MINISTRY OF AVIATION - DLRD/SRDE

VALVE ELECTRONIC (SEMICONDUCTOR) (DEVICE)

CV7362

Specification MOA/CV 7362
Issue No. 1 dated 19.6.62.
To be read in conjunction with K1007

SECURITY

Specification	Valve
Unclassified	Unclassified

——→ Indicates a change

TYPE OF VALVE - Silicon npn Transistor for high current switching and high frequency oscillators

CONSTRUCTION - Metal Body

PROTOTYPE - TK253A

MARKING

See K1007/4
CV Number and if possible Factory and Date Code

RATINGS AND CHARACTERISTICS
(Not for Inspection Purposes)

All limiting values are absolute

RATINGS			NOTE
Max. Dissipation in free air at 25°C ambient	(W)	0.6	A
Max. collector base voltage emitter open circuit	(V)	40	
Max. Collector emitter voltage base open circuit	(V)	20	
Max. emitter base voltage collector open circuit	(V)	6	
Max. mean collector current	(A)	0.5	
Max. peak collector current	(A)	1.5	B
Max. mean base current	(A)	0.1	
Max. peak base current	(A)	0.3	B
Max. operating and storage temperature	(°C)	150	
Min. operating and storage temperature	(°C)	-55	
CHARACTERISTICS			
Min. transition frequency (f_T)	(Mc/s)	100	

CONNECTIONS

1. Emitter
2. Base
3. Collector and Case

DIMENSIONS

See K1007/A1/D3A and D3C

MOUNTING POSITION

Any

PACKAGING

K 1007/14

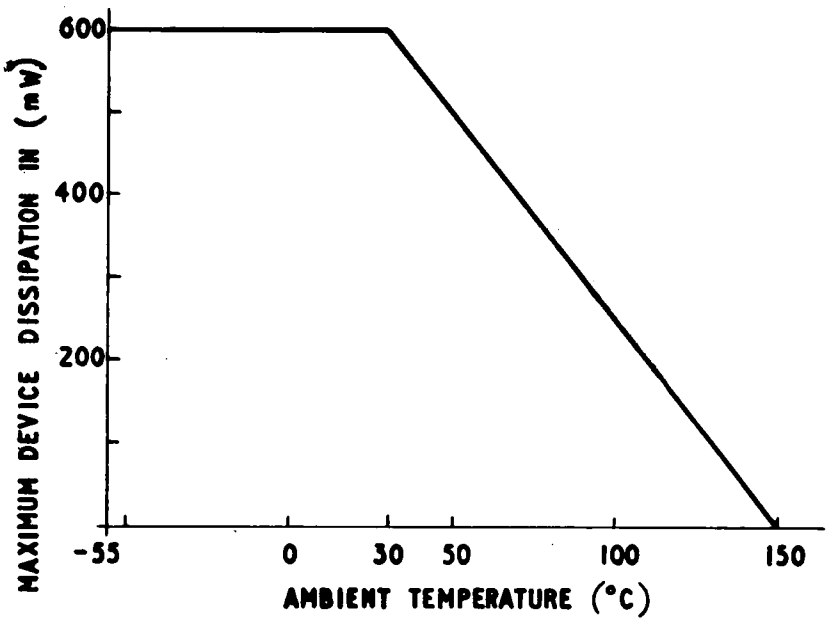
JOINT SERVICE CATALOGUE NUMBER:-

5960-99-037-3118

NOTES

A. See derating curve on page 2.

B. For a period of less than 100 μSecs.



DERATING CURVE FOR TRANSISTOR IN FREE AIR.

K1007	Test	Test Conditions	AQL %	Insp. Level	Symbol.	Limits Min.	Limits Max.	Units
	GROUP A - Omitted							
	GROUP B							
5.D.2	Collector-base leakage current (1)	V_{CB} = 9V I_E = 0	0.65	II	I_{CBO}	-	0.05	µA
5.D.2	Collector-base leakage current (2)	V_{CB} = 40V I_E = 0	0.65	II	I_{CBO}	-	10	µA
5.D.3.2	Saturation voltage	I_C = 100mA I_B = 6mA	0.65	II	$V_{CE(sat)}$	-	0.8	V
	High frequency Current gain	V_{CE} = 9V I_C = 20mA d.c. and 0.25mA a.c. rms max. superimposed f = 20 Mc/s	0.65	II	$\lvert h_{fe} \rvert$	5	-	
	GROUP C							
5.D.3.1	Base-emitter voltage	I_C = 100mA I_B = 6mA	2.5	I	V_{BE}	-	1.3	V
5.D.4	Small signal common emitter current gain	V_{CE} = 9V I_C = 20mA d.c. and 0.25mA a.c. rms max. superimposed f = 1 Kc/s	2.5	I	h_{fe}	20	-	
5.D.2.2	Emitter base leakage current	V_{EB} = 6V I_C = 0	2.5	I	I_{EBO}	-	1	mA
5.D.7	Collector-base capacitance	V_{CB} = 6V I_E = 0 f = 1 Mc/s	2.5	I	C_{ob}	-	35	pF
	GROUP D							
5.D.2	Collector-base leakage current (3)	V_{CB} = 40V I_E = 0 T_{amb} = 100°C	6.5	IA	I_{CBO}	-	100	µA

K1007	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
	GROUP E							
10.1	Lead Fragility	No voltages (Note 2)	6.5	IC				
11.5	Soldering	No voltages	6.5	IC				
10.2	Temperature Cycling	No Voltages Three cycles -55°C to +150°C (Note 1)		IC				
10.3	Climatic Cycling	No Voltages (Note 1)						
11.3	Fatigue	No Voltages		IC				
11.4	Shock	No Voltages Hammer Angle 60°		QA				
	POST TEMPERATURE CYCLING, CLIMATIC CYCLING, FATIGUE & SHOCK TESTS	Combined AQL for each group of tests	10					
8	Inoperatives		6.5					
5.D.2	Collector-base leakage current (1)	As in Group B	6.5		I_{CBO}	-	0.07	uA
	Collector-base leakage current (2)	As in Group B	6.5		I_{CBO}	-	12	uA
5.D.3.2	Saturation Voltage	As in Group B but I_B = 7mA	6.5		$V_{CE(sat)}$	-	0.8	V
	GROUP F							
13	Life	V_{CB} = 20V (min) P = 250mW T_{amb}= 100°C. NOTE 4		IA				
13.3	Life Test end point 1000 hrs.	Combined AQL	6.5					
8	Inoperatives		4.0					
5.D.2	Collector-base Leakage current (1)	As in Group B	4.0		I_{CBO}	-	0.07	uA
	Collector-base leakage current (2)	As in Group B	4.0		I_{CBO}	-	12	uA
5.D.3.2	Saturation voltage	As in Group B but I_B = 7mA	4.0		$V_{CE(sat)}$	-	0.8	V
13.4	Storage Life (1)	No voltages t = 150 hrs. T_{amb} = -55°C		I				

K1007	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
	GROUP F (Contd.)							
13.5	Storage Life (2)	No voltages t = 150 hrs. T_{amb} = +150°C		I				
	Post Storage Life Tests	Combined AQL	2.5					
5.D.2	Collector-base leakage current (1)	As in Group B			I_{CBO}	-	0.07	uA
	Collector-base leakage current (2)	As in Group B			I_{CBO}	-	12	uA
5.D.3.2	Saturation voltage	As in Group B but I_B = 7mA			$V_{CE(sat)}$	-	0.8	V
	GROUP G							
5.3.2.11	Re-test after 28 days holding period			100%				
8	Inoperatives		0.5					
5.D.3.2	Saturation voltage	As in Group B	2.0		$V_{CE(sat)}$	-	0.8	V

NOTES

1. The sample shall initially be subjected to conditioning in accordance with K1007, 10.1 and shall then pass the Post Temperature and Climatic Cycling Tests.

2. Transistors used for this test must have undergone climatic cycling in accordance with either K1007, 10.3.1 (28 cycles) or 10.3.3 (6 cycles).

3. Samples used for life tests will be accepted for delivery if they pass the Group B requirements.

4. Alternatively the life test may be performed at any temperature in the range 25° to 130°C as given by the derating curve on page 2.