



WESTCODE SEMICONDUCTORS

 TECHNICAL
PUBLICATION

D P380

ISSUE 1

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Stud-Base Silicon Rectifier Diodes Type PHN/PHR380

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

RATINGS Maximum values at 180°C T_j 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 $\left\{ \begin{array}{l} 60\% V_{RRM} \text{ re-applied} \\ V_R \leq 10 \text{ volts} \end{array} \right.$	$I_{FSM(1)}$ $I_{FSM(2)}$	5830A 6413A
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 $V_R \leq 10 \text{ volts}$	$I^2 t (1)$ $I^2 t (2)$	146470A ² s 177510A ² s 135000A ² s
Case operating temperature		T _C	-30, +180°C
Storage temperature		T _{stg}	-40, +200°C

CHARACTERISTICS Maximum values at 180°C T_j 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 voltage drop characteristic	DC and 180° sine wave 120° rectangular wave	$R_{th(j-c)}$	0.13°C/W 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.

DP380

34 DE 9709955 0001466 6

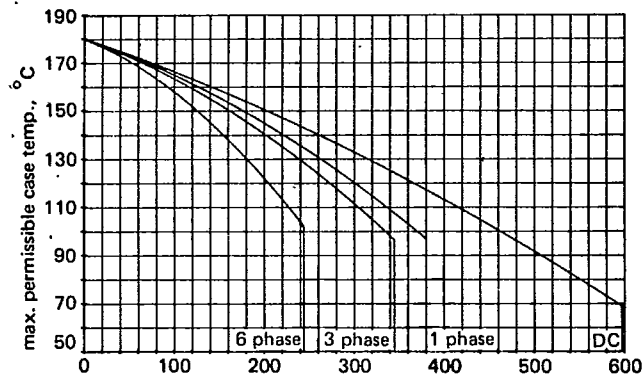


Figure 1 Dissipation and stud temperature
v. mean forward current

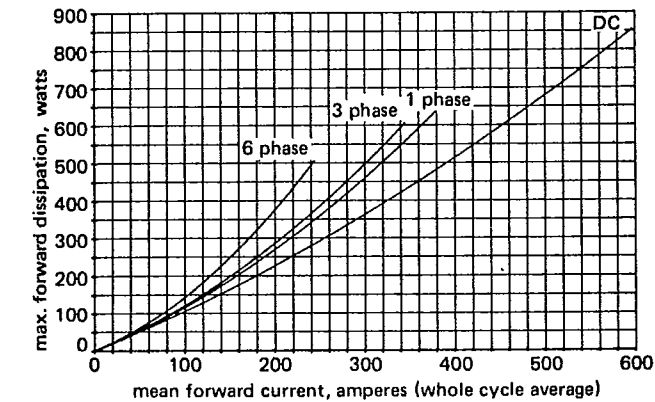


Figure 2 Max. non repetitive surge current
at initial junction temperature 180°C

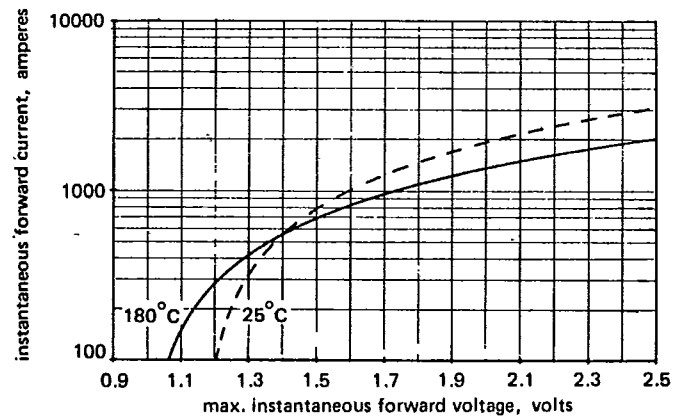


Figure 3 Forward voltage characteristic

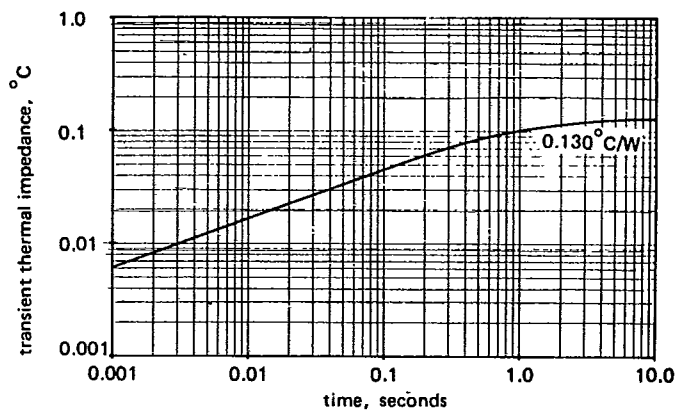
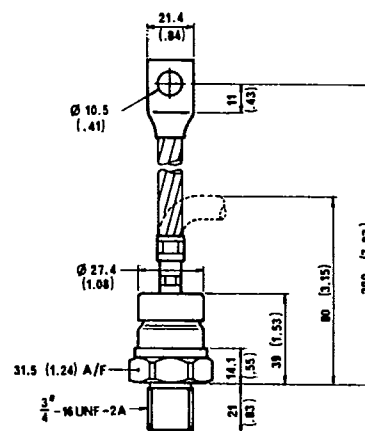


Figure 4 Transient thermal impedance, junction
to case



Mounting Torque
2.50 – 2.77 KgM
threads not to be
lubricated

Weight: 250 grams

dimensions
in mm (inches)

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