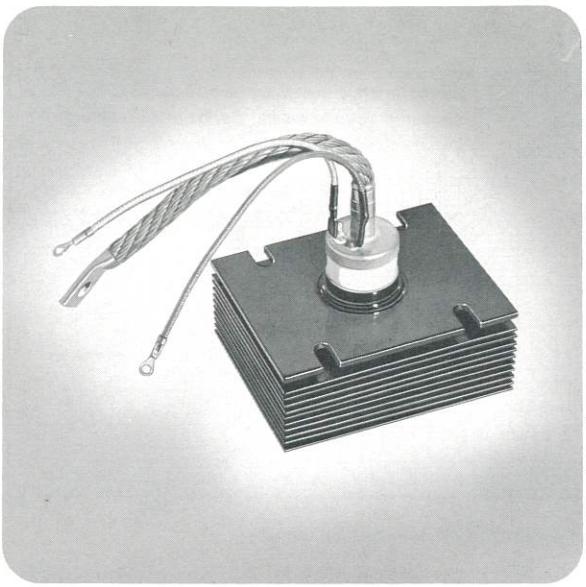
forward current 400 amps rms, 250 amps half-wave average
forward blocking voltages to 1000 volts



application

The Westinghouse type 222 SCR is a high-powered device featuring a radically new concept in power semiconductor design. These techniques include the use of compression bonding encapsulation (CBE) and an integral heat sink.

The CBE construction eliminates solder joints by the use of high pressure to maintain electrical and thermal contact between the SCR wafer and the base. This construction is completely free from thermal fatigue.

The integral heat sink eliminates the case-to-sink thermal impedance found in conventional types of devices.

Because of this unique design, the type 222 will handle more current than stud-mounted devices under the same conditions. The type 222 can be operated at its maximum ratings with forced air cooling.

The high power handling capability of this device makes it ideally suited for such applications as large horsepower motor drives, power inverters, ignitron and motor generator set replacements.

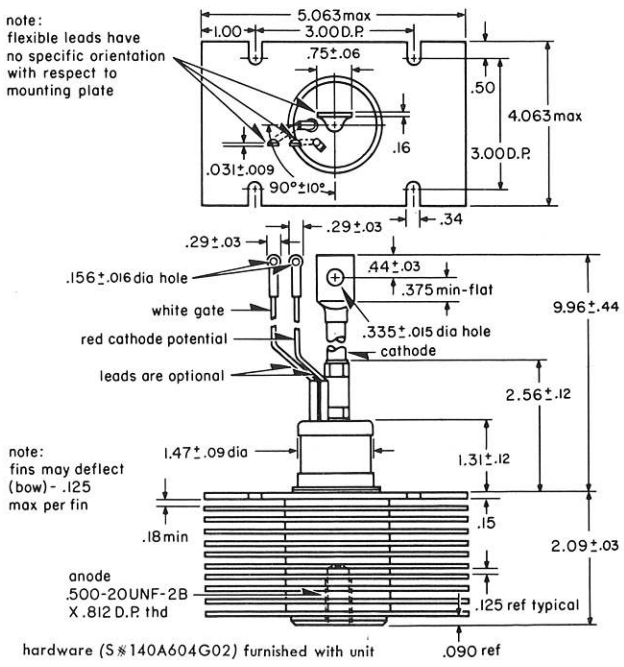
ratings and characteristics

	symbol	222A	222B	222C	222D	222F	222H	222K	222M	222P	222S	222V	222Z
min forward blocking voltage at T_J=125°C, volts	V_{FB}	50	100	150	200	300	400	500	600	700	800	900	1000
max repetitive peak reverse voltage■, volts	PRV	50	100	150	200	300	400	500	600	700	800	900	1000
max repetitive peak forward voltage, volts	PFV	50	100	150	200	300	400	500	600	700	800	900	1000
max average forward current, amperes	$I_{F(AV)}$	← refer to figures 1 through 4 →											

	symbol	all types
max rms forward current, amperes	I_f	400
max peak ½-cycle ▲surge current, amps.	I_{FM} (surge)	5,000
max I^2t for fusing (at 60 cps half-wave), ampere² seconds	I^2t	100,000
max forward blocking current at T_J= 125°C and rated V_{FB}, mAdc	I_{FB}	15
max reverse leakage current at T_J= 125°C and rated PRV, mAdc	I_{RB}	15
typ holding current at T_J=125°C, mA	I_H	25
max forward voltage drop at I_F=100 Adc and T_J=125°C, Vdc	V_F	1.2
max gate current to trigger at V_{FB}=5 V, T_J=125°C, mA	I_{GT}	300
max gate voltage to trigger at V_{FB}=5 V, T_J=25°C, volts	V_{GT}	4
max non-triggering gate voltage, T_J=125°C, volts	V_{GNT}	0.25
max peak forward gate current, amps	i_{GF}	4
max peak forward gate voltage, volts	v_{GF}	10
max peak reverse gate voltage, volts	v_{GR}	5
max peak gate power, watts	P_{GM}	16
max average gate power, watts	$P_{G(AV)}$	3
operating junction temperature, °C	T_J	−40 to +125
storage temperature, °C	T_{stg}	−45 to +150
max thread torque, non-lubricated, in.-lb.	.....	125
max thermal impedance, junction to ambient, °C/watt	θ_{JA}	0.22

For circuits which exhibit high values of di/dt or require series and/or parallel connections, refer to the manufacturer for recommended gating conditions.
■ Applies for zero or negative gate voltage. ▲ At 60 cycles per second.

dimensions in inches



July, 1964
new information
mailed to: E/1163/DB; C/449/AD

electrical characteristics

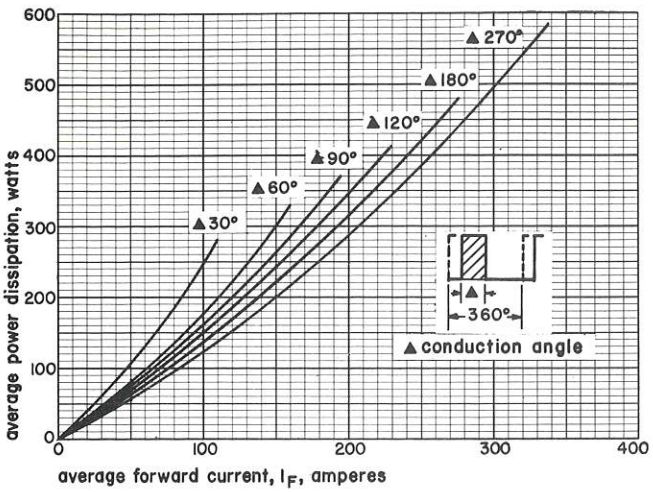


figure 1. Maximum power dissipation, full cycle average, square wave.

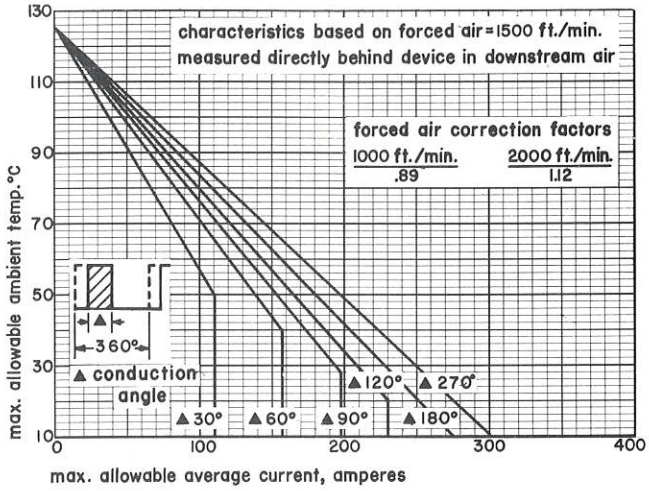


figure 2. Maximum allowable ambient temperature, square wave.

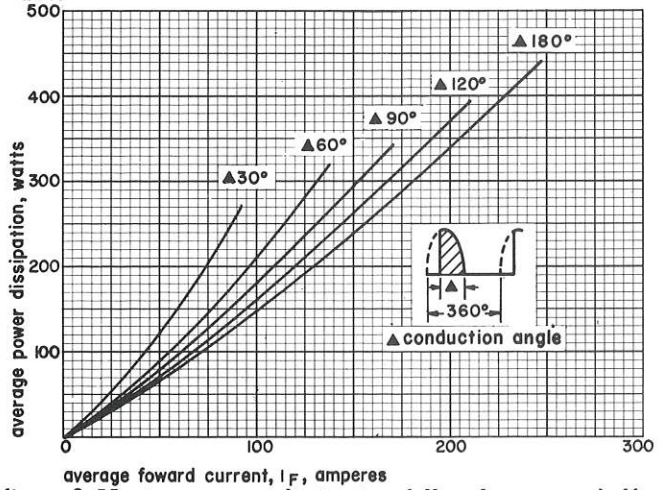


figure 3. Maximum power dissipation, full cycle average, half-wave sinusoid.

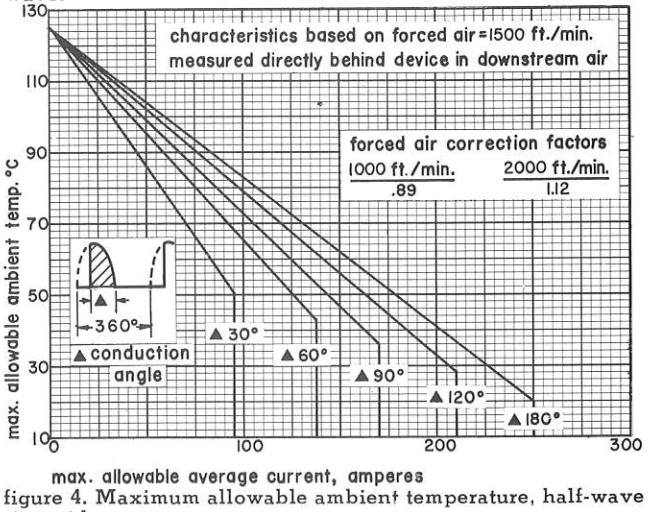


figure 4. Maximum allowable ambient temperature, half-wave sinusoid.

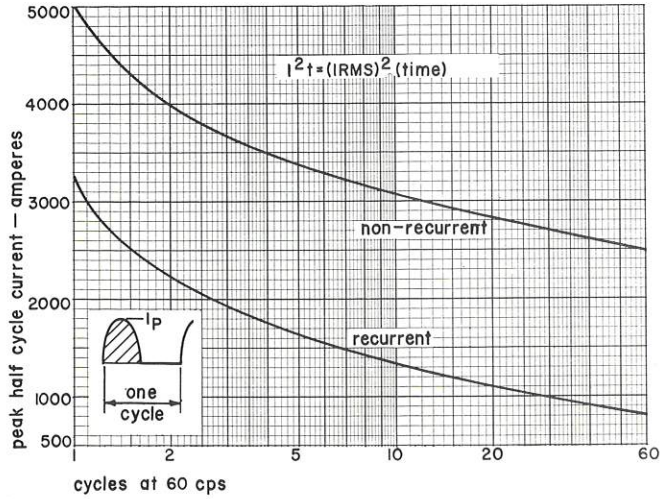


figure 5. Maximum allowable surge current at rated load conditions.

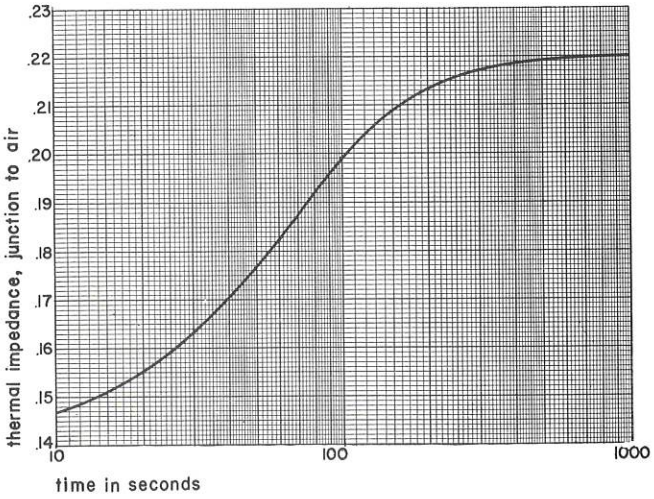


figure 6. Maximum transient thermal impedance.

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