Fast Recovery Diode Stud
Types M0130S/RX200 to M0130S/RX250

The data sheet on the subsequent pages of this document is a scanned copy of existing data for this product.
(Rating Report 90NR1 Issue 2)

This data reflects the old part number for this product which is: SM16-25MCN/R094.
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/RL outline drawing (W20) in datasheet
No reverse recovery information or notes on ratings available
Device no longer available for grades 16 & 18 (1600V & 1800V V_{RRM})

The following links will direct you to the appropriate outline drawings
Outline W20 – M12 Ceramic stud and lug
Outline W21 – 3/8" 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			
M0130	S/RX	♦♦	**0**
Fixed Type Code	S/RL – M12 Ceramic stud and lug S/RM – 3/8" Ceramic stud	Voltage code V_{RRM}/100 20-25	Fixed Code
Typical Order Code: M0130SL200, Normal polarity M12 Ceramic stud and lug, 2000V V_{RRM}			

QUALITY EVALUATION LABORATORY

Rating Report No: 90NR1 (Issue 2) Date: 4th March, 1993

Origin: Q.E.L. Pages: 26

Stud Based Diode SM16-25MCN/R094

Written by: B. Holloway Checked: M Baker Approved:

The MCN/R094 series of fast recovery diodes are based on a 19 mm diameter silicon slice mounted under spring pressure in a stud base housing. These diodes are particularly suitable for use in G.T.O. snubber networks.

This supersedes 90NR1 Issue 1 dated 8.2.90.

Ratings

Voltage Grades	: 16 - 25
V_{RSM}	: 1700-2600V
V_{RRM}	: 1600-2500V
$I_{F(AV)}$ Single phase: 50 Hz 180° half sinewave; T_{CASE} = 100°C	: 56A
$I_{F(rms)}$ max.	: 170A
I_F max.	: 170A
I_{FSM} : t = 10ms half sinewave; T_J (initial) = 125°C $V_{RM} = 0.6V_{RRM(MAX)}$	: 2240A
I_{FSM} : t = 10ms half sinewave; T_J (initial) = 125°C VRM $\leq$ 10V	: 2450A
I^2t : t = 10ms T_J (initial) = 125°C; $V_{RM} = 0.6V_{RRM(MAX)}$	: 2.5 x 10^4A^2S
I^2t : t = 10ms; T_J (initial) = 125°C; $V_{RM} \leq$ 10V	: 3 x 10^4A^2S
I^2t : t = 3ms; T_J (initial) = 125°C; $V_{RM} \leq$ 10V	: 2.2 x 10^4A^2S
T_{CASE} Operating Range	: -40 to 125°C
T_{stg} : Non-operating	: -40 to 150°C

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Characteristics
(Maximum values unless otherwise stated)

V_o :	: 1.29V
r_s :	: 1.54mohms
A : T_J = 25°C	: -1.100995
B : T_J = 25°C	: 0.6774339
C : T_J = 25°C	: 0.0018742
D : T_J = 25°C	:-8.277599×10^{-2}
A	:-2.047925
B	: 0.8725644
C	: 2.428484×10^{-3}
D	:-0.1139999
V_{FM} at I_{FM} = 280A	: 1.64V
$R_{th(J-C)}$	: 0.30 K/W
$R_{th(C-HS)}$	: 0.08 K/W
I_{RRM} : at $V_{RRM(MAX)}$	: 20mA
V_{fr} : at dI/dt = 400A/μS	: 80V

Reverse recovery at I_{FM} = 1000A; t_p = 200μs

di_R/dt = 150A/uS; V_{RM} = 50V

Q_{RR} (total area)	: 480μC
Q_{RA} (50% chord)	: 237μC
t_{rr} (50% chord)	: 2.6μS Typ.
I_{RM}	: 235A
Mounting Torque	: 14 Nm
Outline Drawing	: 100A303
JEDEC Outline No.	: -

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

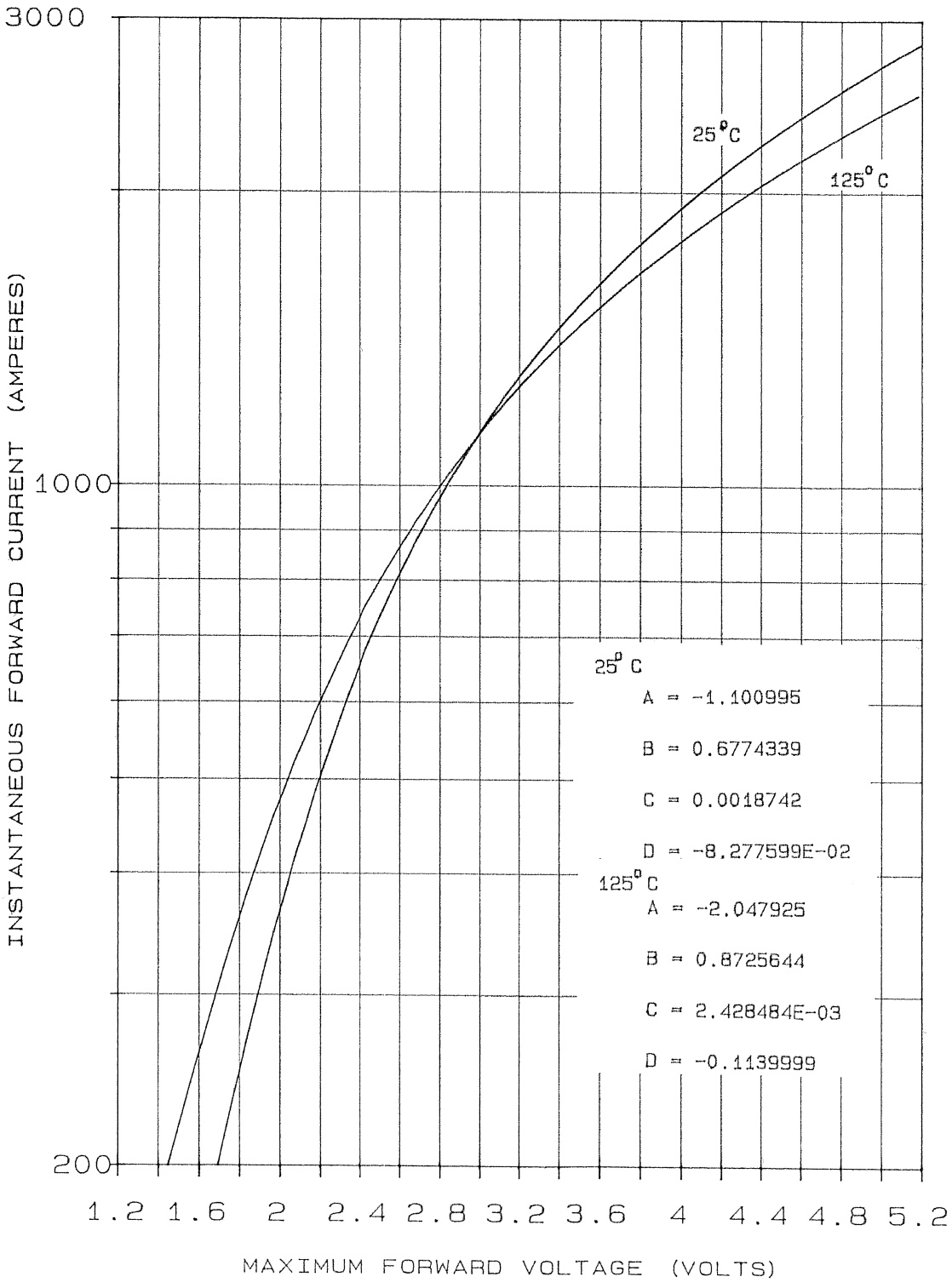
CONTENTS

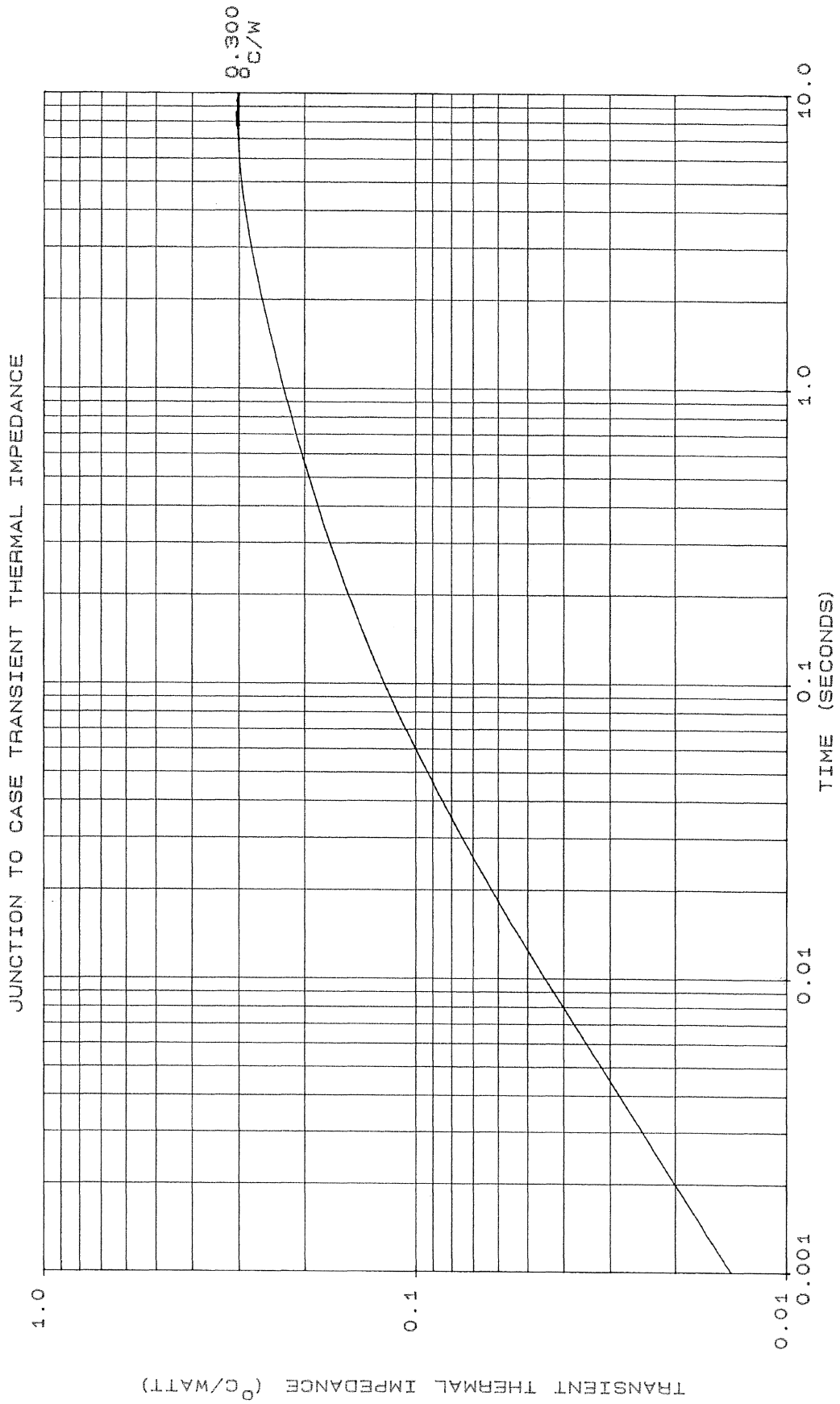
Voltage Ratings

Voltage Class	V_{RRM} V	V_{RSM} V
16	1600	1700
18	1800	1900
20	2000	2100
22	2200	2300
24	2400	2500
25	2500	2600

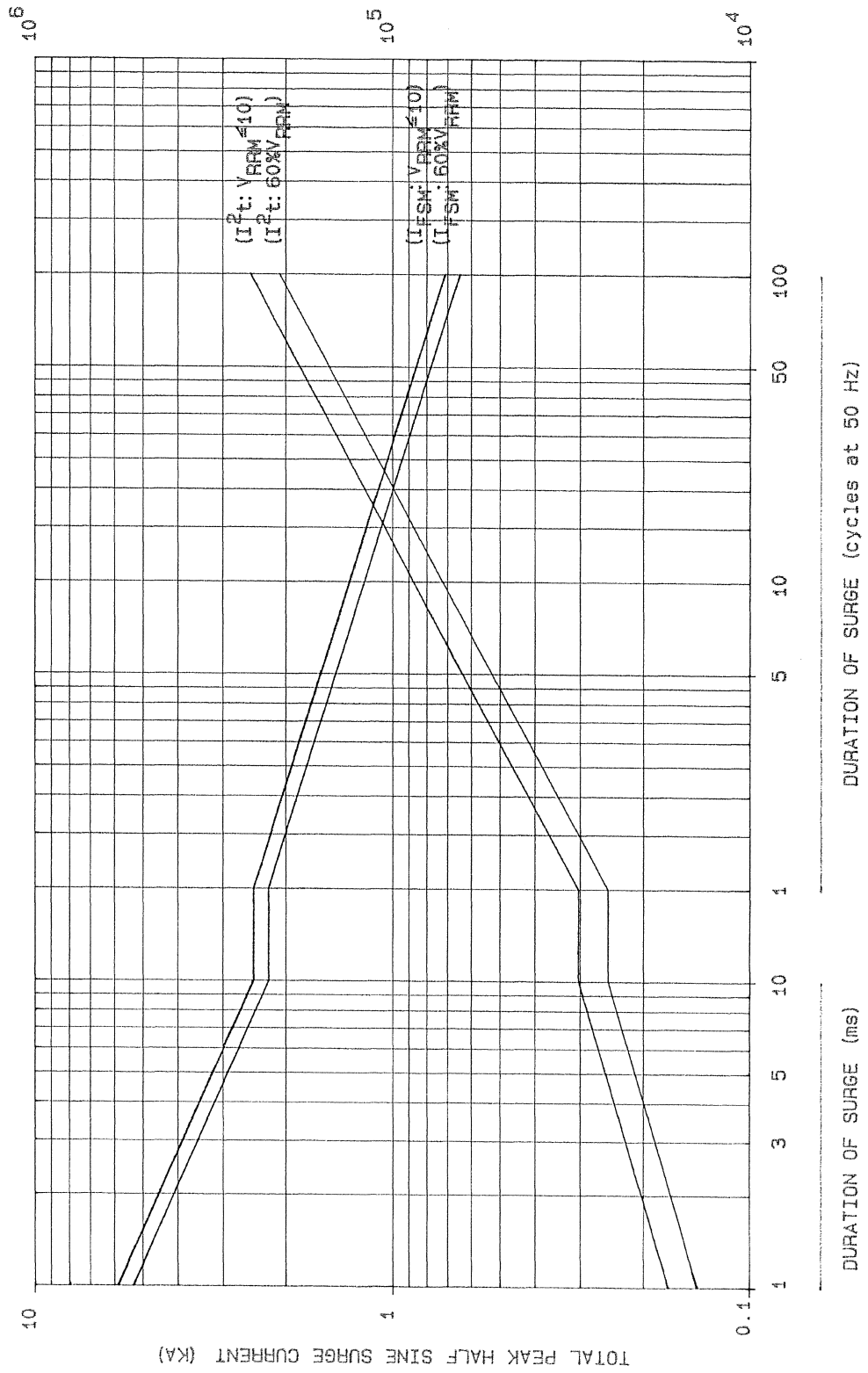
This Report is applicable to higher or lower voltage grades when supply has been agreed by Sales/Production.

FORWARD CHARACTERISTIC OF LIMIT DEVICE

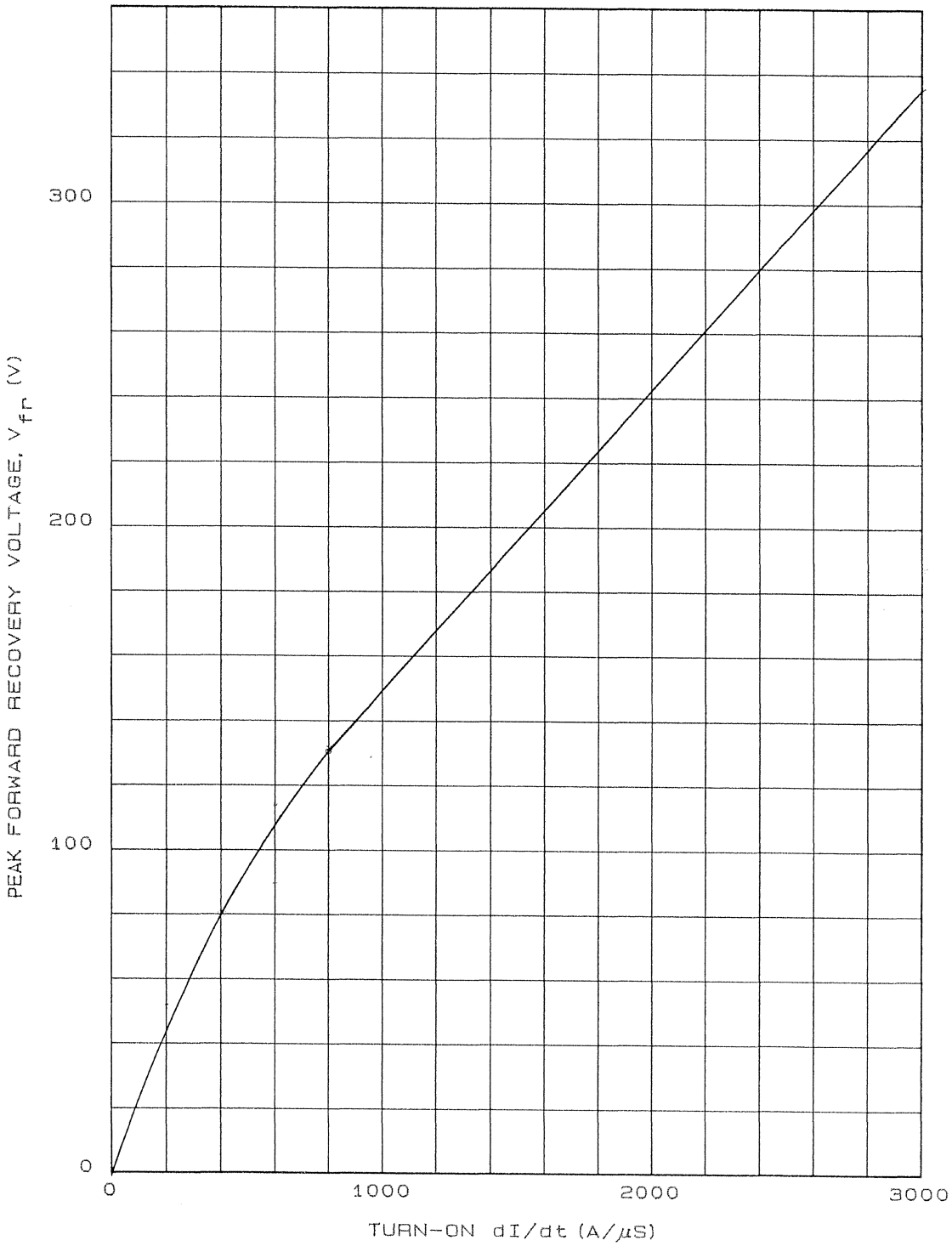



JUNCTION TO CASE TRANSIENT THERMAL IMPEDANCE
0.300 °C/W
TRANSIENT THERMAL IMPEDANCE (°C/WATT)
1.0
0.1
0.01
0.001
0.01
0.1
1.0
10.0
TIME (SECONDS)

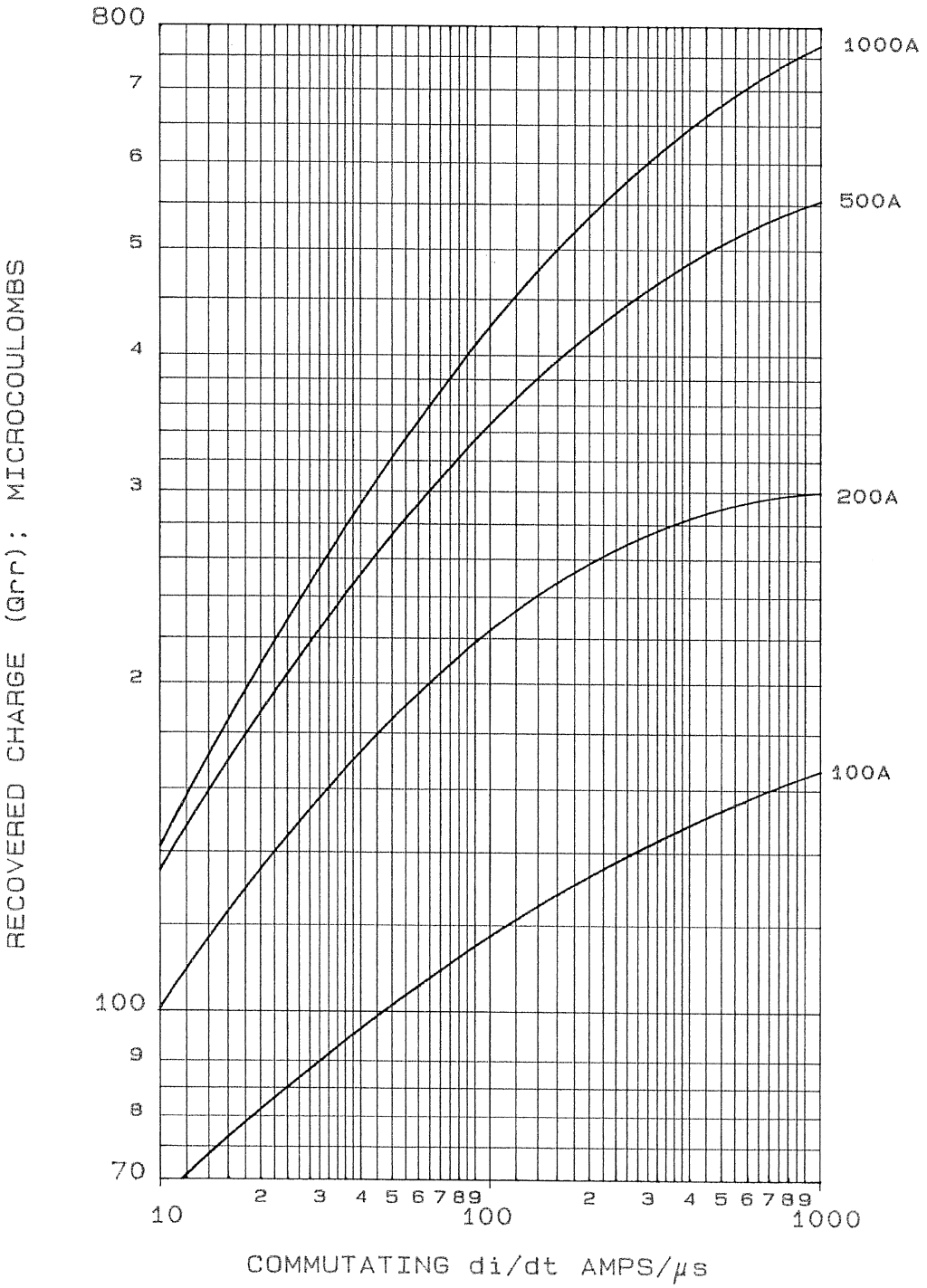
MAXIMUM NON REPETITIVE SURGE CURRENT AT INITIAL JUNCTION TEMPERATURE 125°C



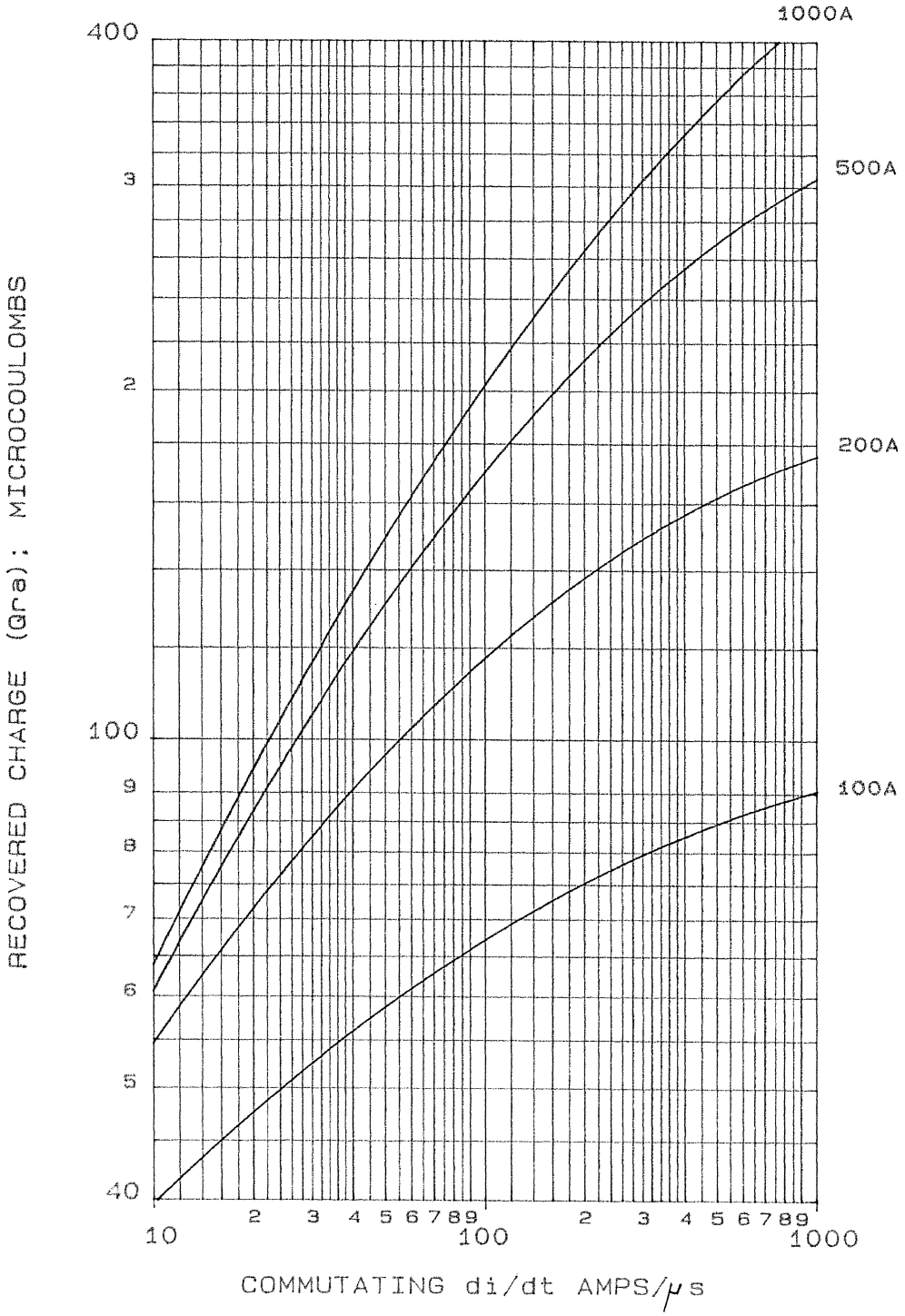
TYPICAL FORWARD RECOVERY VOLTAGE
Tj 125 C



MAXIMUM RECOVERED CHARGE AT 125°C JUNCTION TEMPERATURE

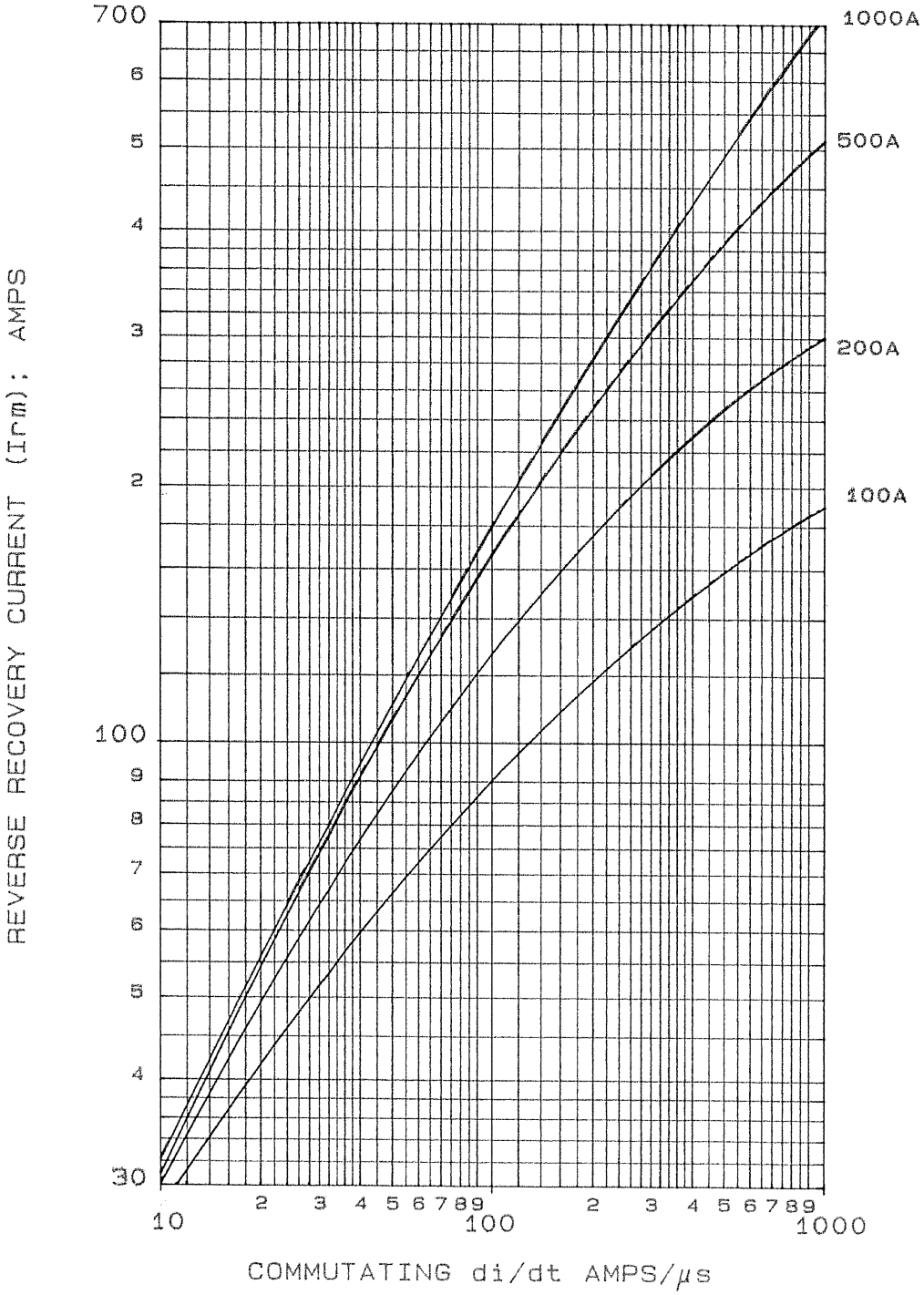


MAXIMUM RECOVERED CHARGE AT 125°C JUNCTION TEMPERATURE



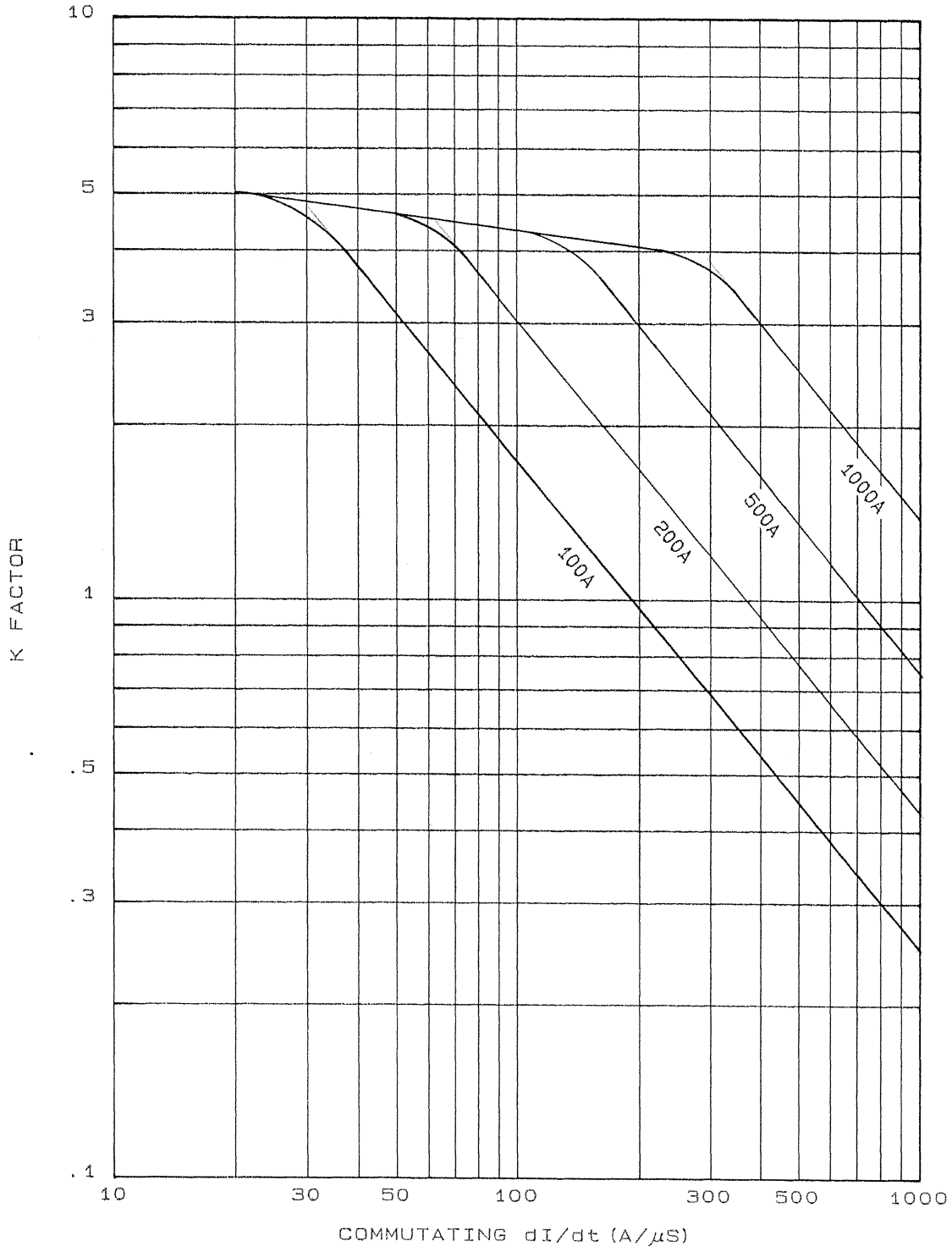
MAXIMUM REVERSE RECOVERY CURRENT

AT 125°C JUNCTION TEMPERATURE

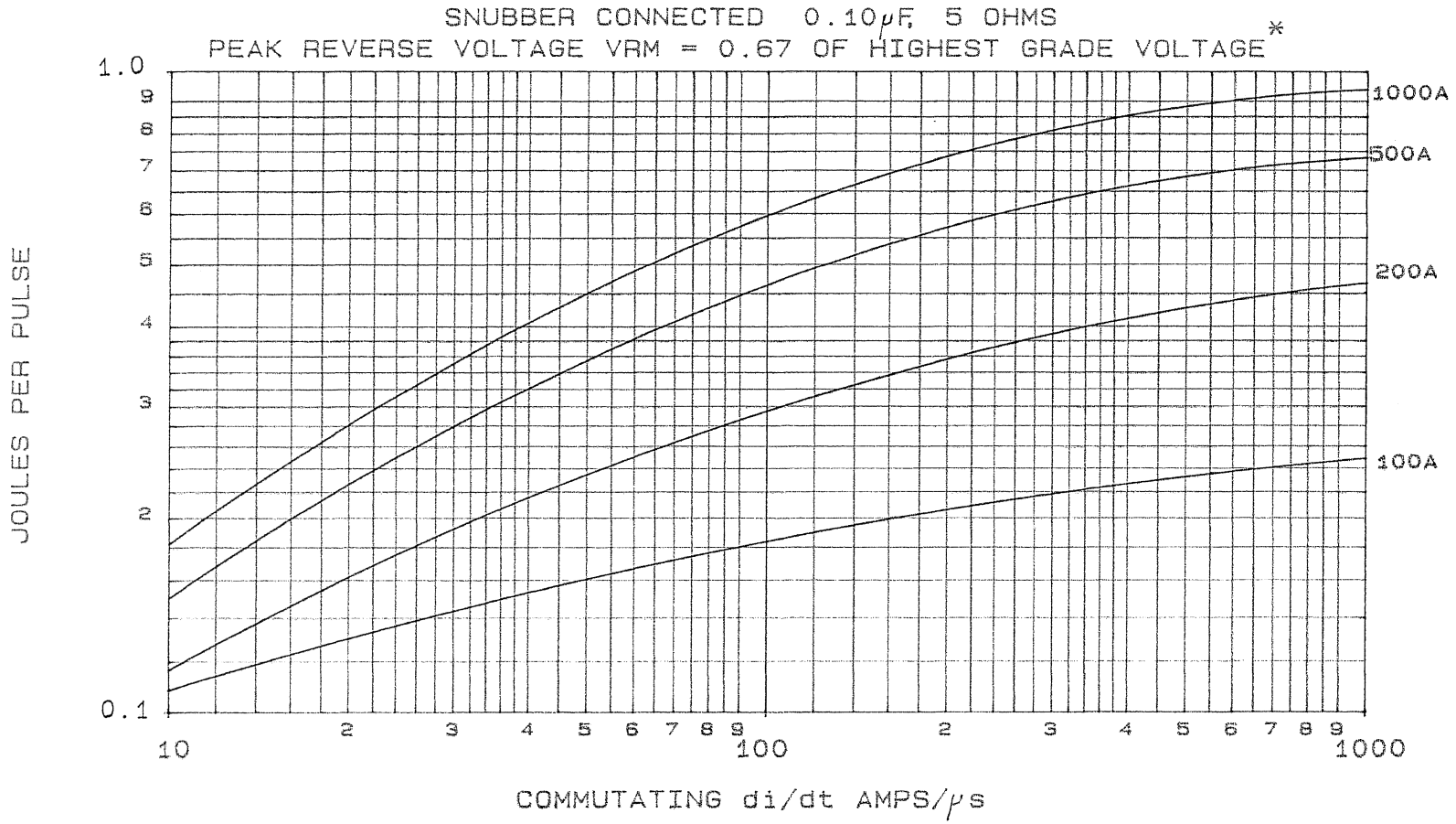


MAXIMUM K FACTOR

T_j = 125°C

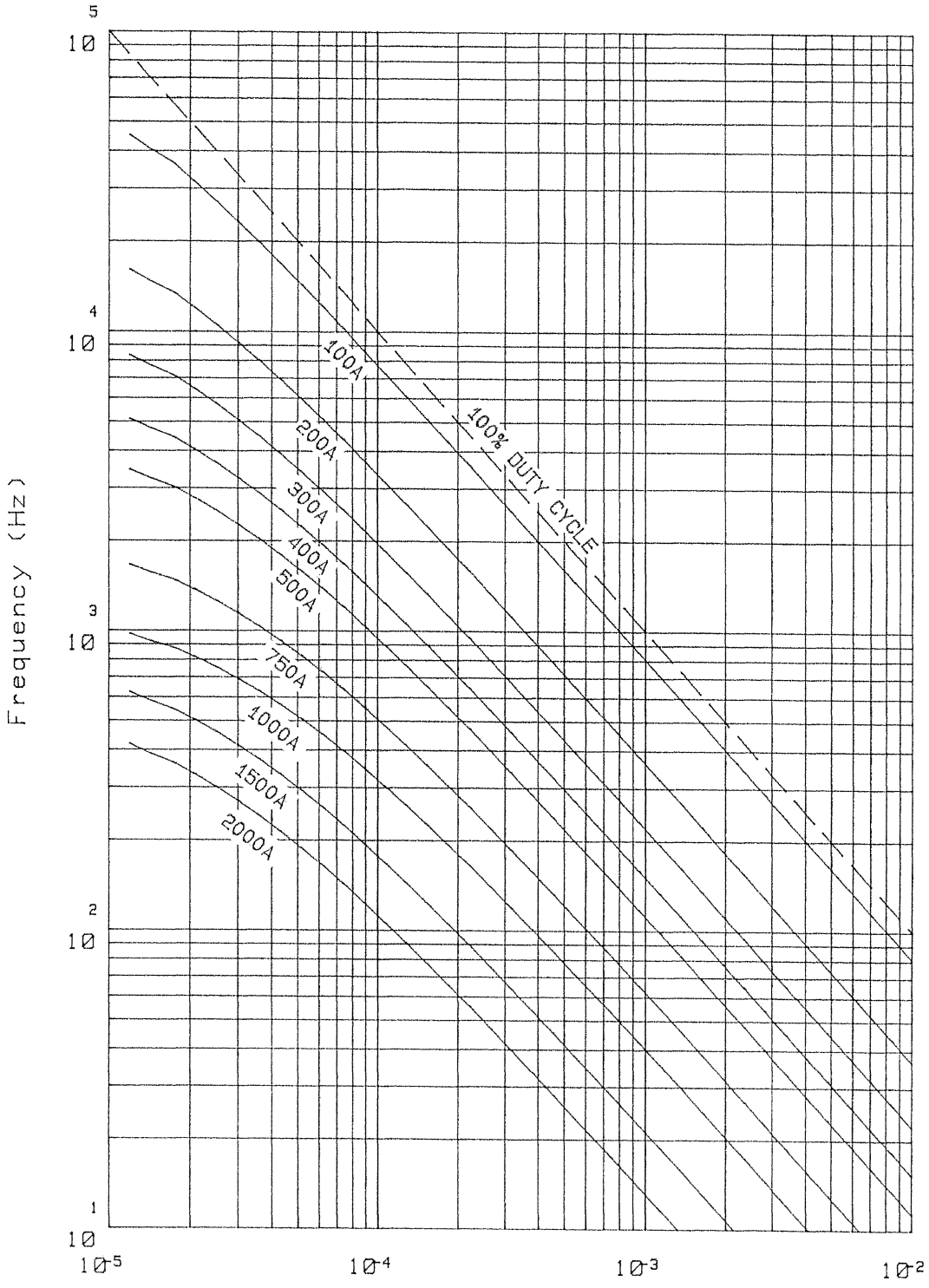


MAXIMUM REVERSE RECOVERY ENERGY LOSS PER PULSE, 125°C JUNCTION TEMPERATURE

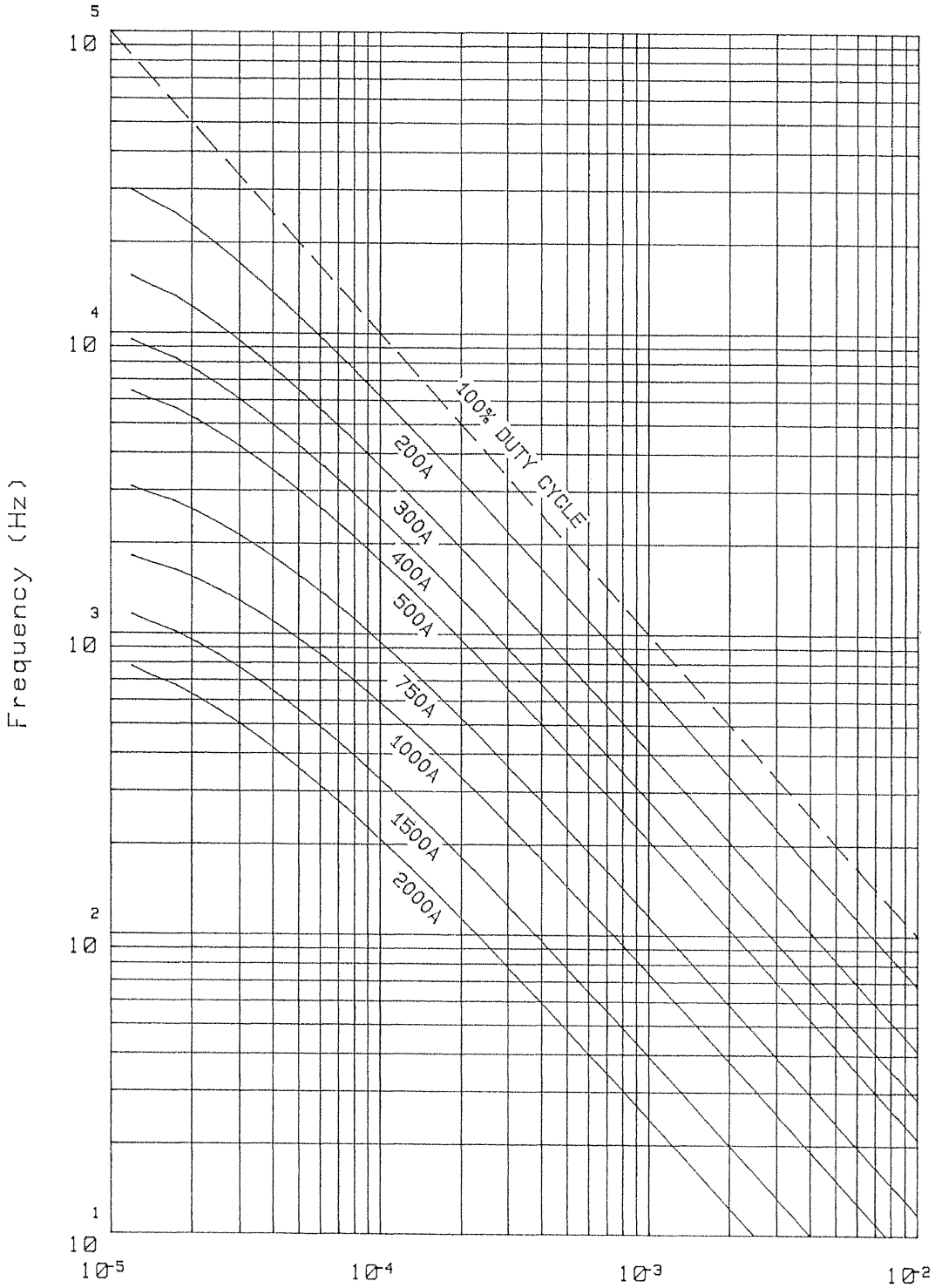


*NOTE: ENERGY PER PULSE SHOULD BE ADJUSTED PRO RATA WITH APPLIED PEAK RECOVERY VOLTAGE

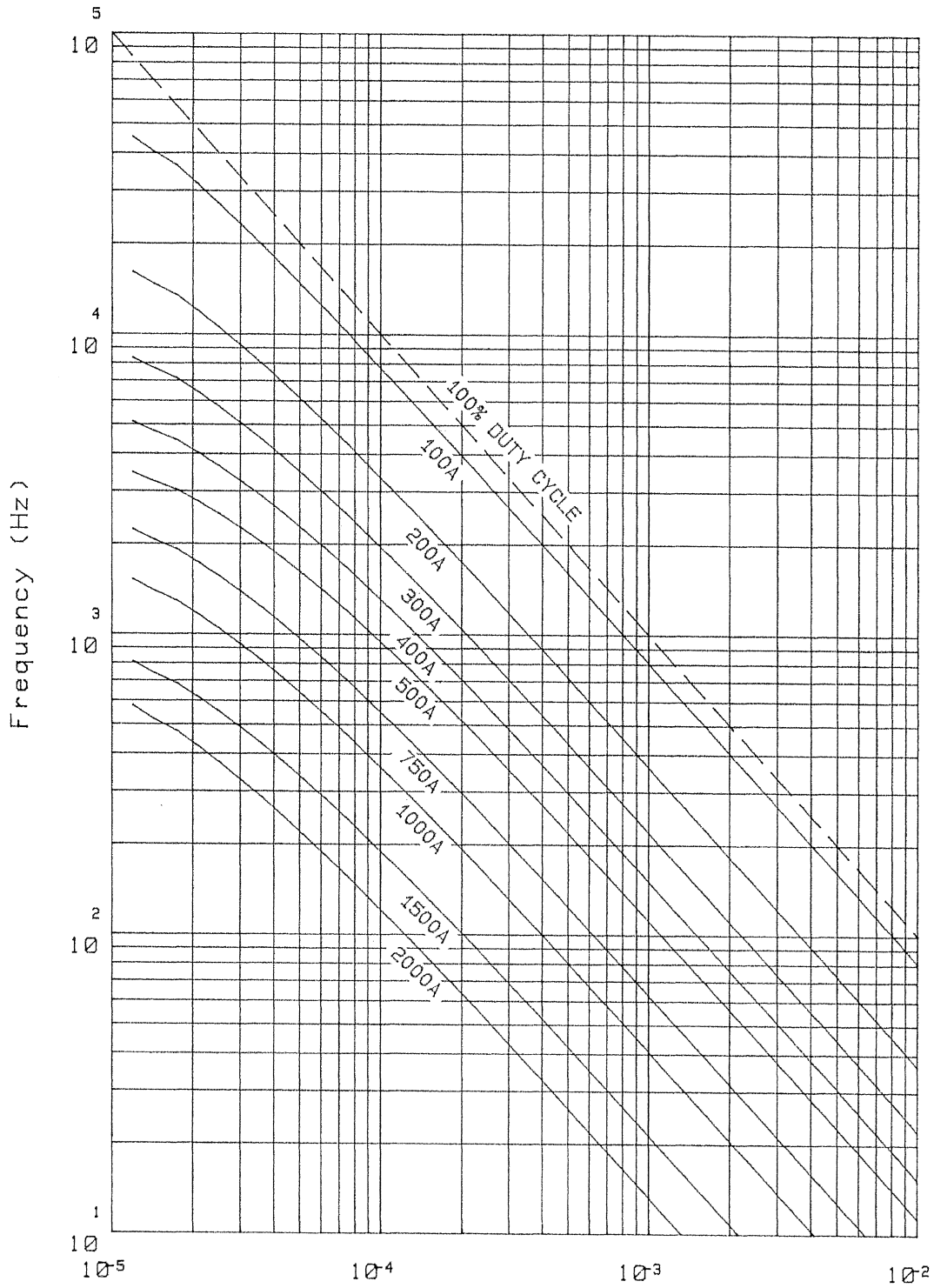
T CASE 90 oC. 1000 A/uS



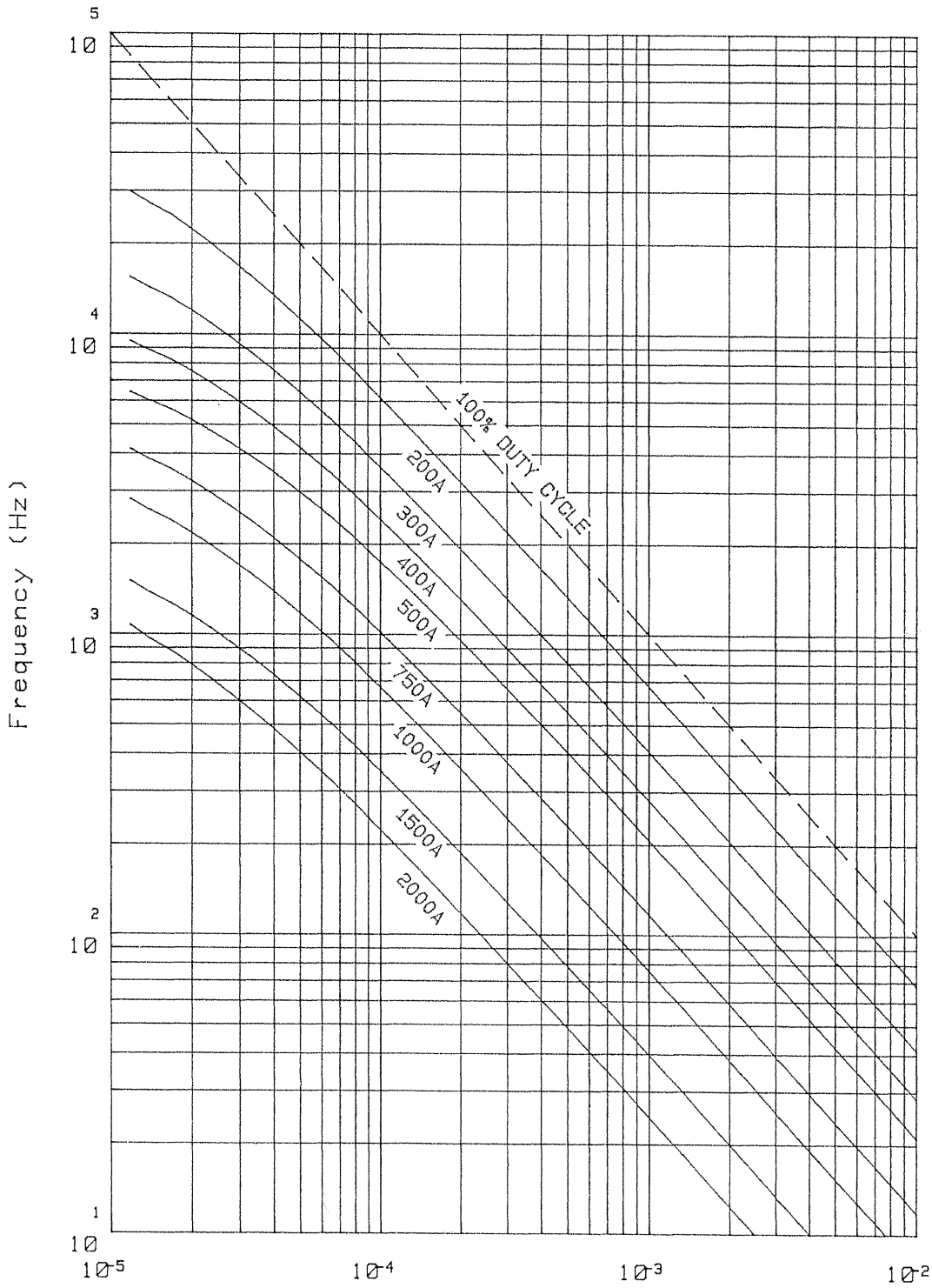
T CASE 60 oC. 1000 A/uS



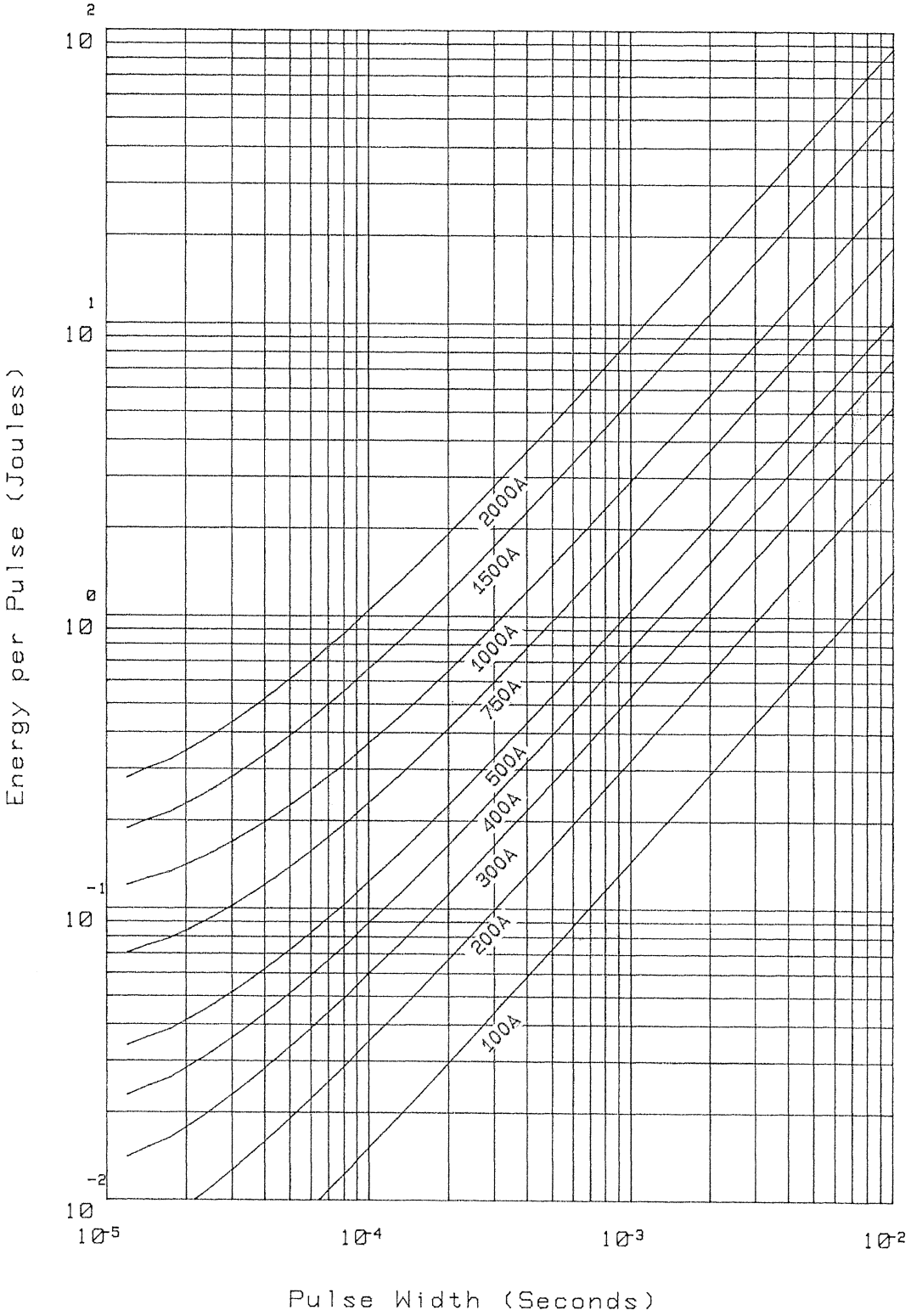
T CASE 90 oC. 500 A/uS



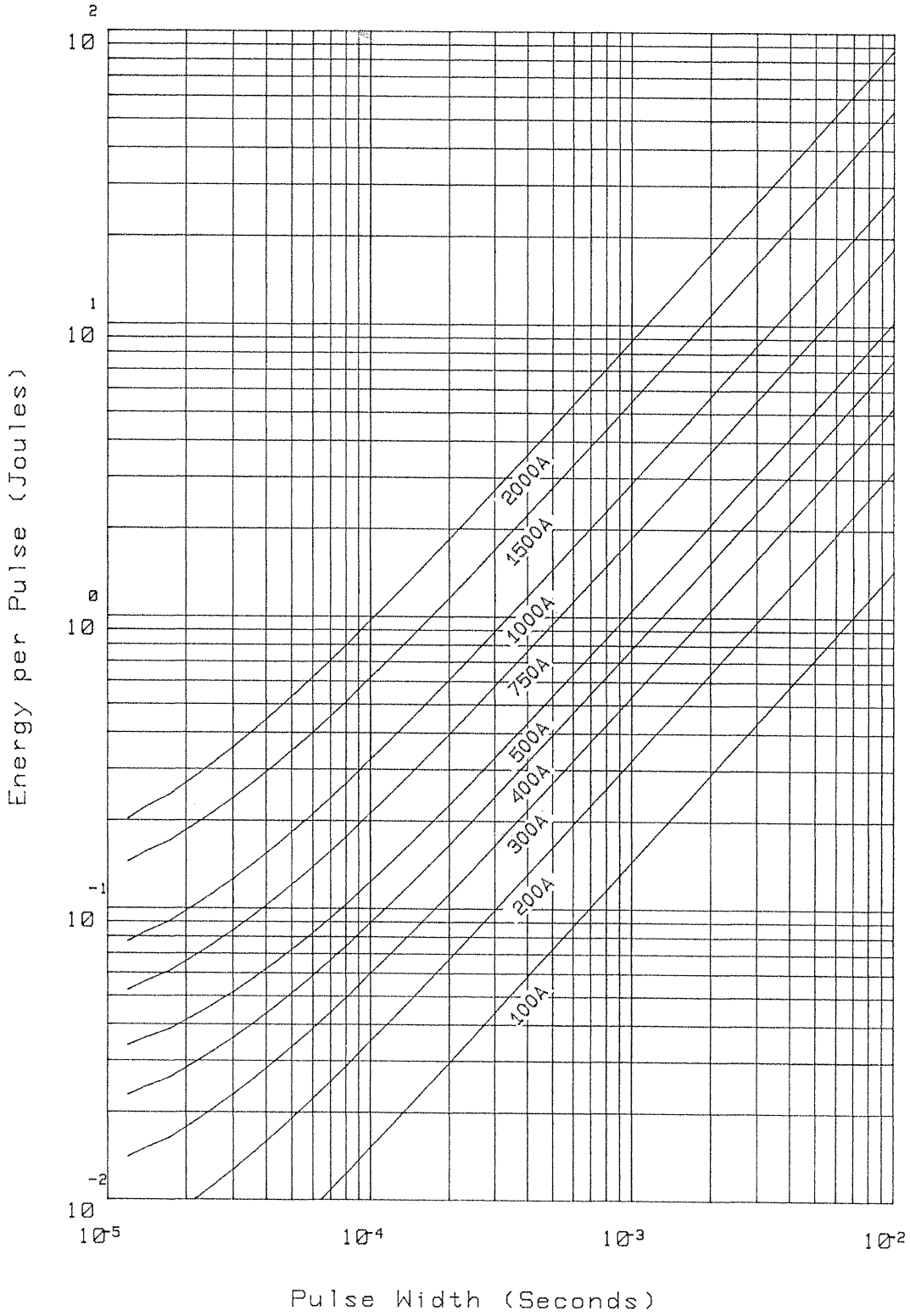
T CASE 60 oC. 500 A/uS



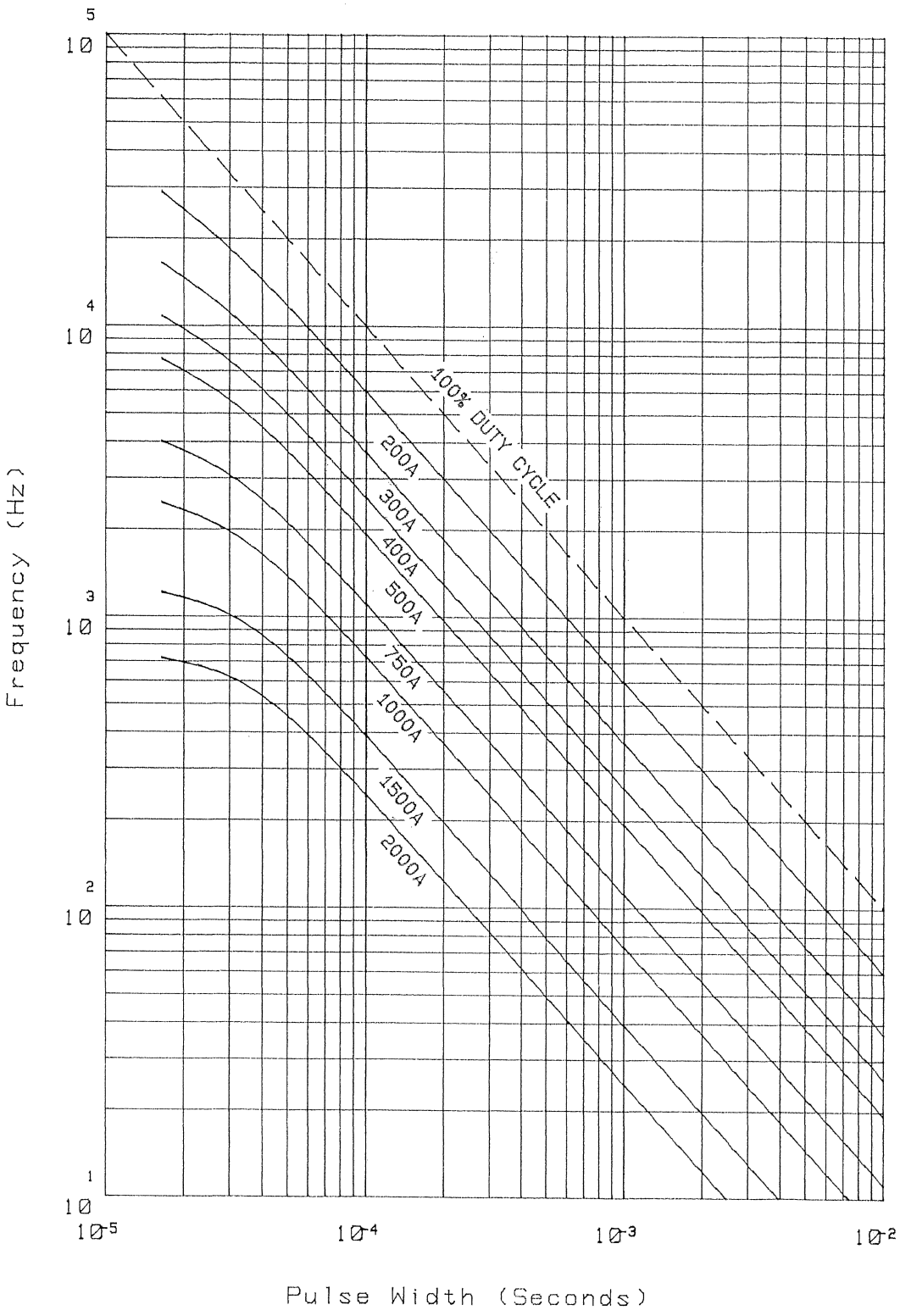
Tj 125 C 1000 A/uS



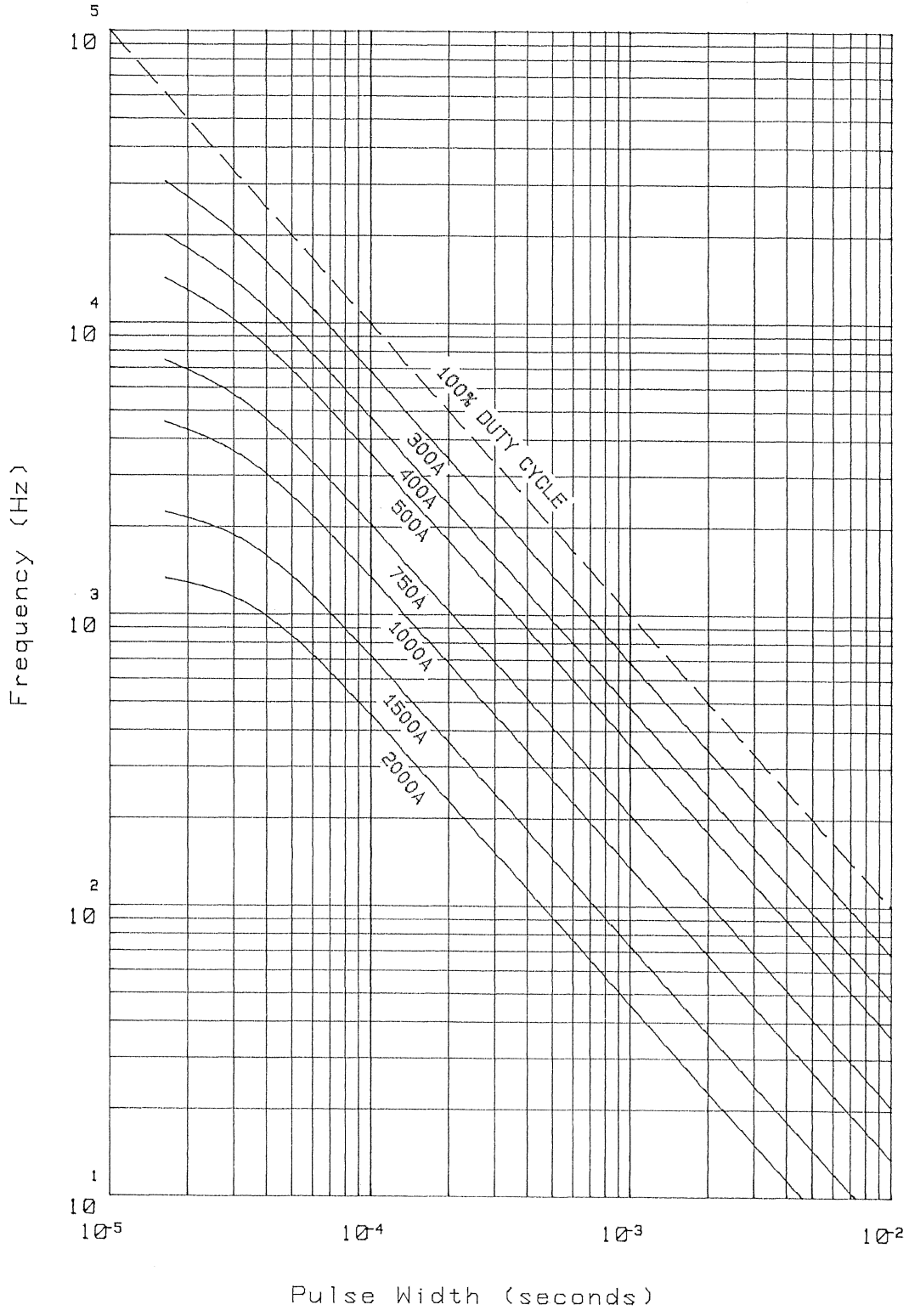
Tj 125 C 500 A/uS



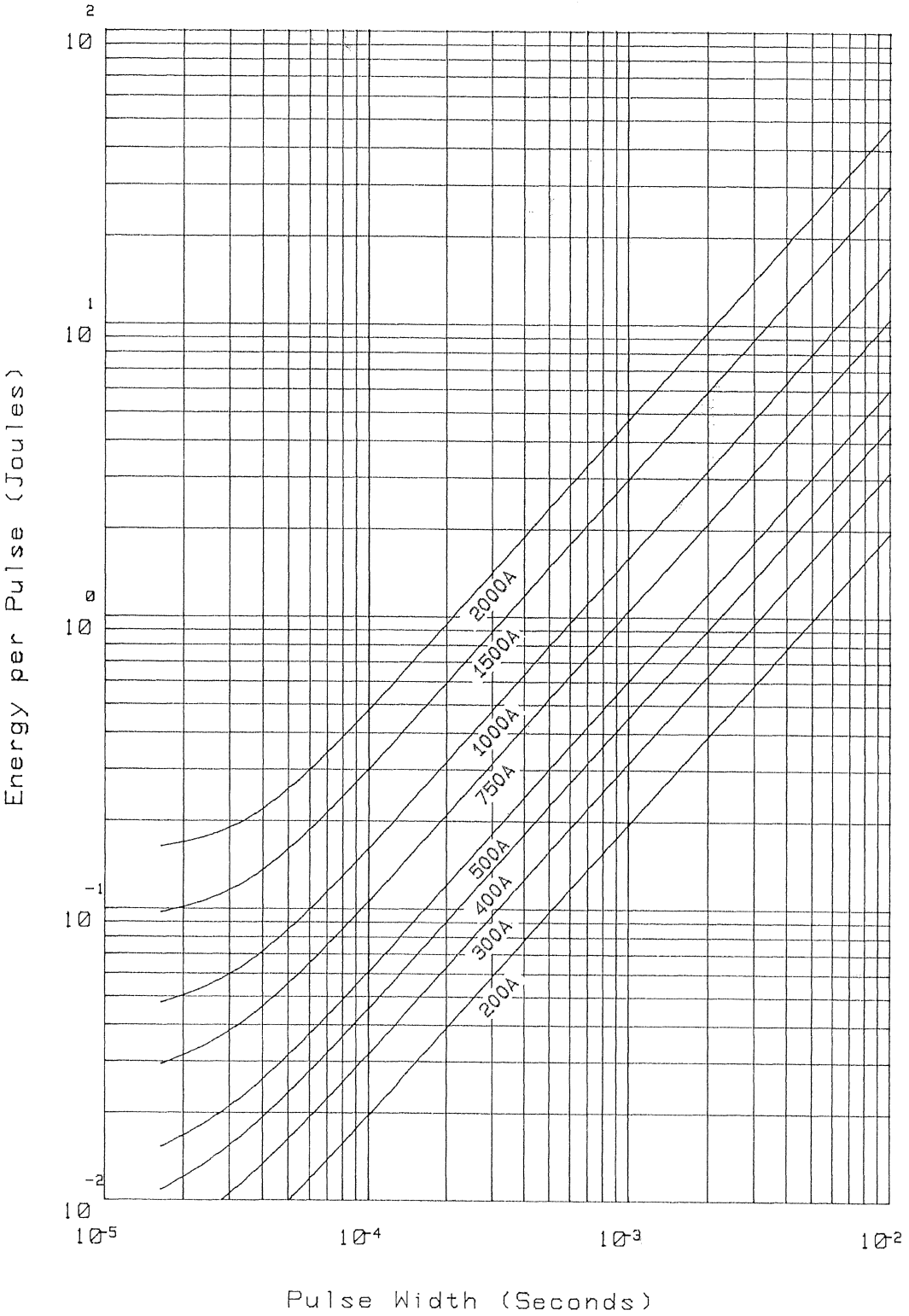
T CASE 90 oC. SINE WAVE



T CASE 60 oC. SINE WAVE



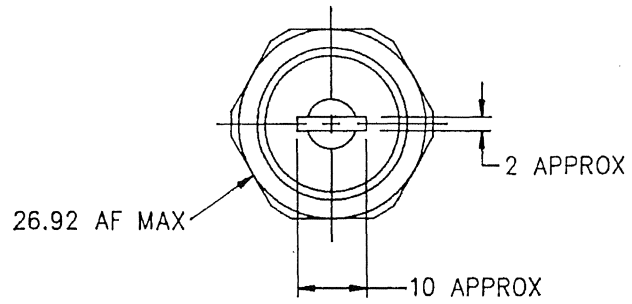
Tj 125 C SINE WAVE

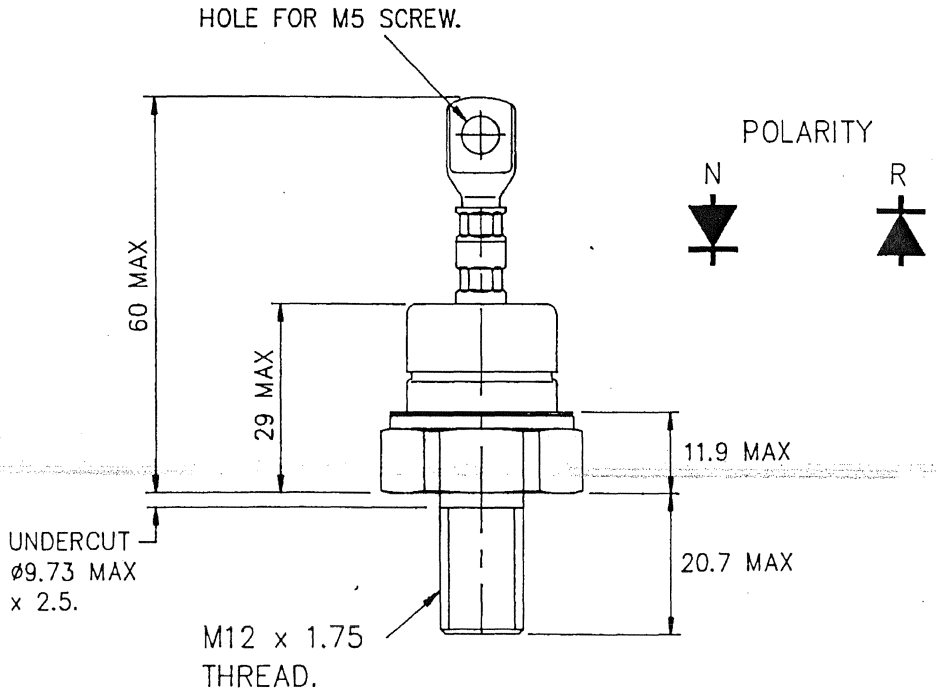


ACAD REF: 100A303

INTERNATIONAL OUTLINE No.
G.A. DWG No. 102A232
WEIGHT. 85 GRAMS
FINISH. BRIGHT NICKEL PLATE.
DEVICE MOUNTING TORQUE: M12 THREAD 14 Nm (1.4 kgf m)
DO NOT LUBRICATE THREADS.

TYPE NUMBER
MCN094
MCR094
MCN100
MCR100



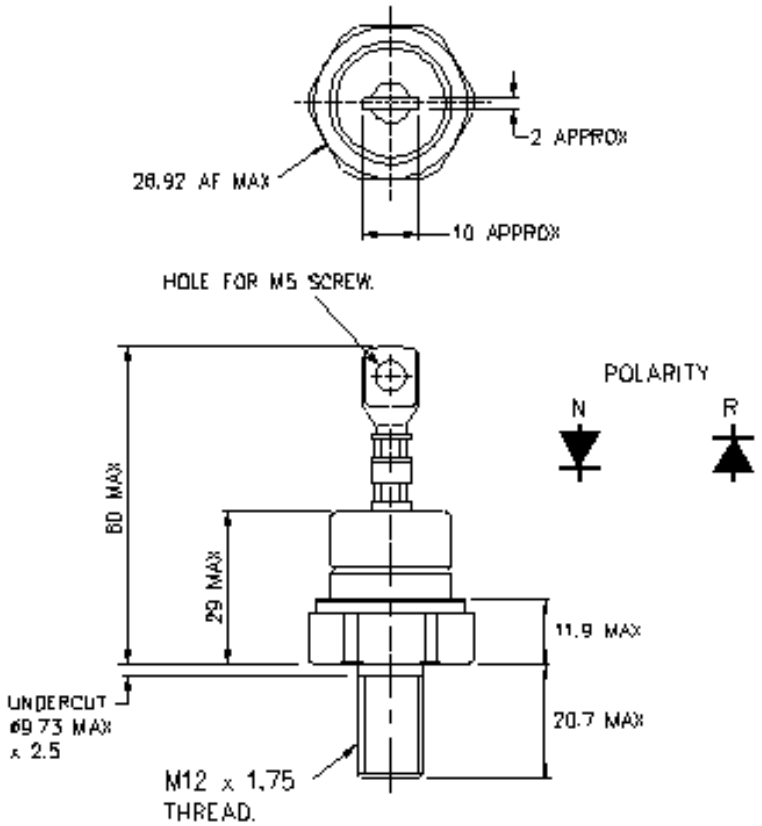


ISS	REVISIONS	
1	13.9.89	AWF
2	26.1.90 DRG. No. WAS 101A303 AF.	
3D	9.6.90 M1525 U9142 ADDED. METRIC VERSION ADDED.	RFCB
4D	24.2.93 M2131 PCN/R094 & 100 DIODE OPTION TRAANSFERED TO DRG. 100A302.	AWF

THIRD ANGLE PROJECTION.
DWG. COMPLIES WITH BS 308.
DIMNS. IN MILLIMETRES.
DWG No. 100A303
SCALE 1=1

WESTCODE SEMICONDUCTORS LTD.,
P.O. BOX 57, CHIPPENHAM, WILTSHIRE, SN15 1JL, ENGLAND.
TEL 0249 654141. TELEX 44751 WESCDE G. TELEFAX 0249 659448.

Drawing Number – W20
Outline Number – 100A303



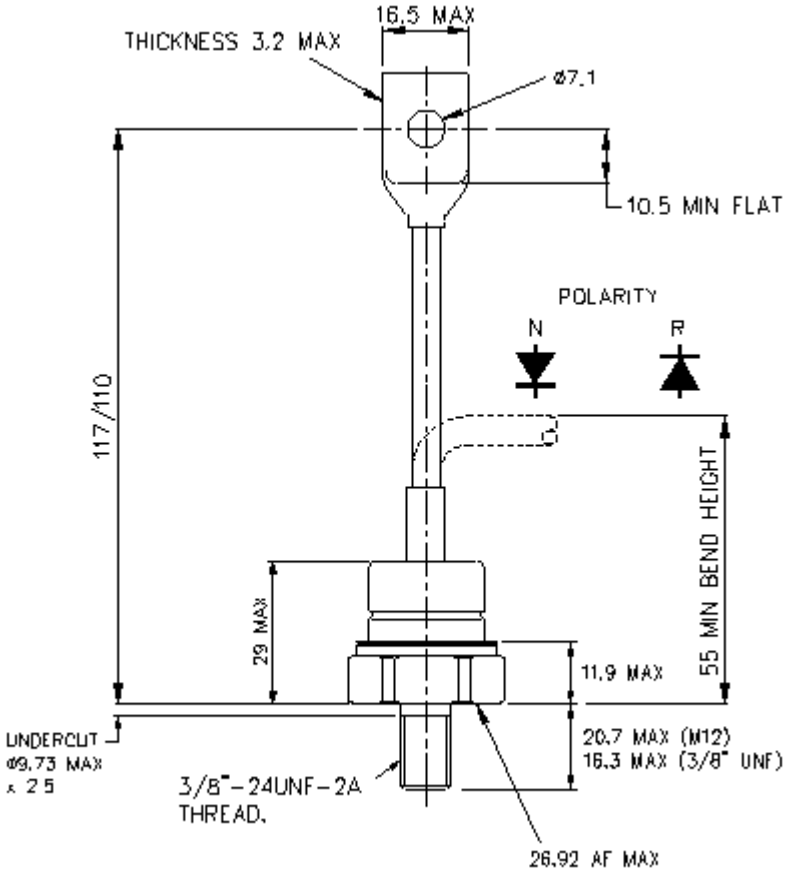
Weight 85g

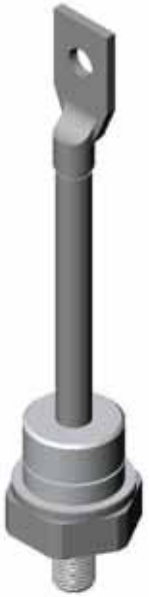
Westcode Customer Services email: wsl.sales@westcode.com **Telephone: +44 (0)1249 444524 Fax: +44 (0)1249 659448**

Drawing Number – W21

Outline Number – 100A294

WESTCODE
An IXYS Company





Weight 85g

Westcode Customer Services email: wsl.sales@westcode.com **Telephone: +44 (0)1249 444524 Fax: +44 (0)1249 659448**