WESTCODE SEMICONDUCTORS

TECHNICAL PUBLICATION
D P380
ISSUE 1
May, 1980

Stud-Base Silicon Rectifier Diodes Type PHN/PHR380

370 amperes average: up to 2400 volts V_{RRM}

RATINGS Maximum values at 180°C Tj unless stated otherwise

RATING	CONDITIONS	SYMBOL	
Average forward current	Half sine wave 100°C case temperature	$I_{F(AV)}$	370A
RMS current		$I_{F(RMS)}$	600A
DC forward current		I_F	600A
Peak one-cycle surge (non repetitive)	8.3ms duration { 60% V_{RRM} re-applied; $V_R \leq$ 10 volts	$I_{FSM(1)}$	5830A
		$I_{FSM(2)}$	6413A
Maximum permissible surge energy	8.3ms duration { 60% V_{RRM} re-applied; $V_R \leq$ 10 volts	I^2t (1)	146470A²s
		I^2t (2)	177510A²s
	3ms duration $V_R \leq$ 10 volts		135000A²s
Case operating temperature		T_C	-30, +180°C
Storage temperature		T_{stg}	-40, +200°C

CHARACTERISTICS Maximum values at 180°C Tj unless stated otherwise

CHARACTERISTIC	CONDITIONS	SYMBOL	
Peak forward voltage drop	At 1200A, I_{FM}	V_{FM}	1.88V
Forward conduction threshold voltage		V_0	0.99V
Forward conduction slope resistance		r	0.74mΩ
Peak reverse current	At V_{RRM}	I_{RRM}	15mA
Thermal resistance junction to case for a diode with a maximum forward volt-drop characteristic	DC and 180° sine wave	$R_{th(j-c)}$	0.13°C/W
	120° rectangular wave		0.14°C/W
Thermal resistance case to heatsink		$R_{th(c-hs)}$	0.04°C/W

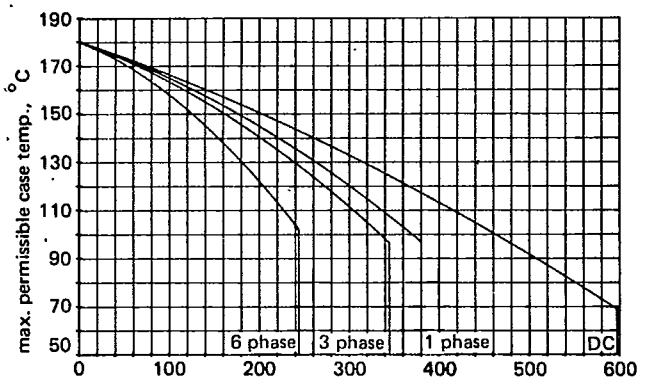
VOLTAGE CODE →	16	18	20	22	24				
Repetitive voltage V_{RRM}	1600	1800	2000	2200	2400				
Non-repetitive voltage V_{RSM}	1700	1900	2100	2300	2500				

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

S W	● ●	P H	●	3 8 0
FIXED BASIC CODE	VOLTAGE CODE (see above)	FIXED OUTLINE CODE	STUD POLARITY N = cathode R = anode	FIXED TYPE CODE

Typical code SW16PHR380 = 1600V_{RRM} diode with stud anode

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



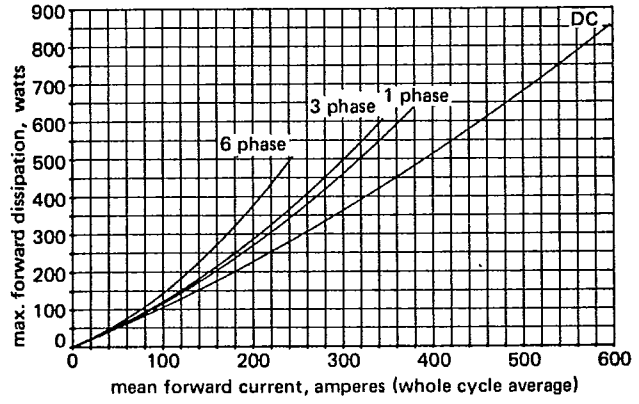


Figure 1 Dissipation and stud temperature v. mean forward current

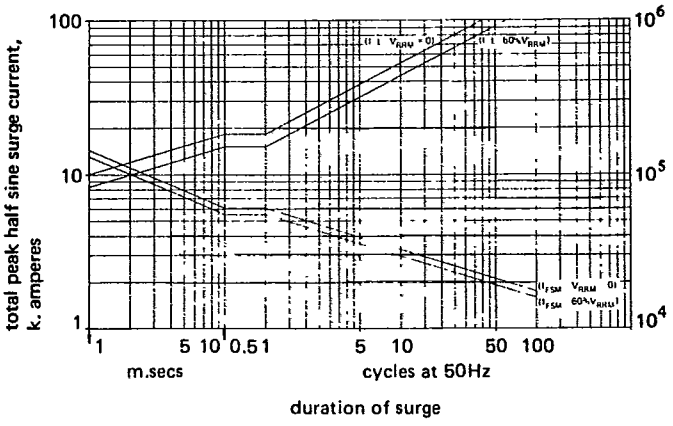


Figure 2 Max. non repetitive surge current at initial junction temperature 180°C

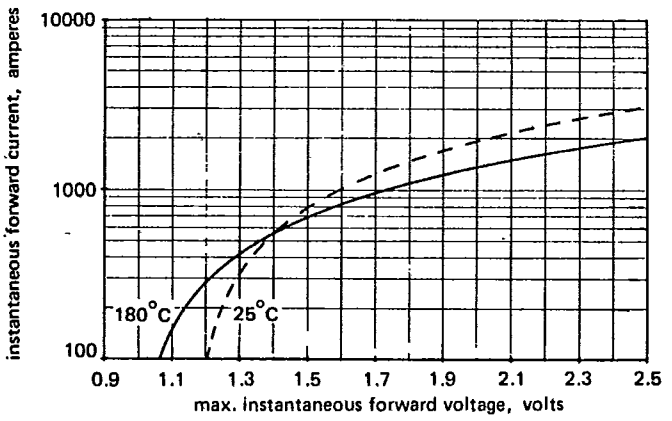


Figure 3 Forward voltage characteristic

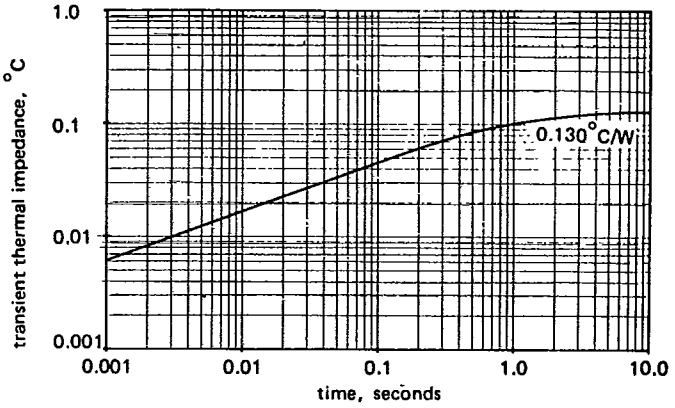
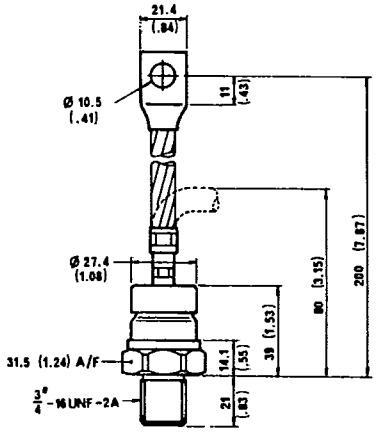


Figure 4 Transient thermal impedance, junction to case



Mounting Torque
2.50 – 2.77 KgM
threads not to be lubricated

Weight: 250 grams

dimensions in mm (inches)

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