



WESTCODE



SEMICONDUCTORS

TECHNICAL
PUBLICATION

D P400

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Stud-Base Silicon Rectifier Diodes Type PHN/PHR400

400amperes average: up to 1500 volts V_{RRM}

RATINGS Maximum values at 190°C T_j unless stated otherwise

RATING	CONDITIONS	SYMBOL	
Average forward current	Half sine wave 120°C case temperature	$I_{F(AV)}$	400A
RMS current		$I_{F(RMS)}$	630A
DC forward current		I_F	630A
Peak one-cycle surge (non repetitive)	10ms duration $\begin{cases} 60\% V_{RRM} \text{ re-applied} \\ V_R \leq 10 \text{ volts} \end{cases}$	$I_{FSM(1)}$	7500A
		$I_{FSM(2)}$	8250A
Maximum permissible surge energy	10ms duration $\begin{cases} 60\% V_{RRM} \text{ re-applied} \\ V_R \leq 10 \text{ volts} \end{cases}$	$I^2 t (1)$	281000A ² s
	3ms duration $V_R \leq 10 \text{ volts}$	$I^2 t (2)$	340000A ² s
Case operating temperature		T_C	-30, +190°C
Storage temperature		T_{stg}	-40, +200°C

CHARACTERISTICS Maximum values at 190°C T_j unless stated otherwise

CHARACTERISTIC	CONDITIONS	SYMBOL	
Peak forward voltage drop	At 1500A, I_{FM}	V_{FM}	1.62V
Forward conduction threshold voltage		V_0	0.8V
Forward conduction slope resistance		r	0.55mΩ
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	$R_{th(j-c)}$	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 →	02	04	06	08	10	12	14	15	
Repetitive voltage V_{RRM}	200	400	600	800	1000	1200	1400	1500	
Non-repetitive voltage V_{RSM}	300	500	700	900	1100	1300	1500	1600	

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

S	W	●	●	P	H	●	4	0	0
FIXED BASIC CODE	VOLTAGE CODE (see above)	FIXED OUTLINE CODE	STUD POLARITY N = cathode R = anode	FIXED TYPE CODE					

Typical code SW06PHR400 = 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 P400

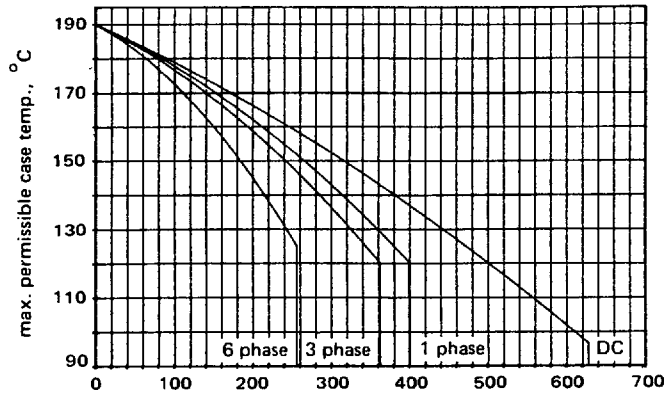


Figure 1 Dissipation and stud temperature
v. mean forward current

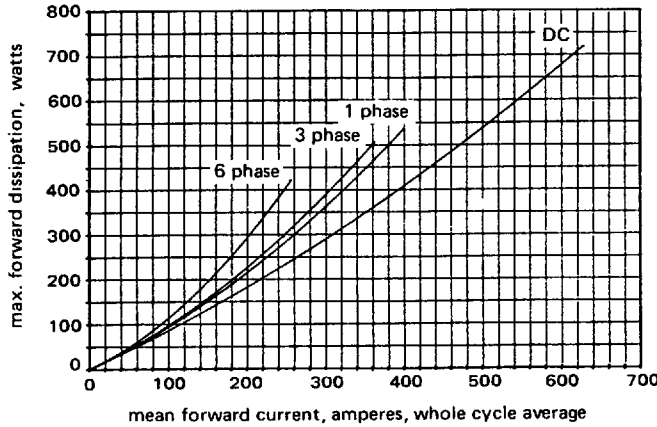


Figure 2 Max. non repetitive surge current
at initial junction temperature 190 °C

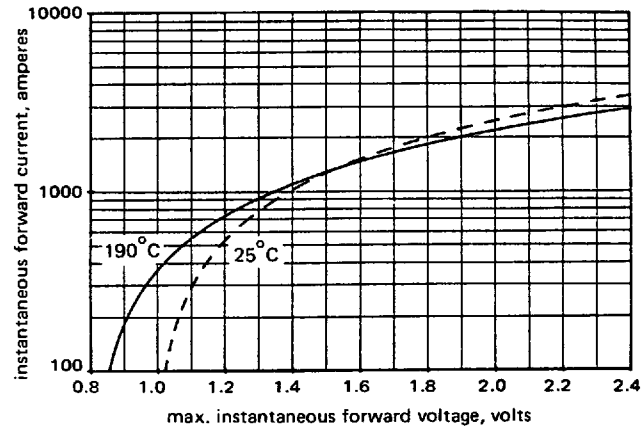


Figure 3 Forward voltage characteristic

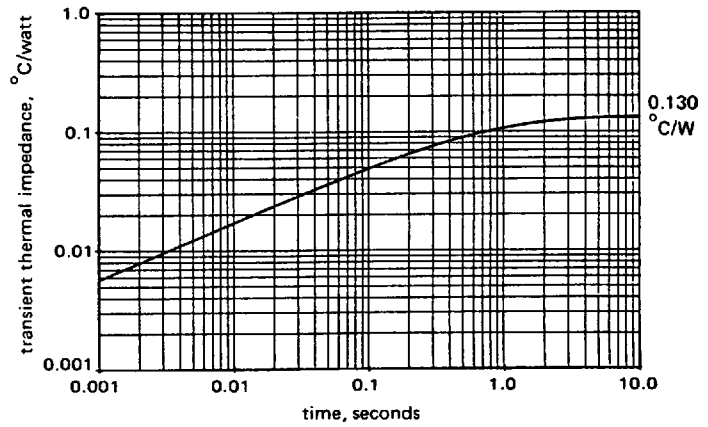
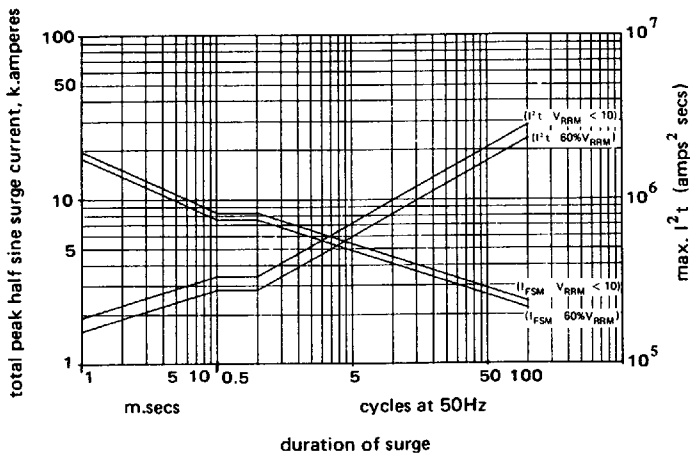


Figure 4 Transient thermal impedance, junction
to case



Mounting Torque
2.50 – 2.77 KgM
threads not to be
lubricated
Weight: 250 grams
dimensions
in mm (inches)



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