



# WESTCODE SEMICONDUCTORS

Technical  
Publication  
**TN275P**  
Issue 1  
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## Converter Grade Stud-Base Thyristor Type N275P

275 amperes average: up to 800 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	$I_T(AV)$
R.M.S on-state current		$I_T(RMS)$
Continuous on-state current		$I_T$
Peak one-cycle surge (non-repetitive) on-state current	10ms duration, 60% $V_{RRM}$ re-applied 10ms duration, $V_R \leq 10$ volts	$I_{TSM(1)}$ $I_{TSM(2)}$
Maximum permissible surge energy	10ms duration, $V_R \leq 10$ volts 3ms duration, $V_R \leq 10$ volts	$I^2t(2)$ $I^2t$
Peak forward gate current	Anode positive with respect to cathode	$I_{FGM}$
Peak forward gate voltage	Anode positive with respect to cathode	$V_{FGM}$
Peak reverse gate voltage		$V_{RGM}$
Average gate power	100μs pulse width	$P_G$
Peak gate power	To 80% $V_{DRM}$ , gate open-circuit	$P_{GM}$
Rate of rise of off-state voltage	{ Gate drive 20 volts, 20 ohms with $t_r \leq 1 \mu s$	$dv/dt$
Rate of rise of on-state current (repetitive)	{ Anode voltage $\leq 80\%$ $V_{DRM}$	$di/dt(1)$
Rate of rise on on-state current (non-repetitive)		$di/dt(2)$
Operating temperature range		$T_{case}$
Storage temperature range		$T_{stg}$

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

CHARACTERISTIC	CONDITIONS	SYMBOL
Peak on-state voltage	At 690A, $I_{TM}$	$V_{TM}$
Forward conduction threshold voltage		$V_0$
Forward conduction slope resistance		$r$
Repetitive peak off-state current	At $V_{DRM}$	$I_{DRM}$
Repetitive peak reverse current	At $V_{RRM}$	$I_{RRM}$
Maximum gate current required to fire all devices		$I_{GT}$
Maximum gate voltage required to fire all devices	{ $V_A = 6V$ , $I_A = 2A$ at 25°C $T_j$	$V_{GT}$
Maximum holding current		$I_H$
Maximum gate voltage which will not trigger any device		$V_{GD}$
Thermal resistance, junction to case for a device with a maximum forward volt drop characteristic	DC and 180° sine wave 120° rectangular wave	$R_{th(j-c)}$
Thermal resistance case to heatsink		$R_{th(c-hs)}$

VOLTAGE CODE		H02	H04	H06	H08				
Repetitive peak voltages	$V_{RRM}$								
Non-repetitive peak off-state voltage	$V_{DSM}$	200	400	600	800				
Non-repetitive peak reverse blocking voltage	$V_{RSM}$	300	500	700	900				

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

N	2	7	5	P	● ● ●	Typical code: N275PH06 = 600V <sub>RRM</sub> 600V <sub>DRM</sub> , 200V/μs. dv/dt to 80% V <sub>DRM</sub>
					Voltage code (see ratings)	

\* Other values of dv/dt may be available.

9000-3651

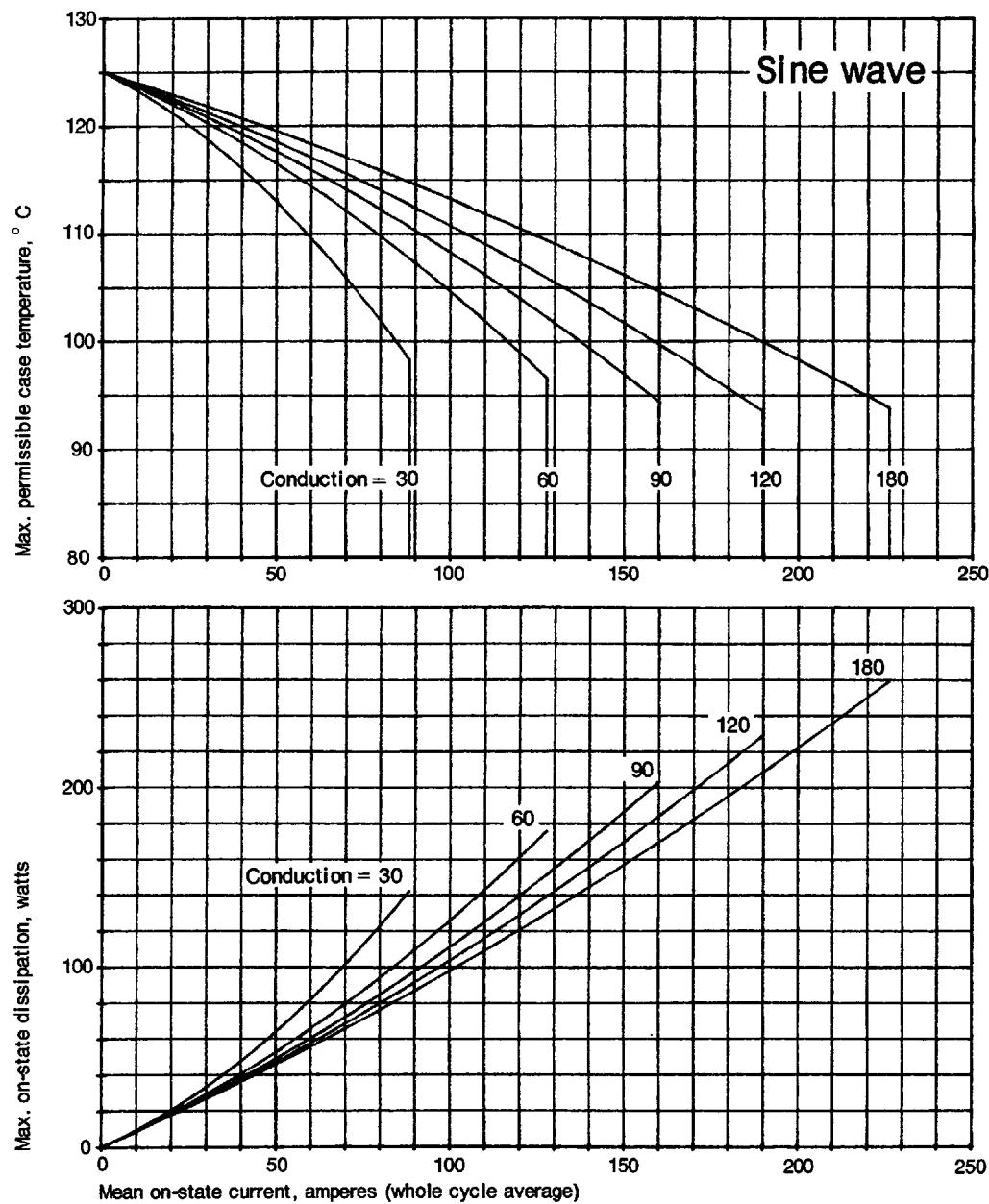


Figure 1 Dissipation and case temperature v. current

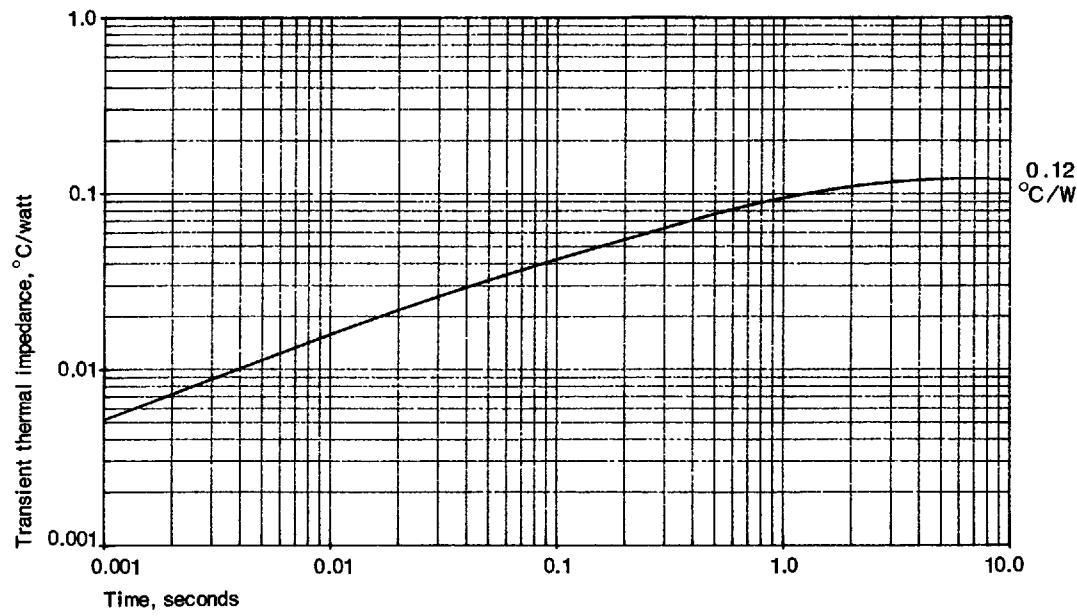


Figure 2 Junction to case thermal impedance

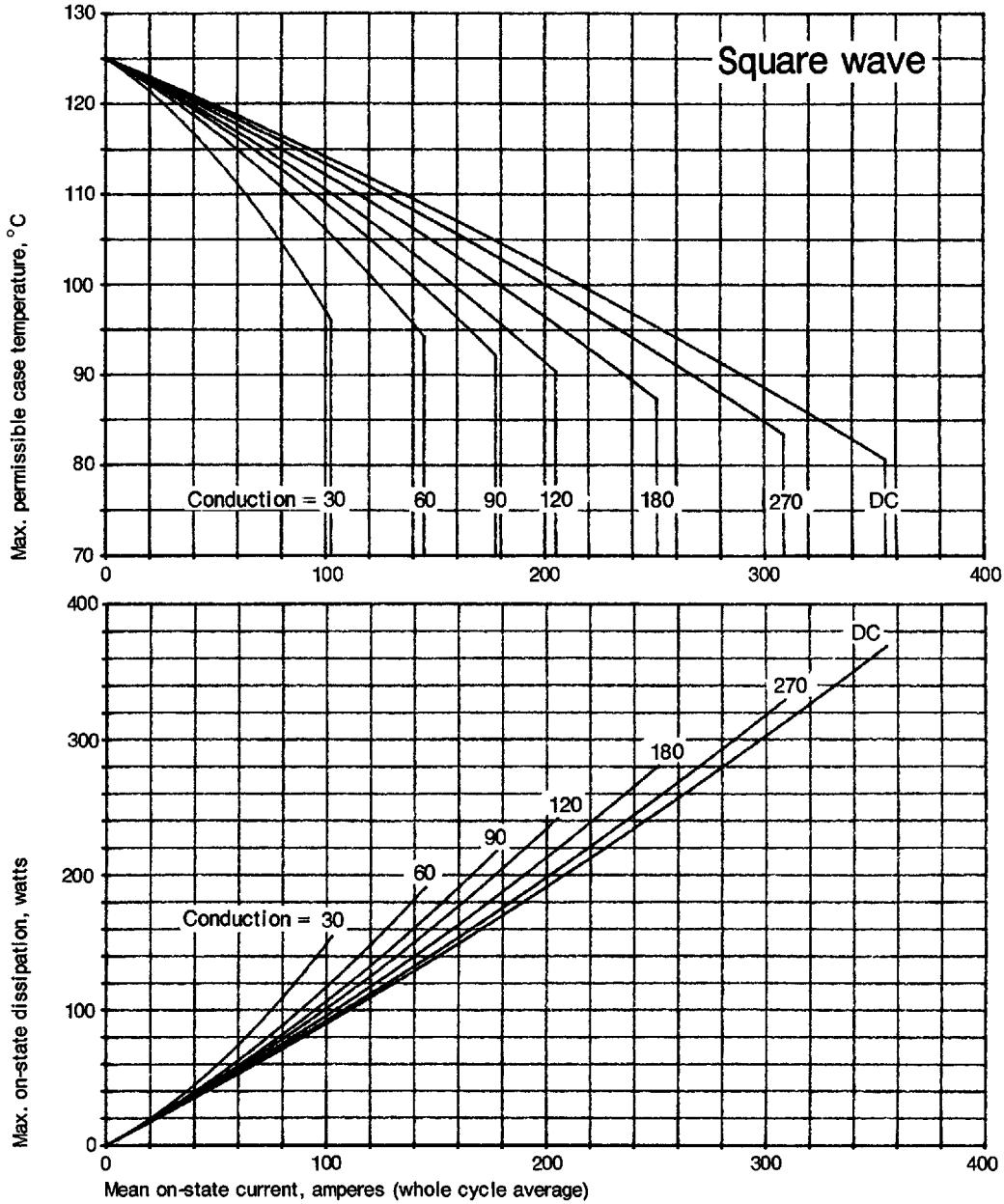


Figure 3 Dissipation and case temperature v. current

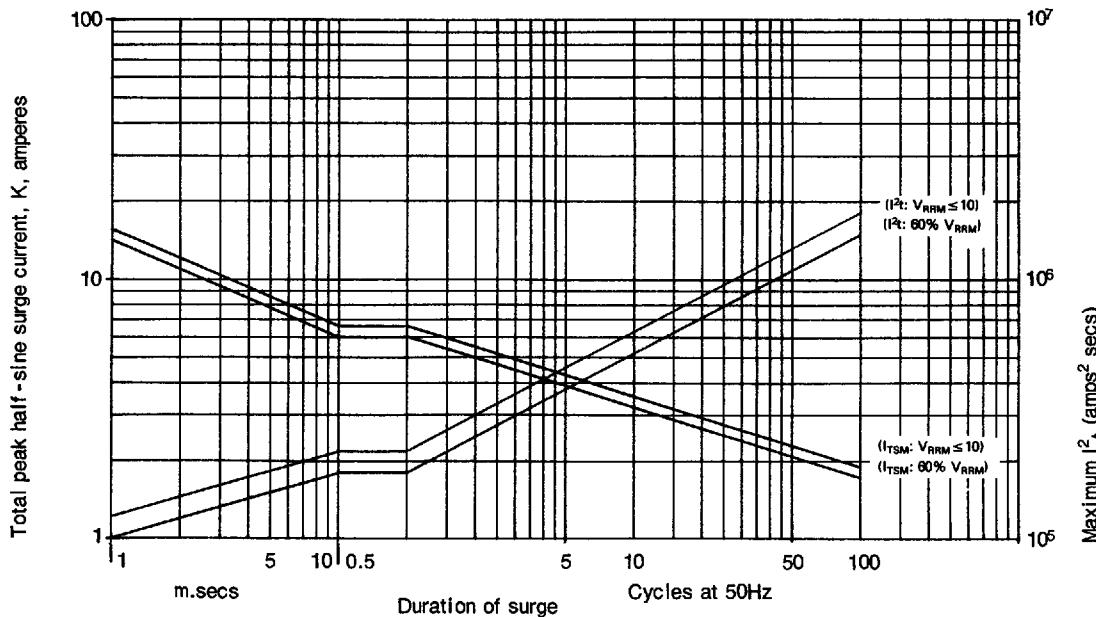
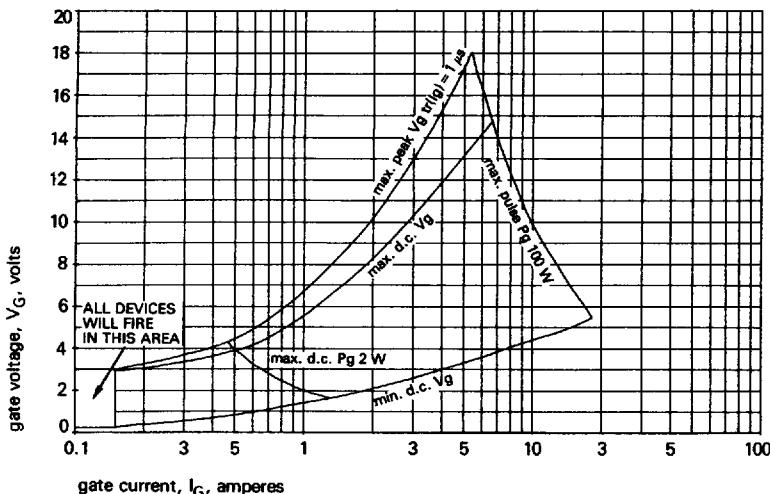


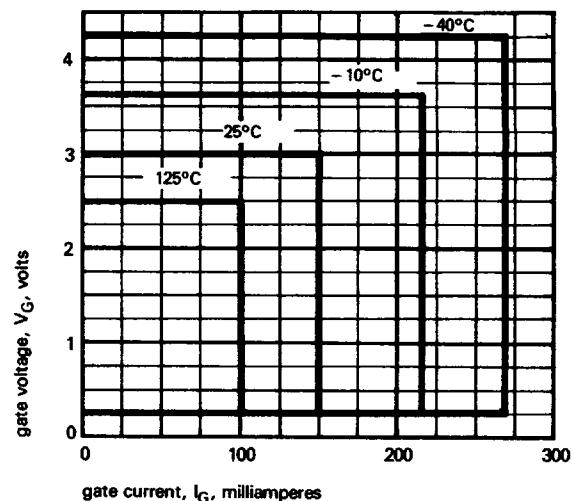
Figure 4 Max. non-repetitive surge current at initial junction temperature 125°C

(gate may temporarily lose control of firing angle)

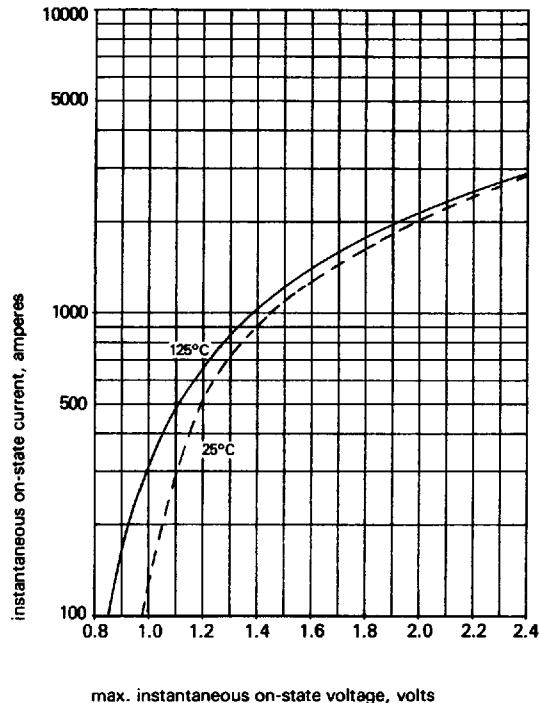
Note: This rating must not be interpreted as an intermittent rating

**TN275P**

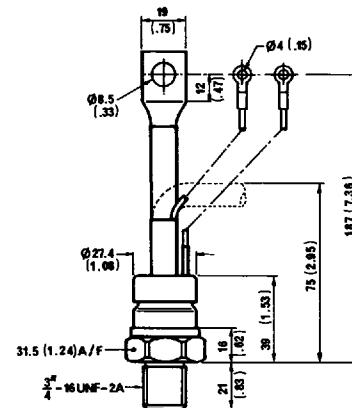
**Figure 5** Gate characteristics at 25°C junction temperature



**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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HAWKER SIDDELEY

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