

5.2 Condensed Electrical and Thermal Characteristics and Ratings

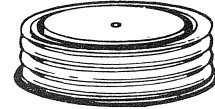


109.1



316

RECTIFIERS 1200 TO 1500 AMPERES



182

JEDEC TYPE	—	—	—	—	—
GE TYPE	A330	A796	A570	A641	A440

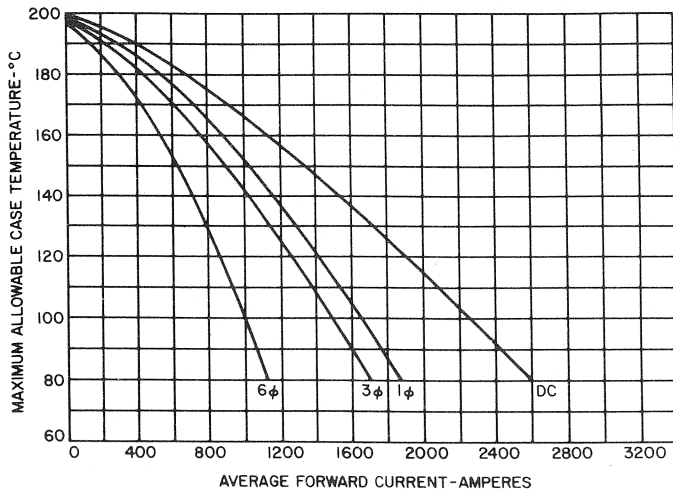
SPECIFICATIONS

$I_{FM(AV)}$	Max. average forward (1 phase operation)	1200	1200	1500	1500	—	
	$T_C = (^\circ C)$	115	70	80	90	112	
V_{RM} (Rep)	Max. repetitive peak reverse voltage (V)	500-1500	1800-2400	100-600	2000-2600	500-1500	
I_{FM} (Surge)	Max. peak one cycle, non-recurrent surge current (1 phase operation) 50 Hz.	10,500	16,000	17,000	14,500	21,000	
	@ max. rated load conditions (A) 60 Hz.	11,100	18,000	18,000	16,000	21,800	
I^2t	Max. non-repetitive for 1.5 msec (A^2sec)	300,000	640,000	850,000	675,000	100,000	
T_J	Operating junction temperature range ($^\circ C$)	-40 to 200	-40 to 150	-40 to 200	-40 to 185	-40 to 200	
$R_{\theta JC}$	Max. thermal resistance, junction-to-case ($^\circ C/W$)	0.045	0.23	.06	.0375	.04	
V_{FM}	Max. peak forward voltage drop @ rated $I_{F(AV)}$ (1 phase operation)	1.5	2.8	1.5	1.7	1.45	
	@ $T_C = (^\circ C)$	115	70	25	25	112	
$Q_{R(REC)}$	Reverse recovered charge @ rated T_J (μc)	—	—	—	—	1800	
t_{rr}	Reverse recovery time @ rated T_J (μs)	—	—	—	—	15	
V_F	Max. forward ⁽¹⁾ voltage drop for the current range:	$I_{MIN}(A)$	100	—	200	—	250
		$I_{MAX}(A)$	7000	—	15,000	—	15,000
		A	.38	—	-.26	—	.162
		B	.04	—	.212	—	.059
		C	.0002	—	2.47 E-4	—	.00011
$R_{\theta JC}$	Transient thermal ⁽²⁾ resistance for time:	$T_{MIN}(S)$.001	—	.001	—	—
		$T_{MAX}(S)$.01	—	.01	—	—
		F	.32	—	.042	—	—
		G	.6	—	.336	—	—
Package Outline No.		109.1	316	182	306	—	
Maximum Stud Torque (In-Lbs/N-M)		—	—	—	—	—	
Max Mounting Force (Lbs/Kn)		2.000/8.9	6000/26.7	2400/10.8	4200/18.7	3500/16	
Expanded Electrical Characterization, see page:		153	—	N.A.	176	170	

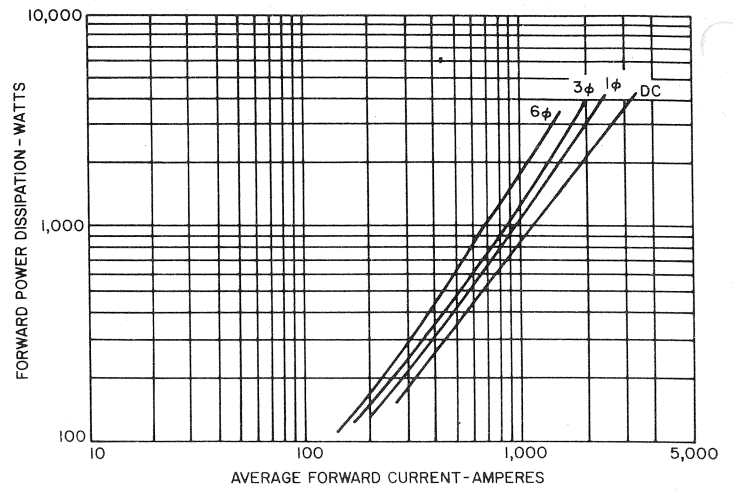
(1) Voltage Drop Model: $V_F = A + B \cdot L_N(I) + C \cdot I + D \cdot \sqrt{I}$

(2) Transient Thermal Resistance Model: $R_{\theta JC} = F \cdot t^G$

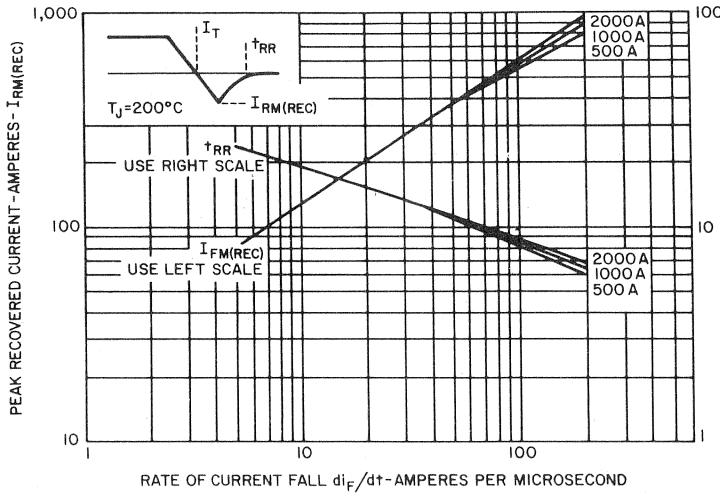
5.3 Expanded Electrical Characterization



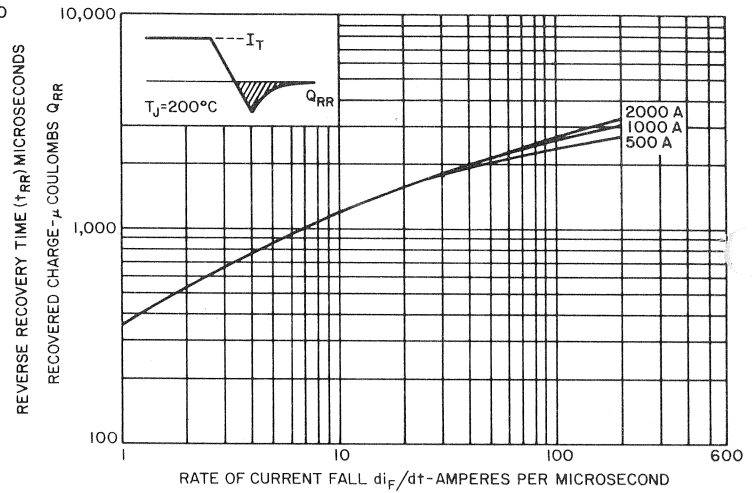
1. MAXIMUM CASE TEMPERATURE VS. AVERAGE FORWARD CURRENT FOR DOUBLE-SIDE COOLING



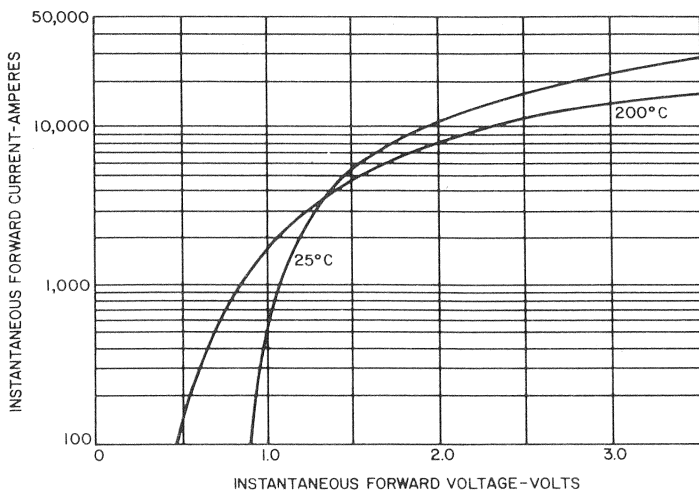
2. AVERAGE FORWARD POWER DISSIPATION VS. AVERAGE FORWARD CURRENT



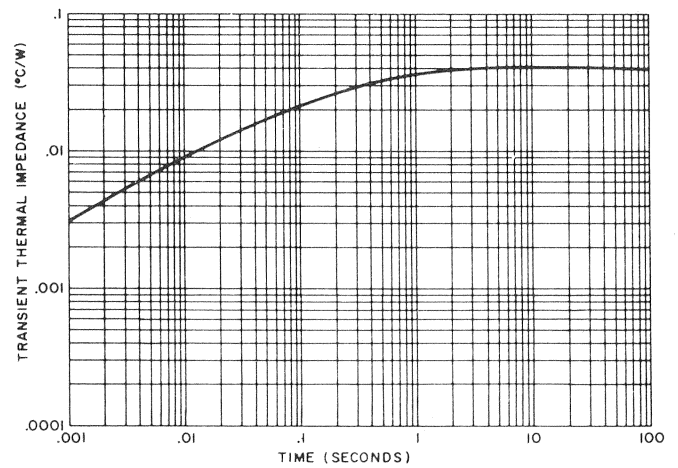
3. TYPICAL PEAK REVERSE RECOVERY CURRENT AND TIMES



4. TYPICAL REVERSE RECOVERY CHARGE



5. MAXIMUM FORWARD CHARACTERISTICS



6. TRANSIENT THERMAL RESISTANCE— JUNCTION-TO-CASE (DOUBLE-SIDED COOLED)