



WESTCODE SEMICONDUCTORS



TECHNICAL PUBLICATION

D P20

ISSUE 1

March, 1980

Stud-Base Silicon Rectifier Diodes Type PCN/PCRO20

30 amperes average: up to 1600 volts V_{RRM}

RATINGS Maximum values at 175°C T_j unless stated otherwise

RATING	CONDITIONS	SYMBOL	
Average forward current	Half sine wave 115°C case temperature	$I_{F(AV)}$	30A
RMS current		$I_{F(RMS)}$	47A
DC forward current		I_F	47A
Peak one-cycle surge (non repetitive)	8.3ms duration { 60% V_{RRM} re-applied $V_R \leq 10$ volts	$I_{FSM(1)}$ $I_{FSM(2)}$	259A 299A
Maximum permissible surge energy	8.3ms duration { 60% V_{RRM} re-applied $V_R \leq 10$ volts 3ms duration $V_R \leq 10$ volts	$I^2 t (1)$ $I^2 t (2)$	291A ² s 385A ² s 298A ² s
Case operating temperature		T_C	-55, +175°C
Storage temperature		T_{stg}	-55, +175°C

CHARACTERISTICS Maximum values at 175°C T_j unless stated otherwise

CHARACTERISTIC	CONDITIONS	SYMBOL	
Peak forward voltage drop	At 120A, I_{FM}	V_{FM}	1.77V
Forward conduction threshold voltage		V_0	1.09V
Forward conduction slope resistance		r	5.7mΩ
Peak reverse current	At V_{RRM}	I_{RRM}	3mA
Thermal resistance junction to case for a diode with a maximum forward voltage drop characteristic	DC and 180° sine wave 120° rectangular wave	$R_{th(j-c)}$	1.25°C/W 1.86°C/W
Thermal resistance case to heatsink		$R_{th(c-hs)}$	0.25°C/W

VOLTAGE CODE →	02	04	06	08	10	12	14	15	16
Repetitive voltage V_{RRM}	200	400	600	800	1000	1200	1400	1500	1600
Non-repetitive voltage V_{RSM}	300	500	700	900	1100	1300	1500	1600	1700

ORDERING INFORMATION (Please quote device code as explained below — 10 digits)

S	W	● ●	P	C	●	0	2	0
FIXED BASIC CODE	VOLTAGE CODE (see above)		FIXED OUTLINE CODE DO4		STUD POLARITY N = cathode R = anode		FIXED TYPE CODE	

Typical code SW06PCRO20 = 600V_{RRM} diode with stud anode

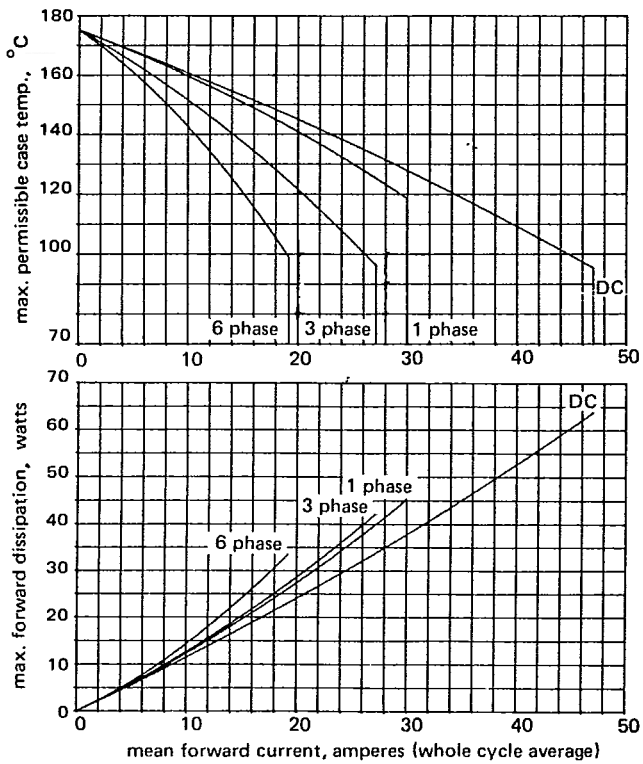


Figure 1 Dissipation and stud temperature v. mean forward current

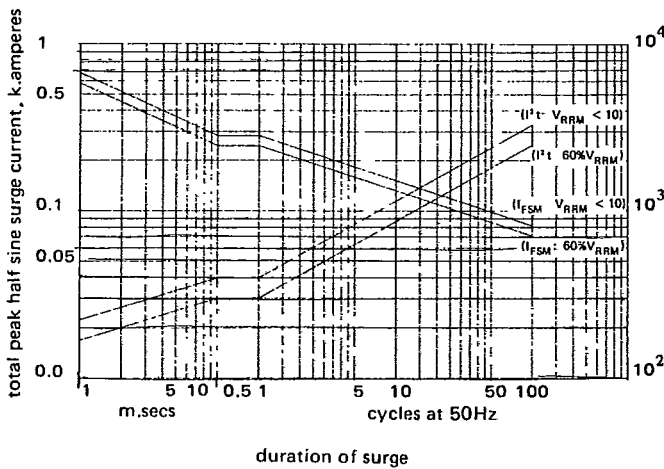


Figure 2 Max. non repetitive surge current at initial junction temperature 175°C

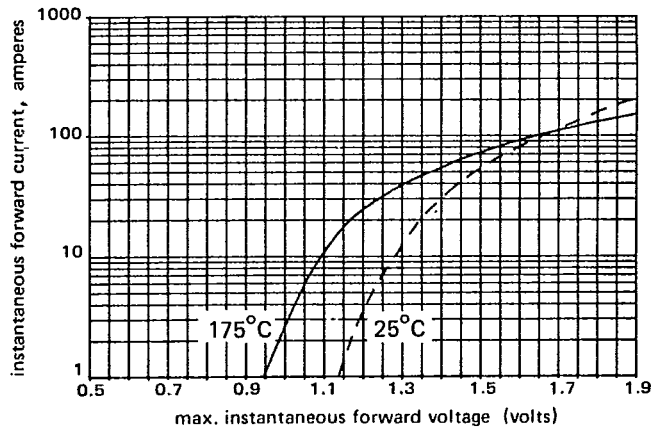


Figure 3 Forward voltage characteristic

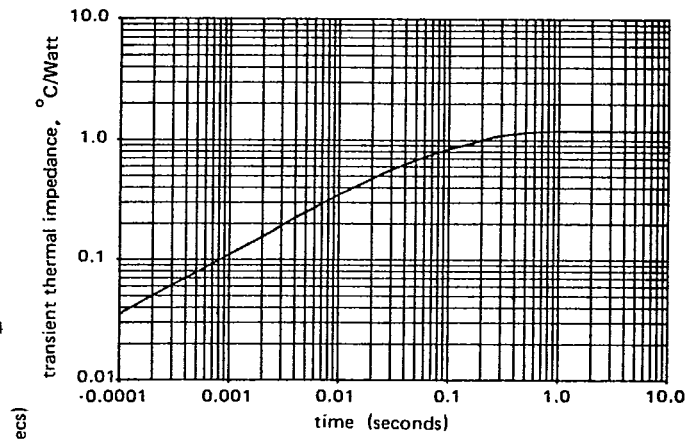
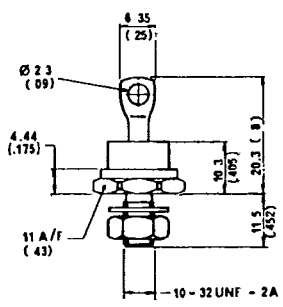


Figure 4 Transient thermal impedance, junction to case



Mounting Torque
 0.20 – 0.25 KgM
 threads not to be
 lubricated
 Weight: 6 grams
 dimensions
 in mm (inches)

Conforms to DO - 4

www.DataSheet4U.com
Westcode Semiconductors
 0-02 Fair Lawn Avenue
 Fair Lawn, New Jersey 07410.
 Telephone: (201) 791-3020
 Telex: 130389