R52K SERIES
1800-1200 VOLTS RANGE
2680 AMP AVG HOCKEY PUK
DIFFUSED JUNCTION RECTIFIER DIODES

VOLTAGE RATINGS

PART NUMBER	V_{RRM}, V_R - (V) Max. rep. peak reverse and direct voltage		V_{RSM} - (V) Max. non-rep. peak reverse voltage
	T_J = 0° to 200°C	T_J = -40° to 0°C	T_J = 25° to 200°C
R52K18A	1800	1710	1900
R52K16A	1600	1520	1700
R52K14B	1400	1330	1500
R52K12B	1200	1200	1300

MAXIMUM ALLOWABLE RATINGS

PARAMETER		VALUE	UNITS	NOTES
T_J	Junction temperature	-40 to 200	°C	
T_{stg}	Storage temperature	-40 to 200	°C	
$I_{F(AV)}$	Max. av. current	2680	A	180° half sine wave
	@ Max. T_C	100	°C	
$I_{F(RMS)}$	Nom. RMS current	4210	A	
I_{FSM}	Max. peak non-rep. surge current	27600	A	50Hz half cycle sine wave — Initial T_J = 200°C, rated V_{RRM} applied after surge.
		28900		60Hz half cycle sine wave
		32800		50Hz half cycle sine wave — Initial T_J = 200°C, no voltage applied after surge.
		34400		60Hz half cycle sine wave
I^2t	Max. I^2t capability	3810	kA^2s	t = 10ms — Initial T_J = 200°C, rated V_{RRM} applied after surge.
		3480		t = 8.3ms
		5390		t = 10ms — Initial T_J = 200°C, no voltage applied after surge.
		4920		t = 8.3ms
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ capability	53900	$kA^2\sqrt{s}$	Initial T_J = 200°C, no voltage applied after surge. I^2t for time $t_x = I^2\sqrt{t} \cdot \sqrt{t_x}$. $0.1 \leq t_x \leq 10ms$.
F	Mounting force	22250(5000) ± 10%	N(lbf)	

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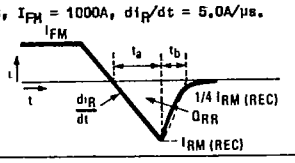
CHARACTERISTICS

PARAMETER		MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
V_{FM}	Peak forward voltage	—	1.45	1.57	V	Initial T_J = 25°C, 50-60Hz half sine, I_{peak} = 8420A.
$V_{F(TO)1}$	Low-level threshold	—	---	0.742	V	T_J = 200°C Av. power = $V_{F(TO)} * I_{F(AV)} + r_F * (I_{F(RMS)})^2$ Use low level values for $I_{FM} \leq \pi I_{F(AV)}$
$V_{F(TO)2}$	High-level threshold	—	—	0.813		
r_{F1}	Low-level resistance	—	---	0.112	mΩ	
r_{F2}	High-level resistance	—	—	0.105		
t_a	Reverse current rise	—	24.0	—	µs	T_J = 175°C, I_{FM} = 1000A, di_R/dt = 5.0A/µs. 
t_b	Reverse current fall	—	6.0	—	µs	
$I_{RM(REC)}$	Reverse current	—	120	—	A	
Q_{RR}	Recovered charge	—	1800	—	µC	
I_{RM}	Peak reverse current	—	40	100	mA	T_J = 175°C. Max. rated V_{RRM}.
R_{thJC}	Thermal resistance, junction-to-case	—	—	0.023	°C/W	DC operation, double side
		—	—	0.025	°C/W	180° sine wave, double side
		---	—	0.025	°C/W	120° rectangular wave, double side
R_{thCS}	Thermal resistance, case-to-sink	—	—	0.020	°C/W	Mtg. surface smooth, flat and greased. Single side. For double side, divide value by 2.
wt	Weight	—	425(15)	—	g(oz.)	
	Case Style	DO-200AC			JEDEC	

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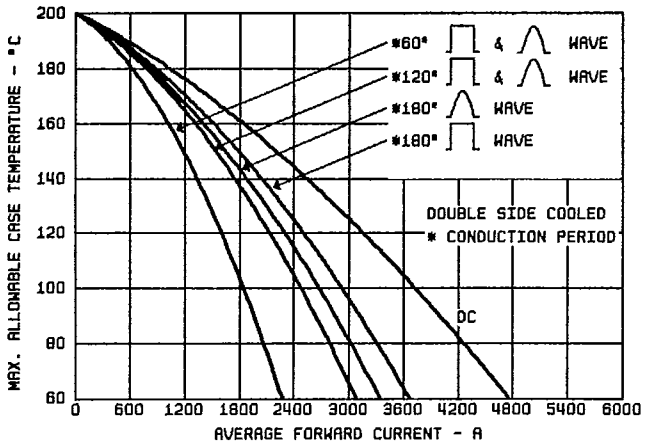

Fig. 1 — Case Temperature Ratings

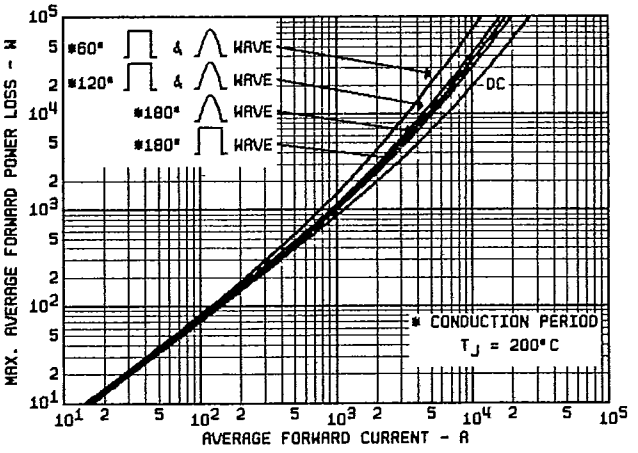

Fig. 2 — Power Loss Characteristics

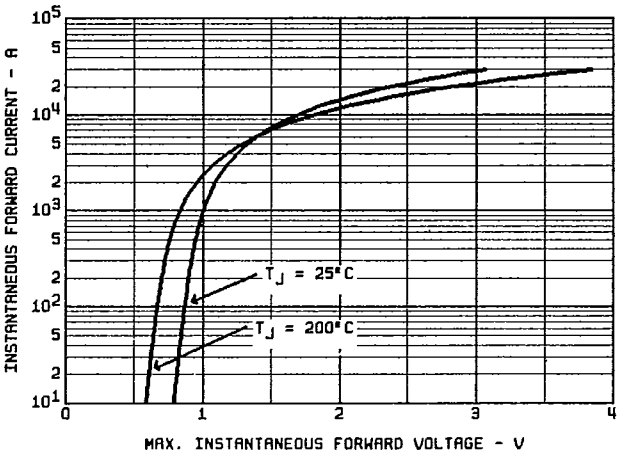

Fig. 3 — Forward Characteristics

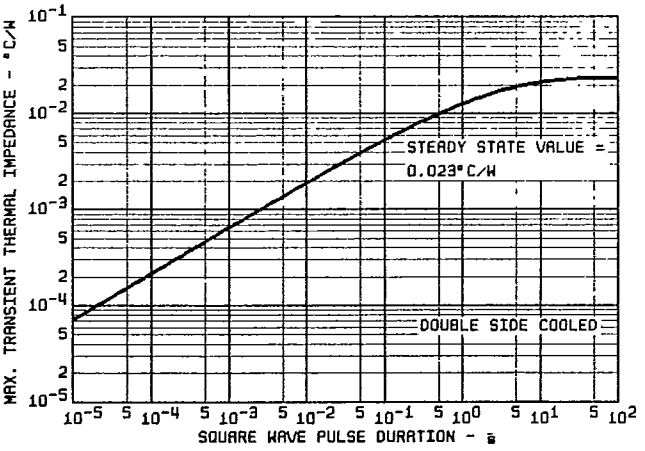

Fig. 4 — Transient Thermal Impedance, Junction-To-Case

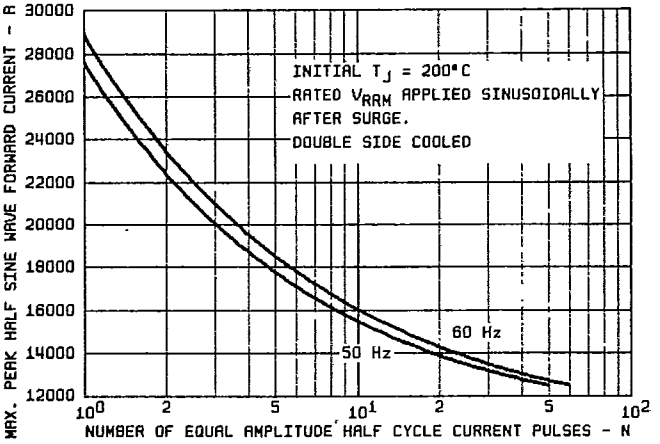

Fig. 5 — Non-Repetitive Surge Current Ratings

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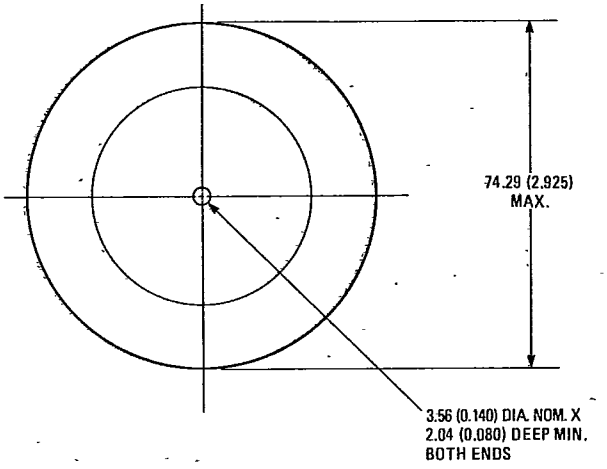

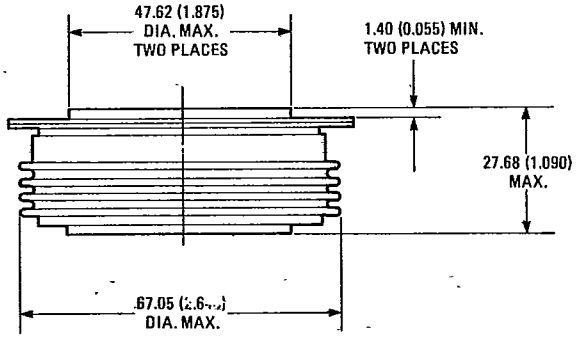

CREEPAGE DISTANCE: 32.26 (1.270) MIN.
STRIKE DISTANCE: 23.78 (0.936) MIN.

Conforms to JEDEC Outline DO-200AC
All Dimensions in Millimeters and (Inches)