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UHF linear power transistor

BLW32

DESCRIPTION

N-P-N silicon planar epitaxial transistor primarily intended for use in linear **u.h.f. amplifiers** for television transmitters and transposers. The **excellent d.c. dissipation properties** for class-A operation are obtained by means of diffused emitter ballasting resistors and a multi-base structure, providing an optimum temperature profile on the crystal area. The combination of optimum thermal design and the application of **gold sandwich metallization** realizes excellent reliability properties.

The transistor has a ¼" capstan envelope with ceramic cap.

QUICK REFERENCE DATA

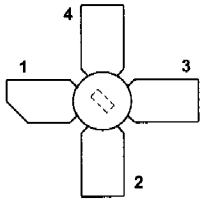
R.F. performance

MODE OF OPERATION	f_{vision} MHz	V_{CE} V	I_C mA	T_h °C	d_{im} (1) dB	$P_{o\ sync}$ (1) W	G_p dB
class-A; linear amplifier	860	25	150	70	–60	> 0,5	> 11
	860	25	150	25	–60	typ. 0,63	typ. 12,2

Note

1. Three-tone test method (vision carrier –8 dB, sound carrier –7 dB, sideband signal –16 dB), zero dB corresponds to peak sync level.

PIN CONFIGURATION



Top view

Fig.1 Simplified outline. SOT122A.

PINNING - SOT122A.

PIN	DESCRIPTION
1	collector
2	emitter
3	base
4	emitter

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Collector-emitter voltage				
(peak value); V_{BE} = 0	V_{CESM}	max.	50	V
open base	V_{CEO}	max.	30	V
Emitter-base voltage (open collector)	V_{EBO}	max.	4	V
Collector current				
d.c. or average	I_C	max.	650	mA
(peak value); f > 1 MHz	I_{CM}	max.	1000	mA
Total power dissipation up to T_{mb} = 25 °C	P_{tot}	max.	10,8	W
Storage temperature	T_{stg}		−65 to +150	°C
Operating junction temperature	T_j	max.	200	°C

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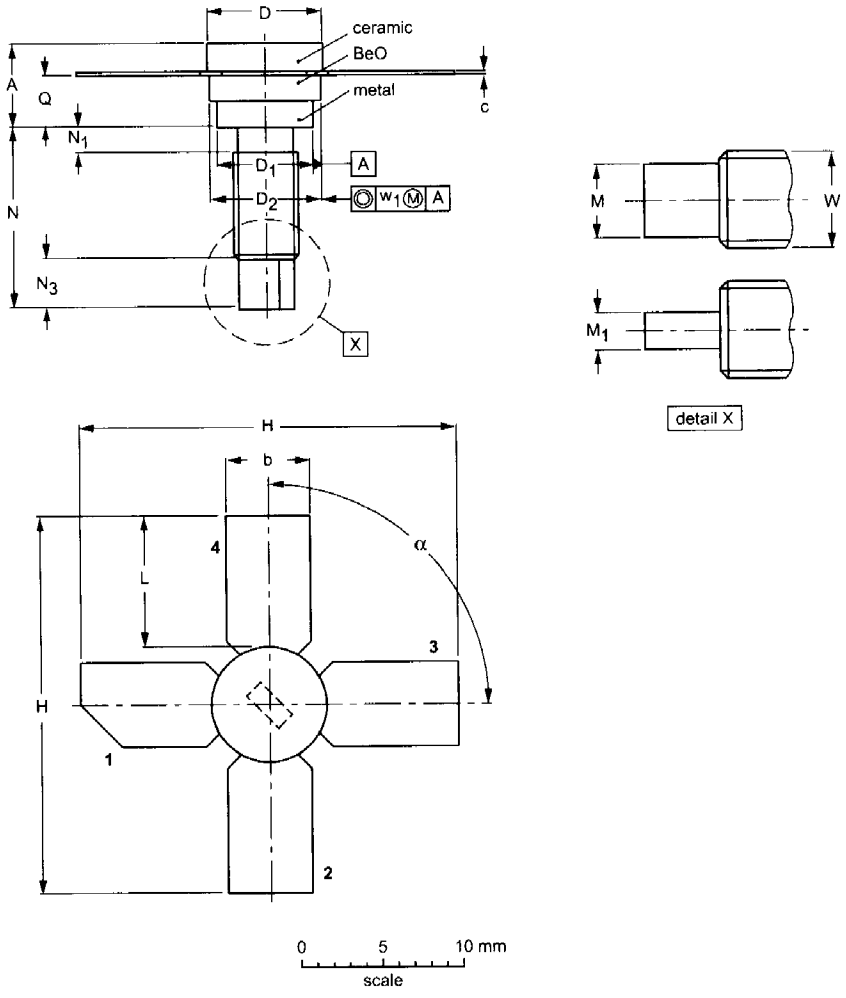
CHARACTERISTICS

T_j = 25 °C unless otherwise specified

Collector-emitter breakdown voltage				
V_{BE} = 0; I_C = 2 mA	$V_{(BR)CES}$	>	50	V
open base; I_C = 15 mA	$V_{(BR)CEO}$	>	30	V
Emitter-base breakdown voltage				
open collector; I_E = 1 mA	$V_{(BR)EBO}$	>	4	V
Collector cut-off current				
V_{BE} = 0; V_{CE} = 30 V	I_{CES}	<	0,5	mA
V_{BE} = 0; V_{CE} = 30 V; T_j = 175 °C	I_{CES}	<	1,2	mA
D.C. current gain (1)				
I_C = 150 mA; V_{CE} = 25 V	h_{FE}	>	20	
		typ.	40	
I_C = 150 mA; V_{CE} = 25 V; T_j = 175 °C	h_{FE}	<	120	
Collector-emitter saturation voltage (1)				
I_C = 300 mA; I_B = 30 mA	V_{CEsat}	typ.	500	mV
Transition frequency at f = 500 MHz (2)				
$-I_E$ = 150 mA; V_{CB} = 25 V	f_T	typ.	3,5	GHz
$-I_E$ = 300 mA; V_{CB} = 25 V	f_T	typ.	3,4	GHz
Collector capacitance at f = 1 MHz				
$I_E = I_e$ = 0; V_{CB} = 25 V	C_c	typ.	3,7	pF
Feedback capacitance at f = 1 MHz				
I_C = 10 mA; V_{CE} = 25 V	C_{re}	typ.	1,9	pF
Collector-stud capacitance	C_{cs}	typ.	1,2	pF

Notes

1. Measured under pulse conditions: $t_p \leq 300$ μs; $\delta \leq 0{,}02$.
2. Measured under pulse conditions: $t_p \leq 50$ μs; $\delta \leq 0{,}01$.



DIMENSIONS (millimetre dimensions are derived from the original inch dimensions)

UNIT	A	b	c	D	D_1	D_2	H	L	M_1	M	N	N_1 max.	N_3	Q	W	w_1	α
mm	5.97 4.74	5.85 5.58	0.18 0.14	7.50 7.23	6.48 6.22	7.24 6.93	27.56 25.78	9.91 9.14	3.18 2.66	1.66 1.39	11.82 11.04	1.02	3.86 2.92	3.38 2.74	8-32 UNC	0.381	90°

OUTLINE VERSION	REFERENCES			
	IEC	JEDEC	EIAJ	
SOT122A				