



WESTCODE SEMICONDUCTORS

**TECHNICAL
PUBLICATION**
D P30
ISSUE 2
May, 1989

Stud-Base Silicon Rectifier Diodes Type PCN/PCRO30

30 amperes average: up to 1200 volts V_{RRM}

RATINGS Maximum values at 175°C T_j unless stated otherwise

RATING	CONDITIONS	SYMBOL	
Average forward current	Half sine wave 125°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)	10ms duration $\left\{ \begin{array}{l} 60\% V_{RRM} \text{ re-applied} \\ V_R \leq 10 \text{ volts} \end{array} \right.$	$I_{FSM(1)}$ $I_{FSM(2)}$	350A 400A
Maximum permissible surge energy	10ms duration $\left\{ \begin{array}{l} 60\% V_{RRM} \text{ re-applied} \\ V_R \leq 10 \text{ volts} \end{array} \right.$ 3ms duration $V_R \leq 10 \text{ volts}$	$I^2 t (1)$ $I^2 t (2)$	613A ² s 800A ² s 600A 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 130A, I_{FM}	V_{FM}	1.64V
Forward conduction threshold voltage		V_0	0.9V
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			
Repetitive voltage V_{RRM}	200	400	600	800	1000	1200			
Non-repetitive voltage V_{RSM}	300	500	700	900	1100	1300			

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

S	W	●	●	P	C	●	0	3	0
FIXED BASIC CODE	VOLTAGE CODE (see above)			FIXED OUTLINE CODE DO4		STUD POLARITY N = cathode R = anode		FIXED TYPE CODE	

 Typical code SW06PCR030 = 600V_{RRM} diode with stud anode

In the interest of product improvement, Westcode reserves the right to change specifications at any time without notice.

D P30

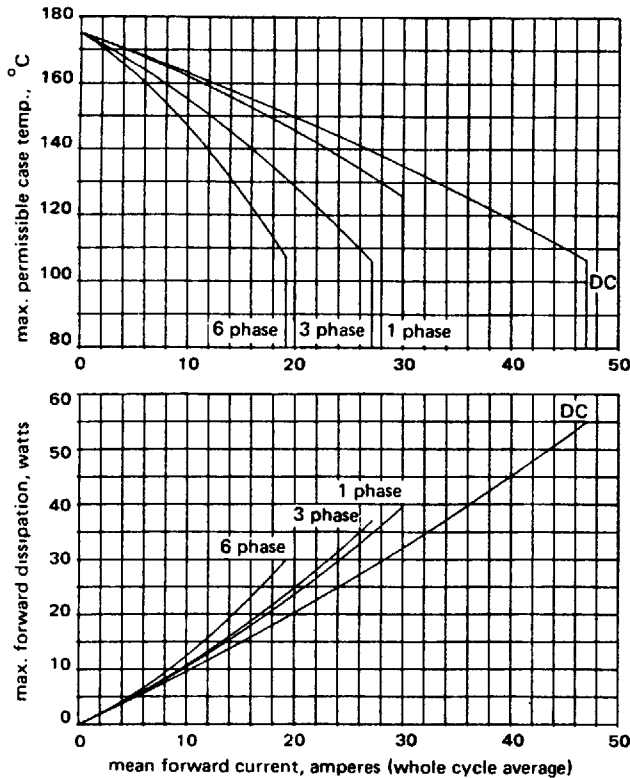


Figure 1 Dissipation and stud temperature
v. mean forward current

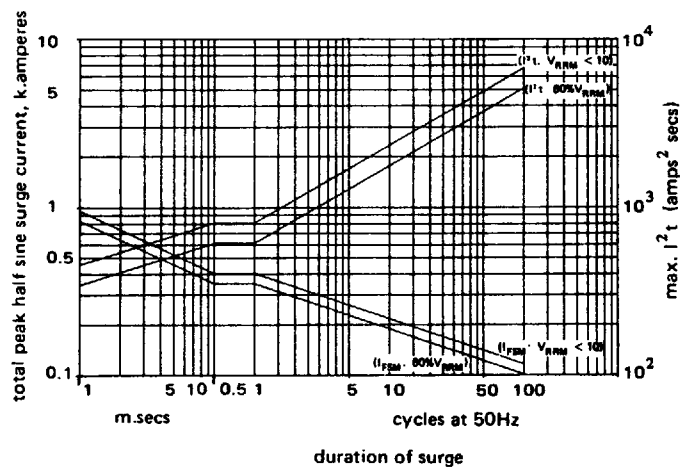


Figure 2 Max. non repetitive surge current
at initial junction temperature 175°C

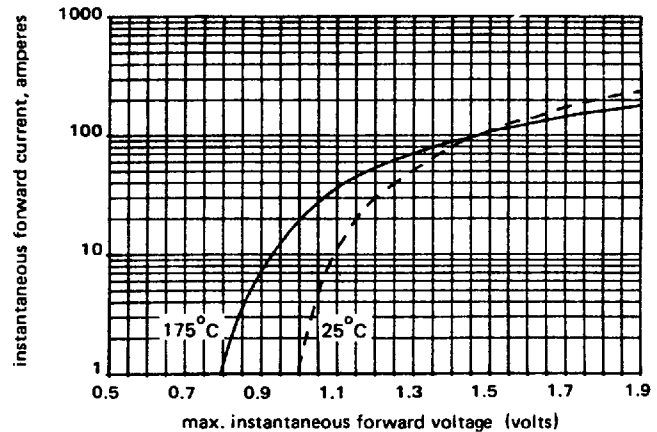


Figure 3 Forward voltage characteristic

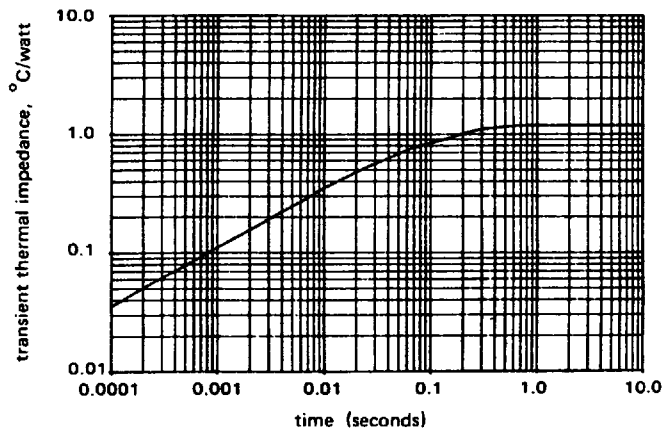
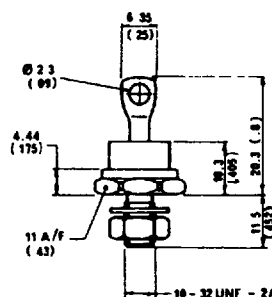


Figure 4 Transient thermal impedance, junction
to case



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 LIMITED

P.O. Box 57, Chippenham,
Wiltshire, England SN15 1JL

Telephone: (0249) 444524

Telex: 44751 Telefax: (0249) 659448