

# Silicon NPN Transistor

## **BLT62**

UHF Power Transistor

15V / 650mA

# DATASHEET

OEM – Philips

Source: Philips Data Handbook SC09

RF Power Modules and Transistors for Mobile Phones 1996

**UHF power transistor****BLT62****FEATURES**

- High efficiency
- High gain
- Internal pre-matched input.

**APPLICATIONS**

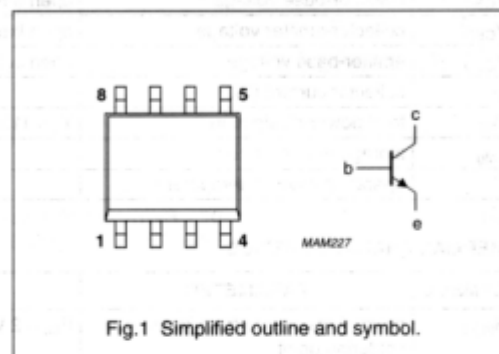
- Hand-held radio equipment in common emitter class-AB operation for 900 MHz Time Division Multiple Axis (TDMA) communication systems.

**PINNING - SOT96-1**

PIN	SYMBOL	DESCRIPTION
1, 8	b	base
2, 4, 5, 7	e	emitter
3, 6	c	collector

**DESCRIPTION**

NPN silicon planar epitaxial transistor encapsulated in a plastic SOT96-1 (SO8) SMD package.

**QUICK REFERENCE DATA**

RF performance at  $T_s \leq 60^\circ\text{C}$  in a common emitter test circuit.

MODE OF OPERATION	f (MHz)	$V_{CE}$ (V)	$P_L$ (W)	$G_p$ (dB)	$\eta_c$ (%)
Pulsed, class-AB	900	3.6	3	typ. 9.5	typ. 63

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**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	15	V
$V_{CEO}$	collector-emitter voltage	open base	–	8	V
$V_{EBO}$	emitter-base voltage	open collector	–	3.5	V
$I_C$	collector current (DC)		–	650	mA
$P_{tot}$	total power dissipation	$T_s = 115\text{ }^\circ\text{C}$ ; note 1	–	2	W
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	operating junction temperature		–	175	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	$P_{tot} = 2\text{ W}$ ; $T_s = 115\text{ }^\circ\text{C}$ ; note 1	30	K/W

**Note to the "Limiting values" and "Thermal characteristics"**

- $T_s$  is the temperature at the soldering point of the collector pin.

**CHARACTERISTICS** $T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	open emitter; $I_C = 5\text{ mA}$	15	–	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	open base; $I_C = 10\text{ mA}$	8	–	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	open collector; $I_E = 1\text{ mA}$	3.5	–	V
$I_{CES}$	collector leakage current	$V_{CE} = 3.6\text{ V}$ ; $V_{BE} = 0$	–	0.1	mA
$h_{FE}$	DC current gain	$V_{CE} = 3.6\text{ V}$ ; $I_C = 100\text{ mA}$	30	150	
$C_c$	collector capacitance	$V_{CB} = 3.6\text{ V}$ ; $I_E = I_B = 0$ ; $f = 1\text{ MHz}$	–	tbf	pF
$C_{re}$	feedback capacitance	$V_{CE} = 3.6\text{ V}$ ; $I_C = 0$ ; $f = 1\text{ MHz}$	–	tbf	pF

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## APPLICATION INFORMATION

RF performance at  $T_s \leq 60^\circ\text{C}$  in a common emitter test circuit (note 1).

MODE OF OPERATION	f (MHz)	$V_{CE}$ (V)	$I_{CQ}$ (mA)	$P_L$ (W)	$G_p$ (dB)	$\eta_c$ (%)
Pulsed, class-AB; $\delta = 1 : 8$ ; $t_p \leq 5$ ms	900	3.6	2	3	$\geq 8$ typ. 9.5	$\geq 50$ typ. 63

## Note

- $T_s$  is the temperature at the soldering point of the collector pin.

## Ruggedness in class-AB operation

The BLT62 is capable of withstanding a load mismatch corresponding to  $V_{SWR} = 10 : 1$  through all phases under the following conditions:  $\delta = 1 : 8$ ;  $t_p \leq 5$  ms;  $f = 900$  MHz;  $V_{CE} = 5$  V;  $I_{CQ} = 2$  mA;  $P_L = 3.5$  W;  $T_s \leq 60^\circ\text{C}$ .

