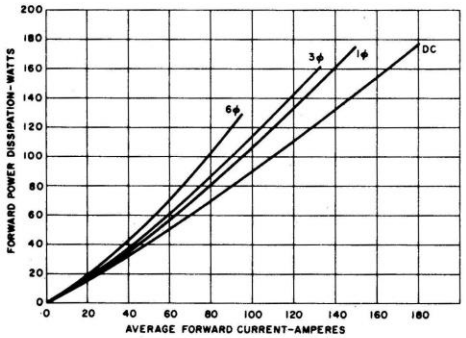


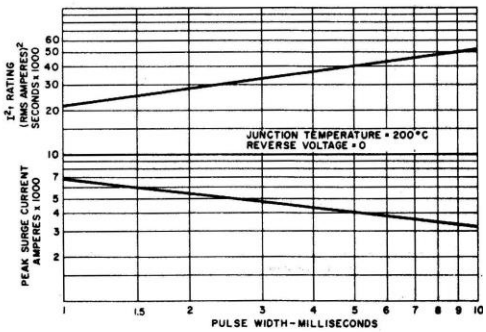
MAXIMUM FORWARD CHARACTERISTICS



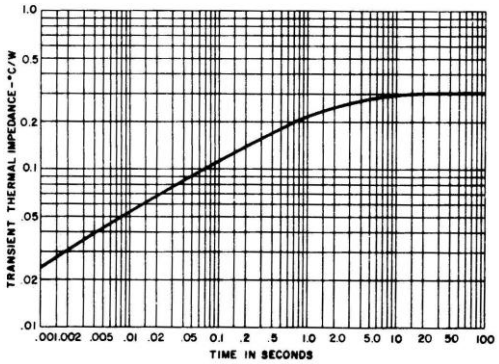
MAXIMUM CASE TEMPERATURE VS.
AVERAGE FORWARD CURRENT



AVERAGE FORWARD POWER DISSIPATION
VS. AVERAGE FORWARD CURRENT



SUB-CYCLE SURGE FORWARD CURRENT
AND I^2t RATING VS. PULSE TIME
FOLLOWING RATED LOAD CONDITIONS



TRANSIENT THERMAL IMPEDANCE –
JUNCTION-TO-CASE