

ELECTRONIC VALVE SPECIFICATIONS  
SPECIFICATION CV7405 - 7429

ISSUE NO.1 DATED 2.7.63  
AMENDMENT NO.1

Page 2 Primary Electrical Characteristics CV 7413

Col.9 I<sub>R</sub> at 100°C Amend 1.0 mA to read 0.1 mA.

Page 5 Sub-Group 3, Vibration Fatigue

Amend Inspection Level 1 to read 1A

Page 6 Sub-Group 8, Operation Life

Under Col. headed Specific Conditions add  
t = 1000 hours.

Engineer in Chief G.P.O.

April, 1964.

ELECTRONIC VALVE SPECIFICATIONS  
SPECIFICATION CV.7405-7429  
ISSUE No. 1 DATED 2.7.1963  
AMENDMENT No. 2

Page 2, Primary Electrical Characteristics.

CV.7406 Col. 9 IR at 100°C, amend 0.6 mA to read  
1.25 mA

CV.7407 Col. 9 IR at 100°C, amend 0.3 mA to read  
0.6 mA

July, 1964

Engineer-in-Chief G.P.O.

Against CV.7405-29 note  
that CV.7405-19 are  
Current category.

K1007/CV7405-7429  
ISSUE 1  
2nd July 1963

MILITARY SPECIFICATION

# CV7405 — CV7429

SEMICONDUCTOR DEVICES, VOLTAGE-REGULATOR DIODES

Description This Specification covers the detail requirements for Silicon Voltage-Regulator Diodes, and is in accordance with K1007, except as otherwise stated.

Mechanical Dimensions and Outline

K1007 Section B. 10.3.3.1.

Connections Flange and Cathode.

Absolute Maximum Ratings

Rating	$P_{tot}$	$T_{op}$	$T_{stg}$	Shock	Vibration
Unit	W	°C	°C	g	g
Minimum		-55	-55		
Maximum	1	150	150	1500	20
Note	1			2	

- Notes:- 1 See Derating Curve Fig. 1, Page 8  
2 Duration 0.5 mS  
3 Commercial Equivalent 1Z-T5 Series

(190357)

Primary Electrical Characteristics

# CV 7405-CV7429

CV No.	1	2	3	4	5	6	7	8	9	10
	$V_s$ Nom.	$V_s$ Min.	$V_s$ Max.	$I_s$ (test current)	$r_s$ Max.	$S_s$ Min.	$S_s$ typ.	$S_s$ Max.	$I_R @$ 100°C	$V_R$ test voltage
	volts	volts	volts	mA	ohms	%/°C	%/°C	%/°C	mA	volts
7405	3.3	3.1	3.5	50	14.0	-0.105	-0.07	-0.04	2.5	2
7406	3.6	3.4	3.8	50	13.0	-0.095	-0.06	-0.025	0.6	2
7407	3.9	3.7	4.1	50	12.0	-0.080	-0.04	-0.010	0.3	2
7408	4.3	4.0	4.5	50	11.0	-0.065	-0.02	0.005	0.2	2
7409	4.7	4.4	5.0	50	10.0	-0.050	0.0	0.020	0.1	2
7410	5.1	4.8	5.4	50	9.0	-0.035	0.01	0.035	0.05	2
7411	5.6	5.3	6.0	50	8.0	-0.020	0.03	0.050	0.05	2
7412	6.2	5.8	6.6	50	7.0	-0.005	0.04	0.065	0.01	2
7413	6.8	6.4	7.2	20	6.0	0.005	0.05	0.075	1.0	5.6
7414	7.5	7.1	7.9	20	4.5	0.015	0.055	0.085	0.1	6.2
7415	8.2	7.7	8.7	20	4.0	0.015	0.06	0.085	0.1	6.8
7416	9.1	8.6	9.6	20	4.0	0.020	0.065	0.090	0.1	7.5
7417	10.0	9.4	10.6	20	4.5	0.020	0.07	0.090	0.1	8.2
7418	11.0	10.4	11.6	20	5.5	0.025	0.07	0.095	0.1	9.1
7419	12.0	11.4	12.6	20	7.0	0.025	0.075	0.095	0.1	10.0
7420	13.0	12.4	14.1	20	10.0	0.030	0.075	0.100	0.1	11.0
7421	15.0	13.9	15.6	10	16.0	0.030	0.08	0.100	0.1	12.0
7422	16.0	15.4	17.1	10	20.0	0.035	0.08	0.105	0.1	13.0
7423	18.0	16.9	19.1	10	28.0	0.035	0.085	0.105	0.1	15
7424	20.0	18.9	21.2	10	37.0	0.040	0.085	0.110	0.1	16
7425	22.0	20.8	23.3	10	47.0	0.040	0.09	0.110	0.1	18
7426	24.0	22.7	25.9	10	55.0	0.045	0.09	0.115	0.1	20
7427	27.0	25.1	28.9	10	70.0	0.045	0.095	0.115	0.1	22
7428	30.0	28.6	31.8	10	85.0	0.050	0.095	0.120	0.1	24
7429	33.0	31.3	34.7	10	110.0	0.050	0.10	0.120	0.1	27

Requirements:

Marking K1007, Section B, 1.3.4. Minimum requirements  
1.3.4.1. (a), (b) and (d).

Quality Assurance Provisions:

Destructive Tests The tests listed in Table II Group B  
Inspection, Sub-groups 2 and 3, and in Table III Group C  
Inspection, Sub-group 2 are considered destructive.

Group C Inspection Inspection shall be conducted on the  
initial lot and thereafter every 90 days or every fifth lot  
whichever occurs first.

Preparation for Delivery:

Packaging The devices shall be packed according to K1007,  
Section A 1.2 (c).

Joint Service Catalogue Numbers:

- |                            |                            |
|----------------------------|----------------------------|
| CV 7405 = 5960-99-037-3441 | CV 7418 = 5960-99-037-3454 |
| CV 7406 = 5960-99-037-3442 | CV 7419 = 5960-99-037-3455 |
| CV 7407 = 5960-99-037-3443 | CV 7420 = 5960-99-037-3456 |
| CV 7408 = 5960-99-037-3444 | CV 7421 = 5960-99-037-3457 |
| CV 7409 = 5960-99-037-3445 | CV 7422 = 5960-99-037-3458 |
| CV 7410 = 5960-99-037-3446 | CV 7423 = 5960-99-037-3459 |
| CV 7411 = 5960-99-037-3447 | CV 7424 = 5960-99-037-3460 |
| CV 7412 = 5960-99-037-3448 | CV 7425 = 5960-99-037-3461 |
| CV 7413 = 5960-99-037-3449 | CV 7426 = 5960-99-037-3462 |
| CV 7414 = 5960-99-037-3450 | CV 7427 = 5960-99-037-3463 |
| CV 7415 = 5960-99-037-3451 | CV 7428 = 5960-99-037-3464 |
| CV 7416 = 5960-99-037-3452 | CV 7429 = 5960-99-037-3465 |
| CV 7417 = 5960-99-037-3453 |                            |

This Specification has been prepared <sup>by</sup> and the Qualification  
Approval Authority is:

The Engineer-in-Chief,  
General Post Office,  
S Branch,  
LONDON.

TABLE 1 GROUP A INSPECTION

Examination or Test	Test Conditions		AQL %	Insp. Level	Symbol	Limits		Units
	K1007/3 NATO Ref.	Specific Conditions				Min.	Max	
<u>SUB-GROUP 1</u> Visual and Mechanical	5.1	Excluding Physical Dimensions	0.65	II				
<u>SUB-GROUP 2</u> Breakdown Voltage	8A2.4	$T_{amb} = 25^{\circ}C.$ $I_z$ as Col. 4.	0.65	II	$V_z$	Col.2	Col.3	Volts
Forward Voltage Drop	8A3.2	$T_{amb} = 25^{\circ}C.$ $I_F = 0.9A$			$V_F$	-	1.1	Volts
Slope Resistance	8A4.1	$T_{amb} = 25^{\circ}C.$ $I_s$ as Col. 4.			$Z_z$	-	Col.5	Ohms
<u>SUB-GROUP 3</u> Reverse Leakage	8A2.2.1	$T_{amb} = 100^{\circ}C.$	2.5	I	$I_R$	-	Col.9	mA
<u>SUB-GROUP 4</u> Temperature Coefficient	8A7.3	$T_1 = 25^{\circ}C.$ $I_z$ as Col. 4 $T_2 = 60^{\circ}C.$	4.0	1A	$S_z$	Col.6	Col.8	%/°C.

TABLE 2 GROUP B INSPECTION

Examination or Test	K1007/NATO Ref.	Test Conditions Specific Conditions	AQL %	Insp. Level	Symbol	Limits		Units
						Min	Max	
<u>SUB-GROUP 1</u> Physical Dimensions	5.1	According to Drawing 10.3.3.1	6.5	1C				
<u>SUB-GROUP 2</u> Solderability Temperature Cycling Moisture Resistance	5.13 5.5 5.3	-55°C to +100°C	4.0	1A				
<u>SUB-GROUP 3</u> Vibration Fatigue	5.15	Non-Operating	4.0	I				
<u>SUB-GROUP 4</u> Omitted								
<u>SUB-GROUP 5</u> Omitted								
<u>SUB-GROUP 6</u> Omitted								
<u>SUB-GROUP 7</u> High Temperature Life (non-operating)	6.2.1 6.6.1.2.2	T <sub>amb</sub> = 100°C t = 1000 hours	4.0	I				

TABLE 2 GROUP B. INSPECTION Cont'd

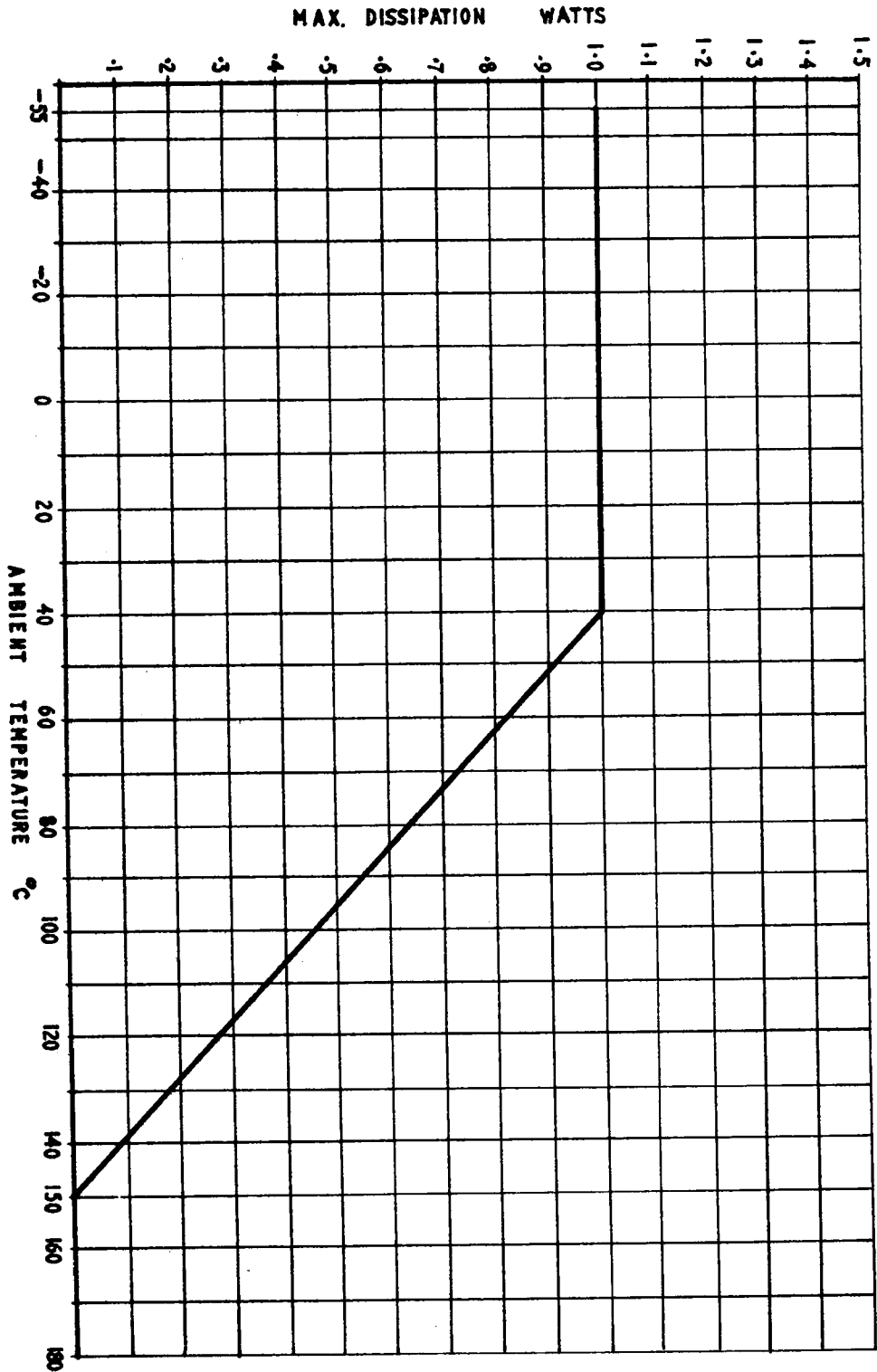
Examination or Test	Test Conditions		AQL %	Insp. Level	Symbol	Limits		Units
	K1007/NATO Refer	Specific Conditions				Min.	Max.	
<u>SUB GROUP 8</u>								
Operation Life	6.3.4	$T_{amb} = \text{not greater than } 140^{\circ}\text{C}$ $I_z \text{ to give dissipation not less than that according to the derating curve.}$	4.0	IA				
Post Test End Points for Sub-Groups 2, 3, 7 and 8.	6.5 6.6.1.1 6.6.1.2.2							
Breakdown Voltage	8A 2.4	As Group A. Sub-Group 2			$V_z$	Col. 2	Col. 3	Volts

TABLE 3 GROUP C INSPECTION

Examination or Test	Test Conditions		AQL %	Insp. level	Symbol	Limits		Units
	K1007/3 NATO Ref.	Specific Conditions				Min	Max	
<u>SUB-GROUP 1</u>								
Omitted								
<u>SUB-GROUP 2</u>								
Shock	5.17	Non-operating 5 blows in each of 3 mutually perpendicular directions.	6.5	1A				
<u>Post-Test End Point for Sub-Group 2</u>					V <sub>Z</sub>	Col.2	Col.3	Volts
Breakdown Voltage	8A2.4							



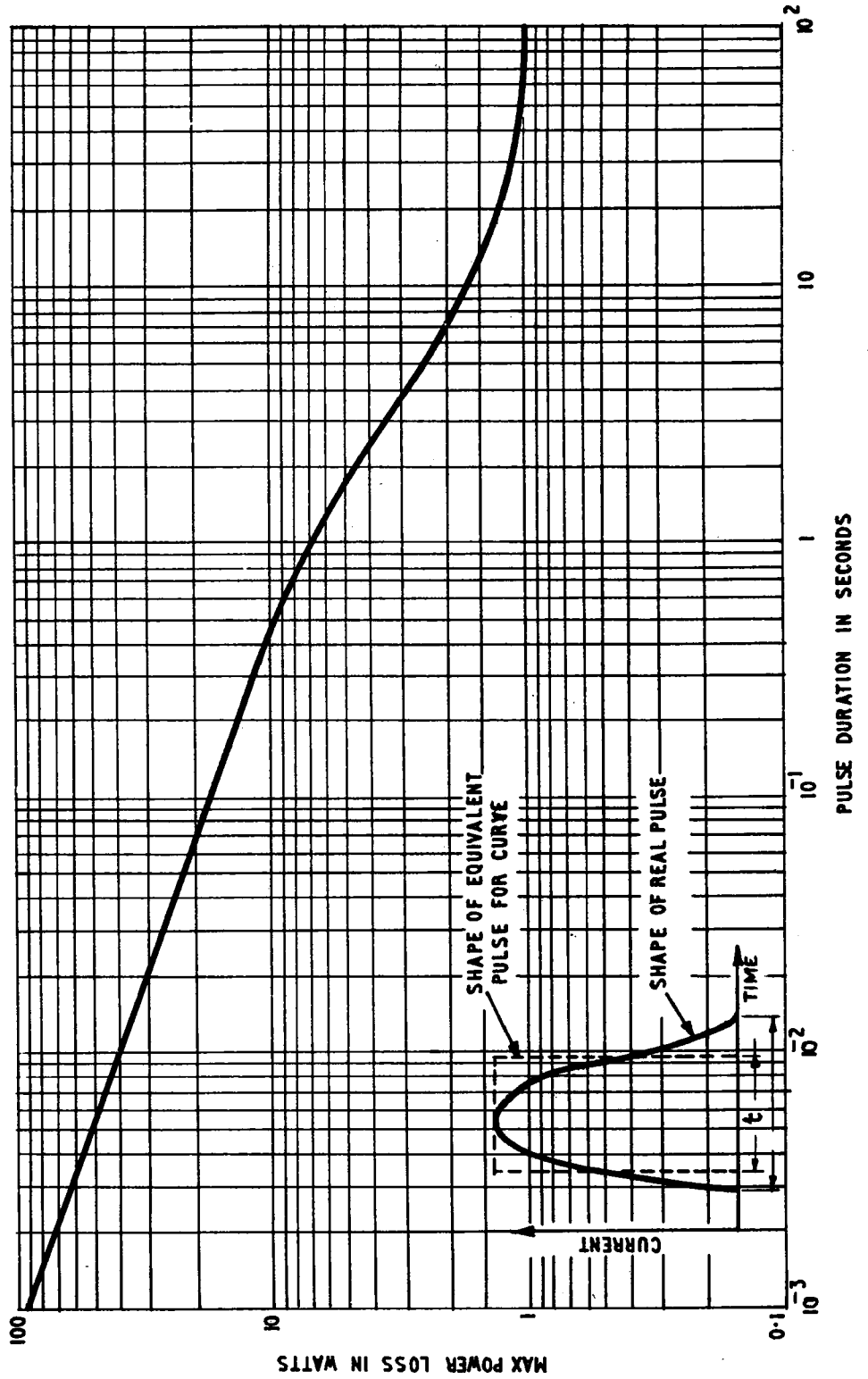
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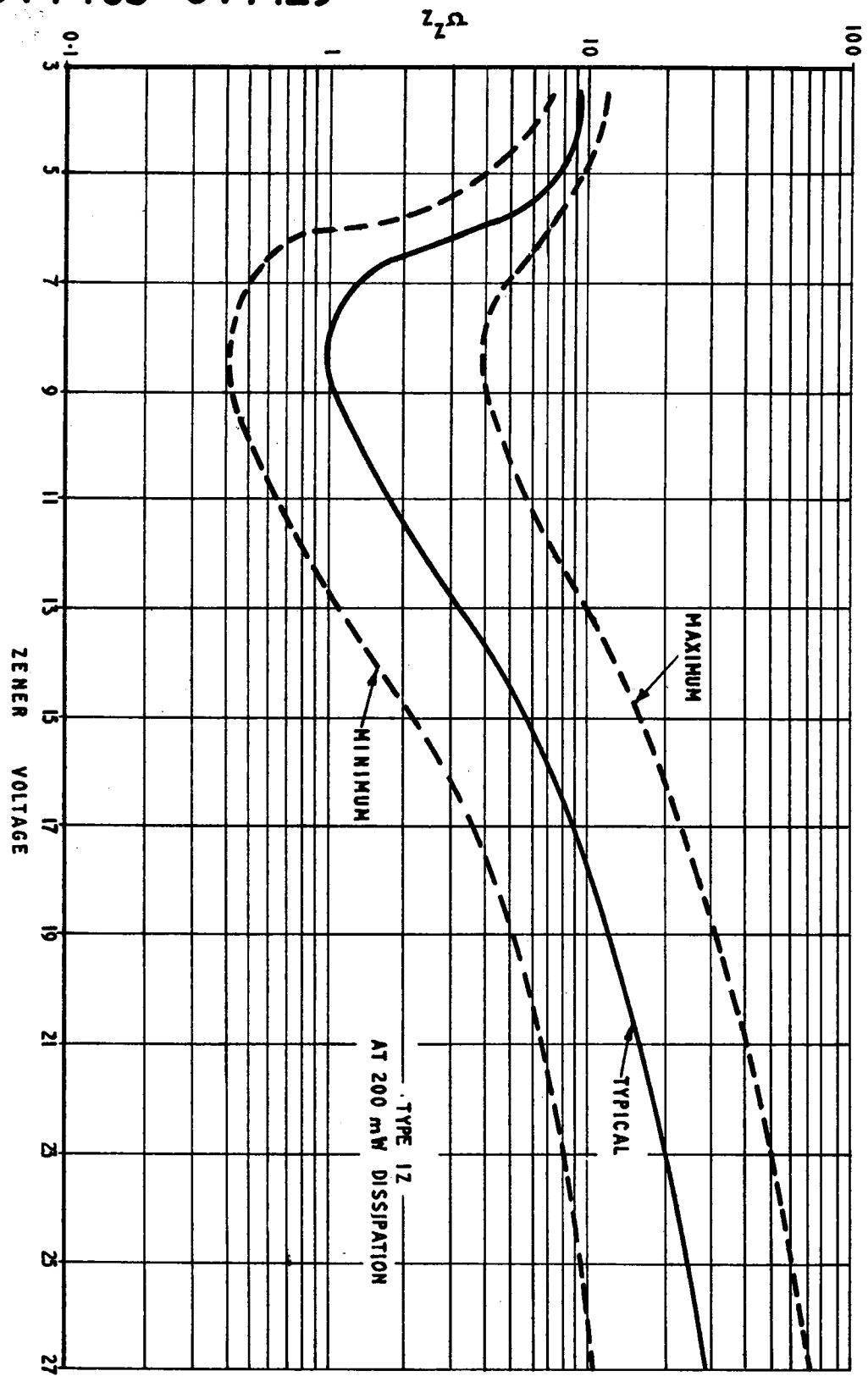
DERATING CURVE FIG. 1.

**APPLICATION DATA I**

PERMISSIBLE INTERMITTENT POWER LOSS AT 25°C AMBIENT TEMPERATURE  
 FREE CONVECTION COOLING IN AIR, COOLING INTERVAL BETWEEN PULSES AT LEAST 2 MINUTES



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**APPLICATION DATA 2**  
**SLOPE RESISTANCE**