

Phase Control Thyristor Stud Types N0131S#120 to N0131S#160

The data sheet on the subsequent pages of this document is a scanned copy of existing data for this product.

(Rating Report 86TR11 Issue 1)

This data reflects the old part number for this product which is: N086PH12-16.
This part number must **NOT** be used for ordering purposes – please use the ordering particulars detailed below.

The limitations of this data are as follows:
No reverse recovery data available

The following links will direct you to the appropriate outline drawings
[Outline W16](#) – ½" ceramic stud + lug
[Outline W17](#) – ½" ceramic stud

Where any information on the product matrix page differs from that in the following data, the product matrix must be considered correct

An electronic data sheet for this product is presently in preparation.

For further information on this product, please contact your local ASM or distributor.

Alternatively, please contact Westcode as detailed below.

Ordering Particulars			
N0131	S#	◆◆	0
Fixed Type Code	SH – ½" ceramic stud SJ – ½" ceramic stud + lug	Voltage code V _{RRM} /100 12-16	Fixed Code
Typical Order Code: N0131SJ120, ½" ceramic stud + lug, 1200V V _{RRM} /V _{DRM}			

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

Devices with a suffix code (2-letter, 3-letter or letter/digit/letter combination) added to their generic code are not necessarily subject to the conditions and limits contained in this report.

QUALITY EVALUATION LABORATORY

Rating Report: 86TR11
Origin:

Date : 3rd July, 1986
Pages : 13

Thyristor Types N086PH02-H15 & N086RH02-H15

Written: *M.W. Dunlop.*

Checked: *M.W.*

Approved: *Ble 2/1*

These thyristors have diffused silicon slices of 19 mm diameter mounted under spring pressure in stud base, top hat housings with or without a flexible lead. This Report supersedes Rating Report No. 79TR24 (Issue 2).

Ratings

Voltage Grades	: H02-H15
V_{DSM}	: 200-1500V
V_{RSM}	: 300-1600V
V_{DRM}, V_{RRM}	: 200-1500V
$I_T(AV)$: Single phase : 50 Hz, 180° sinewave	
$T_{CASE} = 85^{\circ}C$	: 85A
$I_T(rms)$ max.	: 175A
I_T d.c. max.	: 175A
I_{TSM} : $t = 10ms$ half sinewave; $T_J(initial) = 125^{\circ}C$; $V_{RM} = 0.6V_{RRM}(MAX)$	: 1700A
I_{TSM} : $t = 10ms$ half sinewave; $T_J(initial) = 125^{\circ}C$; $V_{RM} \leq 10V$	: 1950A
I^2t : $t = 10ms$; $T_J(initial) = 125^{\circ}C$; $V_{RM} = 0.6V_{RRM}(MAX)$	: $14.5 \times 10^3 A^2S$
I^2t : $t = 10ms$; $T_J(initial) = 125^{\circ}C$; $V_{RM} \leq 10V$	: $19 \times 10^3 A^2S$
I^2t : $t = 3ms$; $T_J(initial) = 125^{\circ}C$; $V_{RM} \leq 10V$	: $14 \times 10^3 A^2S$
di/dt : (Repetitive) $T_J = 125^{\circ}C$ Gate: 20 μA Rise time $1\mu S$	: 500A/ μS
I_{FGM} : Anode positive with respect to cathode	: 20A
V_{FGM} : " " " " " "	: 18V
V_{RGM} :	: 5V
$P_G(AV)$:	: 2W
P_{GM} :	: 100W
V_{GD} :	: 0.25V
T_C operating range	: -40 to 125°C
T_{stg} Non-operating	: -40 to 150°C

Characteristics

(maximum values unless stated otherwise)

$I_{GT} : T_J = 25^{\circ}C$	)				: 150mA
$I_H : T_J = 25^{\circ}C$	)	$V_A = 6V$	; $I_A = 1A$		: 600mA
$V_{GT} : T_J = 25^{\circ}C$	)				: 3V
$V_D : T_J = 125^{\circ}C$					: 1.57V
$r_T : T_J = 125^{\circ}C$					: 2.29mohms
$V_{TM} : I_{TM} = 270A$		$T_{VJ} = 125^{\circ}C$			: 2.19V
$R_{th} (J/C)$					: 0.23°C/W
dV/dt : Linear ramp to 0.8V _{DRM} (max), $T_J = 125^{\circ}C$: Gate 0/C;repetitive : 200V/uS*					
$I_{DRM} : T_J = 125^{\circ}C$		$V_{DM} = V_{DRM}(max)$			: 20mA
$I_{RRM} : T_J = 125^{\circ}C$		$V_{RM} = V_{RRM}(max)$			: 20mA
$Q_{RR} : I_{TM} =$	dI/dt	A/uS, 50% chord value			
	$V_{RM} :$	$T_{VJ} = 125^{\circ}C$			:
tq :	I_{TM}	dI/dt	A/uS; $T_J = 125^{\circ}C$ $V_{RM} = 50V$		:
		dV/dt = 200V/uS to 0.8V _{DRM}			:
	When specified, 20V/uS to 0.8V _{DRM} Typical				:
Outline drawings					: 101A231, 101A235
$R_{th} (C-H.S.)$					: 0.08°C/W
Mounting torque					: 1.45Kg.f-m
Outline (JEDEC NO.)					:

*Repetitive dv/dt

Higher dv/dt selections are available up to 1000V/uS on request.

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Changes to 79TR24(Issue 2)

p1: N086RH02-H15 added

V_{DWM} , V_{RWM} deleted

I_{FGM} increased to 20A

T_C - operating range MIN decreased to -40°C

p2: JEDEC No. deleted

I_L (= 200mA) changed to I_H at 6V, 1A = 600mA

Note 1 deleted, replaced by note on dV/dt

p7: $I_T - V_T$, Z_{th-t} drawn on separate pages

Old p8: $V_G - I_G$ re-drawn with $I_{FGM} = 20A$

Old p9: $I_{gt} - V_{gt}$ axes interchanged

New p13: N086R outline drawing added

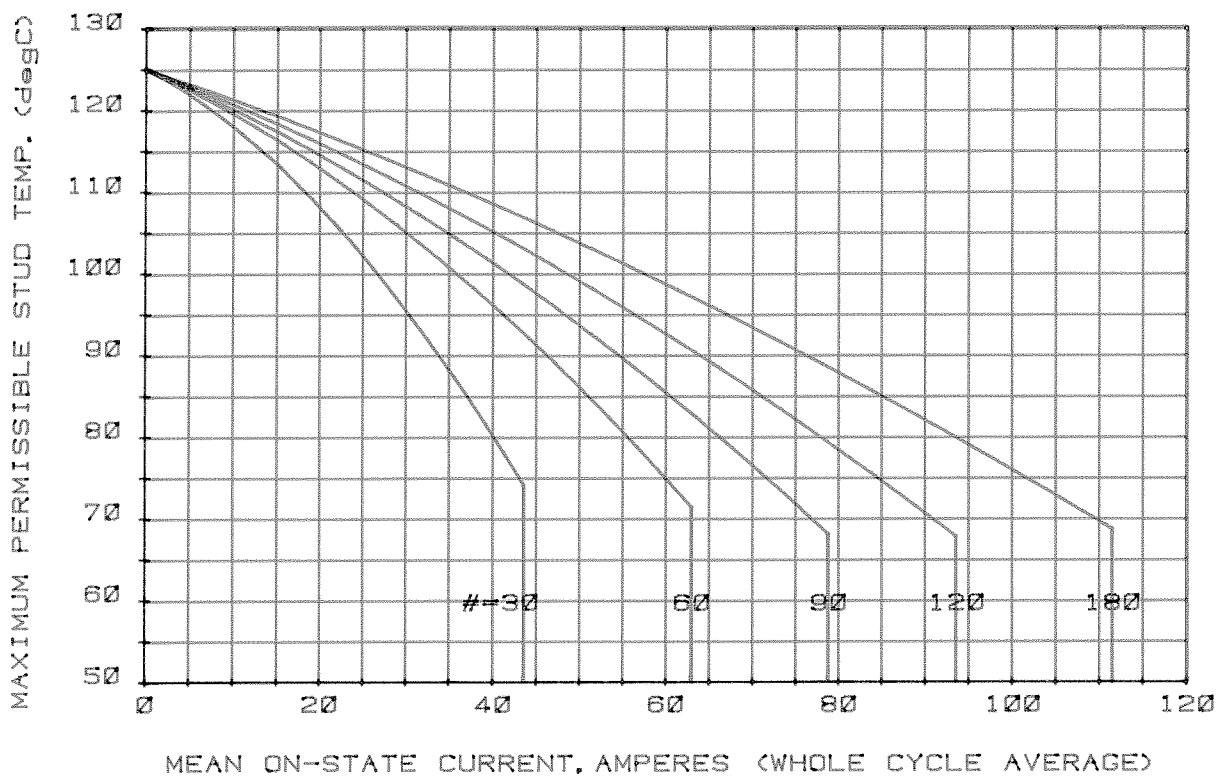
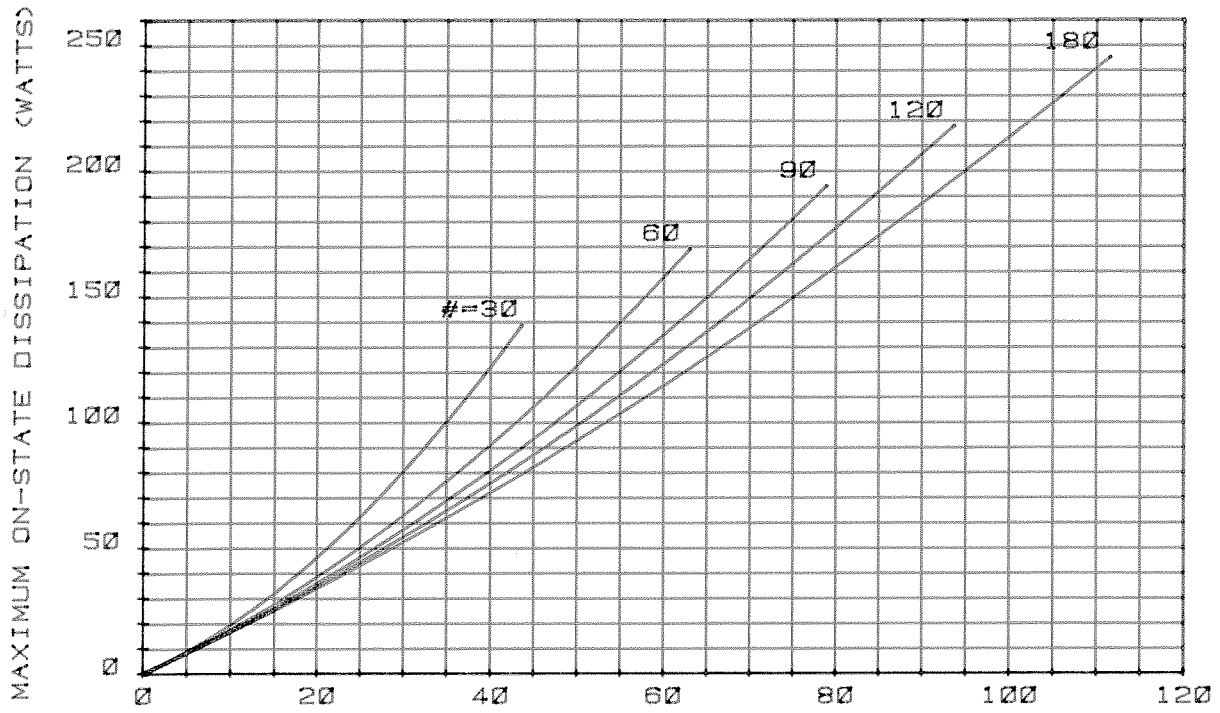
Voltage Ratings

Voltage Grade	V_{DSM} V_{DRM} V_{RRM} V	V_{RSM} V	V_D V_R DC
02	200	300	140
03	300	400	210
04	400	500	260
06	600	700	420
08	800	900	560
10	1000	1100	700
12	1200	1300	810
14	1400	1500	930
15	1500	1600	980

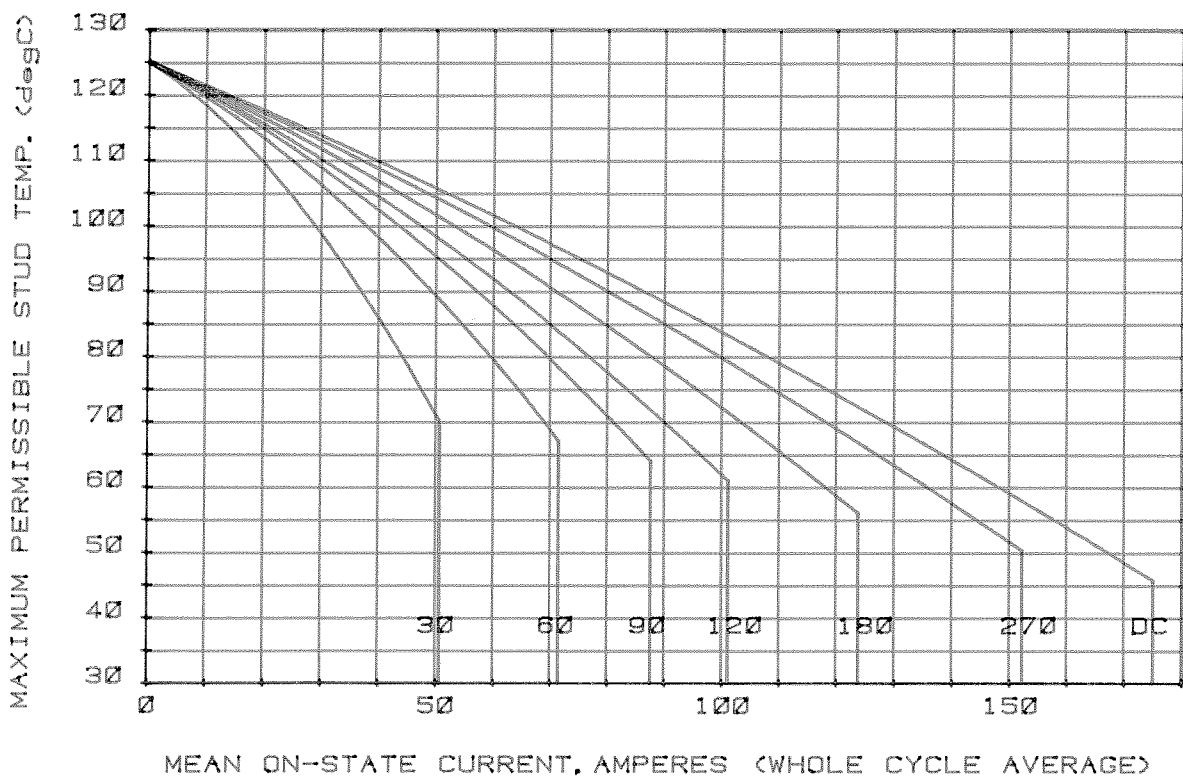
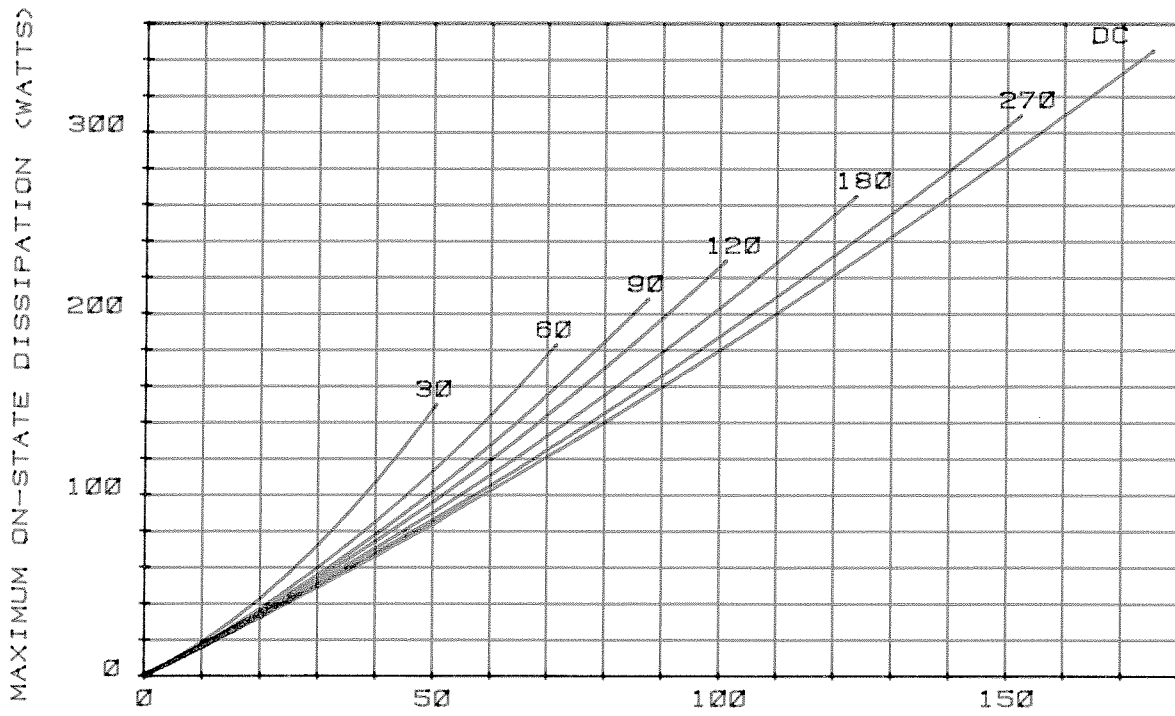
Extension of Voltage Grades

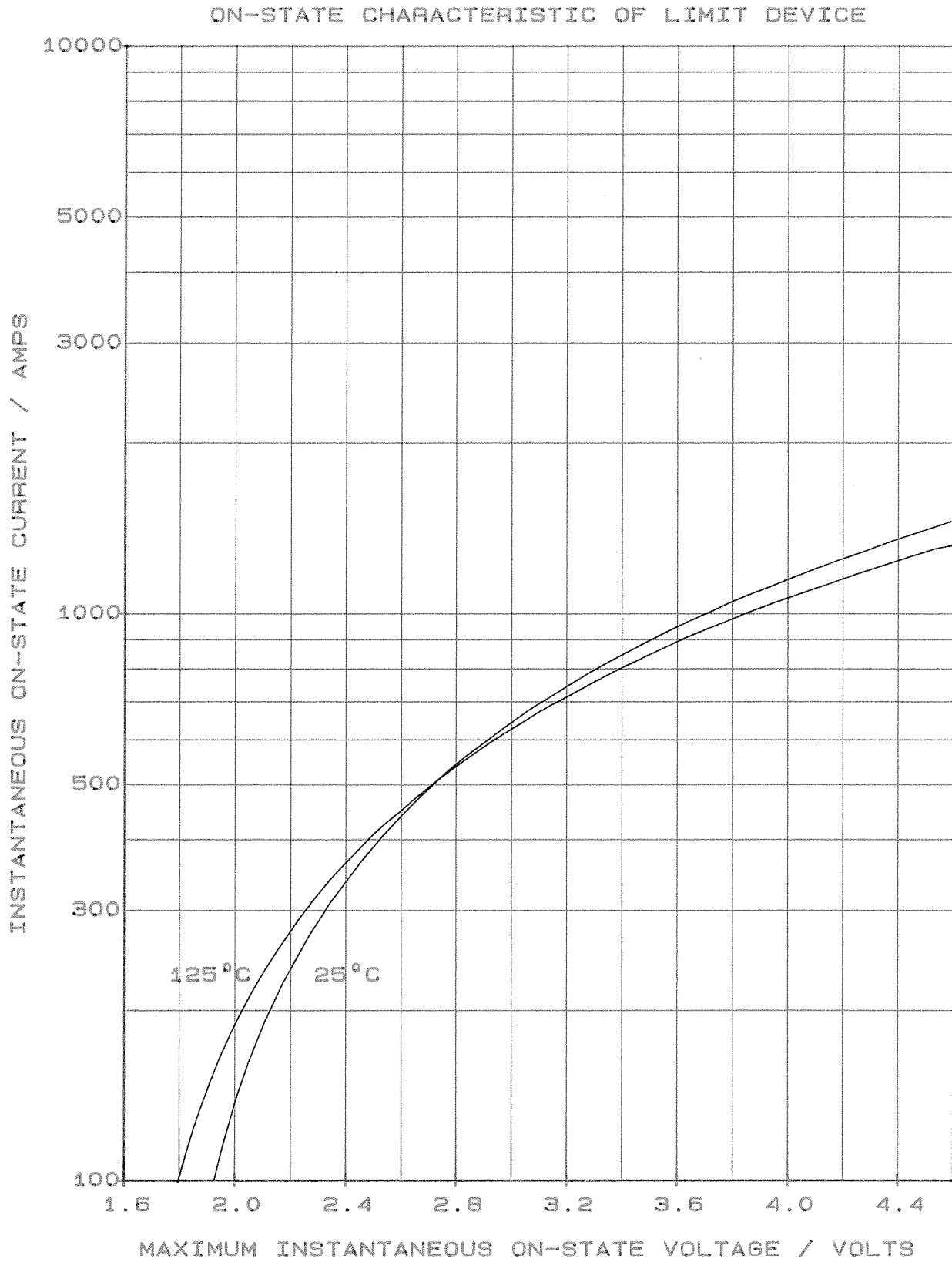
This report is applicable to other and higher voltage grades when supply has been agreed by Sales/Production.

SINE WAVE
= conduction angle(degrees)

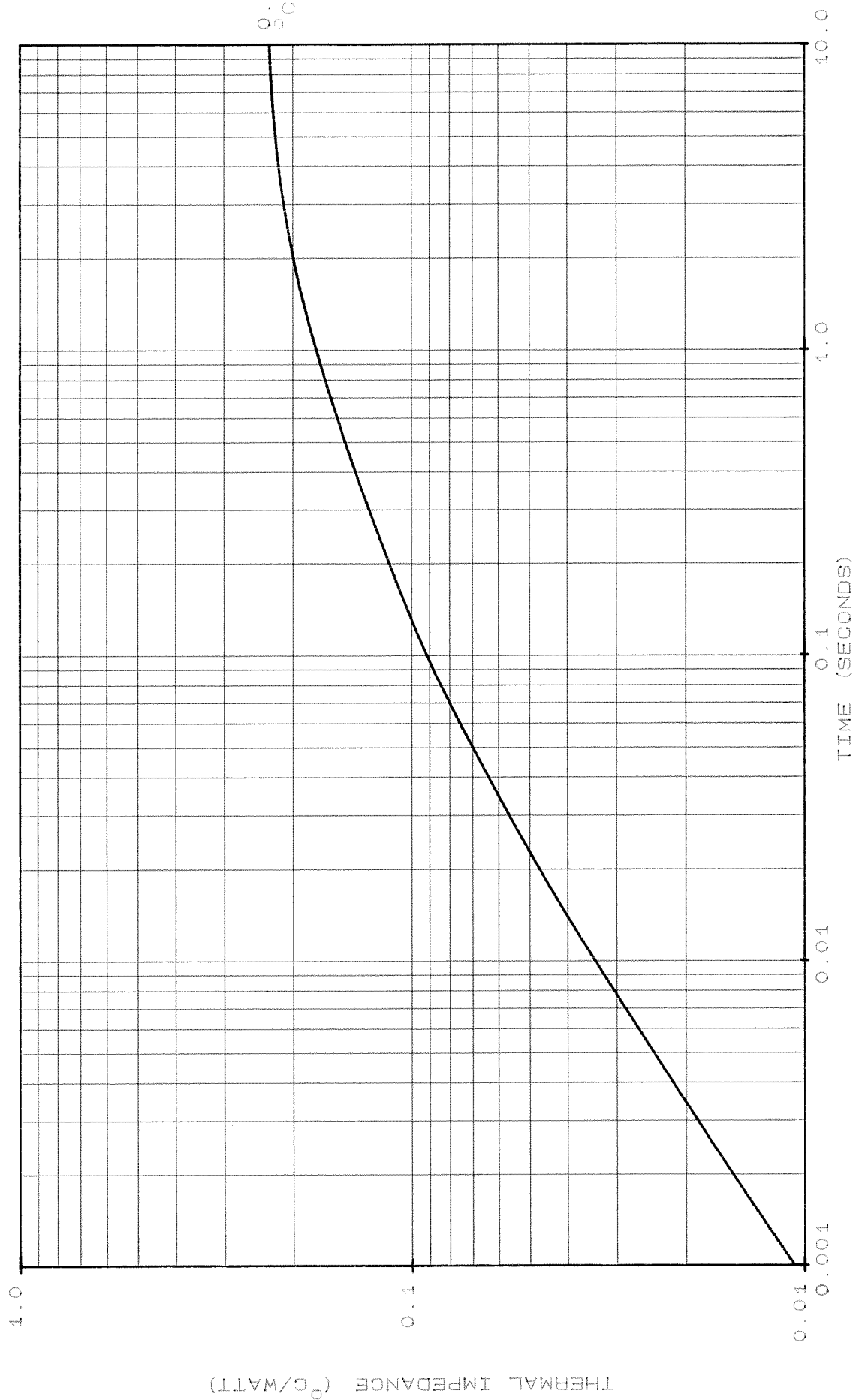


SQUARE WAVE
= conduction angle(degrees)

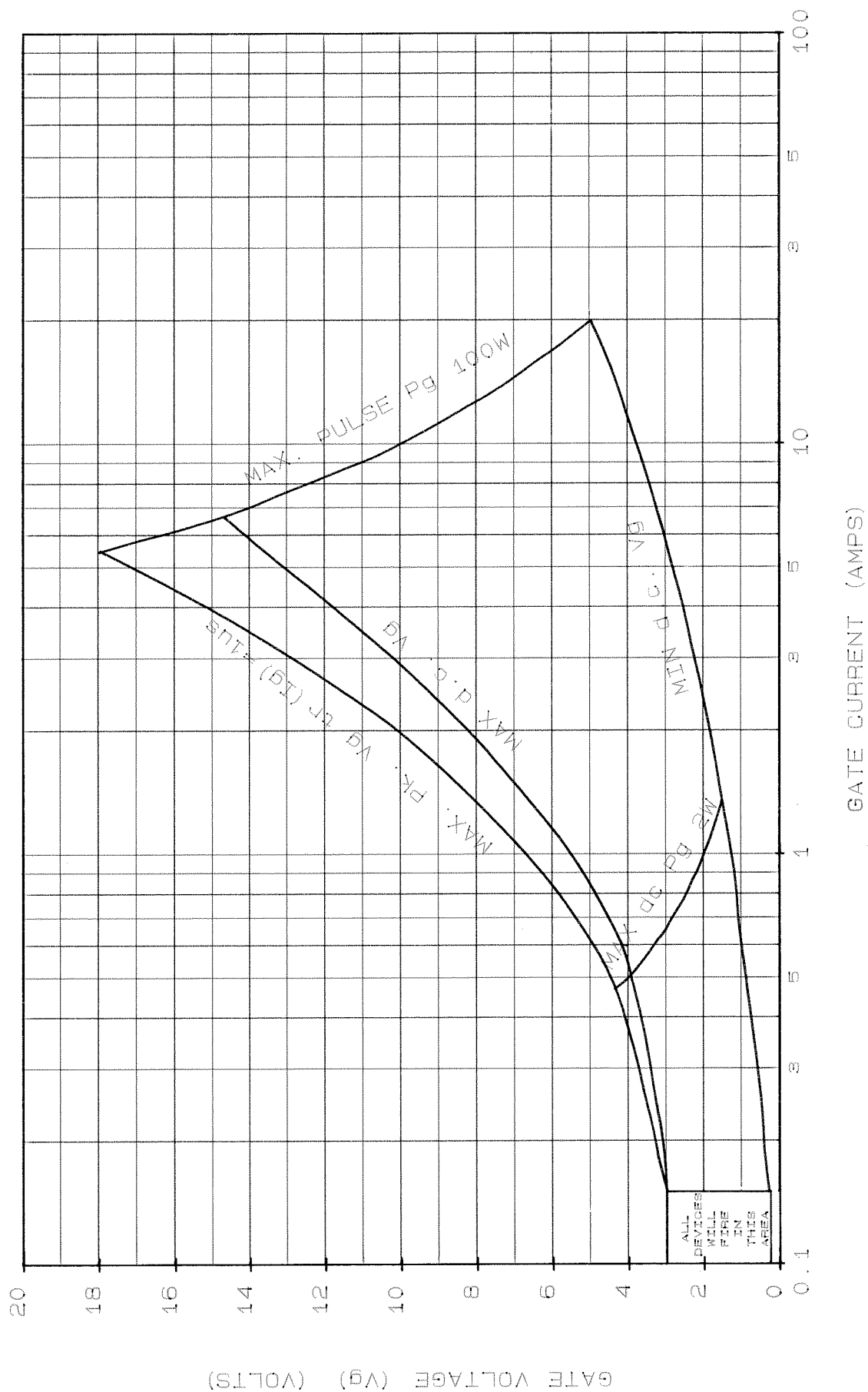




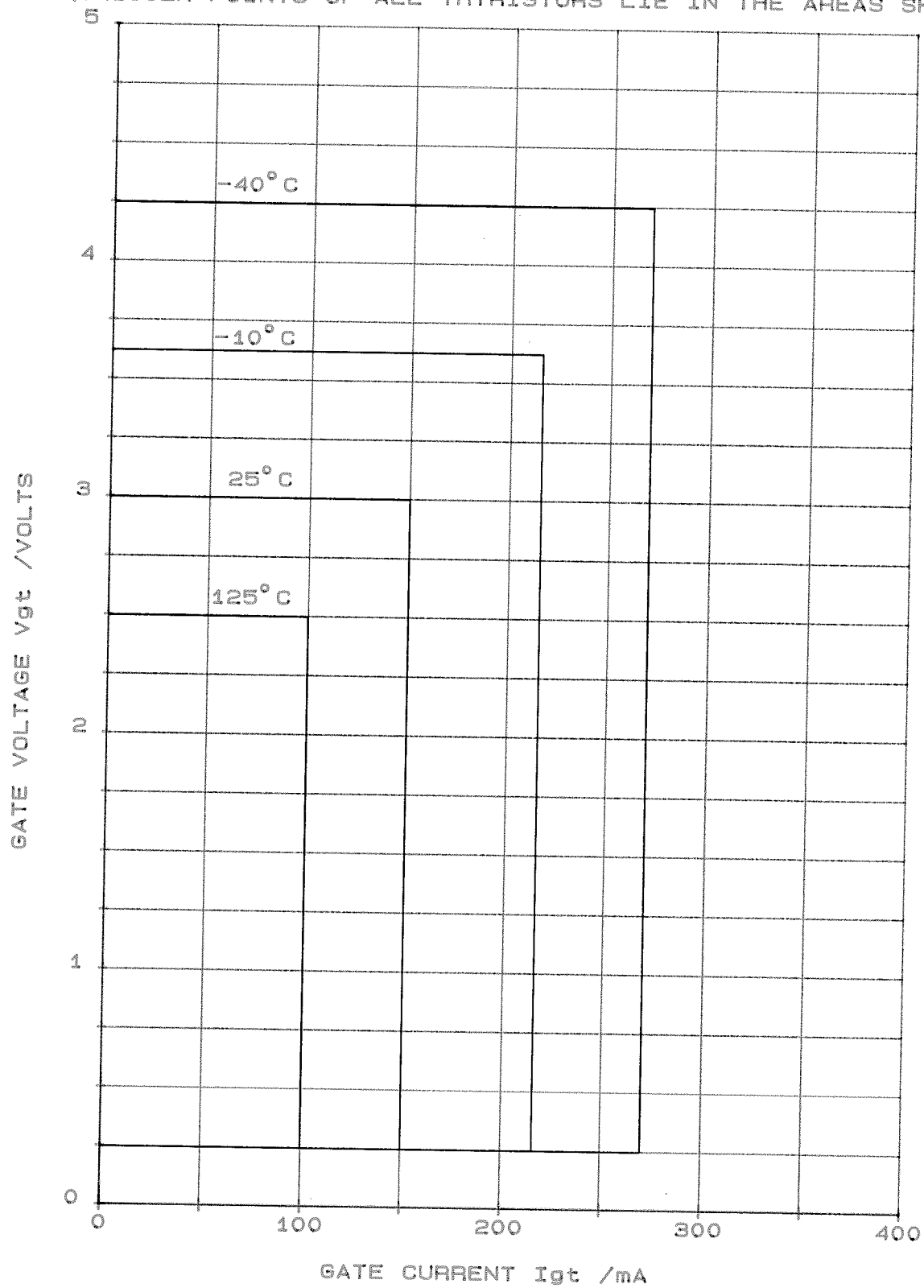
JUNCTION TO CASE THERMAL IMPEDANCE



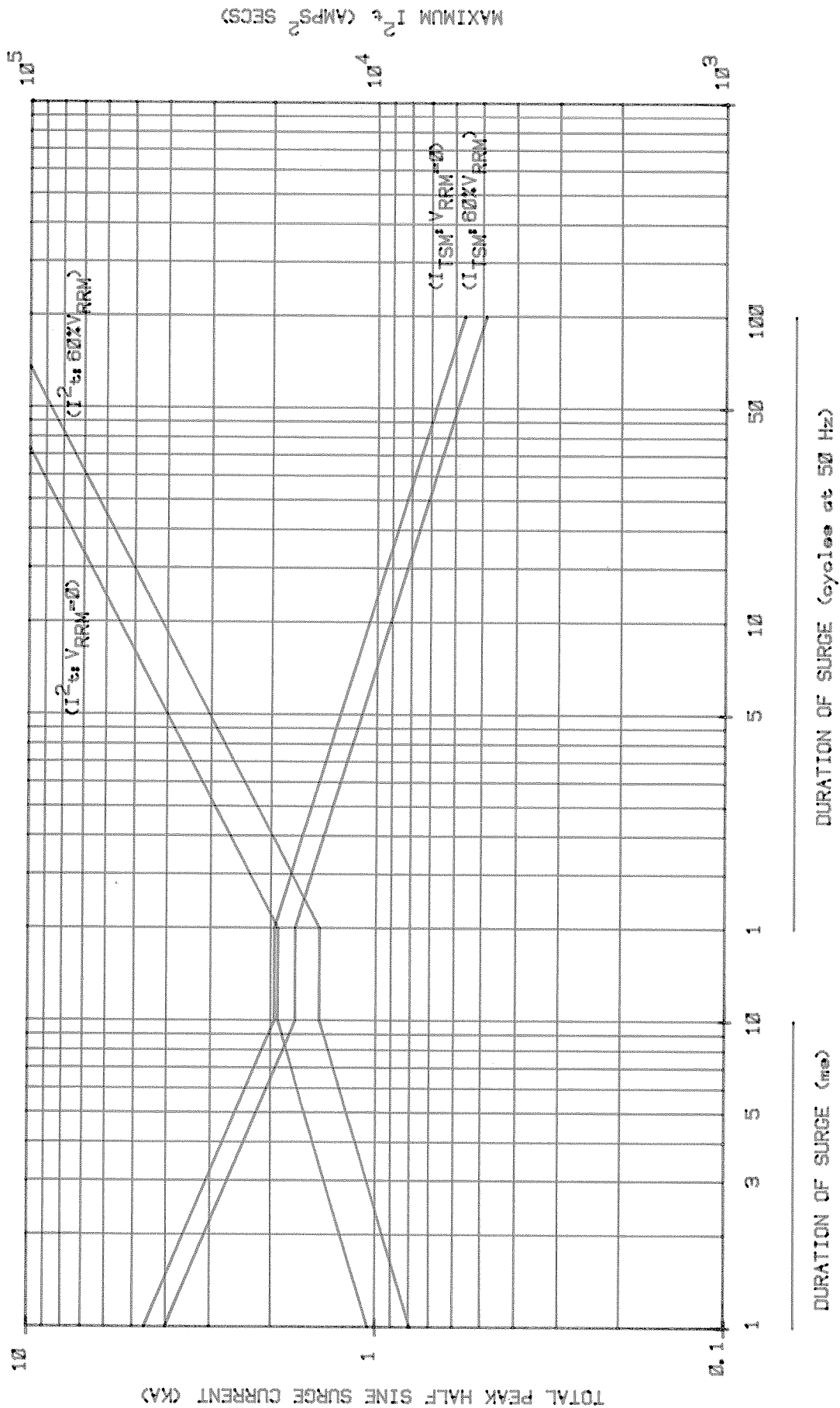
GATE CHARACTERISTICS AT 25°C JUNCTION TEMPERATURE



GATE TRIGGERING CHARACTERISTICS
(TRIGGER POINTS OF ALL THYRISTORS LIE IN THE AREAS SHOWN)



MAXIMUM NON REPETITIVE SURGE CURRENT AT INITIAL JUNCTION TEMPERATURE 125°C
 GATE MAY TEMPORARILY LOSE CONTROL OF CONDUCTION ANGLE



SCALE	1/1
DRN	11
CHKD	
APPD	
	U A
S	NI

INTERNATIONAL OUTLINE No.

- 12 -

WEIGHT.

FINISH. BRIGHT NICKEL PLATE.

DEVICE MARKING INCLUDES MONOGRAM, TYPE No., SPEC.

No. AND POLARITY SYMBOL.

DEVICE MOUNTING: DEVICE WILL BE SUPPLIED WITH A 1/2" - 20UNF - 2B HEX NUT AND A 1/2" FAN DISC WASHER. MOUNTING TORQUE 14Nm (1.45 kgf-m). DO NOT LUBRICATE THREADS.

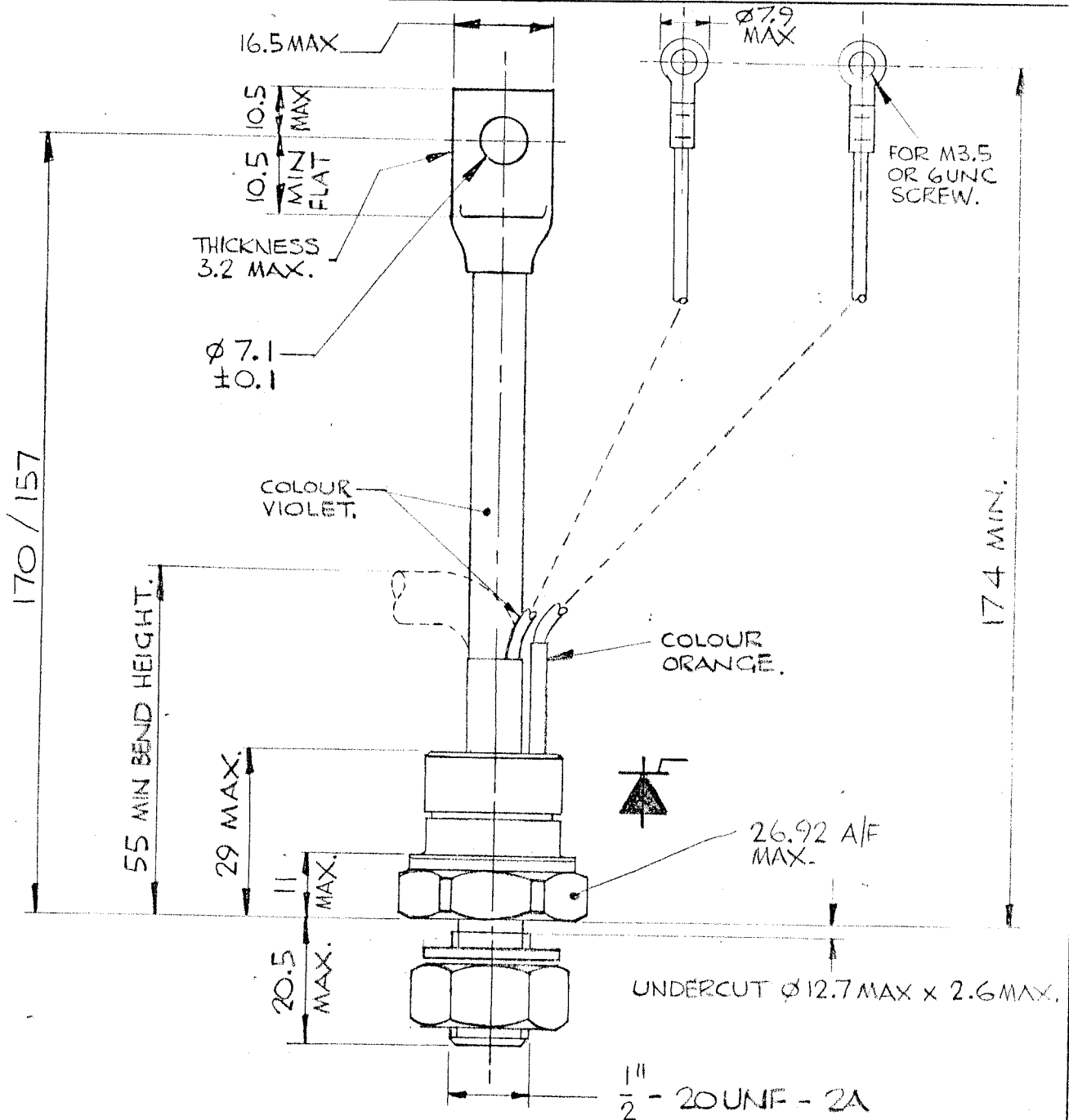
NOTES.

TYPE NUMBER

NO86P
NI05P

PO70P
PO86P
PO05P
PI00P
PI05P
PI00P

G.A. DRG. No. 103A164



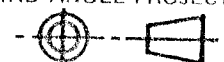
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DIMNS. IN MILLIMETRES

DRG. No.

101A231

ISS	REVISIONS
1	15.3.74 P 337
2	M852 17.4.80 170/157 WAS 147 MIN. JEDEC TO94 DELETED.
3	27.11.84 M1218 FIN WAS ET.

SCALE	1/1
DRM	1/1
CHKD	1/1
APPD	
	A
S	NI

INTERNATIONAL OUTLINE No.
WEIGHT. 100 GRAMS.
FINISH. BRIGHT NICKEL PLATE
DEVICE MARKING INCLUDES MONOGRAM, TYPE No., SPEC.
No. AND POLARITY SYMBOL
DEVICE MOUNTING: MOUNTING TORQUE
14 Nm (1.45 kgf m). DO NOT
LUBRICATE THREADS.

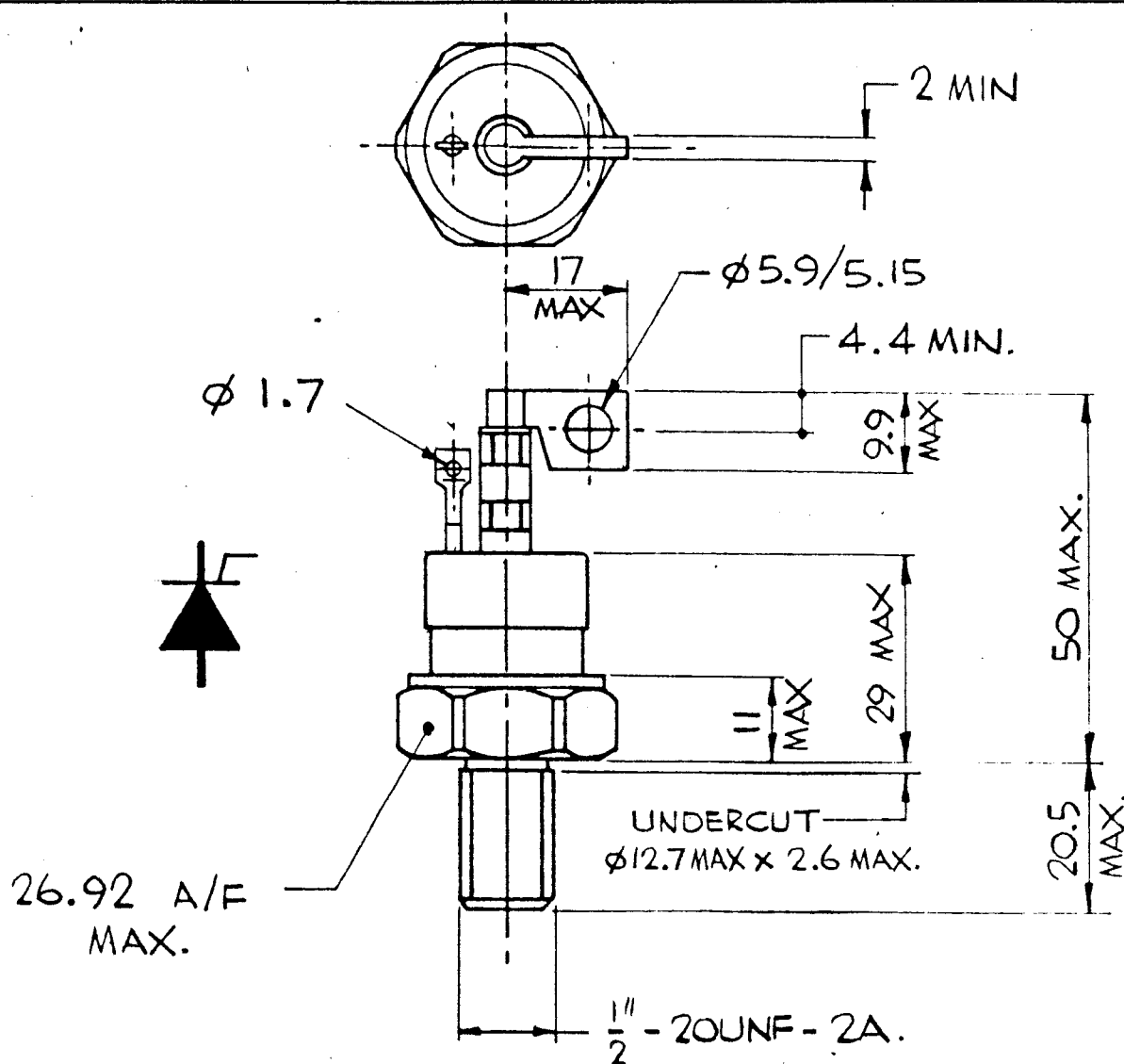
- 13 -

TYPE NUMBER

N105R
N086R

NOTES.

G.A. DRG. No. 103A169



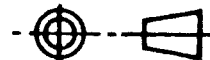
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THIRD ANGLE PROJECTION



DIMNS. IN MILLIMETRES

DRG. No. 101A235

REVISIONS

103.80 P351
27.11.84 M1218
FIN WAS ET