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UHF linear power transistor — BLW34

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

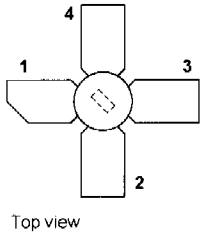
R.F. performance

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	600	70	–60	> 1,8	> 9
	860	25	600	25	–60	typ. 2,15	typ. 10,2

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.

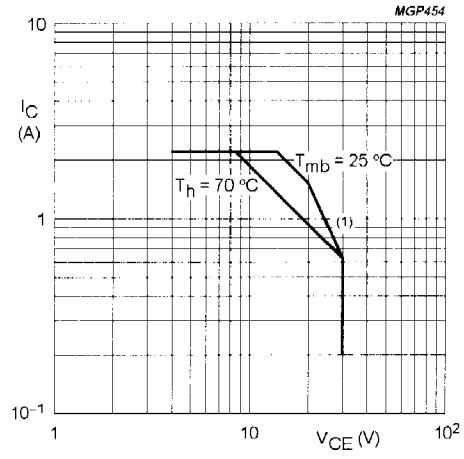
PINNING - SOT122A.

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.	2,25	A
(peak value); f > 1 MHz	I_{CM}	max.	3,5	A
Total power dissipation at T_{mb} = 25 °C	P_{tot}	max.	31	W
Storage temperature	T_{stg}		−65 to +150	°C
Operating junction temperature	T_j	max.	200	°C



(1) Second breakdown limit (independent of temperature).

Fig.2 D.C. SOAR.

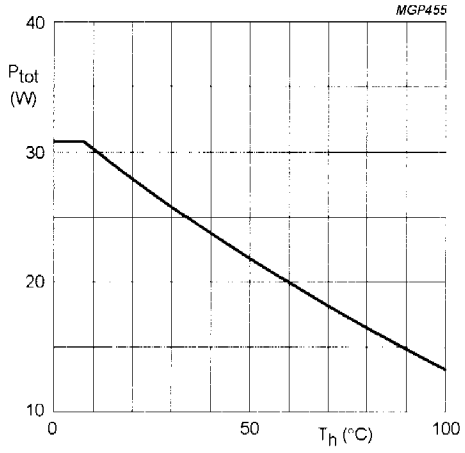


Fig.3 Power derating curve vs. temperature.

THERMAL RESISTANCE (see Fig.4)

From junction to mounting base			
(dissipation = 15 W; T_{mb} = 79 °C; i.e. T_h = 70 °C)	$R_{th\ j\text{-}mb}$	=	6,2 K/W
From mounting base to heatsink	$R_{th\ mb\text{-}h}$	=	0,6 K/W

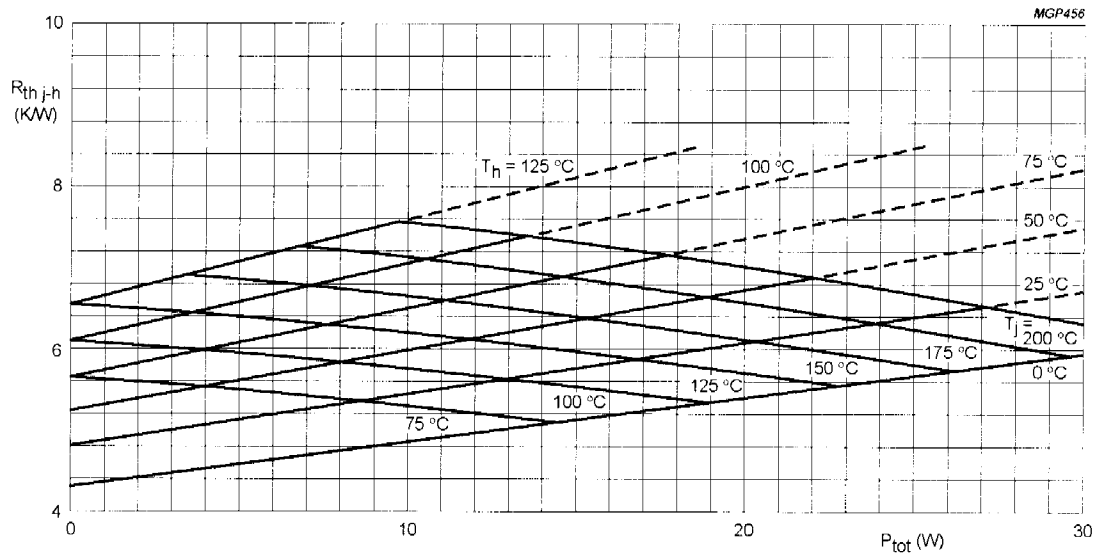


Fig.4 Maximum thermal resistance from junction to heatsink as a function of power dissipation, with heatsink and junction temperature as parameters. ($R_{th\ mb\text{-}h}$ = 0,6 K/W.)

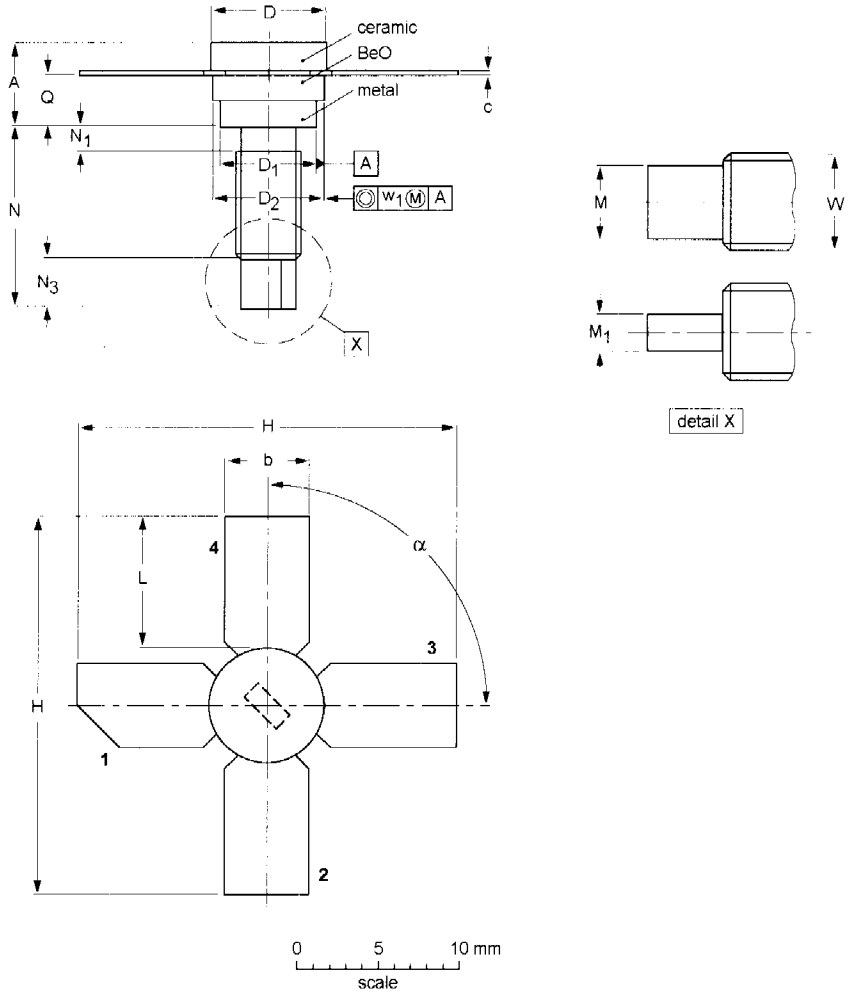
Example

Nominal class-A operation: V_{CE} = 25 V; I_C = 600 mA; T_h = 70 °C.

Fig.4 shows:	$R_{th\ j\text{-}h}$	max.	6,75	K/W
	T_j	max.	170	°C
Typical device:	$R_{th\ j\text{-}h}$	typ.	5,45	K/W
	T_j	typ.	152	°C

PACKAGE OUTLINE

Studded ceramic package; 4 leads **SOT122A**



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				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT122A						97-04-18