



# WESTCODE SEMICONDUCTORS



TECHNICAL  
PUBLICATION

**DP40**

ISSUE 1

March, 1980

## Stud-Base Silicon Rectifier Diodes Type PCN/PCRO40 70 amperes average: up to 1200 volts $V_{RRM}$

**RATINGS** Maximum values at 175°C T<sub>j</sub> unless stated otherwise

RATING	CONDITIONS	SYMBOL	
Average forward current	Half sine wave 100°C case temperature	$I_{F(AV)}$	70A
RMS current		$I_{F(RMS)}$	118A
DC forward current		$I_F$	118A
Peak one-cycle surge (non repetitive)	10ms duration $\left\{ \begin{array}{l} 60\% V_{RRM} \text{ re-applied} \\ V_R \leq 10 \text{ volts} \end{array} \right.$	$I_{FSM(1)}$	650A
		$I_{FSM(2)}$	750A
Maximum permissible surge energy	10ms duration $\left\{ \begin{array}{l} 60\% V_{RRM} \text{ re-applied} \\ V_R \leq 10 \text{ volts} \end{array} \right.$	$I^2 t (1)$	2113A <sup>2</sup> s
	3ms duration $V_R \leq 10 \text{ volts}$	$I^2 t (2)$	2800A <sup>2</sup> s 2072A <sup>2</sup> s
Case operating temperature		T <sub>C</sub>	-55, +175°C
Storage temperature		T <sub>stg</sub>	-55, +175°C

**CHARACTERISTICS** Maximum values at 175°C T<sub>j</sub> unless stated otherwise

CHARACTERISTIC	CONDITIONS	SYMBOL	
Peak forward voltage drop	At 250A, $I_{FM}$	$V_{FM}$	1.5V
Forward conduction threshold voltage		$V_0$	1V
Forward conduction slope resistance		r	2mΩ
Peak reverse current	At $V_{RRM}$	$I_{RRM}$	8mA
Thermal resistance junction to case for a diode with a maximum forward voltage drop characteristic	DC and 180° sine wave 120° rectangular wave	$R_{th(j-c)}$	0.68°C/W 0.90°C/W
Thermal resistance case to heatsink		$R_{th(c-hs)}$	0.1°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	4	0
FIXED BASIC CODE	VOLTAGE CODE (see above)	FIXED OUTLINE CODE DO5		STUD POLARITY N = cathode R = anode		FIXED TYPE CODE			

Typical code SW06PCRO40 = 600V<sub>RRM</sub> diode with stud anode

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

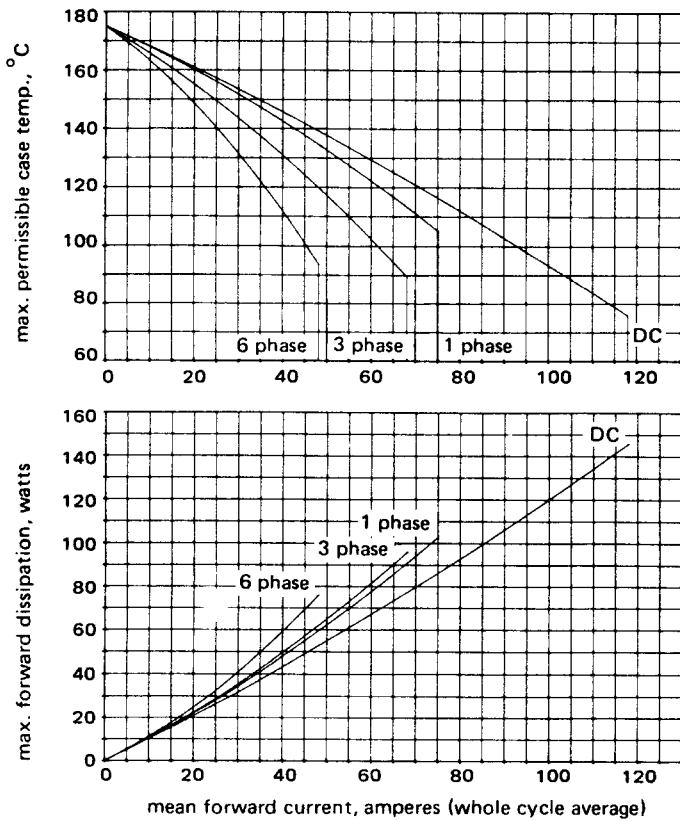


Figure 1 Dissipation and stud temperature v. mean forward current

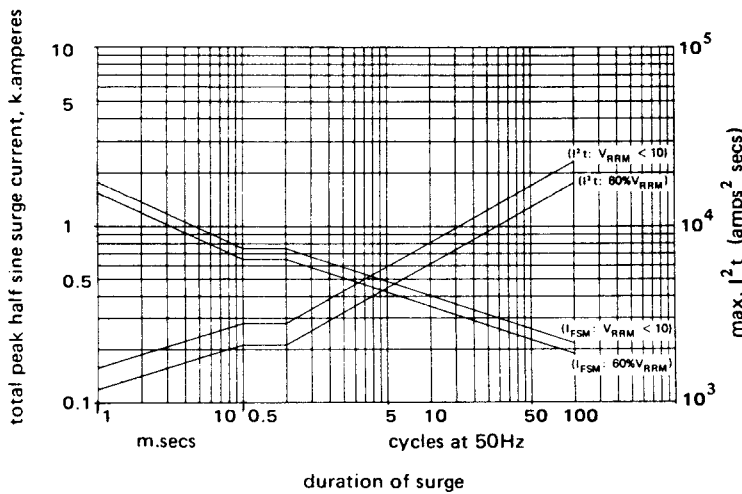


Figure 2 Max. non repetitive surge current at initial junction temperature 175°C

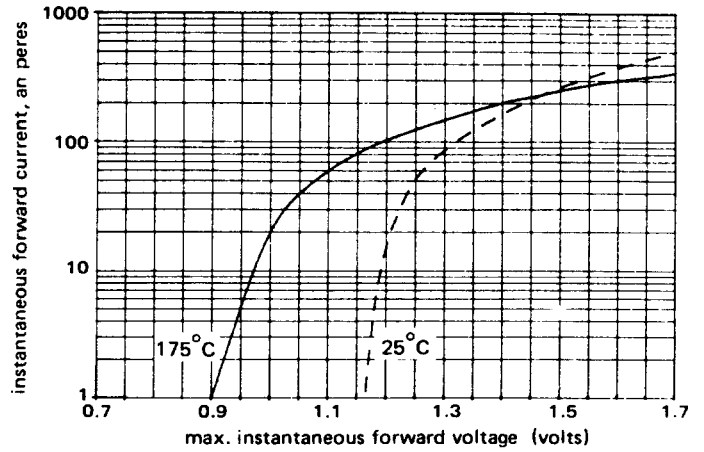


Figure 3 Forward voltage characteristic

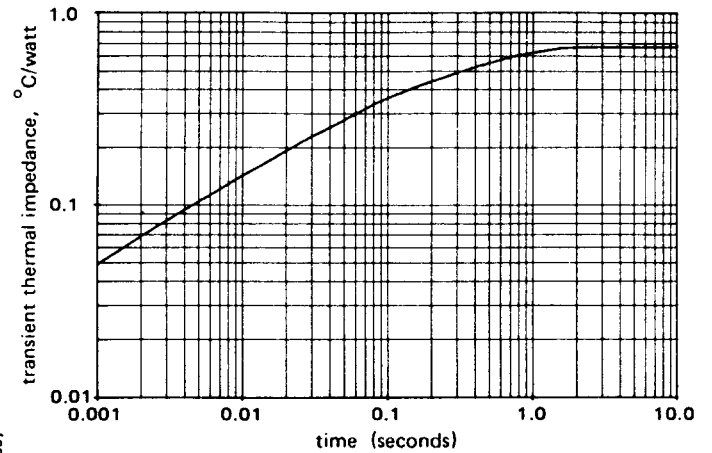
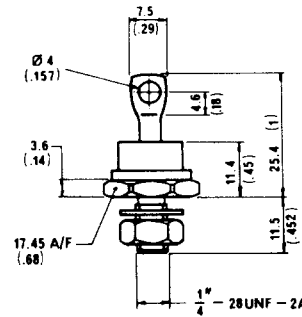


Figure 4 Transient thermal impedance, junction to case



Mounting Torque  
0.41 - 0.48 KgM  
threads not to be  
lubricated

Weight: 17 grams

dimensions  
in mm (inches)

Conforms to DO - 5

WESTCODE SEMICONDUCTORS LIMITED  
P.O. Box 57, Chippenham,  
Wiltshire, England SN15 1JL  
Telephone: (Sales) 0249 444524  
Telex: 44751 Telefax: 0249 659448