

ELECTRONIC VALVE SPECIFICATIONS
SPECIFICATION CV7436-7
ISSUE No. 1 DATED 2.8.1963
AMENDMENT No.1

Page 2, Characteristics,

h_{FE} Conditions of measurement

Amend V_{CB} to read 0V to -200mV

Delete $I_C = 300mA$ Insert $I_E = 300mA$

Page 4, Group A, Sub Group 2.

Static Forward Current Transfer Ratio, Specific Condition.

Delete $I_C = 300mA$ Insert $I_E = 300 mA$

Amend V_{CB} to read 0V to -200mV

March, 1964.

Ministry of Aviation/SRDE

(222049)

MILITARY SPECIFICATION

CV7436-7

SEMICONDUCTOR DEVICE, TRANSISTORS

Description:- This specification covers the detail requirements for PNP Germanium Alloy Low Frequency Transistors and is in accordance with K.1007, except as otherwise stated.

Mechanical Dimensions and Outlines:- K.1007 Section B, 10.3.2.2 and 10.4.2.2.

Connections:- Base connected to case. Lead 1, Emitter. Lead 2, Base. Lead 3, Collector.

Absolute Maximum Ratings:-

Rating	V_{CB}	V_{CE}	V_{CE}	V_{EB}	I_C	I_E	I_B	P_{tot}
Unit	V	V	V	V	A	A	mA	mW
Min	-	-	-	-	-	-	-	-
Max	-50	-40	-20	-12	1.0pk	1.05 pk	50 pk	240
					0.5av	0.525av	25 av	
Note		1	2		3	3	3	4

Rating	T_{opr}	T_{stg}	Vib.	Shock
Unit	$^{\circ}C$	$^{\circ}C$	g	g
Min	-55	-55	-	-
Max	+85	+85	20	1500
Note				5

- Note 1. $+V_{BE} > 1.0V$, $I_C \leq 50$ mA.
 2. $I_C = 500$ mA.
 3. Averaged over any 20 m sec period.
 4. See derating curve, Fig. 1 Page 9.
 5. Duration 0.5 m secs.
 6. Commercial equivalents ACY18 and ACY19.

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Primary Electrical Characteristics:-

Characteristic	I_{CBO}	I_{CBO}	I_{CBO}	h_{FE}		V_{CE} (sat)	V_{BE}	f_1	F	I_{EBO}	
				CV7436	CV7437						
Unit	μA	μA	μA			mV	mV	Mc/s	dB	μA	
Min	-	-	-	40	80	-	-	0.6	-	-	
Max	10	100	80	120	250	500	750	10	22	20	
CONDITIONS	T_{amb} °C	25	25	55	25	25	25	25	25	25	
	V_{CB} V	-6	-50	-6	0	0		0			
	V_{CE} V								-6	-2	
	V_{EB} V									-6	
	I_C mA				300	300	300	300	1	0.5	0
	I_B mA						15				
	I_E mA	0	0	0							
	f kc/s									1	

Requirements

Marking K.1007, Section B. 1.3.4.

Quality Assurance Provisions

Destructive Tests The tests listed in Table 2 Group B Inspection, Sub-Groups 2, 3 and 4 and Table 3, Group C Inspection Sub-Group 2 are considered destructive.

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

Preparation for Delivery

Packaging The device shall be packed according to K.1007, Issue 3, Section A, 1.2.(c). A.I.S. Size 6.

Joint Service Catalogue Numbers

CV7436 = 5960-99-037-3496

CV7437 = 5960-99-037-3497

This specification has been prepared by, and the Qualification Approval Authority is:-

Ministry of Aviation, Signals Research and Development Establishment,
Christchurch, Hampshire, England.

Table 1 GROUP A INSPECTION

Examination or Test	Test Conditions		AQL %	Insp. Level	Sym- bol	Limits		Units
	K1007/ NATO Ref.	Specific Conditions				Min	Max	
<u>SUB-GROUP 1</u> Visual and Mechanical Inspection	5.1	Excluding Physical Dimensions	0.65	I				
<u>SUB-GROUP 2</u> Collector-Base Cut-Off Current (1)	7.2.5.1	$V_{CB} = -6V$ $I_E = 0$	0.65	II	I_{CB0}	-	10	μA
Collector-Base Cut-Off Current (2)	7.2.5.1	$V_{CB} = -50V$ $I_E = 0$			I_{CB0}	-	100	μA
Static Forward-Current Transfer Ratio (1)	7.3.4.1	$I_C = 300 \text{ mA}$ $V_{CB} = 0V$			h_{FE}	40	120	
Collector-Emitter Saturation Voltage	7.3.3	$I_C = 300 \text{ mA}$ $I_B = 15 \text{ mA}$			h_{FE} $V_{CE} \text{ (sat)}$	80	250	mV
<u>SUB-GROUP 3</u> Emitter-Base Cut-Off Current	7.2.6	$V_{EB} = -6V$ $I_C = 0$	2.5	I	I_{EB0}	-	20	μA

Table 1 GROUP A INSPECTION (Cont'd)

Examination or Test	K1007/ NATO Ref.	Test Conditions		AQL %	Insp. Level	Sym bol	Limits		Units
		Specific Conditions					Min	Max	
SUB-GROUP 3 (Cont'd) Base-Emitter Voltage	7.3.2	$I_C = 300 \text{ mA}$				V_{BE}	-	750	mV
		$V_{CB} = 0V$							
		$V_{CE} = -6V$							
		$I_C = 1 \text{ mA}$							
		$V_{CE} = -2V$ $I_C = 0.5 \text{ mA}$							
Cut-off Frequency						f_1	0.6	10	Mc/s
						F	-	22	dB
Noise Figure									
				4.0	IA				
SUB-GROUP 4 Static Forward-Current Transfer-Ratio (2)	7.3.4	As in Sub-Group 2							
		$T_{amb} = -55^\circ C$							
Collector-Base Cut-Off Current (3)	7.2.5.1	$V_{CB} = -6V$				h_{FE}	15		
		$I_C = 0$				h_{FE}	30		
		$T_{amb} = +55^\circ C$					I_{CBO}	-	80

Table GROUP B INSPECTION

Examination or Test	Test Conditions		AQL %	Insp. Level	Sym- bol	Limits		Units
	K1007/ NATO Ref.	Specific Conditions				Min	Max	
<u>SUB-GROUP 1</u> Physical Dimensions	5.1	According to drawings 10.3.2.2 and 10.4.2.2.	6.5	IC				
<u>SUB-GROUP 2</u> Solderability	5.13		4.0	IA				
Temperature Cycling	5.5	-55°C to +85°C						
Moisture Resistance	5.3.1							
<u>SUB-GROUP 3</u> Vibration Fatigue	5.15		4.0	I				
<u>SUB-GROUP 4</u> Lead Fatigue	5.10.2	2 cycles.	6.5	IA				
<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 _{stg} = +75°C Duration = 1000 hours	4.0	I				

Table 2 GROUP B INSPECTION (Cont'd)

Examination or Test	Test Conditions		AQL %	Insp. Level	Sym- bol	Limit		Units
	K1007/ NATO Ref.	Specific Conditions				Min	Max	
<u>SUB-GROUP 8</u> Operating Life	6.3 6.5 6.6.1.1 6.6.1.2.2	T _{amb} at any single temperature between 25°C and 65°C with the corresponding P _{tot} given on the derating curve Fig. 1, Page 9. V _{ce} = -10V	4.0	IA				
<u>POST TEST END POINTS</u> <u>f or SUB-GROUPS 2, 3,</u> <u>7 and 8.</u>	7.2.5.1	As in Group A SUB-GROUP 2			I _{CBO}	-	15	μA
Collector-Base Cut-Off Current (1)	7.3.4	As in Group A, SUB-GROUP 2			h _{FE} h _{FE}	30 60	150 265	
Static Forward-Current Transfer Ratio		CV7436 CV7437						

Table 3 GROUP C INSPECTION

Examination or Test	Test Conditions		AQL %	Insp. Level	Sym-bol	Limits		Units
	K1007/ NATO Ref.	Specific Conditions				Min	Max	
<u>SUB-GROUP 1</u>								
Omitted								
<u>SUB-GROUP 2</u>			6.5	IA				
Shock	5.17	Non-operating. 5 blows in each of three mutually perpendicular planes.						
<u>POST TEST END POINTS</u>								
Collector-Base Cut-Off Current (1)	7.2.5.1	As in Group A, Sub-Group 2.			I _{CBO}	-	15	μA
Static Forward-Current Transfer-Ratio (1)	7.3.4	As in Group A, Sub-Group 2						
		CV7436			h _{FE}	30	150	
		CV7437			h _{FE}	60	265	

FIG. 1
DERATING CURVE

