NPN silicon planar epitaxial microwave power transistor

PLB16008U

FEATURES

- Input matching cell allows an easier design of circuits
- Diffused emitter ballasting resistors providing excellent current sharing and withstanding a high VSWR
- Interdigitated structure provides high emitter efficiency
- Gold metallization realizes very good stability of the characteristics and excellent lifetime
- Multicell geometry gives good balance of dissipated power and low thermal resistance.

PINNING - FO-229

PIN	DESCRIPTION
1	collector
2	emitter
3	base connected to flange

DESCRIPTION

NPN silicon planar epitaxial microwave power transistor intended for use in common base class C power amplifiers. The transistor has a FO-229 glued cap metal ceramic flange package with base connected to flange.

APPLICATIONS

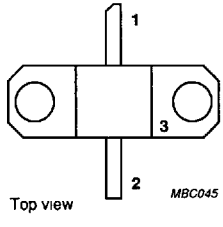
Intended for use in common base class C power amplifiers at 1.6 GHz.

QUICK REFERENCE DATA

Microwave performance up to T_{mb} = 25 °C in a common base class C narrowband amplifier.

MODE OF OPERATION	f (GHz)	V_{CC} (V)	P_L (W)	G_p (dB)	η_c (%)
class C (CW)	1.6	28	9	> 8.5	> 40

PIN CONFIGURATION



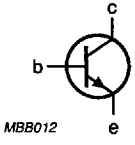


Fig.1 Simplified outline and symbol.

WARNING

Product and environmental safety - toxic materials
This product contains beryllium oxide. The product is entirely safe provided that the BeO slab is not damaged. All persons who handle, use or dispose of this product should be aware of its nature and of the necessary safety precautions. After use, dispose of as chemical or special waste according to the regulations applying at the location of the user. It must never be thrown out with the general or domestic waste.

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LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	40	V
V_{CEO}	collector-emitter voltage	open base	–	15	V
V_{CES}	collector-emitter voltage	$R_{BE} = 0\ \Omega$	–	40	V
V_{EBO}	emitter-base voltage	open collector	–	3	V
I_C	collector current		–	1	A
T_{stg}	storage temperature range		–65	150	°C
T_j	junction temperature		–	200	°C
T_{sld}	soldering temperature	$t \leq 10$ s note 1	–	235	°C

Note

1. Up to 0.3 mm from ceramic.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETERS	MAX.
$R_{th\ mb\text{-}h}$	thermal resistance from mounting base to heatsink	0.3 K/W

CHARACTERISTICS

$T_{mb} = 25$ °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$V_{CB} = 32$ V; $I_E = 0$	–	60	μA
I_{CES}	collector cut-off current	$V_{CE} = 28$ V; $R_{BE} = 0\ \Omega$	–	400	μA
I_{EBO}	emitter cut-off current	$V_{EB} = 1.5$ V; $I_C = 0$	–	1.5	μA
$V_{(BR)CBO}$	collector-base breakdown voltage	$I_C = 4$ mA; $I_E = 0$	40	–	V
$V_{(BR)CES}$	collector-emitter breakdown voltage	$I_C = 4$ mA; $R_{BE} = 0\ \Omega$	40	–	V

APPLICATION INFORMATION

Microwave performance up to $T_{mb} = 25$ °C in a common base test circuit and working in CW class C mode

MODE OF OPERATION	f (GHz)	V_{CC} (V)	P_L (W)	G_p (dB)	η_C (%)
class C (CW)	1.6	28	9	typ.10	typ.50