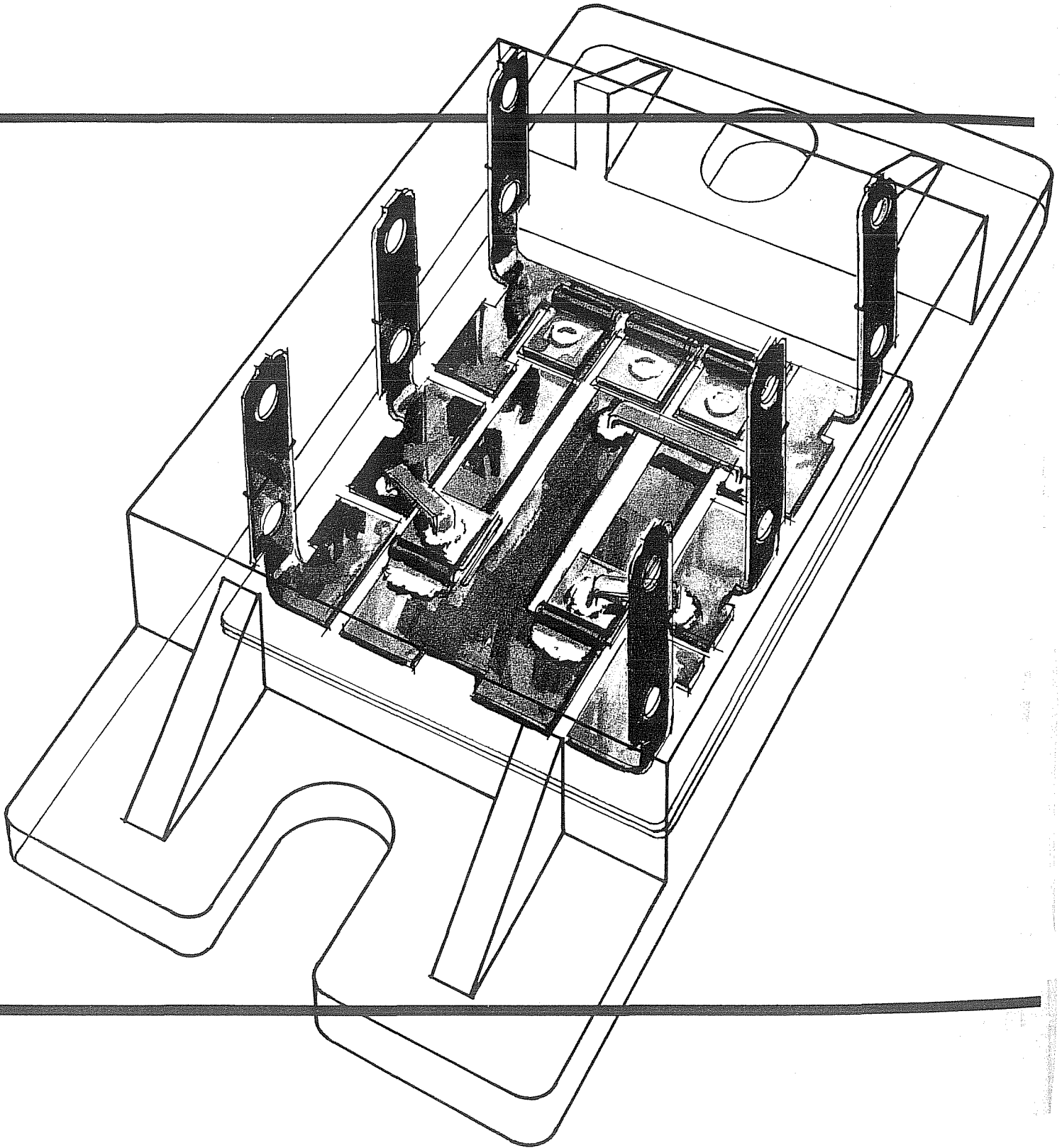


POWER THERM[®]

B Series SCR Bridge Circuits



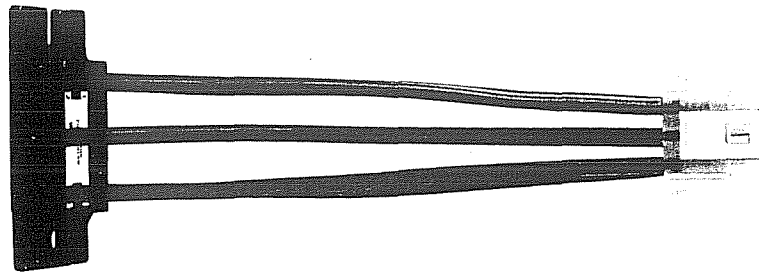
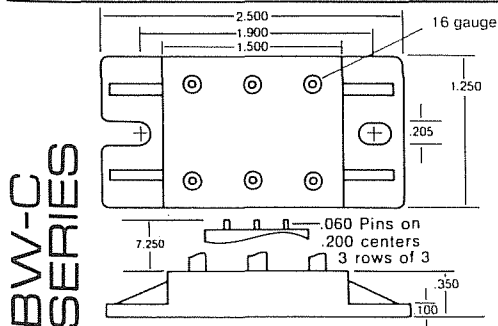
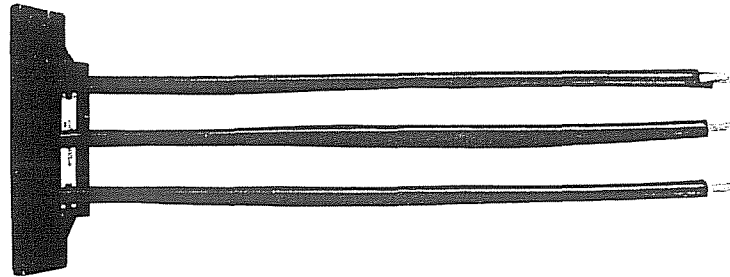
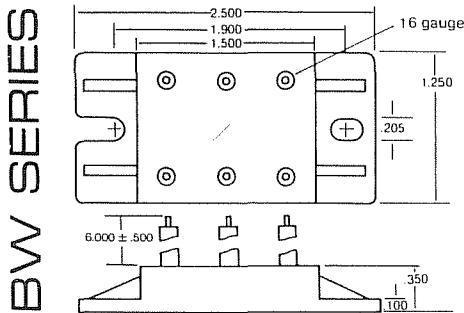
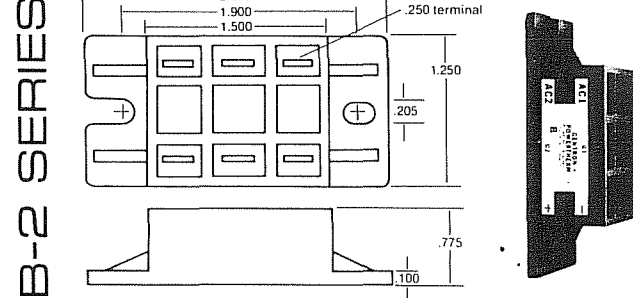
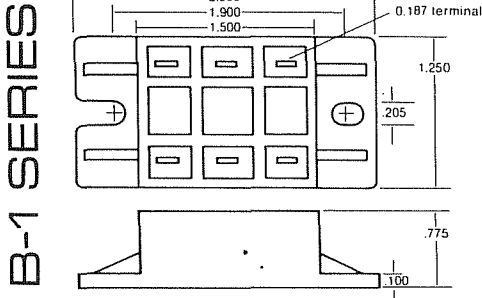
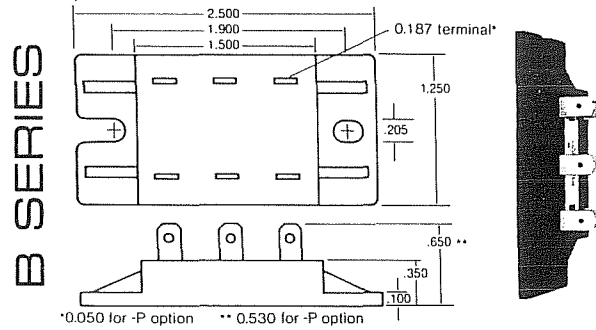
part number assignment

Each part number consists of 4 to 7 digits. Use the table at the right to determine the package that fits your needs.

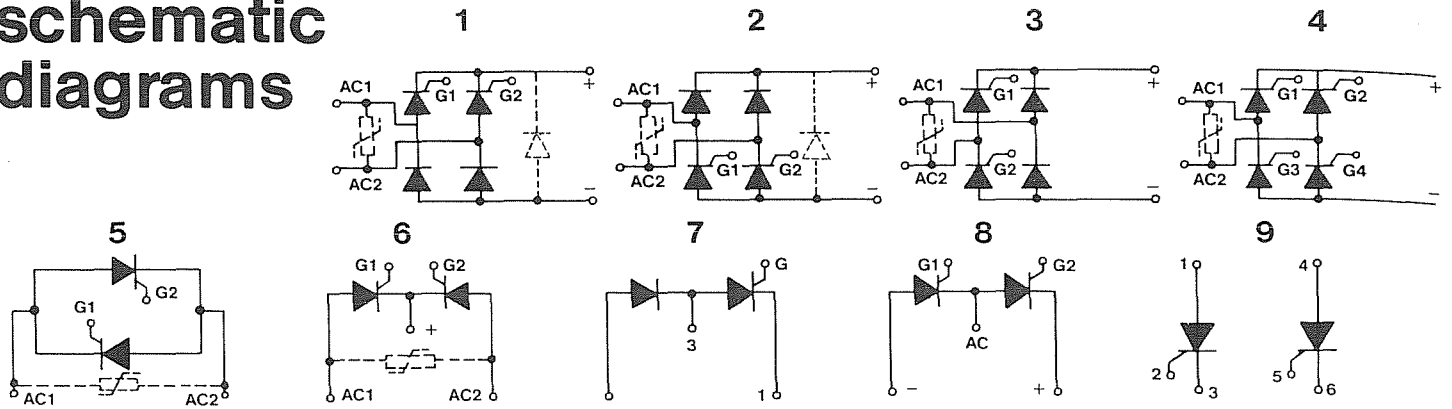
1st Digit Series Type	2nd Digit Current	3rd Digit Circuit Type	4th Digit AC Line Voltage	Options
B - terminal BW - wire	4 - 15 amps 5 - 25 amps 6 - 42.5 amps*	1 - 9 (see schematic diagrams)	1 - 120 volts 2 - 240 volts 3 - 280 volts 4 - 440 volts*	F - Free Wheeling Diode Option S - Suppressor Option -1 - .187 terminal and grid -2 - .250 terminal and grid -C - wire leads and end connector -P - printed circuit board terminal option (800PIV Max.) AX2 - Extra AC1, AC2 terminal (Circuit 5 Only)

*B-2 Series Only
Not Available in BW Series

B series dimensions



schematic diagrams

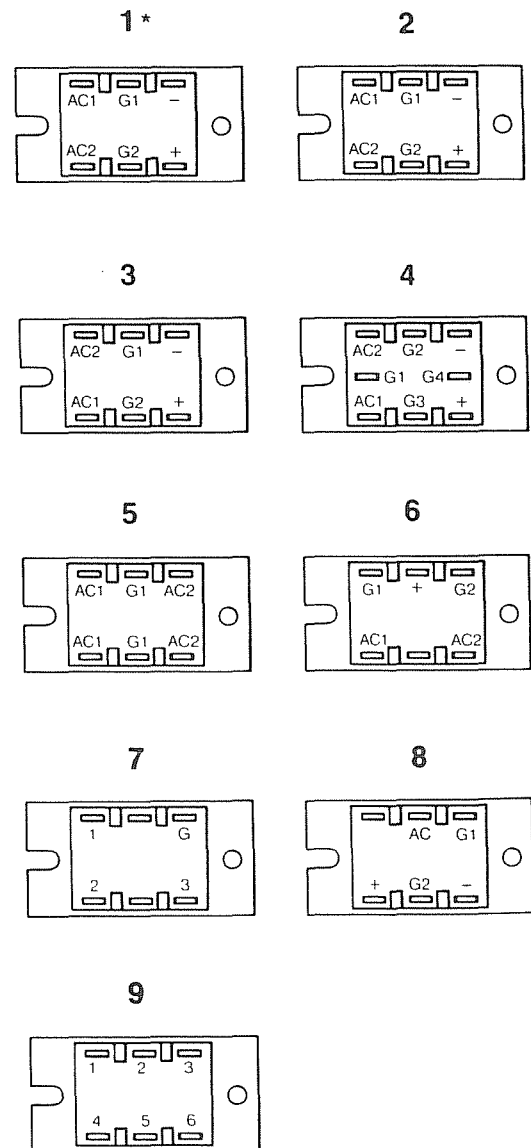


electrical specifications

		package type		
		B4	B5	B6
I_d	maximum dc output current @ 85° Tc(A) full bridge (circuits 1 - 4)	15	25	42.5
I_T (RMS)	maximum output current @ 85°C ceramic plate SCR ratings (50 and 55 Amp. on B-2 only)	30	50	55
V_{TM}	maximum peak on-state voltage @ 100 amperes peak	2.2V	1.8V	1.6V
I_H	maximum holding current	150mA	150mA	150mA
T_J	operating junction temperature range	-25°C to 125°C		
di/dt	critical rate of rise of on-state current @ $T_J = 125°C$ (A/ μ S)	100	100	100
dv/dt ①	critical rate of rise of off-state voltage @ $T_J = 125°C$ (V/ μ S)	200	200	200
V_{RMS}	AC line input voltage (V)	—120 (400PIV)— —240 (600PIV)— —280 (800PIV)— —440 (1200PIV)—		
I_{TSM}	maximum non-repetitive surge current (A) 60Hz — 125°C 50Hz — 25°C	200 225	300 325	600 650
I^2t	maximum I^2t for fusing $t = 8.3$ (A ² sec)	280	370	1500
I_{GT}	maximum required gate current to trigger, 25°C (mA)	80	110	150
I_{GT}	typical gate current to trigger	—20mA to 100mA—		
I_{GM}	maximum peak gate current	3.0A	3.0A	3.0A
V_{GT}	maximum required gate voltage to trigger, 25°C (V)	2.5	2.5	3.0
V_{GT}	typical gate voltage to trigger	0.9V	0.9V	0.9V
V_{GD}	maximum non-triggering gate voltage at $T_J = 125°C$	0.2V	0.2V	0.2V
P_{GM}	maximum peak gate power, $t_p = 10\mu$ Sec.	5W	5W	5W
$P_{G(AV)}$	average gate power	0.5W	0.5W	0.5W
V_{GM}	maximum peak gate voltage (forward)	10V	10V	10V
V_{GM}	maximum peak gate voltage (reverse)	5.0V	5.0V	5.0V
$R_{\theta CS}$ ②	maximum thermal resistance case to sink (°C/W)	0.10	0.10	0.10
V_{FM}	maximum peak forward voltage at 100 amperes peak rectifier	1.85V	1.65V	1.50V
$R_{\theta JC}$	typical thermal resistance junction to ceramic plate per device	.5°C/W	.4°C/W	35°C/W
V_{ISOL}	isolation voltage from terminals to plate	—2500 volts RMS min.—		
M_s				

SEE PAGE 3-54
FOR MOUNTING REQUIREMENTS

terminal orientation



*Consult factory for terminal orientation on 440 volt units.

① Higher dv/dt available

② Case to sink, mounting surface smooth, flat, and greased (R θ cs) (.002 T.I.R. flatness spec, and a 50 micro-inch finish)

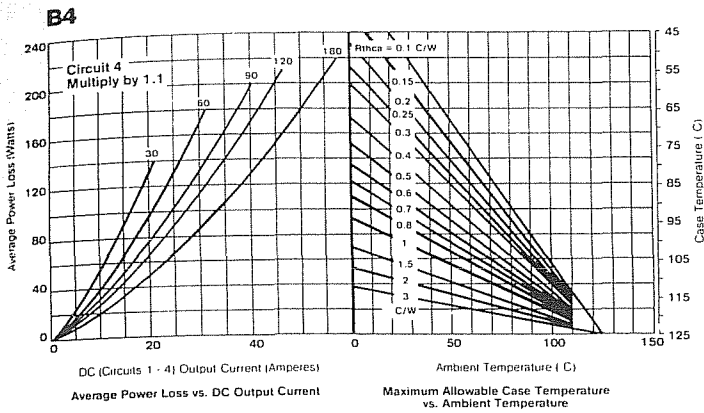


FIGURE 1

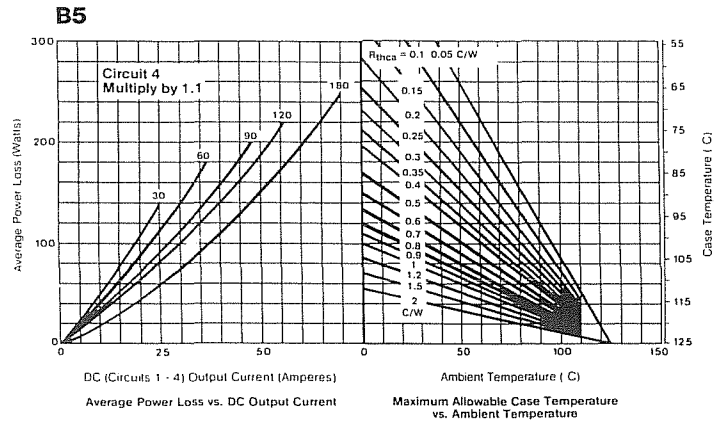


FIGURE 5

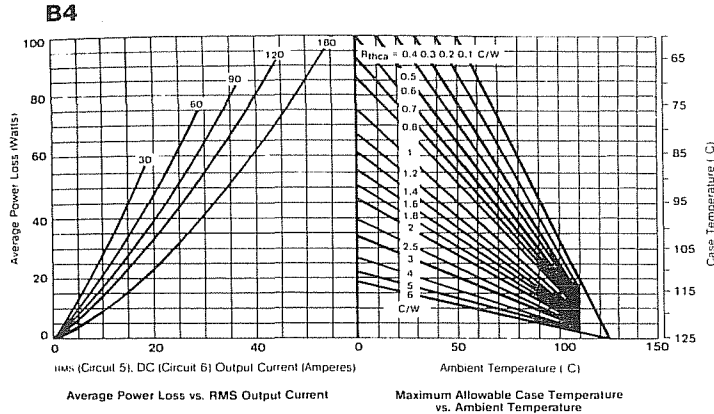


FIGURE 2

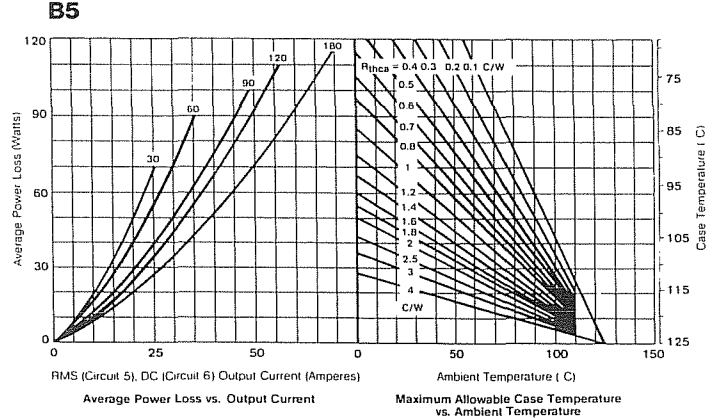


FIGURE 6

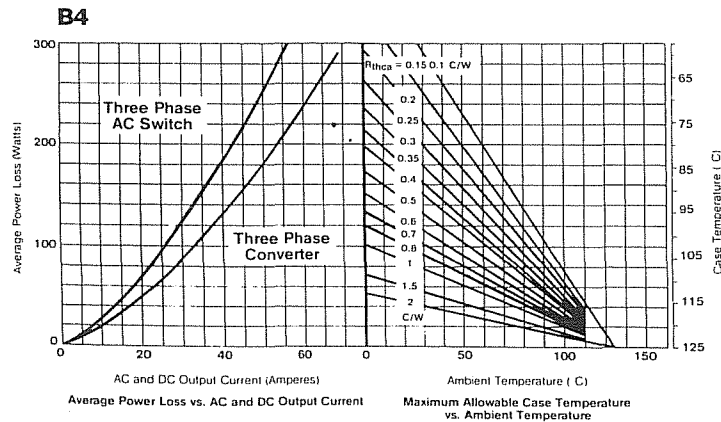


FIGURE 3

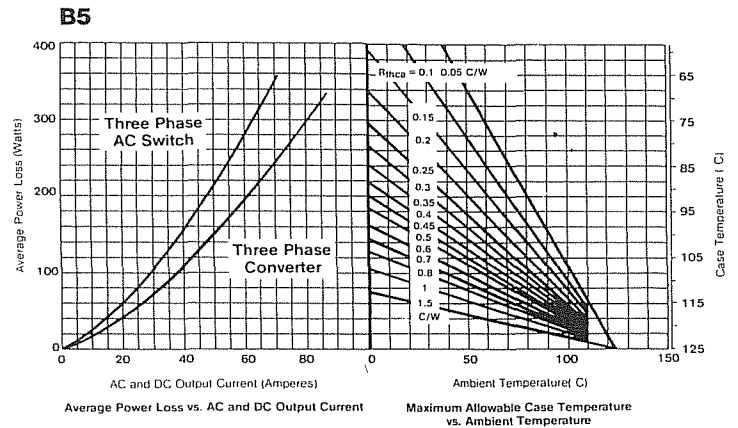
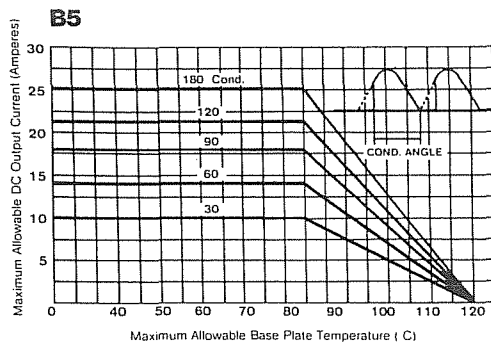
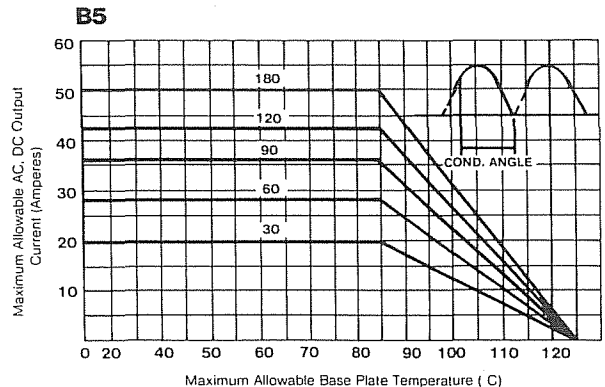


FIGURE 7



B5, Circuits 1-4 Maximum Allowable Output Current vs. Maximum Allowable Base Plate Temperature (Derate B4 by 60%)

FIGURE 4



B5, Circuits 5, 6 Maximum Allowable Output Current vs. Maximum Allowable Base Plate Temperature (Derate B4 by 60%)

FIGURE 8

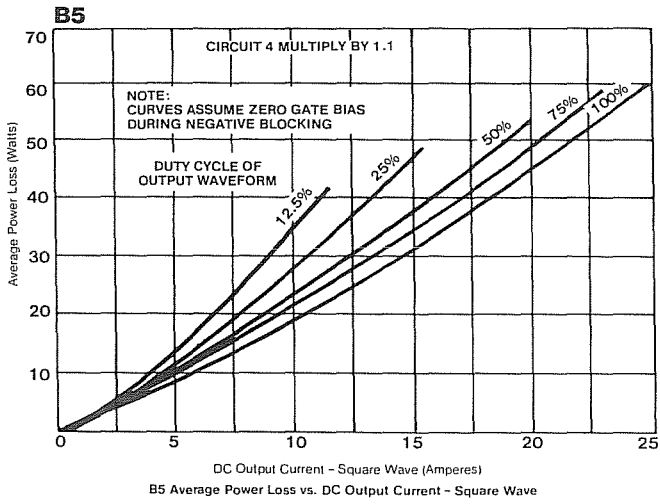


FIGURE 9

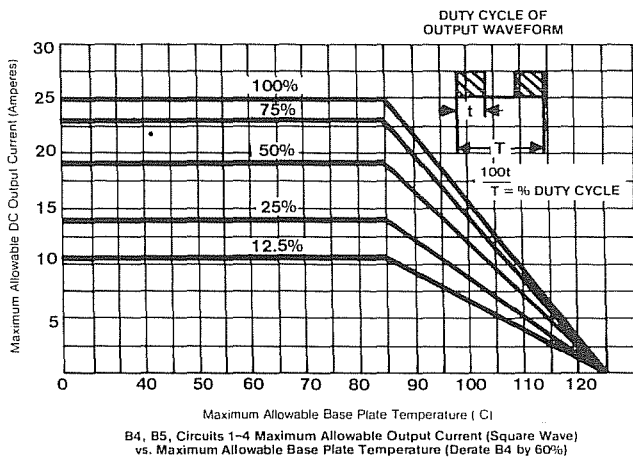


FIGURE 10

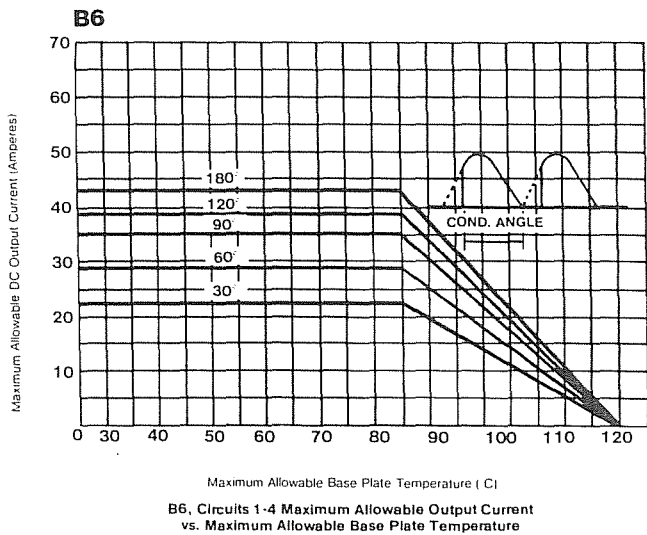


FIGURE 11

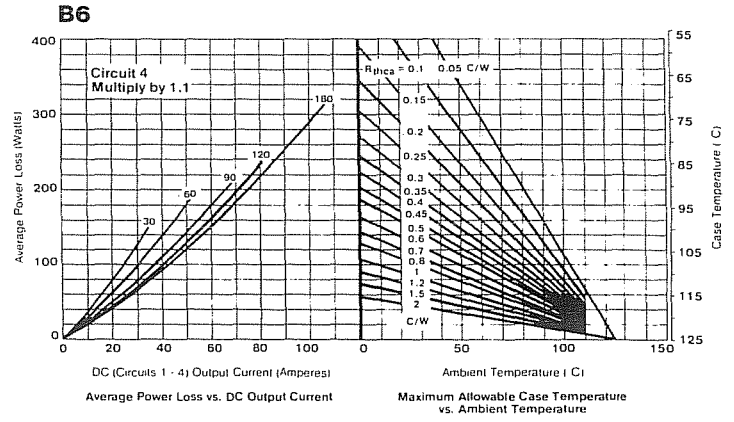


FIGURE 12

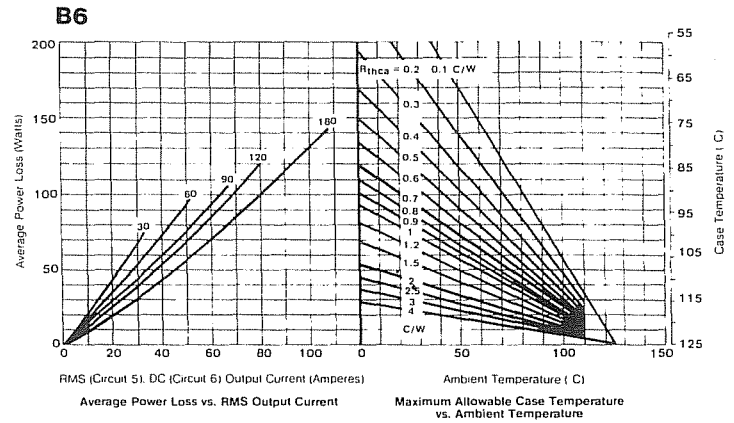


FIGURE 13

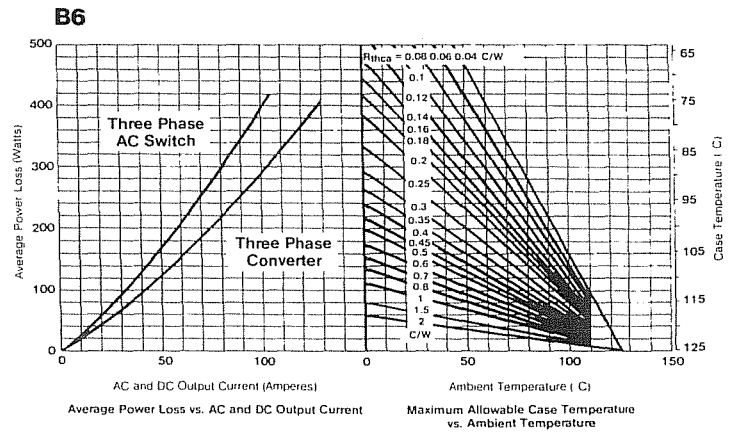


FIGURE 14

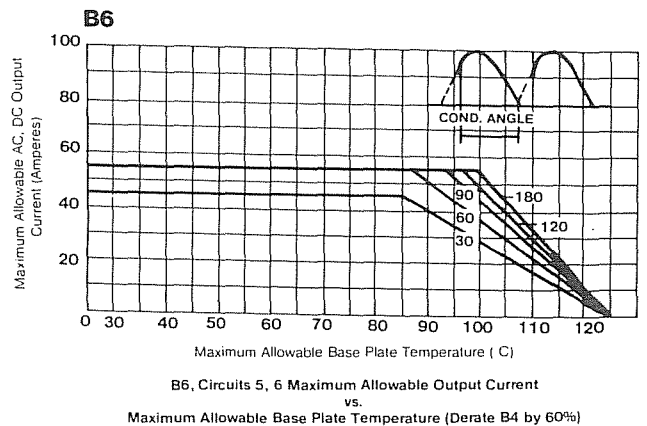


FIGURE 15

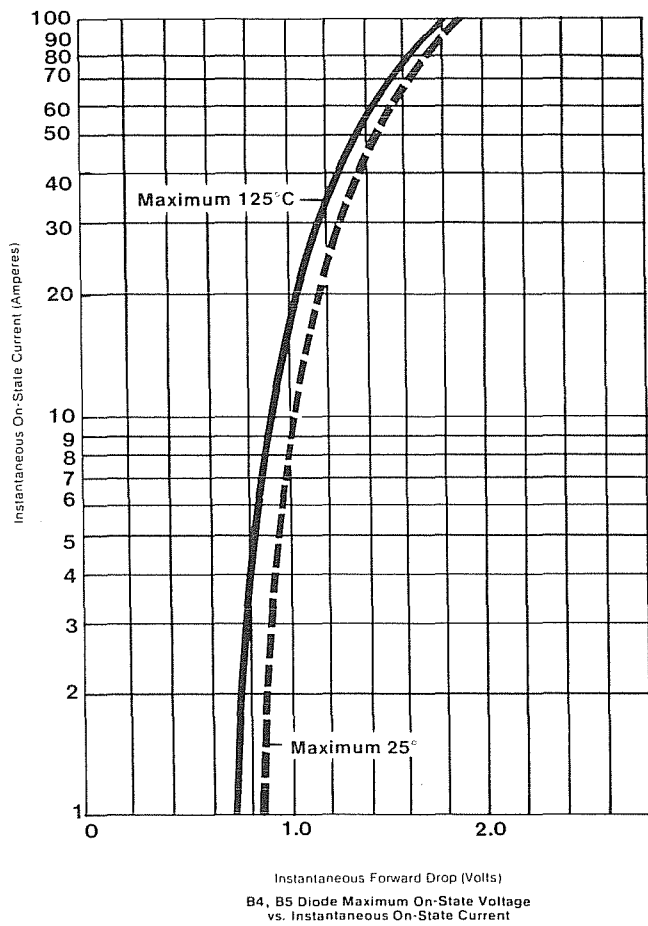


FIGURE 16

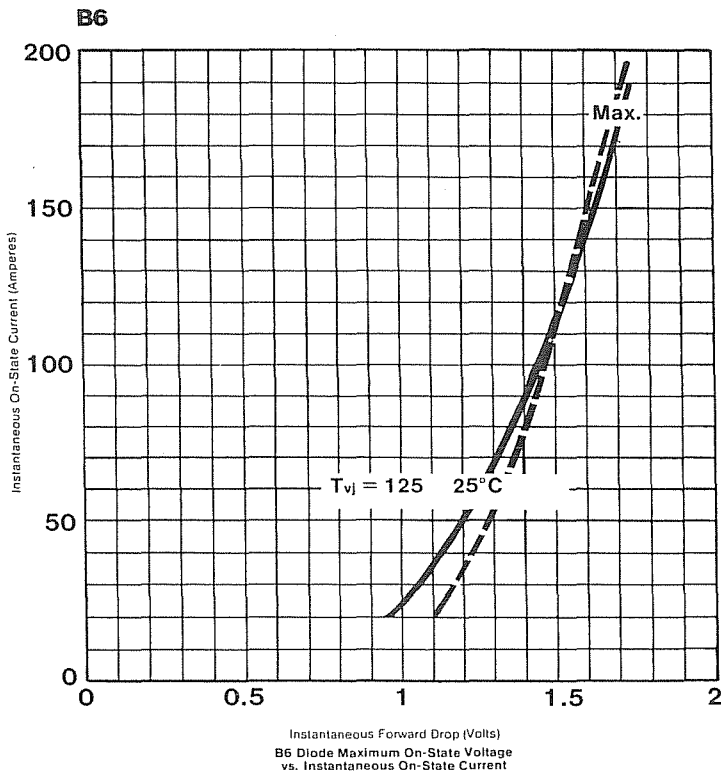


FIGURE 17

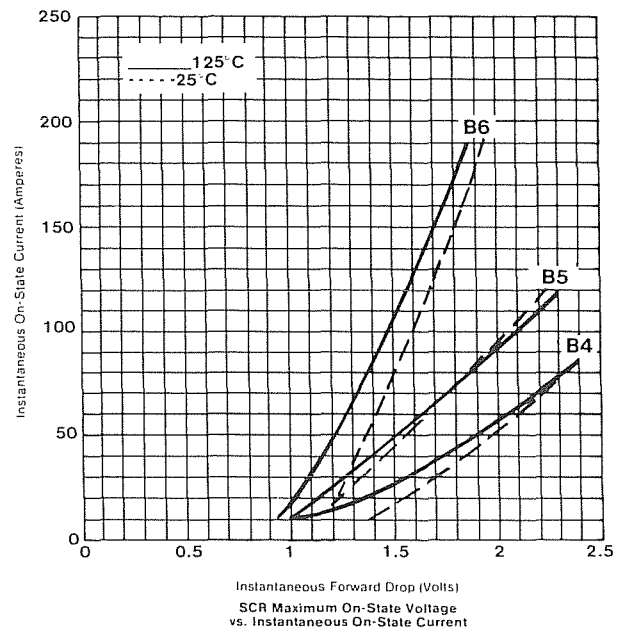


FIGURE 18

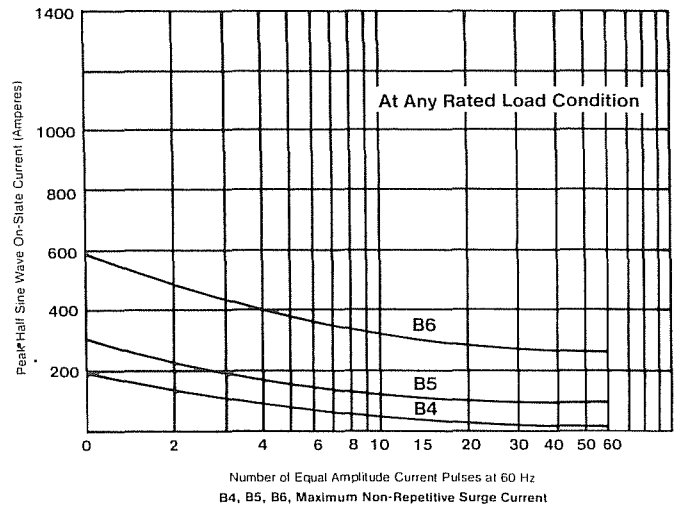


FIGURE 19

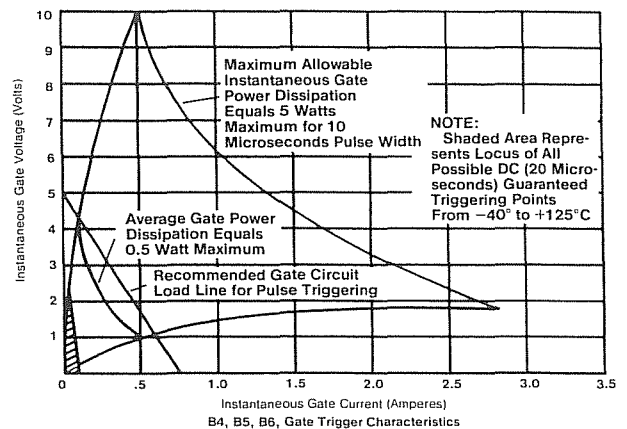


FIGURE 20