

# Rectifier Diode

## Types W3743Z#400 to W3743Z#500

The data sheet on the subsequent pages of this document is a scanned copy of existing data for this product.  
(Rating Report 84NR4 Issue 1)

This data reflects the old part number for this product which is: SM28-48CXC15C.  
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:  
Device only available from grade 40 to 50 (4000V to 5000V  $V_{RRM}$ )  
Only 'C' housing outline present in datasheet

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>			
W3743	Z#	◆◆	0
Fixed Type Code	ZC - 37mm Clamp height capsule ZD – 26mm Clamp height capsule	Voltage code $V_{RRM}/100$ 40-50	Fixed Code
Typical Order Code: W3743ZD440, 26mm Clamp height, 4400V $V_{RRM}$			

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<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 AND EVALUATION LABORATORY

Rating Report No: 84NR4 Issue 1

Date: 22nd March 1996

Origin: Q.E.L.

Pages: 9

Diode Capsule Type : SW28-48CXC15C

Written by: *M Baker*

Checked: *AG*

Approved: *[Signature]*

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

Ratings

Voltage Grades ) A blocking voltage derating factor	: 28 - 48
) of 0.13% per deg. Celsius is applicable	
$V_{RSM}$ ) to this device for $T_j$ below 25°C	: 2900 - 4900 V
)	
$V_{RRM}$ )	: 2800 - 4800 V
$I_{F(AV)}$ : Single phase: 50 Hz, 180° half sinewave;	
Double Side Cooled $T_{HS} = 55^\circ C, 100^\circ C$	: 3750 A, 2625 A
Single Side Cooled $T_{HS} = 100^\circ C$	: 1640 A
$I_{F(rms)}$ $T_{HS} = 25^\circ C$ )	: 6870 A
) Double side cooled	
$I_F$ $T_{HS} = 25^\circ C$ )	: 6100 A
$I_{FSM}$ : t = 10ms half sinewave; $T_j$ (initial) = 160 °C $V_{RM} = 0.6V_{RRM(MAX)}$	: 35 kA
$I_{FSM}$ : t = 10ms half sinewave; $T_j$ (initial) = 160 °C $V_{RM} \leq 10V$	: 39 kA
$I^2t$ : t = 10ms; $T_j$ (initial) = 160 °C; $V_{RM} = 0.6V_{RRM(MAX)}$	: $6.13 \times 10^6 A^2s$
$I^2t$ : t = 10ms; $T_j$ (initial) = 160 °C; $V_{RM} \leq 10V$	: $7.22 \times 10^6 A^2s$
$I^2t$ : t = 3ms; $T_j$ (initial) = 160 °C; $V_{RM} \leq 10V$	: $5.44 \times 10^6 A^2s$
$T_{HS}$ : Operating Range	: -55 To +160 °C
$T_{stg}$ : Non-operating	: -55 To +160 °C

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Characteristics

(Maximum values unless otherwise stated)

$V_o$		: 0.976 V
$r_s$		: 0.17 m $\Omega$
A	: $T_J = 25^\circ\text{C}$	:
B	: $T_J = 25^\circ\text{C}$	:
C	: $T_J = 25^\circ\text{C}$	:
D	: $T_J = 25^\circ\text{C}$	:
A )		:
B )	$V_F = A + B \cdot \ln(i_F) + C \cdot i_F + D \sqrt{i_F}$	:
C )		:
D )		:
$V_{FM}$ at $I_{FM} = 6000$ A		: 2.0 V
$R_{th(J-HS)}$ Double side cooled	) Steady-state d.c. and	: 0.011 K/W
Single side cooled	) 1 $\phi$ a.c. resistive load.	: 0.022 K/W
$I_{RRM}$ : at $V_{RRM(MAX)}$		: 200 mA
$V_{fr}$ : at $di/dt =$		: ---
Reverse recovery at $I_{FM} = 2500$ A; $t_p = 1000$ $\mu\text{s}$ $di_R/dt = 10$ A/ $\mu\text{s}$ ; $V_{RM} = 50$ V		
$Q_{RR}$ (total area)		: ---
$Q_{RA}$ (50% chord)		: 4000 $\mu\text{C}$ Typical
$t_{rr}$ (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.



Voltage Ratings

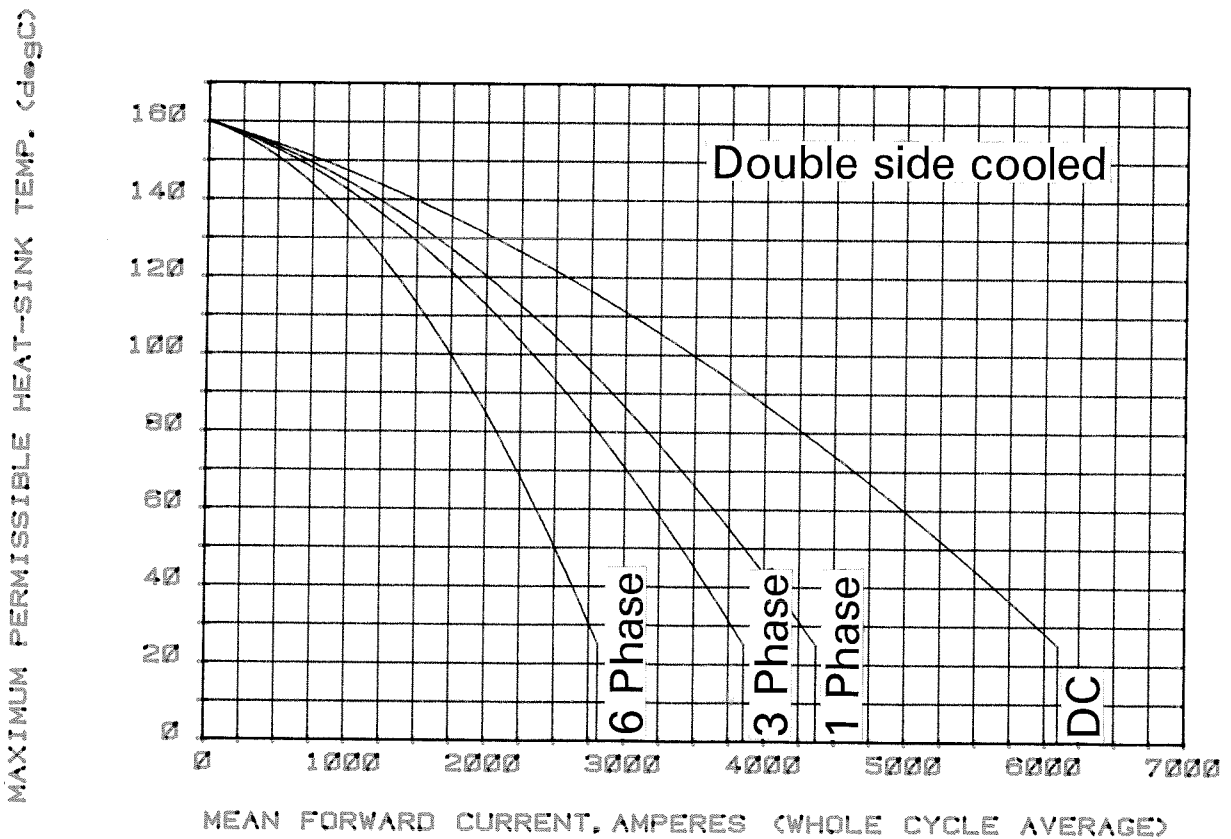
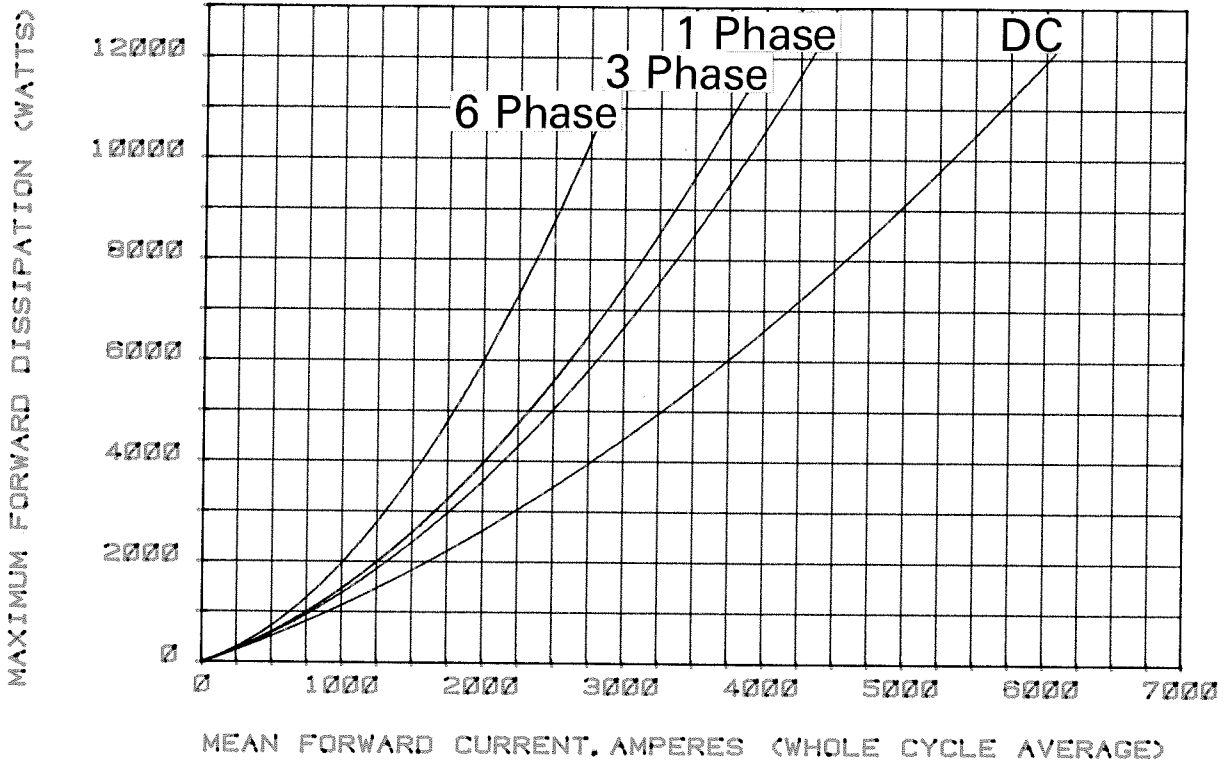
Voltage Class	$V_{RRM}$ V	$V_{RSM}$ V
28	2800	2900
30	3000	3100
32	3200	3300
34	3400	3500
36	3600	3700
38	3800	3900
40	4000	4100
42	4200	4300
44	4400	4500
46	4600	4700
48	4800	4900

1. This Report is applicable to higher or lower voltage grades when supply has been agreed by Sales/Production.
2. A blocking voltage derating factor of 0.13% per deg. Celsius is applicable to this device for  $T_j$  below 25°C.

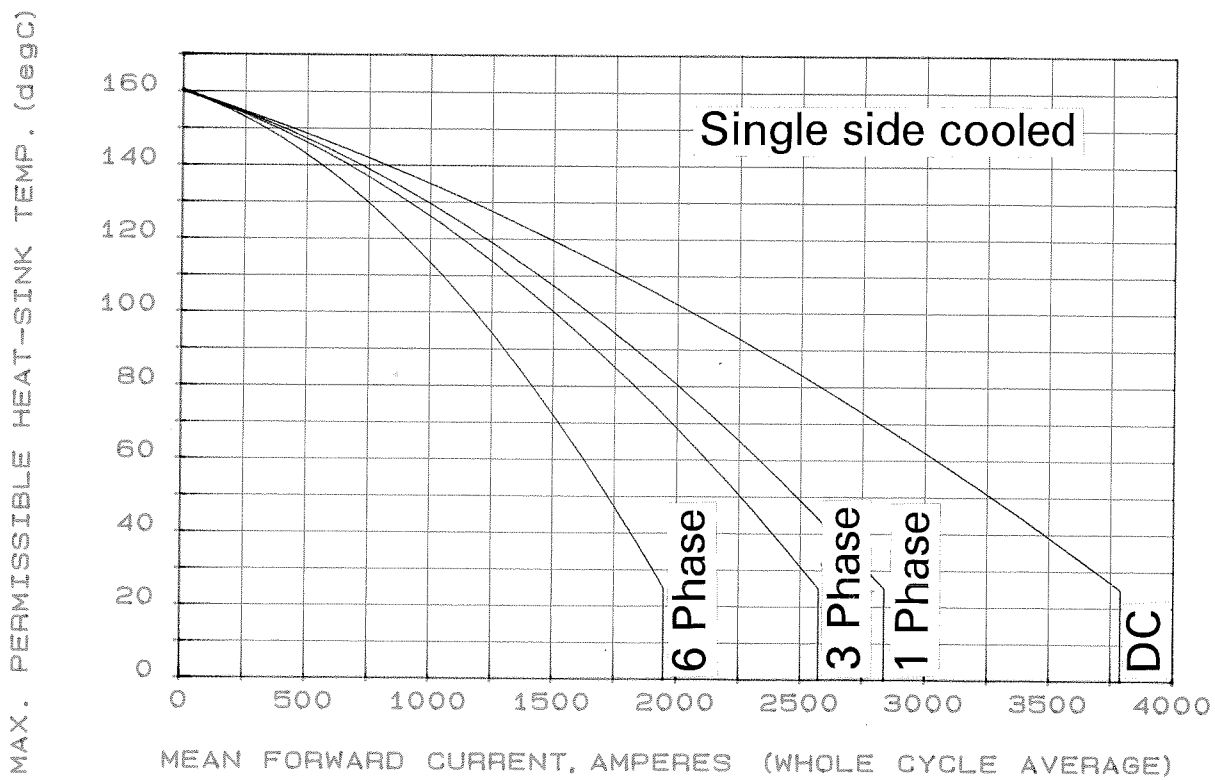
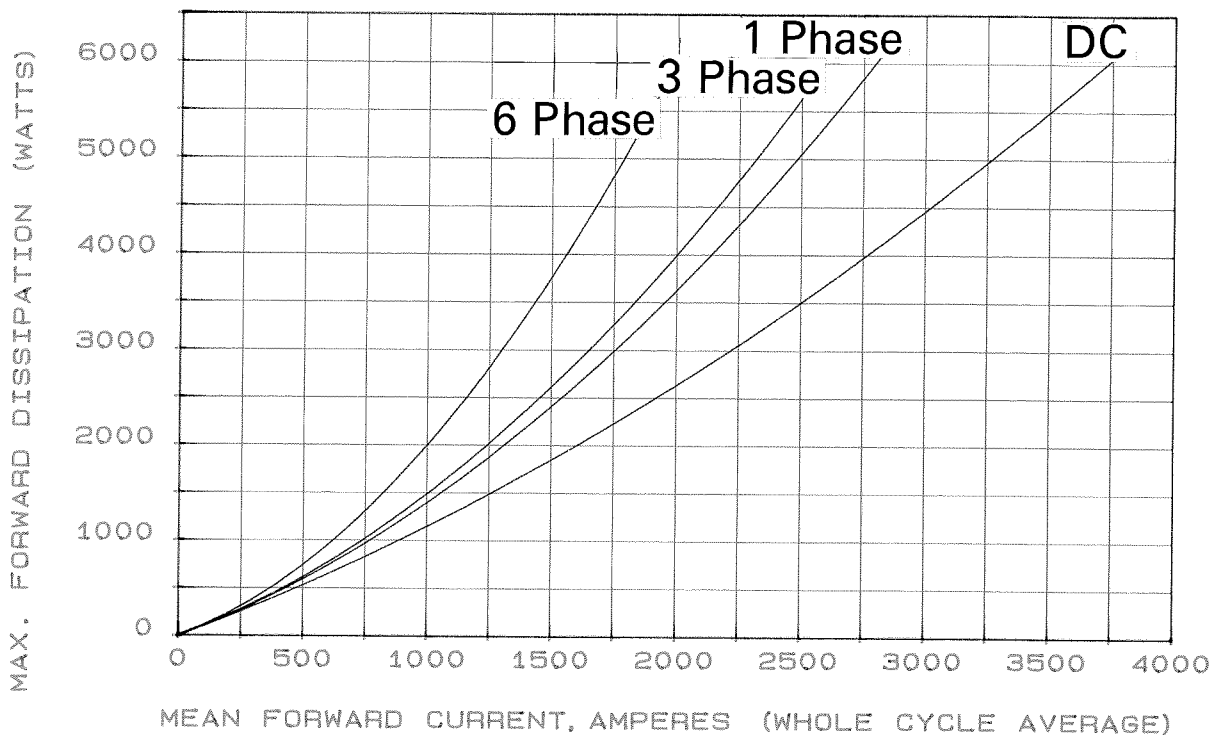
Changes to Rating Report 94NR4 Issue 1

Page 1	Format, $I_{FSM(1)}$ , $I_{FSM(2)}$ , $I^2t$ figures, $V_{RRM}$ & $V_{RSM}$
Page 2	Re-issued
Page 4	Re-issued Change list added
Page 8	Re-issued
Page 9	Re-issued

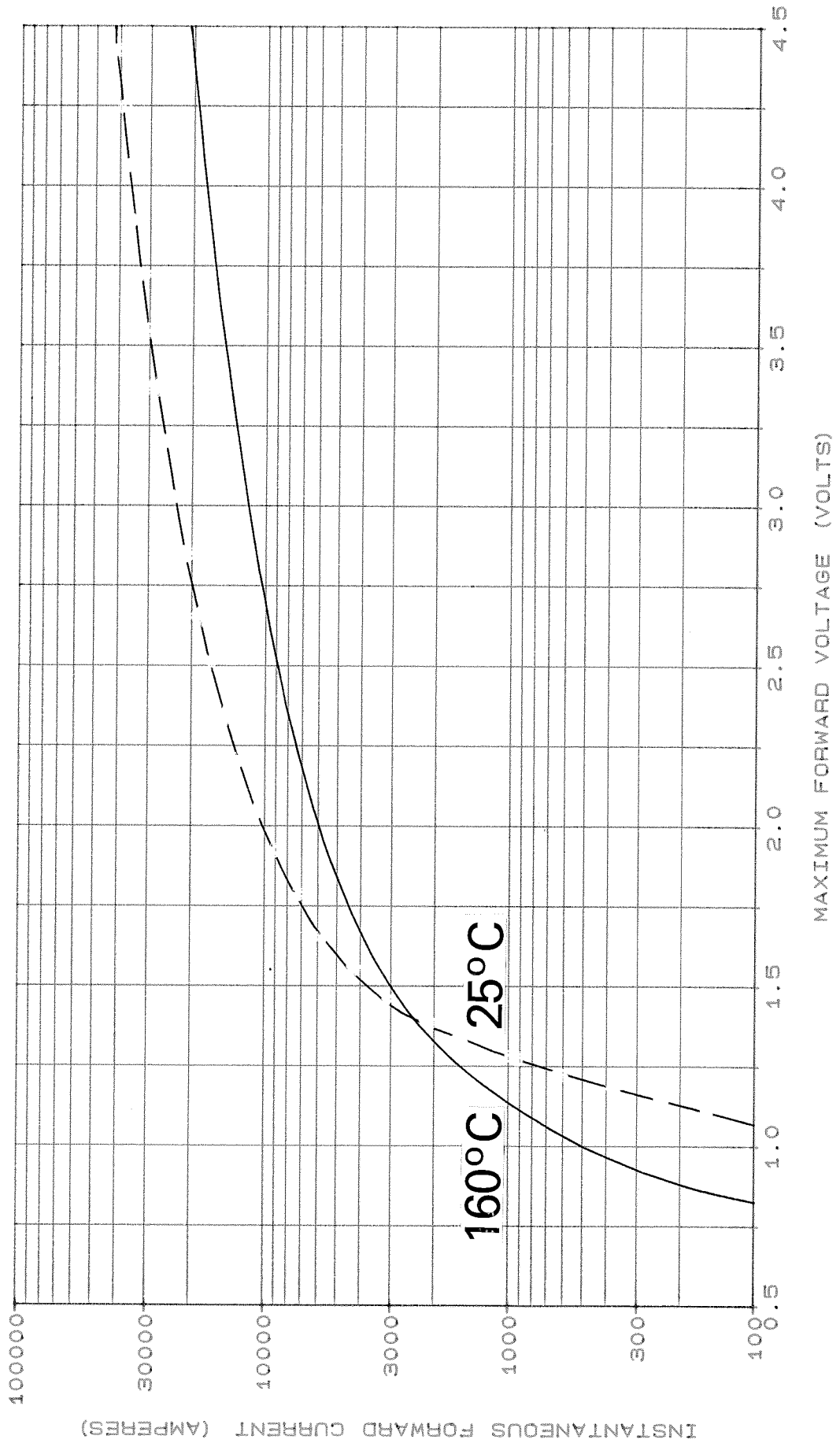
DOUBLE SIDE COOLED



SINGLE SIDE COOLED



FORWARD CHARACTERISTIC OF LIMIT DEVICE

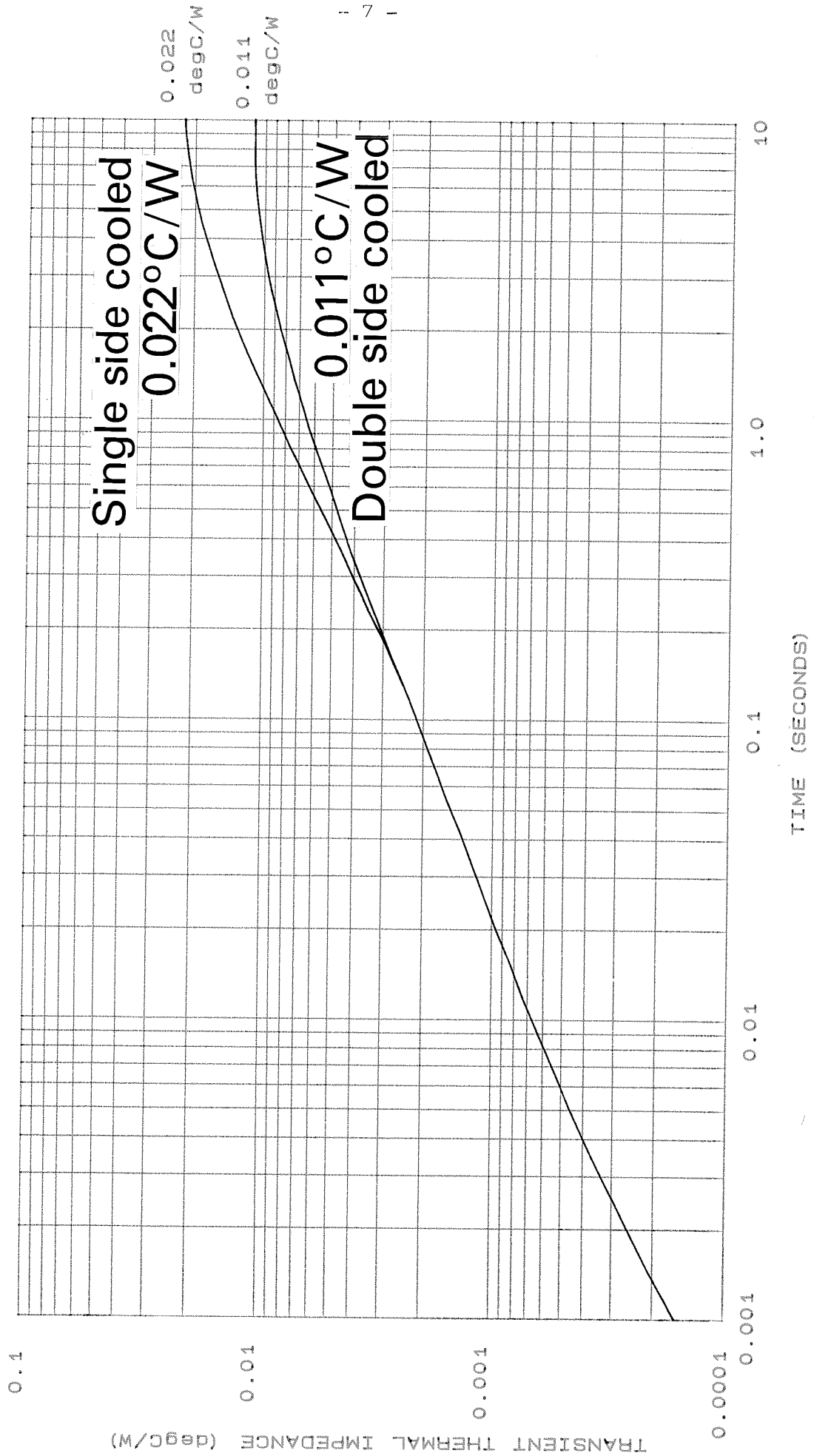


160°C / 25°C

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JUNCTION TO HEAT SINK THERMAL IMPEDANCE



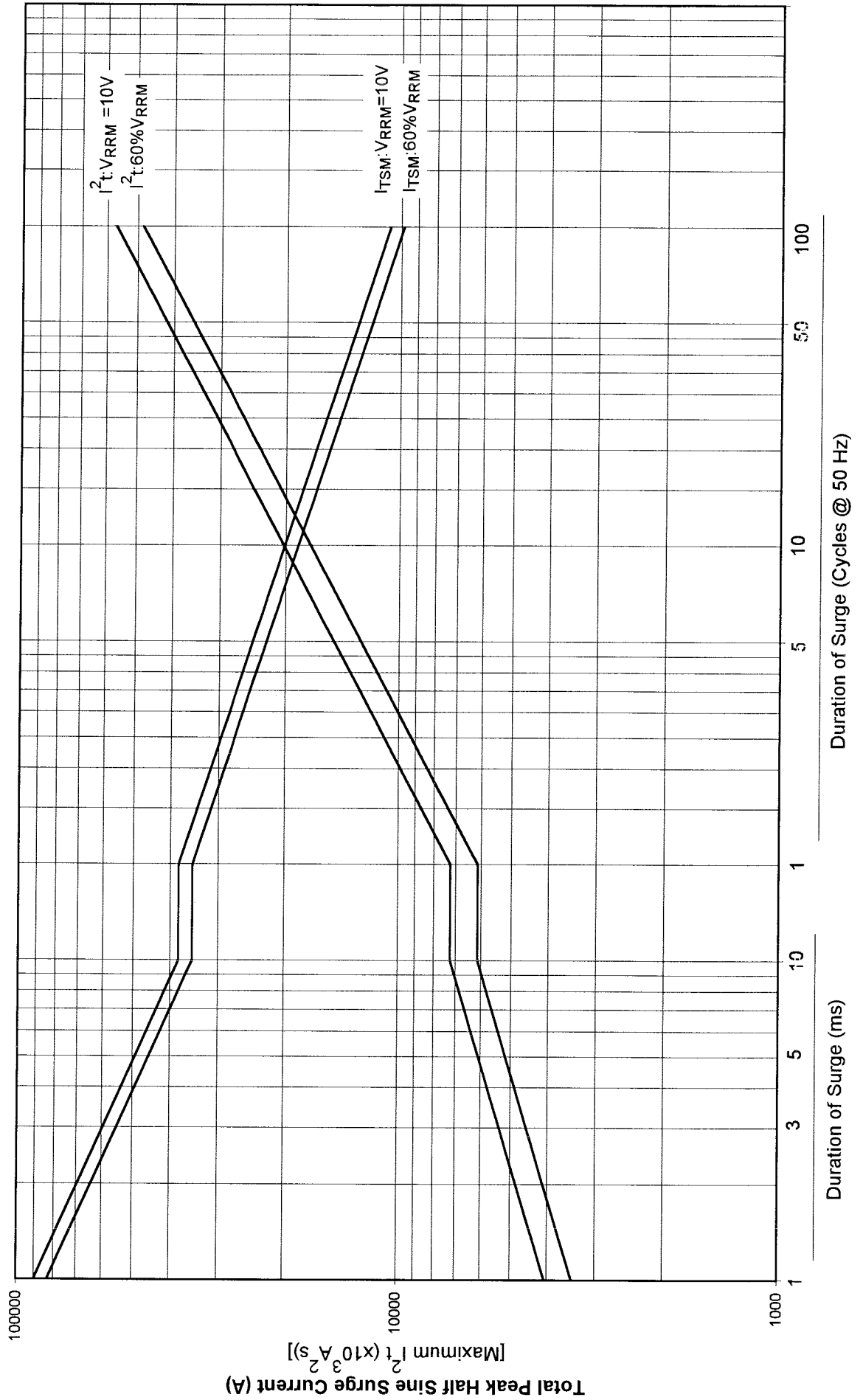
Single side cooled  
0.022°C/W

0.022  
degC/W  
0.011  
degC/W

0.011°C/W  
Double side cooled

15e/4

Maximum Non-Repetitive Surge Current  
 @ Initial Junction Temperature 160 °C



INTERNATIONAL OUTLINE No.

G.A. DWG No. 159B100H601

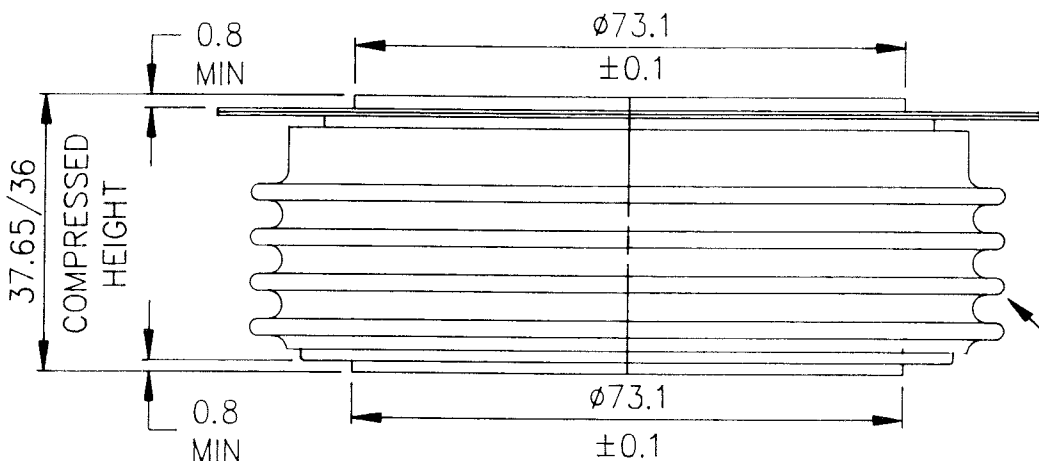
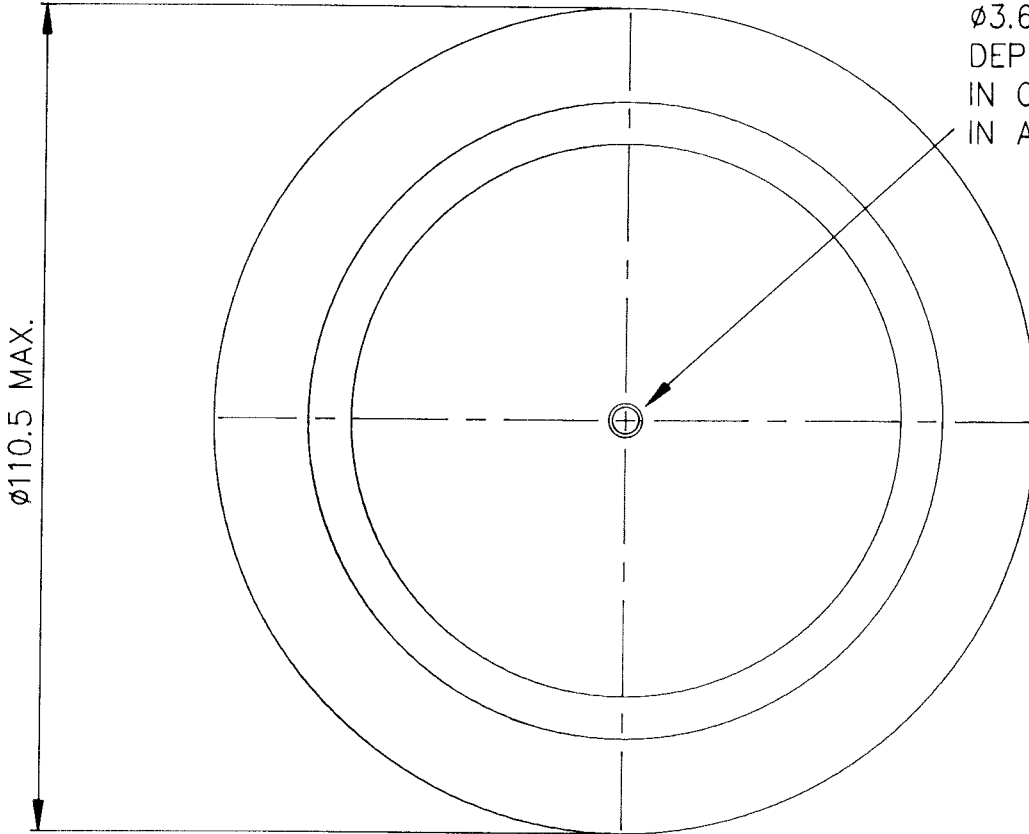
- 9 -

WEIGHT. 1.7kg

FINISH. NICKEL PLATE

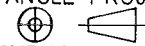
DEVICE MOUNTING: CLAMPING FORCE TO BE APPLIED ON CENTRE LINE OF LOCATION HOLES AND BE EVENLY DISTRIBUTED OVER AREA OF CONTACT. FLAT TOL. ON SURFACES TO WHICH DEVICE IS CLAMPED TO BE 0.04 WIDE. CLAMPING FORCE = 3700±1000kgf. (37±10kN)

CXC974 CXC32C  
 CXC15C  
 CXC18C  
 CXC20C  
 CXC21C  
 CXC26C  
 CXC30C



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SCALE 1/1	ISS REVISIONS					
DRAWN HDN	4	13-09-90	REDRAWN ON			
DIST: A		CAD HDN				
	5	M1644. TYPE No.				
		CXC26C ADDED				
	60	11.4.91 HDN				
		26.8.93. M2312.				
		CXC18C ADDED.				
	70	HN				
		11.1.94. M2408.				
		CXC974 ADDED.				
		HN				

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

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