

Specification MOS/CV7007 Issue 1 dated 14th November, 1958. To be read in conjunction with K1007	<u>SECURITY</u>	
	Valve UNCLASSIFIED	Specification UNCLASSIFIED

Indicates a change →

TYPE OF VALVE - Germanium p-n-p Junction Transistor for switching operation CONSTRUCTION - Metal body, wire leads PROTOTYPE - OC77		<u>MARKING</u>	
<u>RATINGS</u> Note A (All limiting values are absolute)		CV Number Manufacturer's Code and Date Code if possible. Collector lead shall be indicated with a white spot on the body adjacent to the lead.	
		<u>DIMENSIONS</u>	
		Note	See K1007/A1/D# 5A
Max. Peak Collector - Base voltage Vob	(V)	-60	
Max. Mean Collector - Base Voltage	(V)	-60	
Max. Peak Collector - Emitter Voltage Vce with Zb less than 500 ohms	(V)	-60	C
Max. Mean Collector - Emitter Voltage with Zb less than 500 ohms	(V)	-60	C
Max. Peak Collector - Emitter voltage with Zb greater than 50k	(V)	-15	C
Max. Mean Collector - Emitter voltage with Zb greater than 50k	(V)	-15	C
Max. Peak Collector Current	(mA)	±250	C
Max. Mean Collector Current	(mA)	125	B
Max. Peak Emitter Current	(mA)	±250	B
Max. Mean Emitter Current	(mA)	125	B
Max. Collector dissipation at 45°C ambient	(mW)	75	D
Max. Operating Junction Temperature	(°C)	75	
Max. Storage Temperature	(°C)	75	
Thermal Resistance in Free Air	(°C/mW)	0.4	D
Thermal Resistance with Heat Sink	(°C/mW)	0.3	E
Noise figure (average)	(db)	10	
<u>CAPACITANCES</u> (Nominal)			
Collector - Base Capacitance at Vob = -6V	(pF)	40	
<u>NOTES</u>			
A. The ratings and characteristics given in this section are for guidance only and shall not be used for inspection purposes.			
B. Averaged over 20 millisecond period.			
C. Zb is the external impedance in the base circuit.			
D. With the device freely suspended in free air.			
E. Freely suspended in free air but with cooling fin mounted on a heat sink of 3.5 x 3.5 cm or equivalent.			
F. Joint Services Catalogue No. 5960-99-037-2007.			

To be performed in addition to those in K1007 Sections 5.2 and 5.3

K1007	TEST	TEST CONDITIONS	AQL %	Insp. Level	Symbol	LIMITS		UNITS
						Min.	Max.	
	<u>GROUP A</u>							
5D.2	Collector-base out-off	Vob = -6V		100%	Iobo	-	10	$\mu$ A
5D.3	Current	Ie = 0						
	Collector-emitter Voltage	Ic = -30 $\mu$ A Veb = -0.5V		100%	Vce	60	-	V
	Large Signal Current Gain	Ie = 80mA Vob = -0.7V		100%	hFE	30	130	
	<u>GROUP B</u>	Omitted						
	<u>GROUP C</u>	Combined AQL	6.5					
5D.3	Collector-emitter Voltage (bottoming)	Ib = -6.5mA Ic = -125mA	2.5	I	Vce	-	0.75	V
5D.3.1	Base-emitter Voltage	Ie = 80mA Vob = -0.7V	2.5	I	Vbe	-	0.45	V
5D.5	Cut-off frequency of hfb	Vob = -6V Ic = -1.0mA	2.5	I	f	350	-	Kc/s
5D.2.2	Reverse Emitter Leakage Current	Veb = -6V Ic = 0	2.5	I	Ieo	-	10	$\mu$ A
10.4.	Photosensitivity	Vob = -6V Ie = 0	2.5	I	$\Delta$ Iobo	-	5	$\mu$ A
	<u>GROUP D</u>							
5D.6	Noise Figure	Voe = -2V Ic = -0.5mA	6.5	IA	N	-	16	db
	<u>GROUP E</u>							
10.1	Lead fragility	Note 1		IC				
10.2	Temperature Cycling	Three cycles -50°C to +75°C						
10.3	Climatic test							
	<u>Post Temperature Cycling and Climatic Tests</u>	Combined AQL	10					
8	Inoperatives		6.5					
5D.2	Collector-base out-off	Vob = -6V	6.5		Iobo	-	12	$\mu$ A
	Current	Ic = 0						
	Collector-emitter Voltage	Ic = -33 $\mu$ A Veb = -0.5V		6.5	Vce	60	-	V
5D.4.1	Large Signal Current Gain	Ie = 80mA Vob = -0.7V		6.5	hFE	25	-	
10.4	Photo-sensitivity	as in Group C	6.5		$\Delta$ Iobo	-	5	$\mu$ A
11.3	Fatigue			IC				
11.4	Shock	Hammer Angle = 60°		T.A.				

K1007	TEST	TEST CONDITIONS	AQL %	Insp. Level	Sym-bol	LIMITS		UNITS
						Min.	Max.	
	<u>Post Fatigue and Shock Tests</u>							
8 5D.4.1	Inoperatives Large Signal Current Gain	$I_c = 80\text{mA}$ $V_{ce} = -0.7\text{V}$	6.5 6.5		$h_{FE}$	25	-	
10.1 11.5	Lead Fragility Soldering	Note 2	6.5 6.5	IC IC				
13.3	<u>GROUP F</u> LIFE	$V_{ce} = -6\text{V}$ $P_c = 75\text{mW}$ $T_{amb} = 45^\circ\text{C} \pm 2^\circ\text{C}$ No heat sink, in free air		IA				
8 5D.2	Life Test End- Point. 1000 hrs. Inoperatives Collector-base out-off Current Collector-emitter Voltage	Combined AQL as in Group A	10 6.5 6.5		$I_{cbo}$	-	15	$\mu\text{A}$
5D.4.1	Large Signal Current Gain Change in average ( $1/h_{FE}$ ) between 24 hrs. and 1000 hrs.	$I_c = -35 \mu\text{A}$ $V_{eb} = -0.5\text{V}$ as in Group A as in Group A	6.5 6.5		$V_c$ $h_{FE}$ $\frac{\Delta}{h_{FE}}$	60 25 -	- - 0.0053	V
13.3.3	<u>Reduced Hours Life Test End point 240 hrs.</u>							
8 8.D	Inoperatives Collector-base out-off Current Collector-emitter Voltage	as in Group A			$I_{cbo}$	-	15	$\mu\text{A}$
5D.4.1	Large Signal Current Gain Change in Average ( $1/h_{FE}$ ) between 24 hrs. and 240 hrs.	$I_c = -35 \mu\text{A}$ $V_{eb} = -0.5\text{V}$ as in Group A as in Group A			$V_c$ $h_{FE}$ $\frac{\Delta}{h_{FE}}$	60 25 -	- - 0.0033	V
13.4	Storage Life (1)	No voltages $t = 150 \text{ hrs.}$ $T_{amb} = -50^\circ\text{C}$		I				
13.5	Storage Life (2)	No voltages $t = 150 \text{ hrs.}$ $T_{amb} = +75^\circ\text{C}$		I				

K1007	TEST	TEST CONDITIONS	AQL %	Insp. Level	Sym- bol	LIMITS		UNITS
						Min.	Max.	
	<u>Post Storage Life Tests</u> Repeat Group A Tests	Combined AQL for Storage Life (1) for Storage Life (2)	2.5 4.0	100%	hFE	30		
8 SD.4.1	<u>GROUP G</u> Re-test after 28 days holding period Inoperatives Large Signal Current Gain	as in Group A	0.5 2.0					

NOTES

1. The sample shall be subjected to the Lead Fragility test, the Temperature Cycling test and the Climatic test in sequence and shall then be subjected to the Post Temperature Cycling and Climatic tests.
2. The sample used for the lead fragility test shall have first undergone the reduced duration Climatic test

3. *Alternatively, Rib may be measured in which case the max limit should read 300 Ohms*