



WESTCODE SEMICONDUCTORS

Technical
Publication
TN195P

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Convertor Grade Stud-Base Thyristor Type N195P

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

Ratings (Maximum values at 125°C T_J unless stated otherwise)

RATING	CONDITIONS	SYMBOL	
Average on-state current	Half sine wave, 85°C case temperature	$I_T (AV)$	226A
R.M.S on-state current		$I_T (RMS)$	355A
Continuous on-state current		I_T	355A
Peak one-cycle surge (non-repetitive) on-state current	10ms duration, 60% V_{RRM} re-applied	$I_{TSM} (1)$	4650A
	10ms duration, $V_R \leq 10$ volts	$I_{TSM} (2)$	5120A
Maximum permissible surge energy	10ms duration, $V_R \leq 10$ volts	$I^2t (2)$	131000A ² s
	3ms duration, $V_R \leq 10$ volts	I^2t	97350A ² s
Peak forward gate current	Anode positive with respect to cathode	I_{FGM}	20A
Peak forward gate voltage	Anode positive with respect to cathode	V_{FGM}	18V
Peak reverse gate voltage		V_{RGM}	5V
Average gate power		P_G	2W
Peak gate power	100μs pulse width	P_{GM}	100W
Rate of rise of off-state voltage	To 80% V_{DRM} , gate open-circuit	dv/dt	*200V/μs
Rate of rise of on-state current (repetitive)	$\left. \begin{array}{l} \text{Gate drive 20 volts, 20 ohms with } t_r \leq 1 \mu s \\ \text{Anode voltage } \leq 80\% V_{DRM} \end{array} \right\}$	$di/dt (1)$	500A/μs
Rate of rise on on-state current (non-repetitive)		$di/dt (2)$	1000A/μs
Operating temperature range		T case	- 40 + 125°C
Storage temperature range		T _{stg}	- 40 + 150°C

Characteristics (Maximum values at 125°C T_J unless stated otherwise)

CHARACTERISTIC	CONDITIONS	SYMBOL	
Peak on-state voltage	At 710 A, I_{TM}	V_{TM}	1.62V
Forward conduction threshold voltage		V_O	0.92V
Forward conduction slope resistance		r	0.99mΩ
Repetitive peak off-state current	At V_{DRM}	I_{DRM}	20mA
Repetitive peak reverse current	At V_{RRM}	I_{RRM}	20mA
Maximum gate current required to fire all devices	$\left. \begin{array}{l} V_A = 6V, I_A = 2A \text{ at } 25^\circ C T_J \end{array} \right\}$	I_{GT}	150mA
Maximum gate voltage required to fire all devices		V_{GT}	3V
Maximum holding current		I_H	600mA
Maximum gate voltage which will not trigger any device		V_{GD}	0.25V
Thermal resistance, junction to case for a device with a maximum forward volt drop characteristic	DC and 180° sine wave	$R_{th(j-c)}$	0.12°C/W
	120° rectangular wave		0.14°C/W
Thermal resistance case to heatsink		$R_{th(c-hs)}$	0.04°C/W

VOLTAGE CODE		H02	H04	H06	H08	H10	H12	H14	H15
Repetitive peak voltages	V_{RRM} V_{DRM}								
Non-repetitive peak off-state voltage	V_{DSM}	200	400	600	800	1000	1200	1400	1500
Non-repetitive peak reverse blocking voltage	V_{RSM}	300	500	700	900	1100	1300	1500	1600

Ordering Information (Please quote device code as explained below – 8 digits)

N 1 9 5 P	● ● ●	Typical code: N195PH12 = 1200 V_{RRM} 1200 V_{DRM} , 200 V/μs, dv/dt to 80% V_{DRM}
	Voltage code (see ratings)	

* Other values of dv/dt may be available.

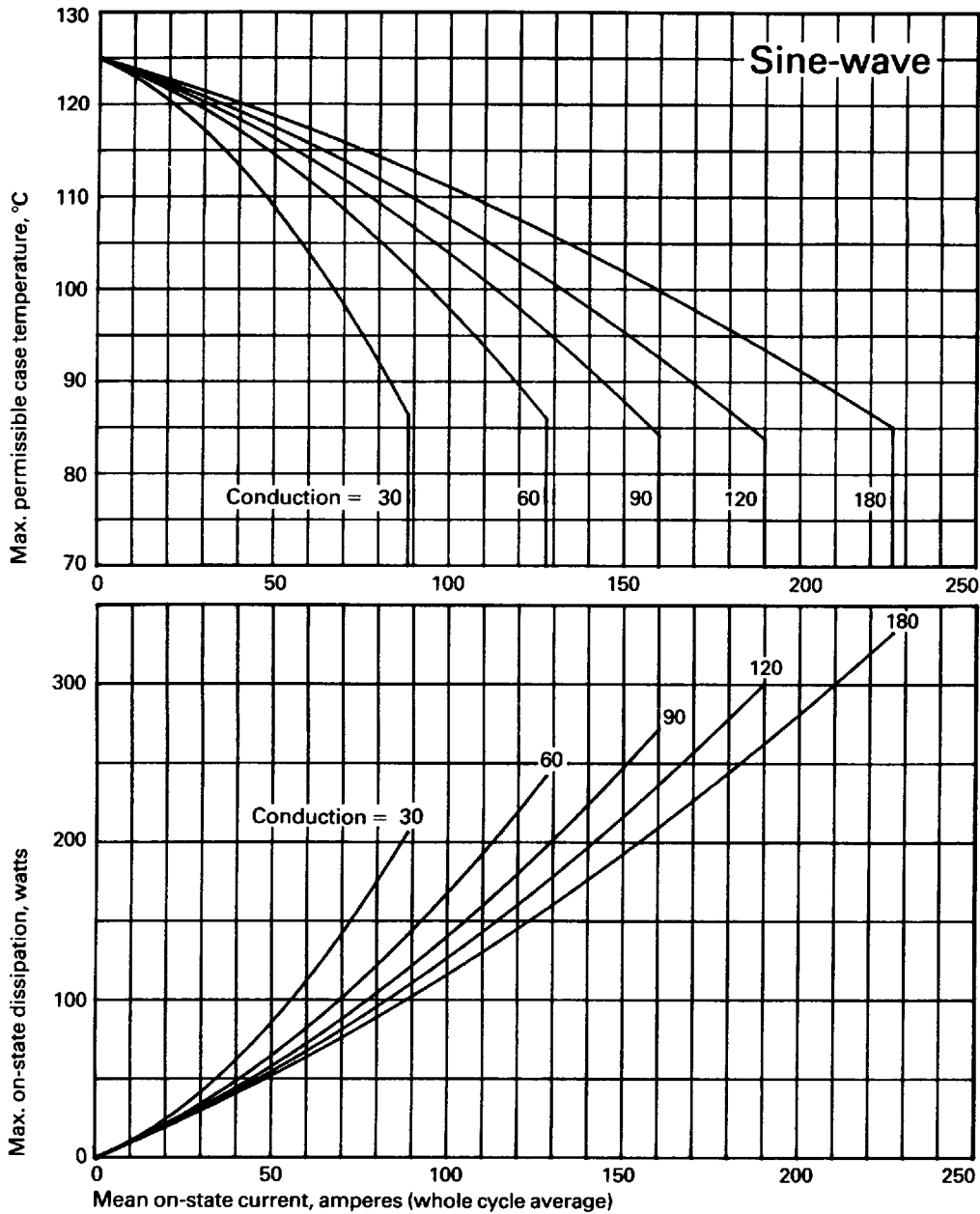


Figure 1 Dissipation and case temperature v. current

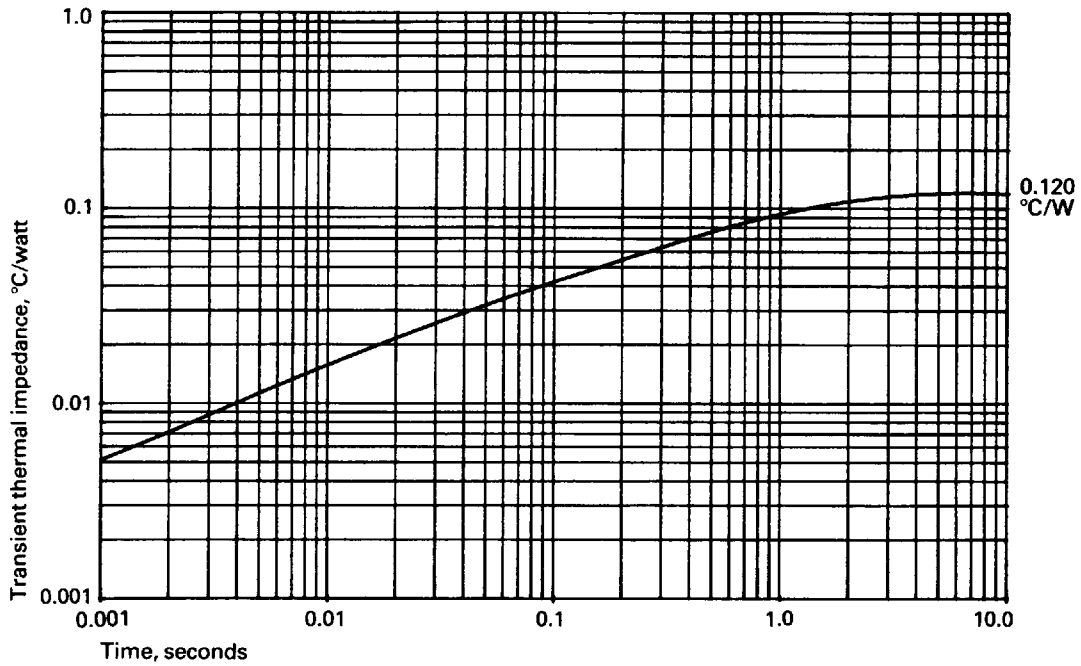


Figure 2 Junction to case thermal impedance

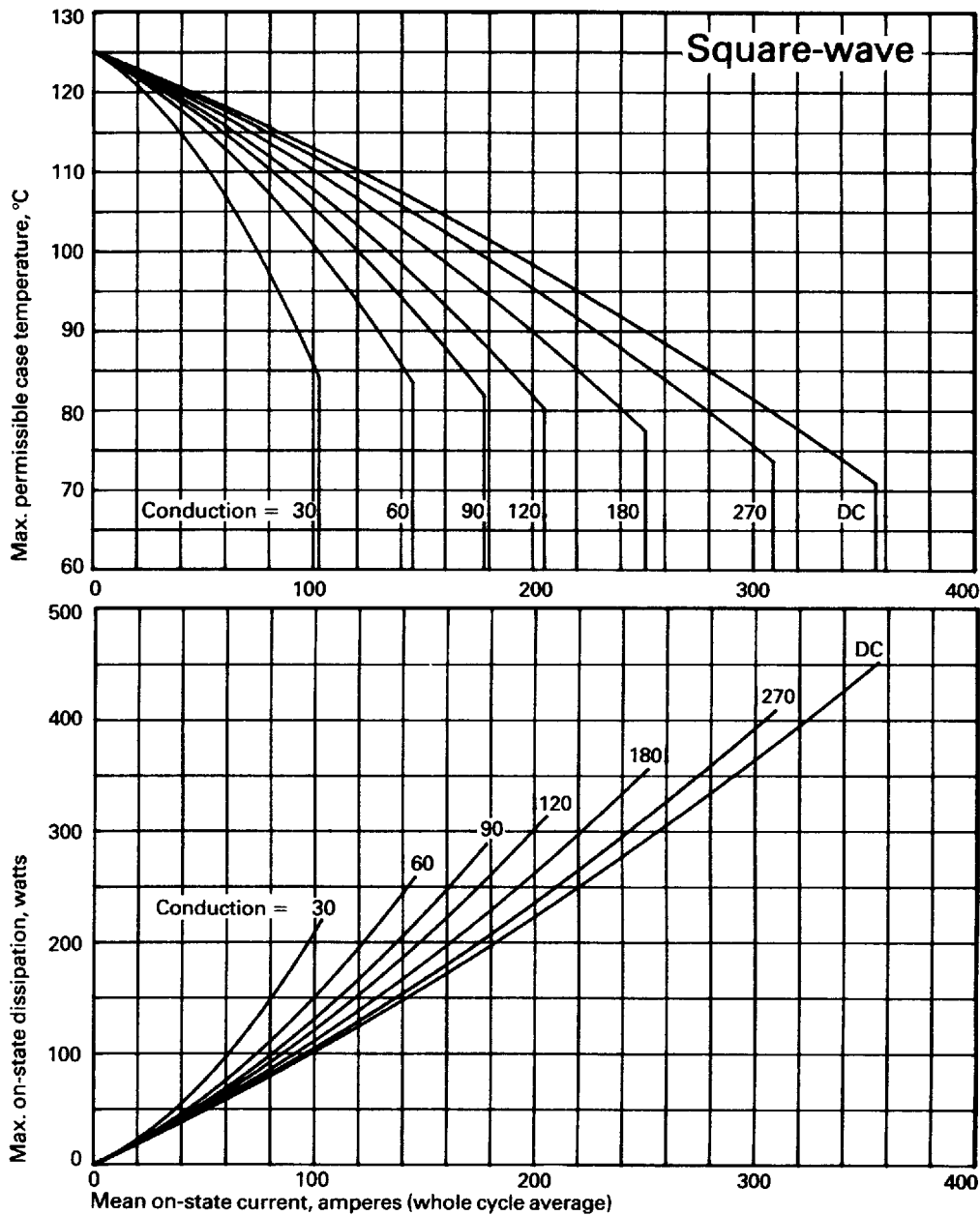


Figure 3 Dissipation and case temperature v. current

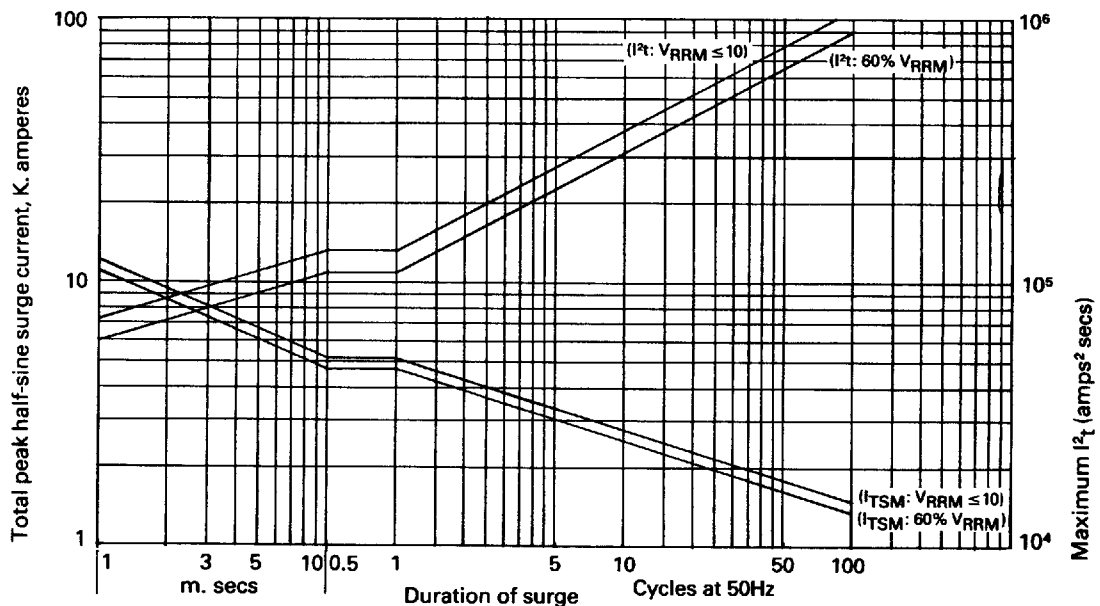


Figure 4 Max. non-repetitive surge current at initial junction temperature 125°C.

(gate may temporarily lose control of firing angle)

Note: This rating must not be interpreted as an intermittent rating

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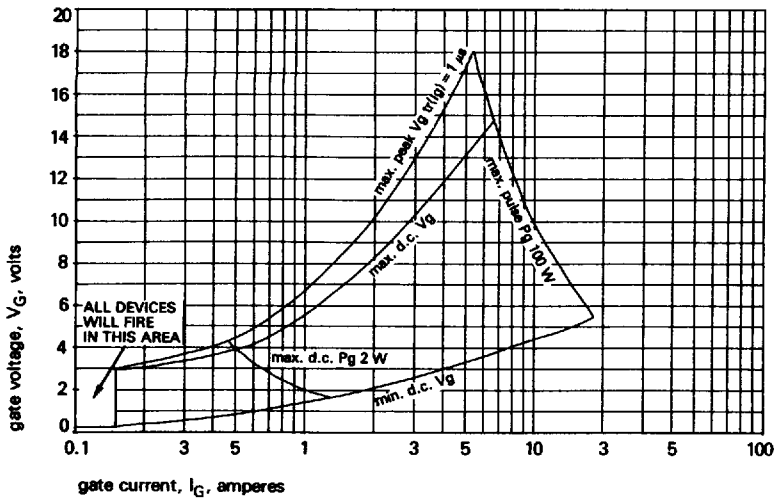


Figure 5 Gate characteristic at 25°C junction temperature

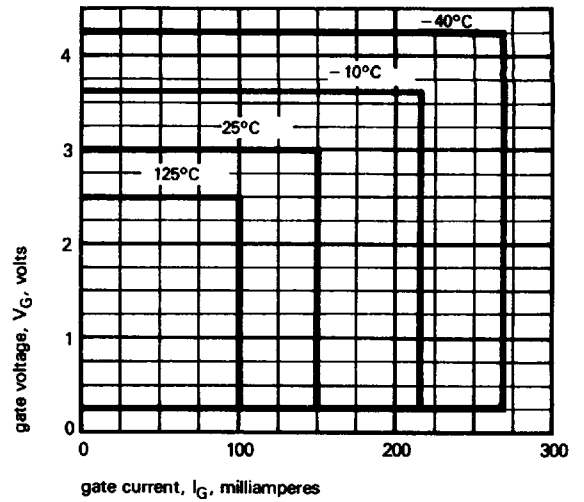


Figure 6 Gate triggering characteristics

Trigger points of all thyristors lie within the areas shown

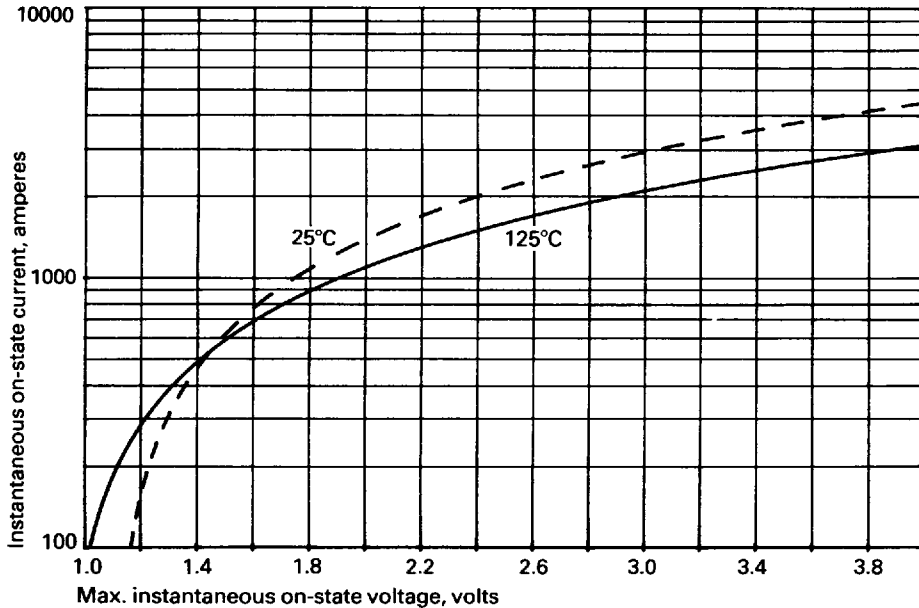
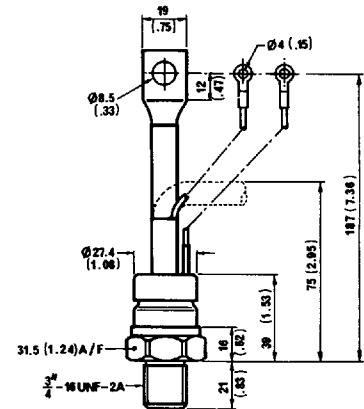


Figure 7 Limit on-state characteristic



dimensions in mm (inches)
 Mounting Torque: 24.5-27 Nm
 (2.5-2.77 kgf-m)
 Weight: 280 grams

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

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