

# Rectifier Diode Stud

## Types W0503S/RX160 to W0503S/RX240

The data sheet on the subsequent pages of this document is a scanned copy of existing data for this product.  
(Rating Report 87NR24 Issue 1)

This data reflects the old part number for this product which is: **SW16-24PHN/R380**.  
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:  
Only S/RC outline drawing (W24) in datasheet  
No reverse recovery information available

The following links will direct you to the appropriate outline drawings  
[Outline W24 – 3/4" Ceramic stud](#)  
[Outline W26 – 3/4" Ceramic stud removed](#)

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.

<b>Ordering Particulars</b>			
W0503	S/RX	◆◆	0
Fixed Type Code	S/RC – 3/4" Ceramic stud S/RD – 3/4" Ceramic stud removed	Voltage code V <sub>RRM</sub> /100 16-24	Fixed Code
Typical Order Code: W0503SD200, Normal polarity 3/4" Ceramic stud removed, 2000V V <sub>RRM</sub>			

**IXYS Semiconductor GmbH**  
Edisonstraße 15  
D-68623 Lampertheim  
Tel: +49 6206 503-0  
Fax: +49 6206 503-627  
E-mail: [marcom@ixys.de](mailto:marcom@ixys.de)

**WESTCODE**  
An  IXYS Company

**Westcode Semiconductors Ltd**  
Langley Park Way, Langley Park,  
Chippenham, Wiltshire, SN15 1GE.  
Tel: +44 (0)1249 444524  
Fax: +44 (0)1249 659448  
E-mail: [WSL.sales@westcode.com](mailto:WSL.sales@westcode.com)

**IXYS Corporation**  
3540 Bassett Street  
Santa Clara CA 95054 USA  
Tel: +1 (408) 982 0700  
Fax: +1 (408) 496 0670  
E-mail: [sales@ixys.net](mailto:sales@ixys.net)

[www.westcode.com](http://www.westcode.com)

[www.ixys.com](http://www.ixys.com)

**Westcode Semiconductors Inc**  
3270 Cherry Avenue  
Long Beach CA 90807 USA  
Tel: +1 (562) 595 6971  
Fax: +1 (562) 595 8182  
E-mail: [WSI.sales@westcode.com](mailto:WSI.sales@westcode.com)

The information contained herein is confidential and is protected by Copyright. The information may not be used or disclosed except with the written permission of and in the manner permitted by the proprietors Westcode Semiconductors Ltd.

© Westcode Semiconductors Ltd.

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: 87NR24

Date: 30th November, 1987

Origin:

Pages: 9

Diode Type SW16-24PHN/R380

Written by: *mhw Dunlop* Checked: *mhw* Approved: *B.D.H.*

---

This diode consists of a diffused 24 mm diameter silicon slice mounted under spring pressure in a stud base top hat housing with a flexible lead.

This Report supersedes Rating Report No. 79NR16 (Issue 2).

Rating

Voltage Grades	: 16-24
$V_{RSM}$	: 1700-2500V
$V_{RRM}$	: 1600-2400V
$I_{F(AV)}$ : Single phase; 50 Hz, 180° half sinewave, $T_C = 100^\circ C$	: 370A
$I_{F(rms)}$ max.	: 597A
$I_{F d.c.}$ max.	: 550A
$I_{FSM}$ : t = 10 ms half sinewave; $T_J$ (initial) = 180°C ; $V_{RM} = 0.6V_{RRM(MAX)}$	: 5500A
$I_{FSM}$ : t = 10 ms half sinewave; $T_J$ (initial) = 180°C ; $V_{RM} = 10V$	: 6050A
$I^2t$ : t = 10 ms; $T_J$ (initial) = 180°C; $V_{RM} = 0.6V_{RRM(MAX)}$	: $0.151 \times 10^6 A^2 SEC$
$I^2t$ : t = 10 ms; $T_J$ (initial) = 180°C; $V_{RM} \leq 10V$	: $0.183 \times 10^6 A^2 SEC$
$I^2t$ : t = 3 ms; $T_J$ (initial) = 180°C; $V_{RM} \leq 10V$	: $0.135 \times 10^6 A^2 SEC$
$T_C$ Operating Range	: -40 to +180°C
$T_{stg}$ Non-operating	: -40 to +200°C

Characteristics

(Maximum values unless otherwise stated)

$V_0$	: $T_J = 180^\circ\text{C}$	:	0.99V
$r_s$	: $T_J = 180^\circ\text{C}$	:	0.74mohms
$V_{FM}$	: $I_{FM} = 1200\text{A}$ $T_{VJ} = 180^\circ\text{C}$	:	1.88V
$R_{th}$	(J-C)	:	0.13°C/W
$R_{th}$	(C-HS)	:	0.04°C/W
$I_{RRM}$	: $T_J = 180^\circ\text{C}$ $V_{RM} = V_{RRM}$ (MAX)	:	15mA
$Q_{rr}$	: ) $I_{FM} = 1000\text{A}$ : $dI/dt$ : 10A/uS defined by chord ) $V_{RM} : 50\text{V}$ $T_{VJ} = 180^\circ\text{C}$ ) through 50% $I_{RM}$	:	680uC Typical
$t_{rr}$	)	:	
Mounting torque		:	2.5 - 2.77Kg.m
Outline drawing		:	100A280
JEDEC Outline No.		:	

CONTENTS

	<u>Page</u>
Ratings	1
Characteristics	2
Contents	3
Voltage Ratings	4
Dissipation and Case Temperature vs Mean Current	5
Limit forward voltage Characteristics	6
Transient Thermal Impedance Characteristic	7
Surge Current and $I^2t$ vs Duration of Surge	8
Outline Drawing	9

Changes to Rating Report No. 79NR16 (Issue 2)

p1. :  $V_{RWM}$  omitted

$I_{F(DC)}$  changed

$T_C$  operating ranged (MIN) reduced to  $-40^\circ\text{C}$

p4 :  $V_{RWM}$  omitted

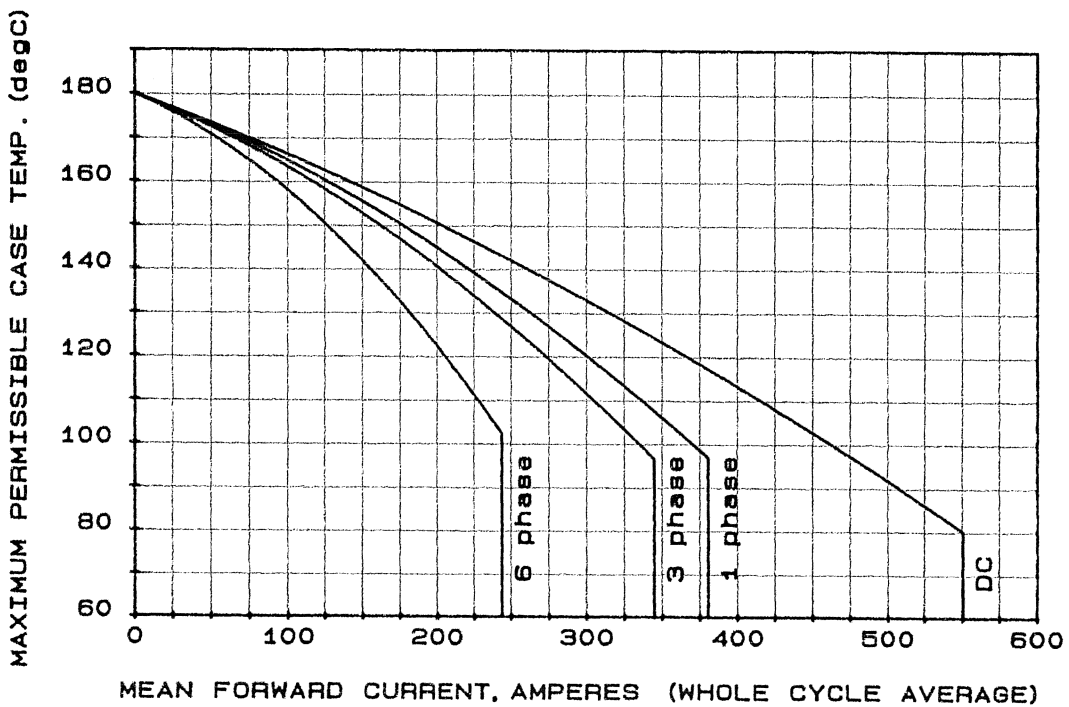
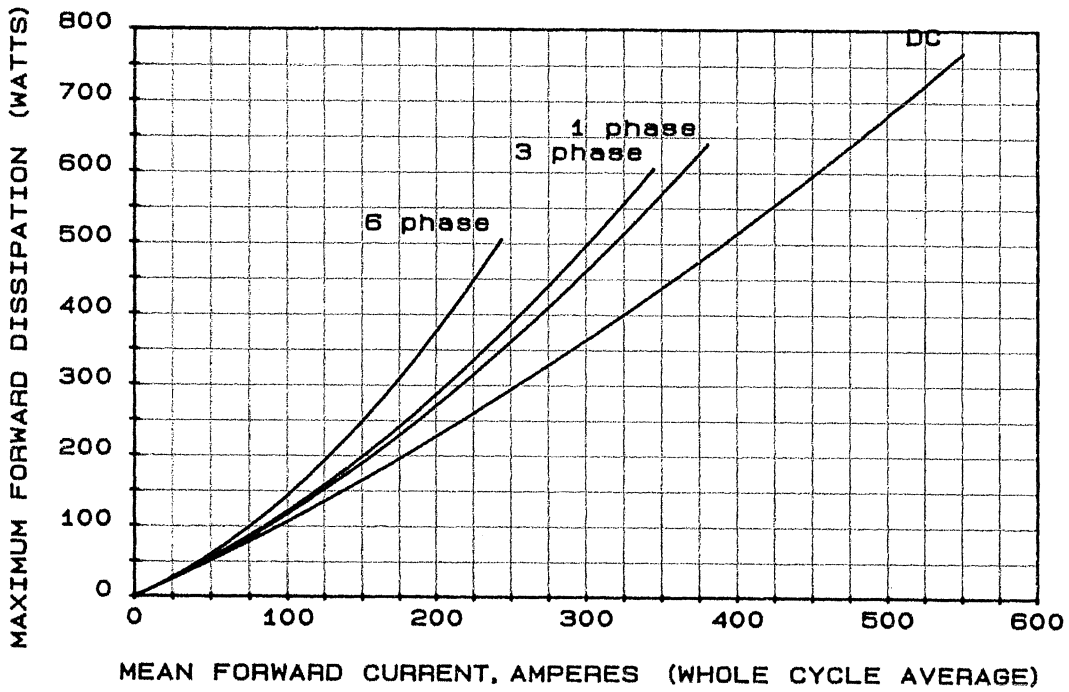
p5-8 : Re-drawn

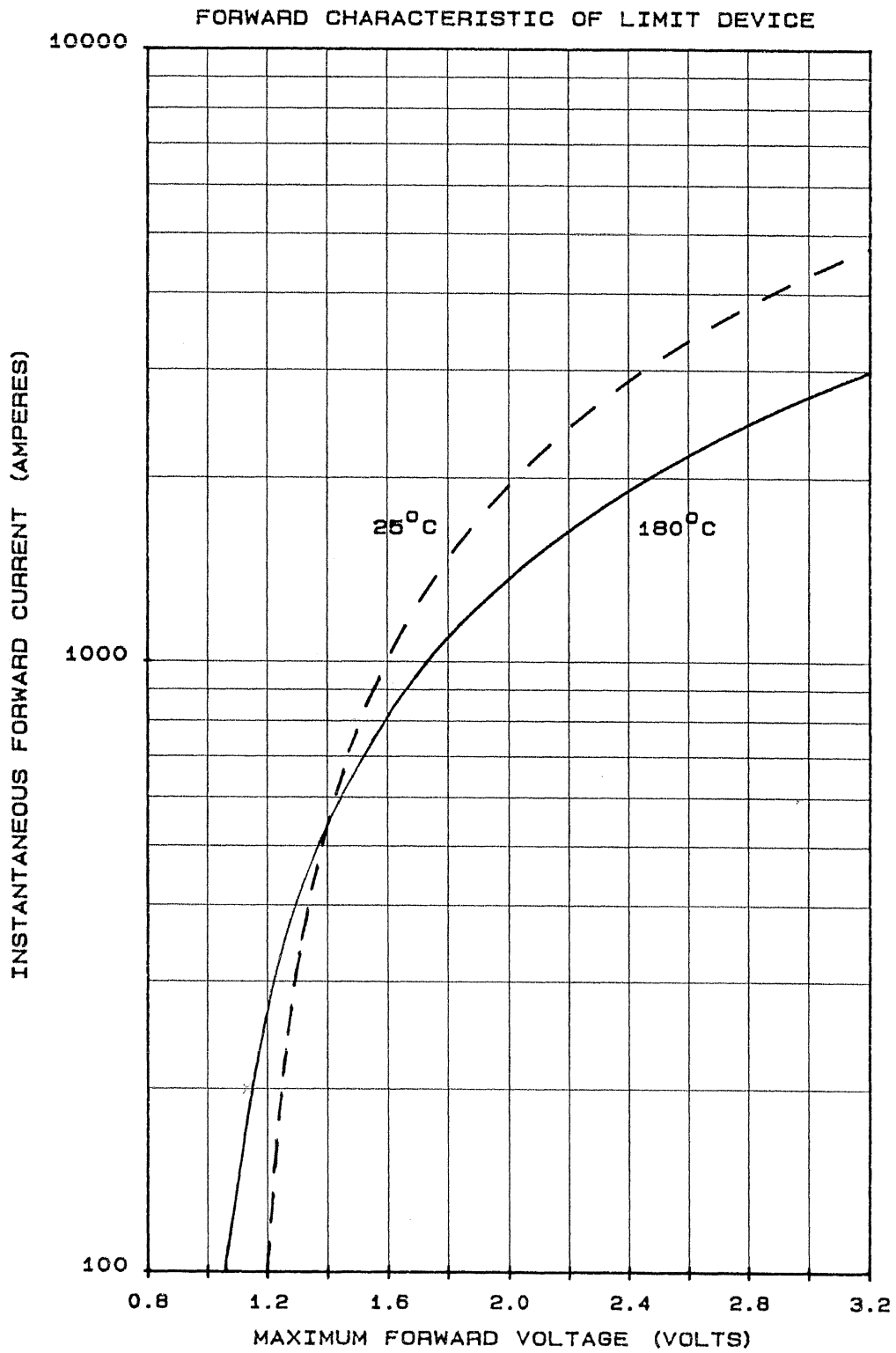
P9 : Updated

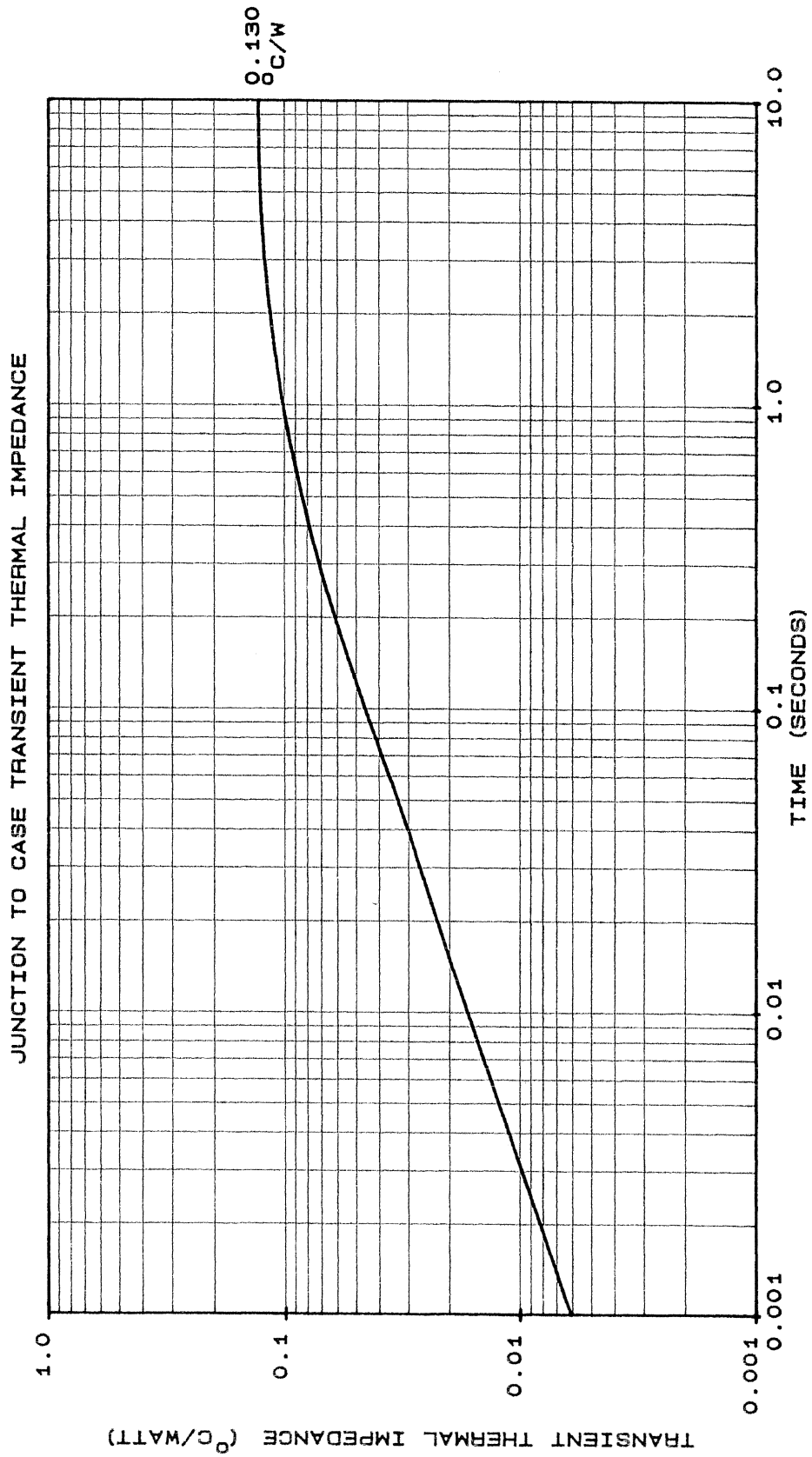
Voltage Ratings

Voltage Class	$V_{RHM}$ V	$V_{RSM}$ V
16	1600	1700
18	1800	1900
20	2000	2100
22	2200	2300
24	2400	2500

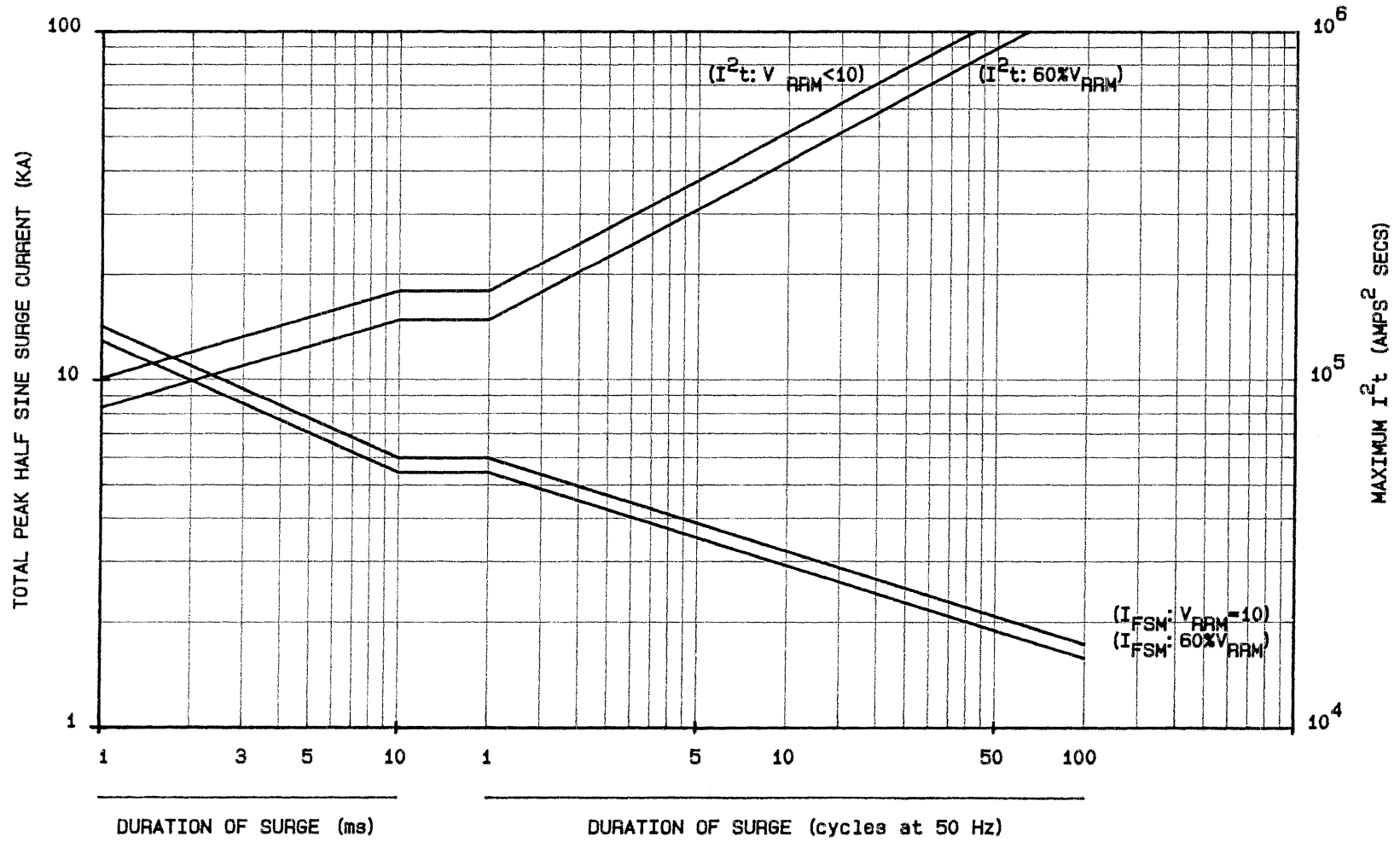
This Report is applicable to higher or lower voltage grades when supply has been agreed by Sales/Production.







MAXIMUM NON REPETITIVE SURGE CURRENT AT INITIAL JUNCTION TEMPERATURE 180°C

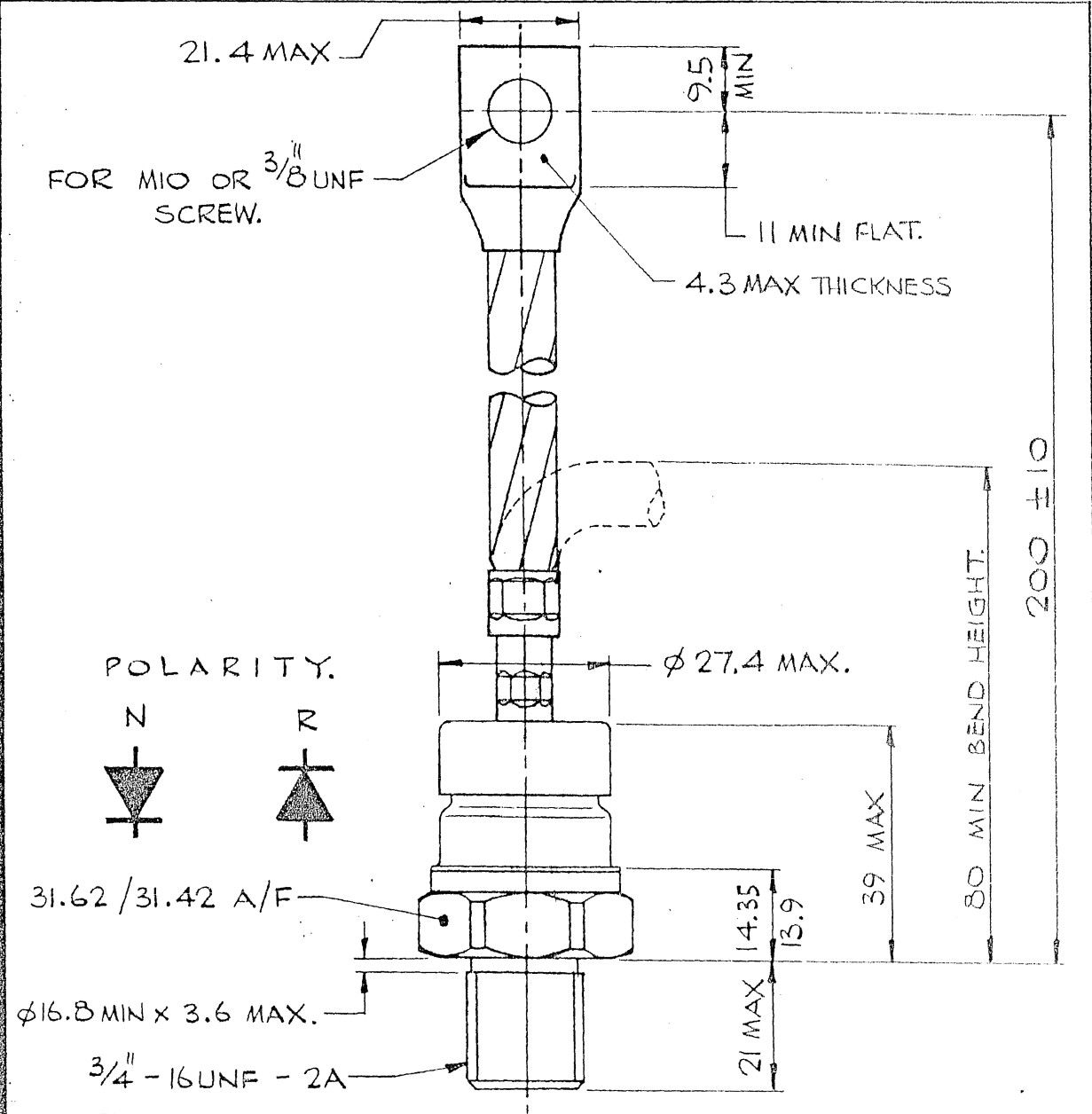


SCALE	1/1
DRN	BB
CHKD	
APPD	
S	A
S	NI

INTERNATIONAL OUTLINE No.  
 WEIGHT. 250 GRAMS.  
 FINISH. BRIGHT NICKEL PLATE. - 9 -  
 DEVICE MARKING INCLUDES MONOGRAM, TYPE No., SPEC.  
 No. AND POLARITY SYMBOL.  
 DEVICE MOUNTING:  
 MOUNTING TORQUE TO BE  
 27 - 24.5 Nm (2.77 - 2.5 kgf m).  
 THREAD MUST NOT BE LUBRICATED.


DIODE TYPE NUMBER  
 PHN/R 380  
 PHN/R320  
 PHN/R174

G.A. DRG. No. 102A216H04.

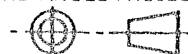


DRAWING IS SUPPLIED IN CONFIDENCE  
 AND IS PROTECTED BY COPYRIGHT. THE  
 INFORMATION MAY NOT BE DISCLOSED  
 EXCEPT WITH THE WRITTEN PERMISSION  
 OF AND IN MANNER PERMITTED BY THE  
 PROPRIETORS, WESTINGHOUSE BRAKE  
 AND SIGNAL CO. LTD.

WESTINGHOUSE BRAKE AND SIGNAL CO. LTD.  
 CHIPPENHAM, WILTSHIRE, SN15 1JD, ENGLAND.

 WESTCODE<sup>®</sup>  
 SEMICONDUCTORS

THIRD ANGLE PROJECTION



DIMNS. IN MILLIMETRES

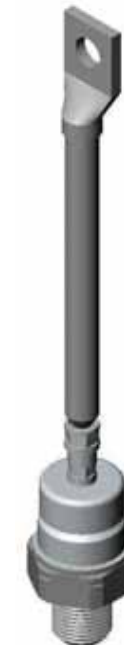
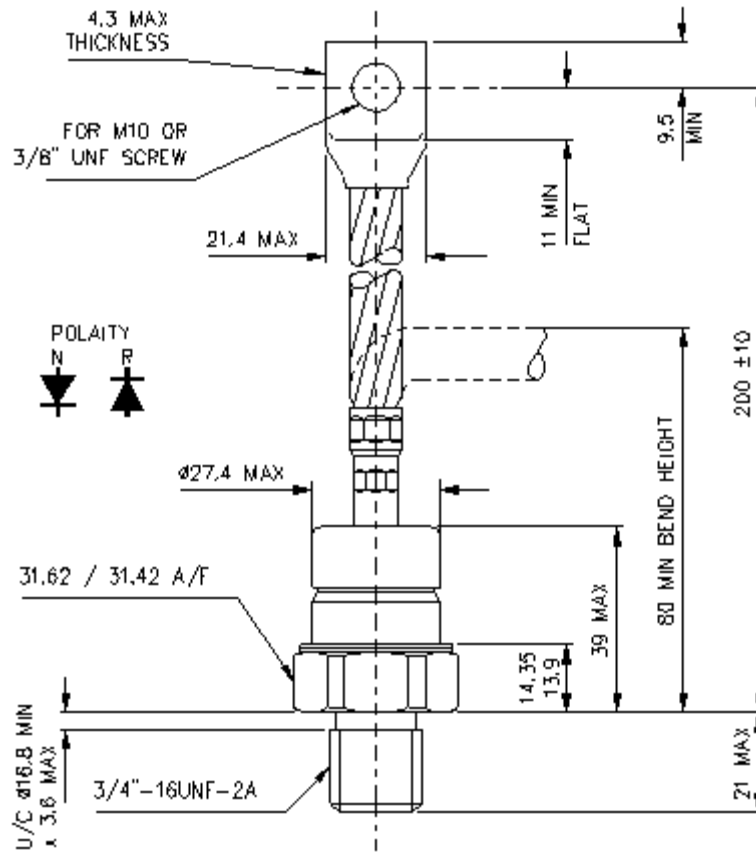
DRG. No.

100A280

ISS	REVISIONS
1	11.9.78.
4	12.12.79 M006 RE-DRAWN. DRG. No. WAS 100A257.
5	27.11.84 M1218 FIN WAS ET

**Drawing Number – W24**  
**Outline Number – 100A280**

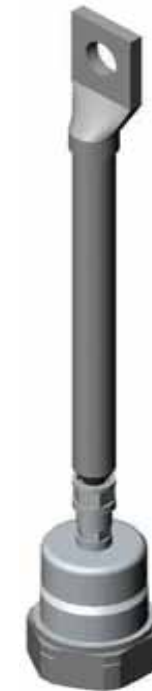
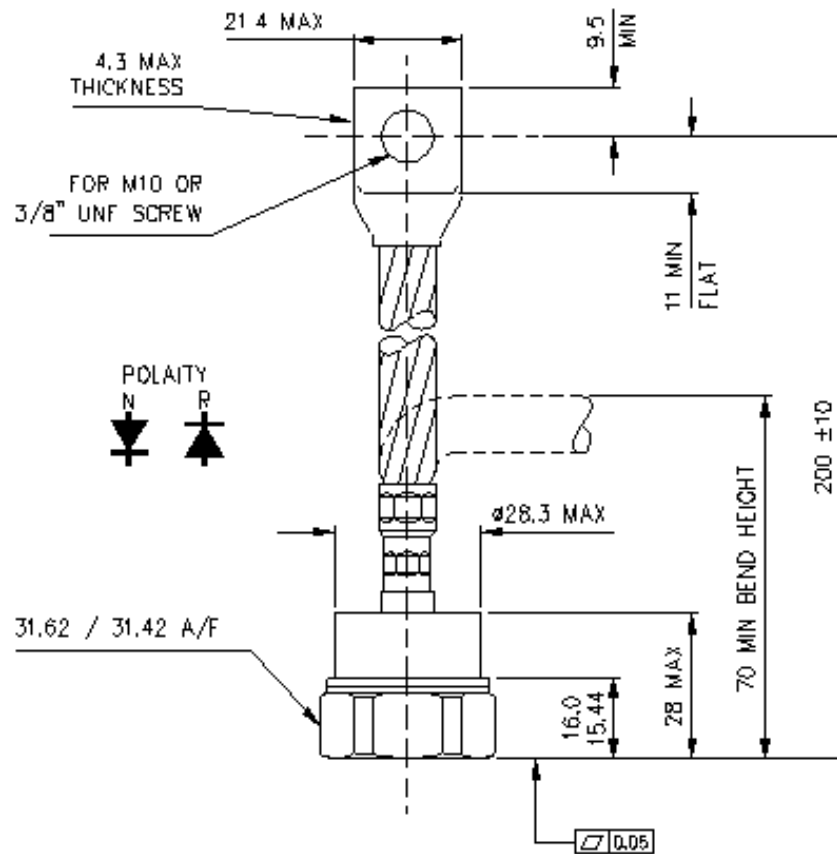
**WESTCODE**  
 An IXYS Company



**Weight 250g**

Drawing Number – W26  
Outline Number – 100A283

**WESTCODE**  
An IXYS Company



Weight 250g