

Stud-Base Silicon Rectifier Diodes Type PCN/PCR020

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 $\left\{ \begin{array}{l} 60\% V_{RRM} \text{ re-applied} \\ V_R \leq 10 \text{ volts} \end{array} \right.$	$I_{FSM(1)}$ $I_{FSM(2)}$	259A 299A
Maximum permissible surge energy	8.3ms duration $\left\{ \begin{array}{l} 60\% V_{RRM} \text{ re-applied} \\ V_R \leq 10 \text{ volts} \end{array} \right.$ 3ms duration $V_R \leq 10 \text{ volts}$	$I^2 t (1)$ $I^2 t (2)$	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 volt-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 SW06PCR020 = 600V_{RRM} diode with stud anode

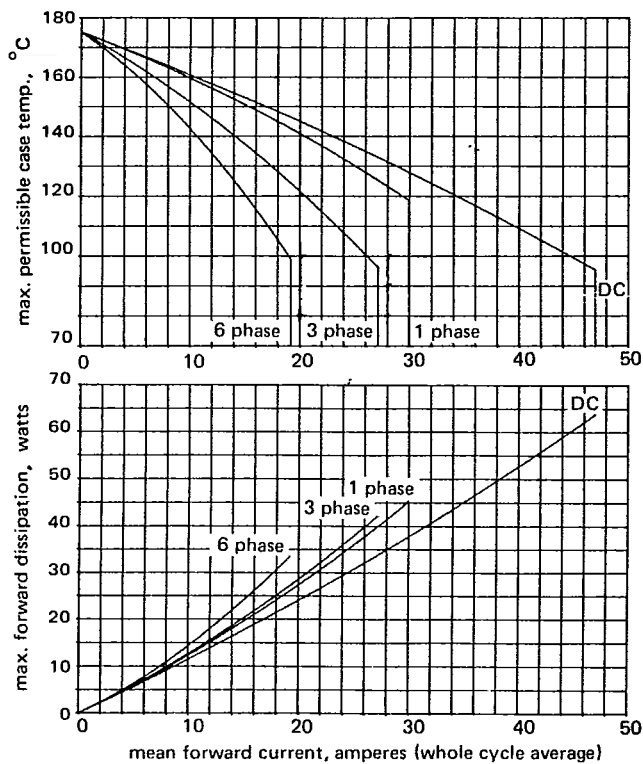


Figure 1 Dissipation and stud temperature v. mean forward current

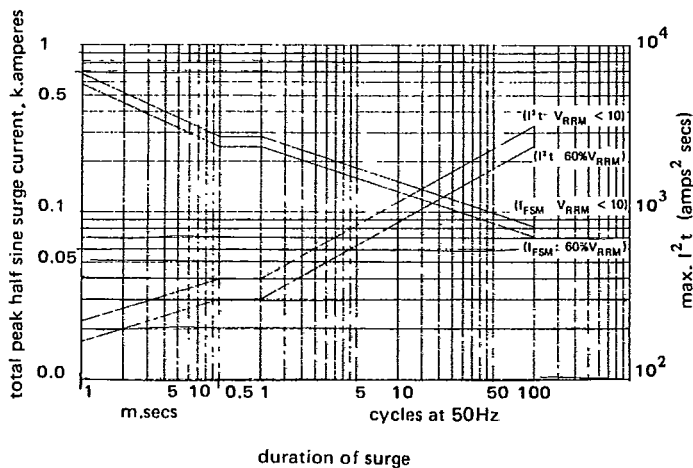


Figure 2 Max. non repetitive surge current at initial junction temperature 175°C

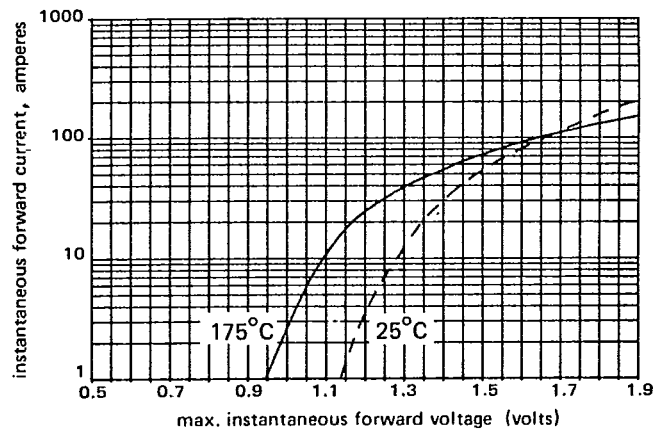


Figure 3 Forward voltage characteristic

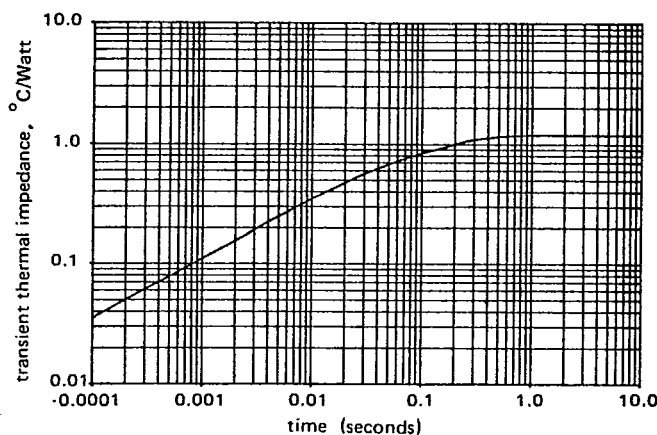
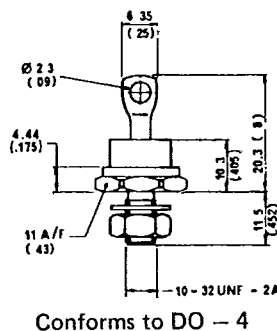


Figure 4 Transient thermal impedance, junction to case



Mounting Torque
0.20 – 0.25 KgM
threads not to be
lubricated

Weight: 6 grams

dimensions
in mm (inches)

Conforms to DO - 4

Westcode Semiconductors

0-02 Fair Lawn Avenue
Fair Lawn, New Jersey 07410

Telephone: (201) 791-3020

Telex: 130389