

# Rectifier Diode

## Types W5838Z#120 to W5838Z#220

The data sheet on the subsequent pages of this document is a scanned copy of existing data for this product.  
(Rating Report 91NR2 Issue 1)

This data reflects the old part number for this product which is: SW12-22CXC26C.  
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 ZC outline drawing (W7) in datasheet  
No reverse recovery information available

The following links will direct you to the appropriate outline drawings  
[Outline W7](#) – 37mm clamp height capsule  
[Outline W42](#) – 26mm clamp height capsule

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>			
W5838	Z#	◆◆	0
Fixed Type Code	ZC – 37mm clamp height capsule ZD – 26mm clamp height capsule	Voltage code $V_{RRM}/100$ 12-22	Fixed Code
Typical Order Code: W5838ZC140, 37mm clamp height capsule, 1400V $V_{RRM}$			

<p><b>IXYS Semiconductor GmbH</b> Edisonstraße 15 D-68623 Lampertheim Tel: +49 6206 503-0 Fax: +49 6206 503-627 E-mail: <a href="mailto:marcom@ixys.de">marcom@ixys.de</a></p>	<h1 style="color: red; margin: 0;">WESTCODE</h1> <p>An  IXYS Company</p> <p style="color: blue; text-decoration: underline;"><a href="http://www.westcode.com">www.westcode.com</a></p> <p style="color: blue; text-decoration: underline;"><a href="http://www.ixys.com">www.ixys.com</a></p>	<p><b>Westcode Semiconductors Ltd</b> Langley Park Way, Langley Park, Chippenham, Wiltshire, SN15 1GE. Tel: +44 (0)1249 444524 Fax: +44 (0)1249 659448 E-mail: <a href="mailto:WSL.sales@westcode.com">WSL.sales@westcode.com</a></p> <p><b>Westcode Semiconductors Inc</b> 3270 Cherry Avenue Long Beach CA 90807 USA Tel: +1 (562) 595 6971 Fax: +1 (562) 595 8182 E-mail: <a href="mailto:WSI.sales@westcode.com">WSI.sales@westcode.com</a></p>
<p>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.</p> <p>In the interest of product improvement, Westcode reserves the right to change specifications at any time without prior notice.</p> <p>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.</p>		

QUALITY EVALUATION LABORATORY

Rating Report: 91NR2

Date: 16th April, 1991

Origin: Q.E.L.

Pages: 10

Diode Type SW12-22CXC26C

Written by: M. Davies

Checked: *AC*

Approved: *B/C/H*

---

This diode consists of a diffused 76 mm diameter silicon slice mounted in a cold weld capsule housing.

Ratings

Voltage Grades	:	12-22
$V_{RSM}$	:	1300 - 2300V
$V_{RRM}$	:	1200 - 2200V
$I_{F(AV)}$ : Single Phase; 50 Hz, 180° half sinewave;		
Double side cooled $T_{HS} = 55^{\circ}C, 100^{\circ}C$	:	5843A; 4300A
Single side cooled $T_{HS} = 100^{\circ}C$	:	2654A
$I_F$ (rms) max. )	:	10560A
) Double side cooled $T_{HS} = 25^{\circ}C$	:	9206A
$I_F$ max. )	:	
$I_{FSM}$ : t = 10ms half sinewave; $T_J$ (initial) = 175°C;		
$V_{RM} = 0.6 V_{RRM}(\text{Max})$	:	64 KA
$I_{FSM}$ ; t = 10ms half sinewave; $T_J$ (initial) = 175°C; $V_{RM} \leq 10V$	:	70 KA
$I^2t$ : t = 10ms; $T_J$ (initial) = 175°C; $V_{RM} = 0.6 V_{RRM}(\text{Max})$	:	$20.5 \times 10^6 A^2 SEC$
$I^2t$ : t = 10ms; $T_J$ (initial) = 175°C; $V_{RM} \leq 10V$	:	$24.5 \times 10^6 A^2 SEC$
$I^2t$ : t = 3ms; $T_J$ (initial) = 175°C; $V_{RM} \leq 10V$	:	$18.26 \times 10^6 A^2 SEC$
$T_{HS}$ Operating range	:	-40 to +175°C
$T_{stg}$ ; Non-operating	:	-40 to +175°C

**Characteristics**

(Maximum values unless otherwise stated)

$V_o$	: 0.80 V
$r_s$	: 0.074 mΩ
A : $T_J = 25^\circ\text{C}$	: 0.4752258
B : $T_J = 25^\circ\text{C}$	: 9.528891E-2
C : $T_J = 25^\circ\text{C}$	: 7.841436E-5
D : $T_J = 25^\circ\text{C}$	: -6.220170E-3
A )	: 0.5234366
B ) $V_F = A + B \cdot \ln(i_F) + C \cdot i_F + D \sqrt{i_F}$	: 4.457902E-2
C )	: 7.774867E-5
D )	: -1.697693E-3
$V_{FM}$ at $I_{FM} = 6800$ A	: 1.30 V
$R_{th(J-HS)}$ Double side cooled ) Steady-state d.c. and Single side cooled ) 1 φ a.c. resistive load.	: 0.011 K/W : 0.022 K/W
$I_{RRM}$ : at $V_{RRM(MAX)}$	: 100 mA
$V_{fr}$ : at $di_F/dt =$	: ---
Reverse recovery at $I_{FM} =$ A; $t_p =$ ms	: ---
QRR (total area)	: ---
QRA (50% chord)	: ---
$t_{rr}$ (50% chord)	: ---
$I_{RM}$	: ---
Mounting Force	: 27 - 47 kN (2700 - 4700 kg.f)
Outline Drawing	: 100A293
JEDEC Outline No.	:

NOTE: All characteristics are at  $T_{VJ} = T_{Jmax}$  operating unless stated otherwise.

<b>CONTENTS</b>	<b>Page</b>
<b>Ratings</b>	<b>1</b>
<b>Characteristics</b>	<b>2</b>
<b>Contents</b>	<b>3</b>
<b>Voltage Ratings</b>	<b>4</b>
<b>Dissipation and Heatsink Temperature vs Mean Current</b>	<b>5 &amp; 6</b>
<b>Limit Forward Voltage Characteristic</b>	<b>7</b>
<b>Transient Thermal Impedance Characteristic</b>	<b>8</b>
<b>Surge Current and <math>I^2t</math> vs Duration of Surge</b>	<b>9</b>
<b>Outline Drawing</b>	<b>10</b>

**Changes to R.R. 91NR2**

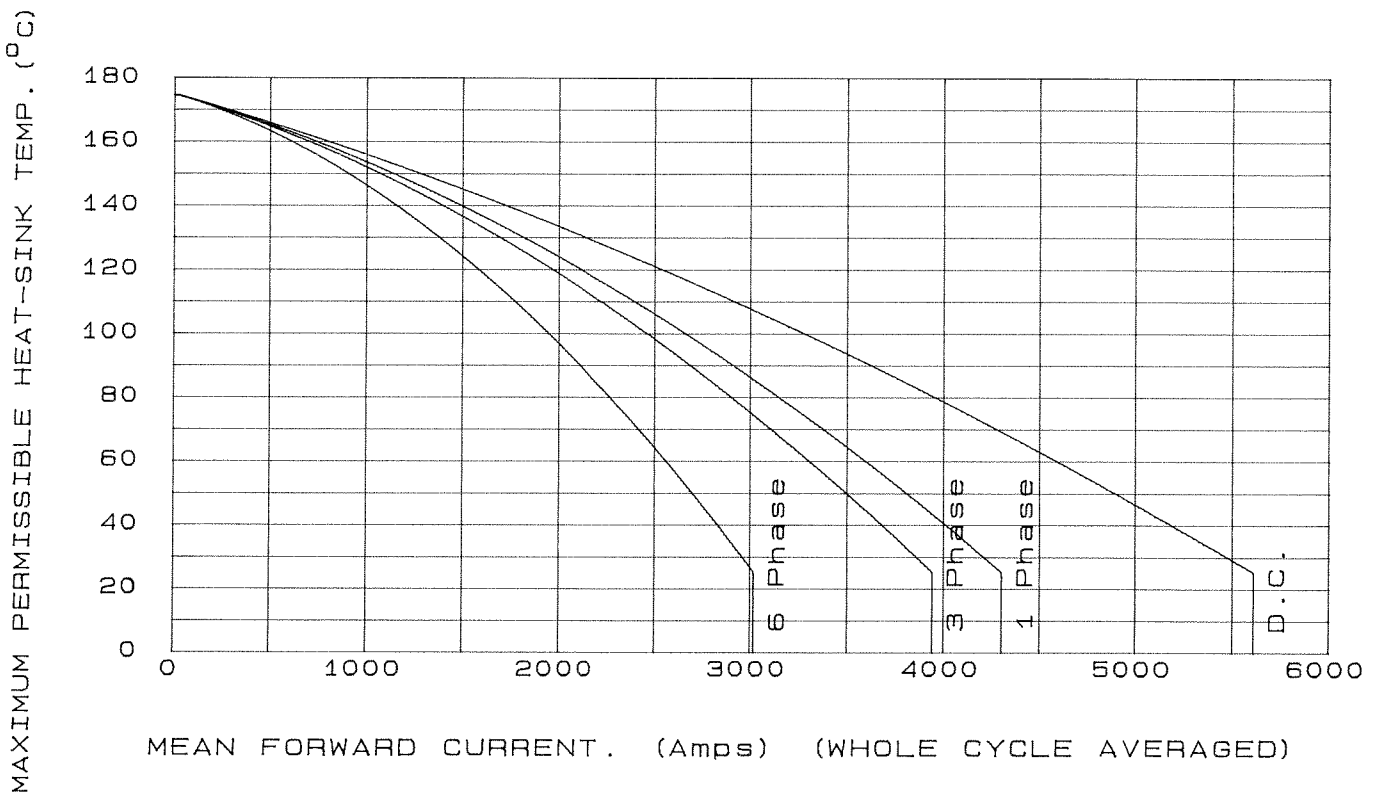
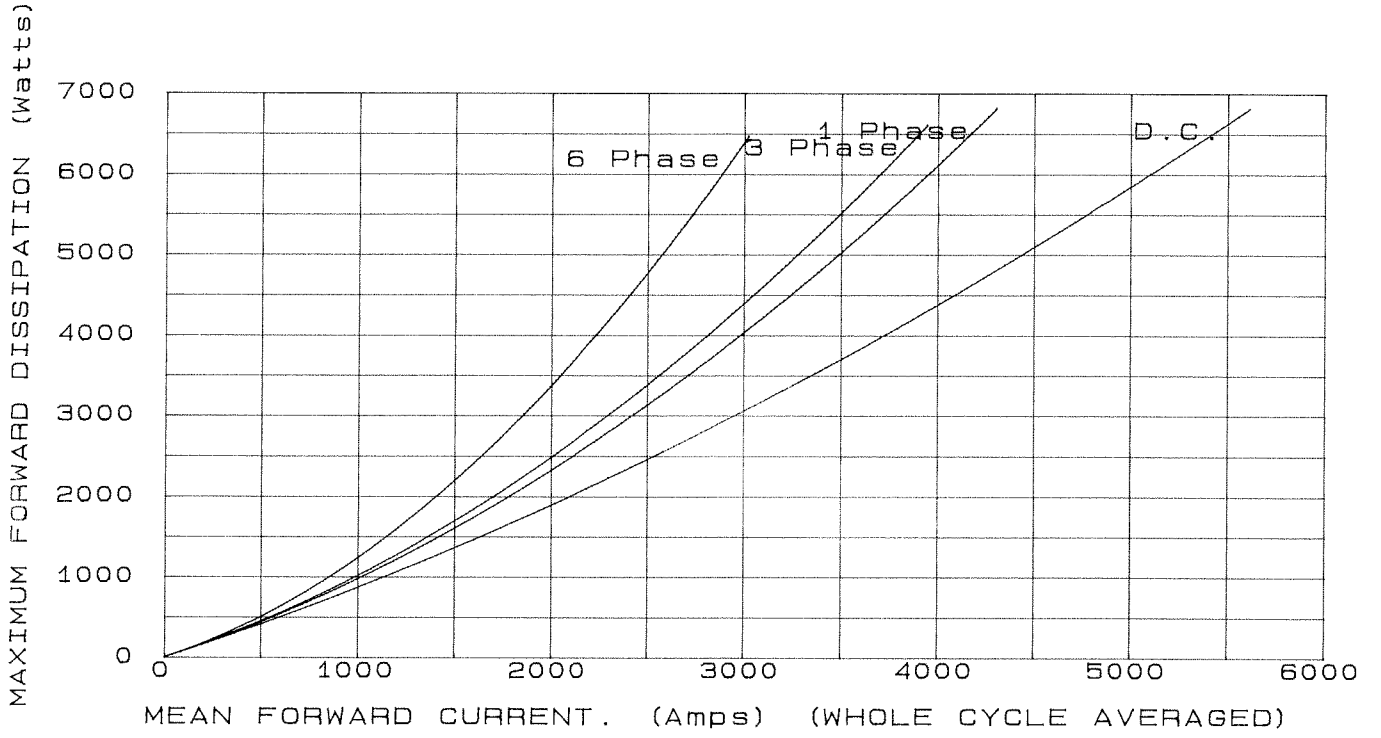
- Page 2) Reissued Cold ABCD Co-efficients added**
- Page 3) Change list added**
- Page 7) Redrawn**
- Page 10) Redrawn**

Voltage Ratings

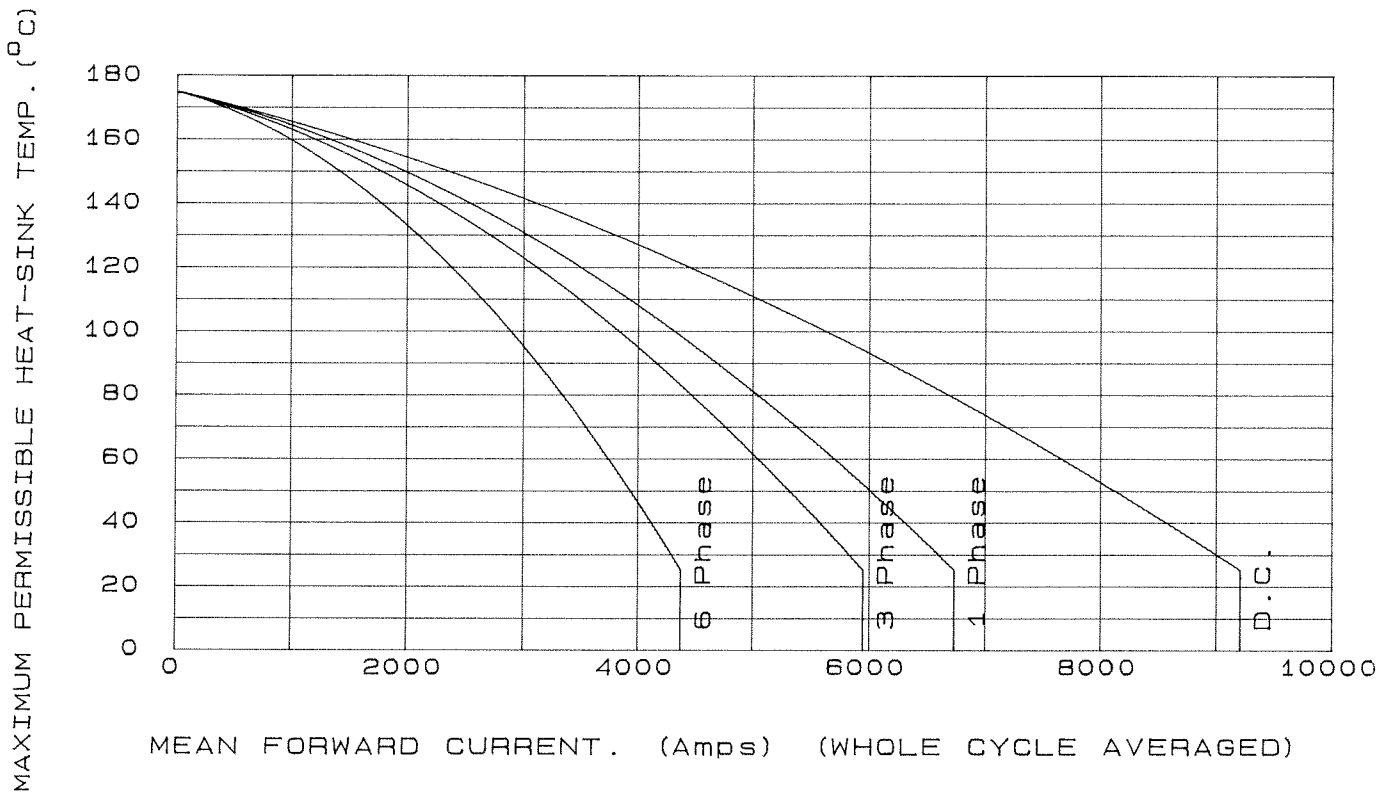
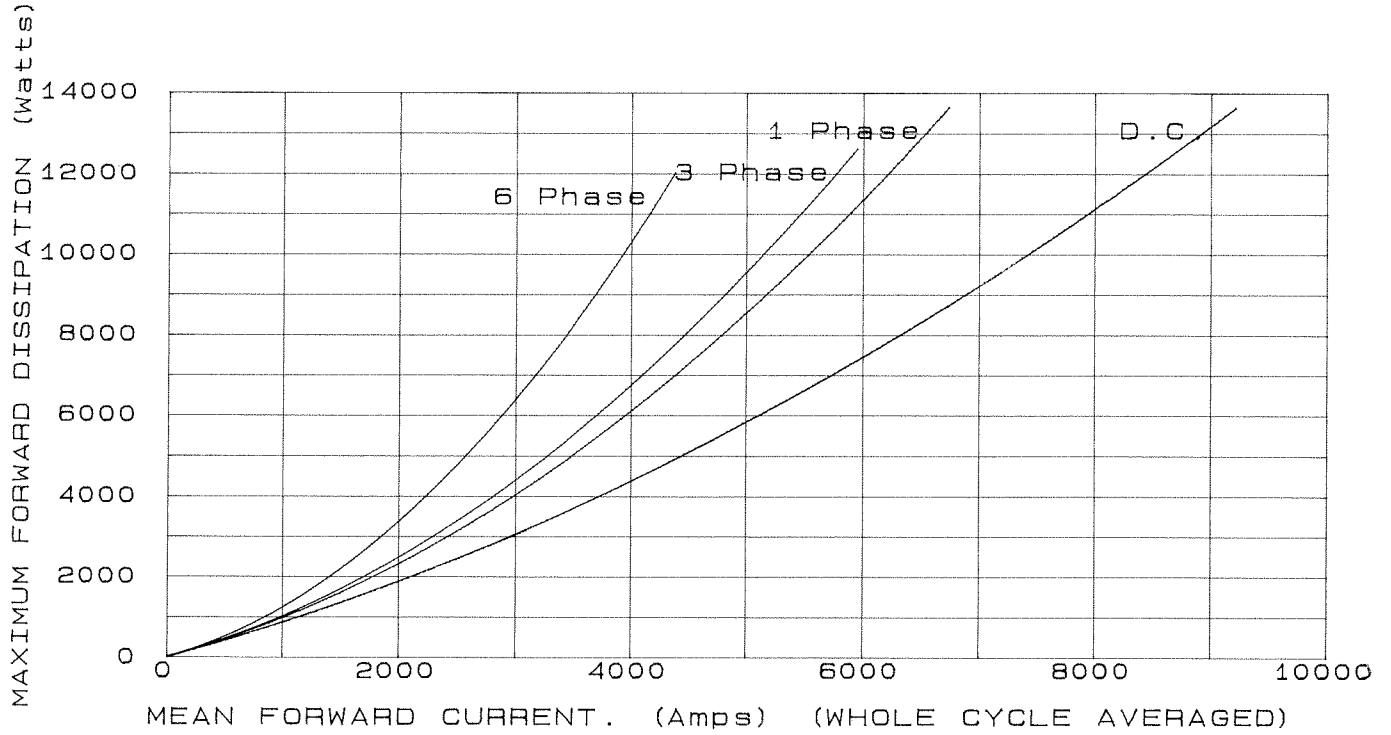
Voltage Class H	$V_{RRM}$ V	$V_{RSM}$ V
12	1200	1300
14	1400	1500
16	1600	1700
18	1800	1900
20	2000	2100
22	2200	2300

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

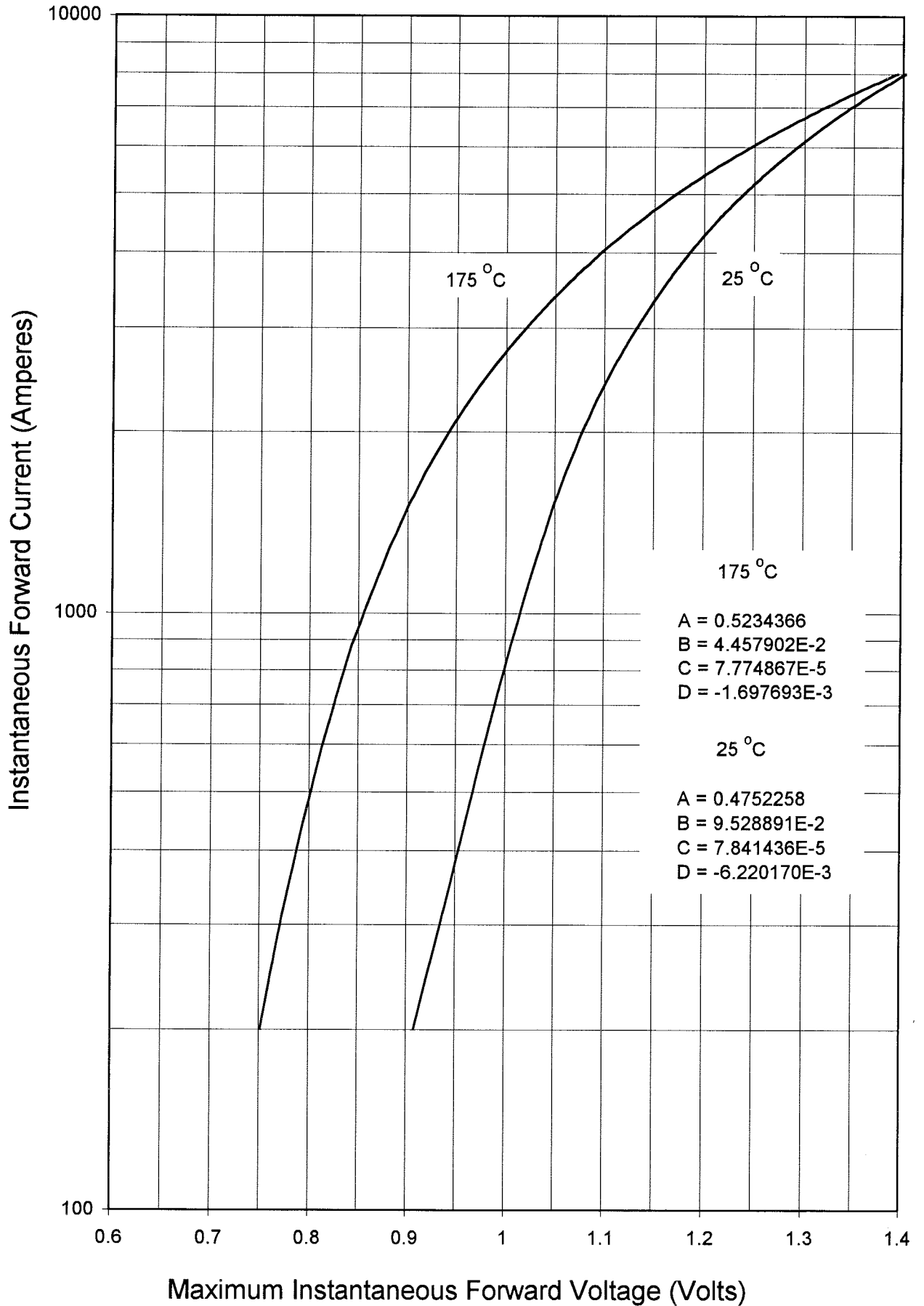
SINGLE SIDE COOLED



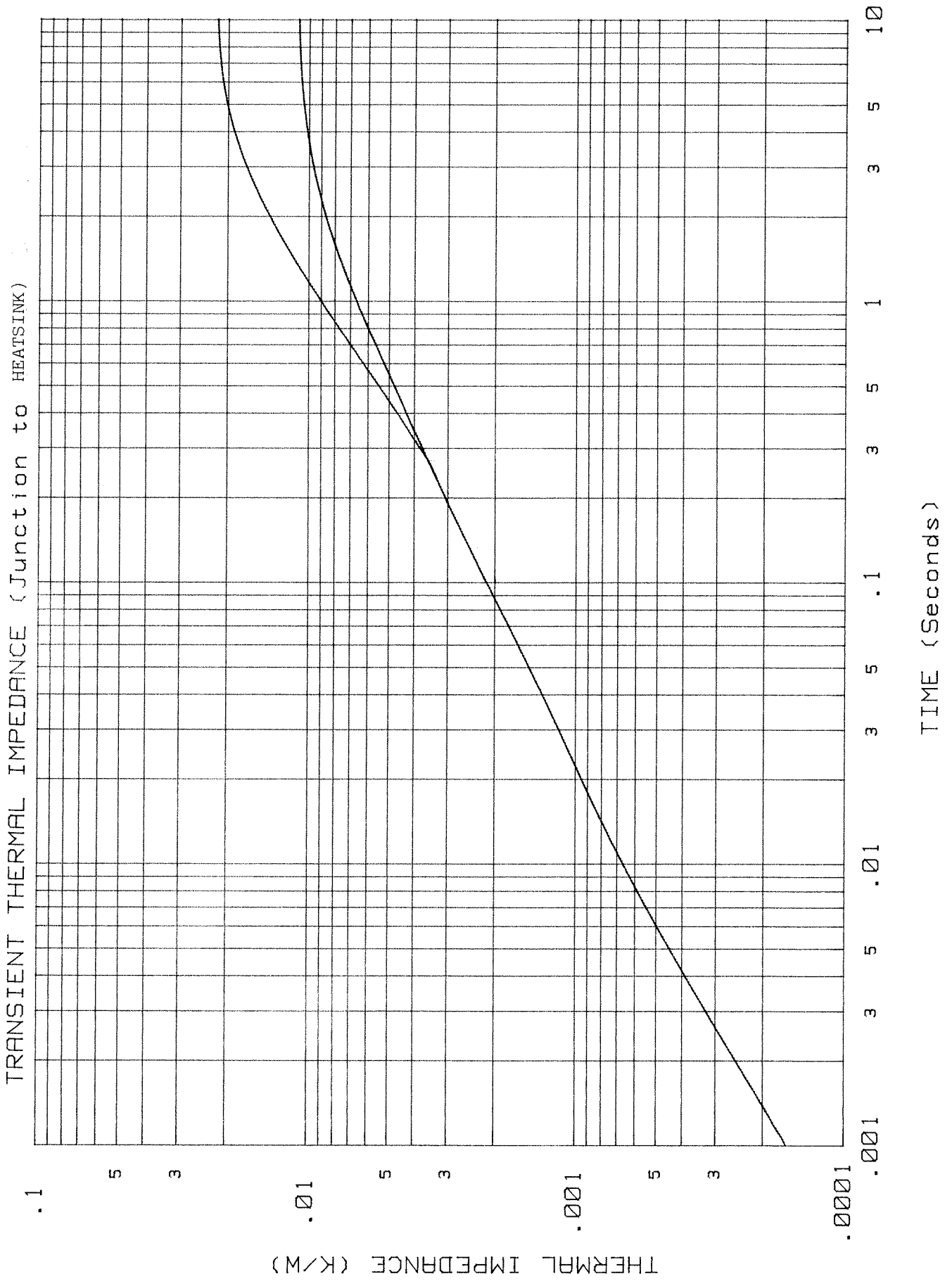
DOUBLE SIDE COOLED



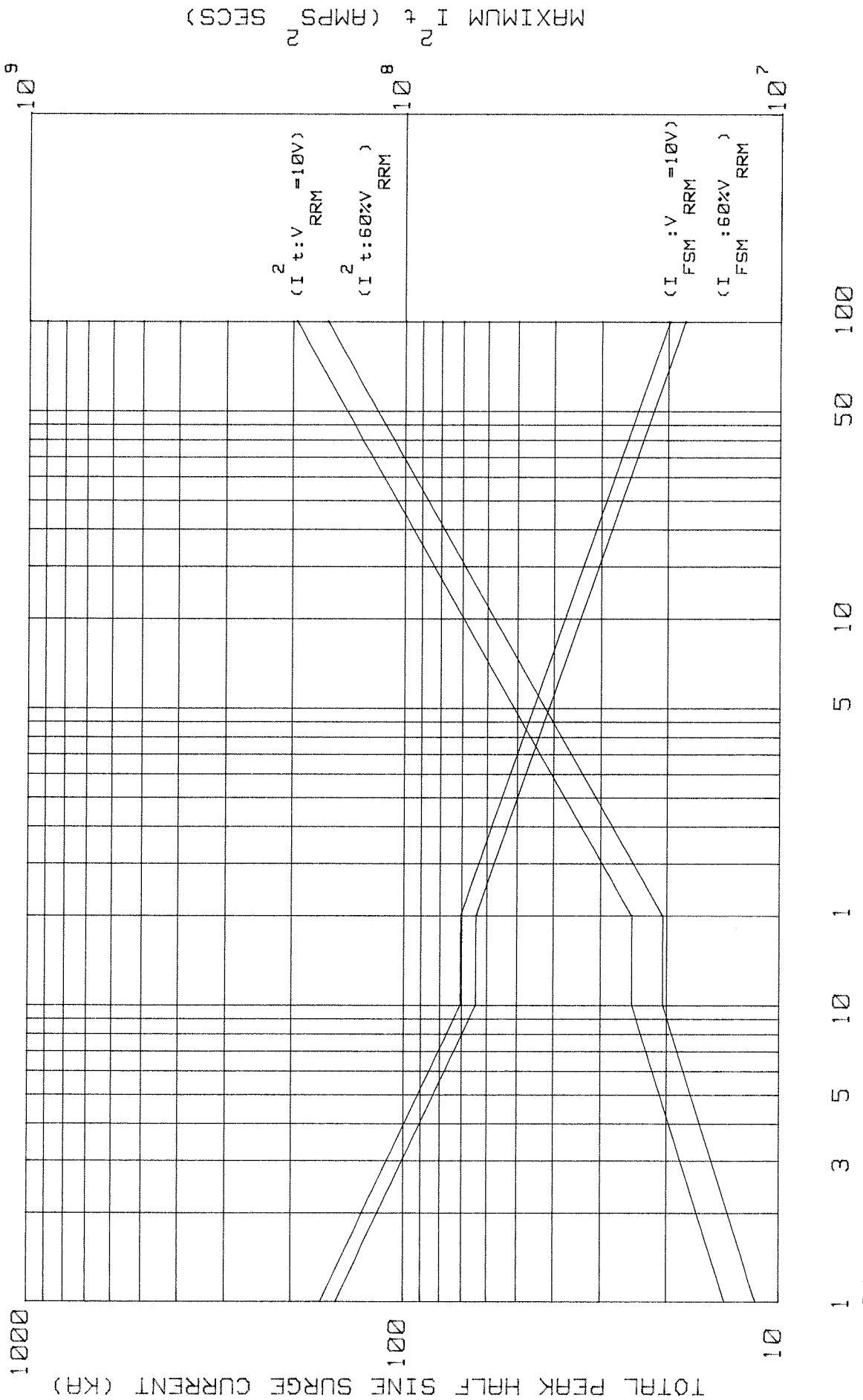
### Forward Characteristic of Limit Device







MAXIMUM NON REPETITIVE SURGE CURRENT AT INITIAL JUNCTION TEMPERATURE 125 ° C



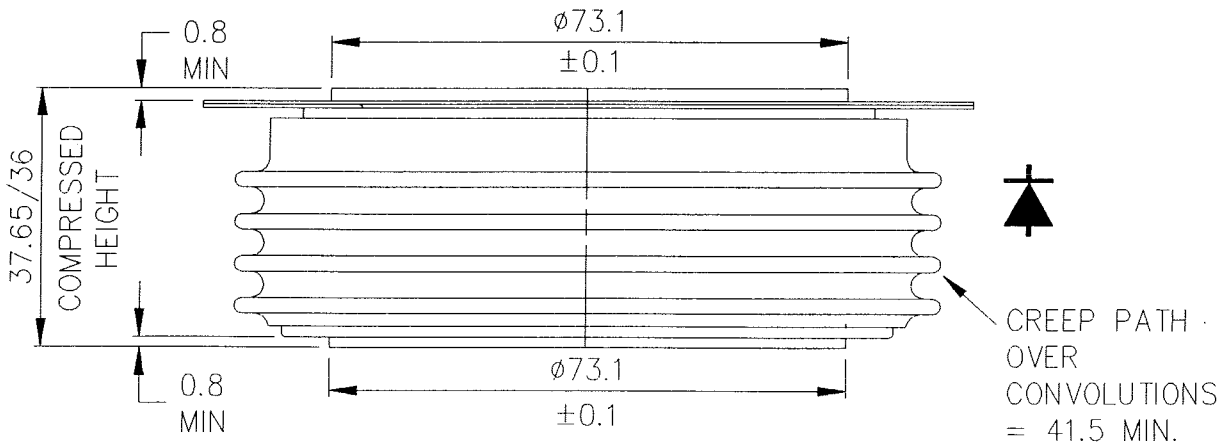
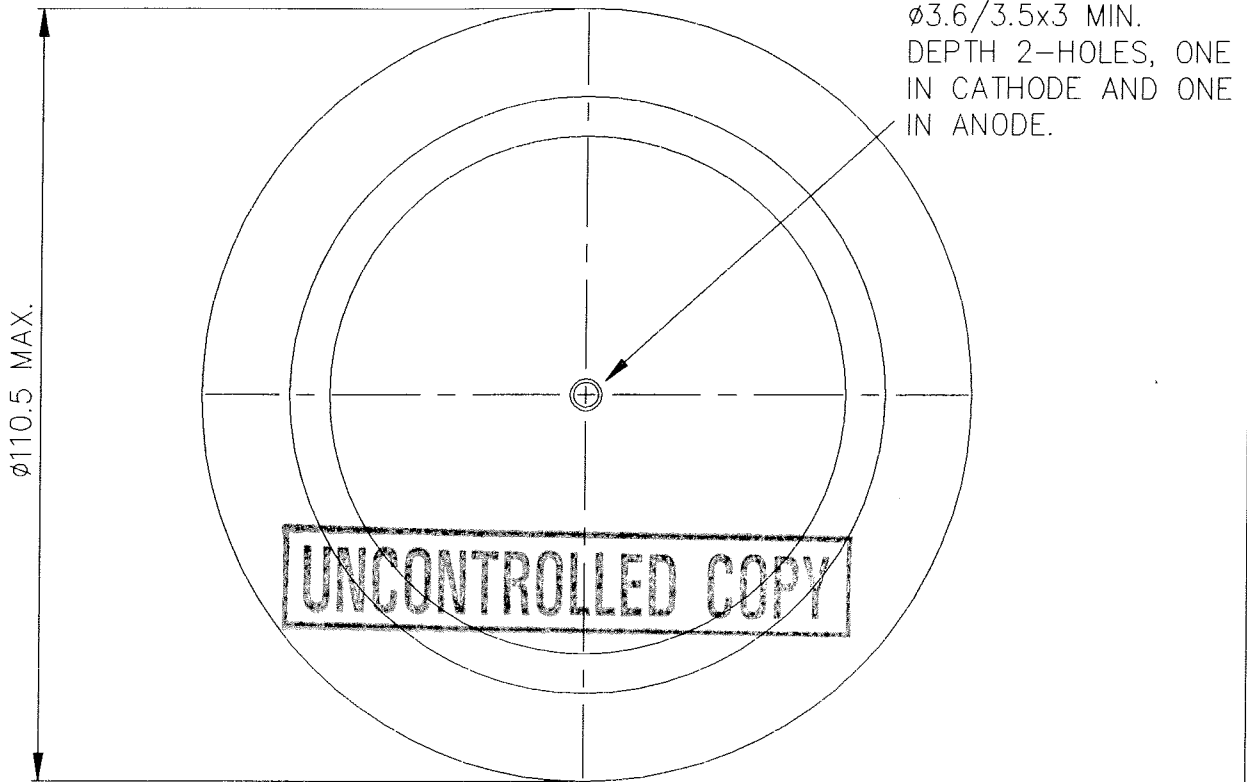
MAXIMUM I<sup>2</sup>t (AMPS<sup>2</sup> SECS)

INTERNATIONAL OUTLINE No.  
G.A. DWG No. 159B100H601  
WEIGHT. 1.7kg  
FINISH. NICKEL PLATE

- 10 -

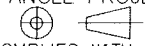
CXC974 CXC32C  
CXC15C CXC2850  
CXC18C  
CXC20C  
CXC21C  
CXC26C  
CXC30C

DEVICE MOUNTING: CLAMPING FORCE TO BE APPLIED ON  
CENTRE LINE OF LOCATION HOLES AND BE EVENLY  
DISTRIBUTED OVER AREA OF CONTACT. FLAT TOL. ON  
SURFACES TO WHICH DEVICE IS CLAMPED TO BE 0.04 WIDE.  
CLAMPING FORCE = 3700±1000kgf. (37±10kN)



THE INFORMATION CONTAINED IN THIS DWG IS PROTECTED BY COPYRIGHT. THE INFORMATION MAY NOT BE DISCLOSED EXCEPT WITH THE WRITTEN PERMISSION OF WESTCODE SEMICONDUCTORS LIMITED.

SCALE	ISS	REVISIONS
4	13-09-90	REDRAWN ON CAD HDN
5	M1644.	TYPE No. CXC26C ADDED
6D	26.8.93.	M2312. CXC18C ADDED.
7D	11.1.94.	M2408. CXC974 ADDED.
8E	25.7.96.	M3035. CXC2850 ADDED. B.B.B.

THIRD ANGLE PROJECTION.  
  
 DWG. COMPLIES WITH BS 308.  
 DIMNS. IN MILLIMETRES.  
 DWG No. 100A293



**WESTCODE SEMICONDUCTORS LTD.,**  
 P.O. BOX 57, CHIPPENHAM, WILTSHIRE, SN15 1JL, ENGLAND.  
 TEL 0249 441000. TELEFAX 0249 441250/659448.