



6 GHz Wideband NPN Chip – BFR91A

Silicon NPN Planar RF Transistor in bare die form

Rev 1.1
3/11/17

Description

NPN transistor in unencapsulated chip form. It is primarily intended for use in RF wideband amplifiers, such as in aerial amplifiers, radar systems, oscilloscopes, spectrum analyzers, etc. The transistor features low intermodulation distortion and high power gain; due to its very high transition frequency, it also has excellent wideband properties and low noise up to high frequencies. PNP complement is BFT92.

Ordering Information

The following part suffixes apply:

- No suffix - MIL-STD-750 /2072 Visual Inspection
- "H" - MIL-STD-750 /2072 Visual Inspection + MIL-PRF-38534 Class H LAT
- "K" - MIL-STD-750 /2072 Visual Inspection + MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

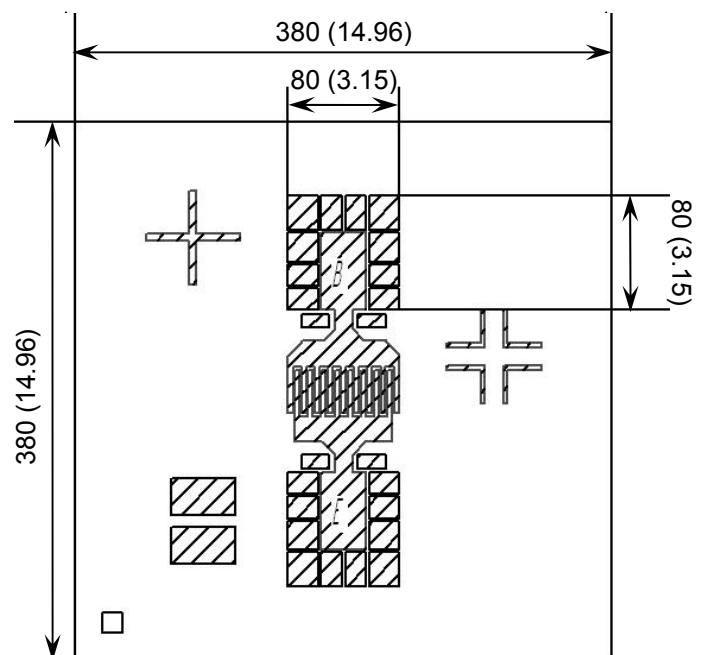
For further information on LAT process flows see below.

www.siliconsupplies.com/quality/bare-die-lot-qualification

Features:

- High Power Gain
- Low Noise
- Wide Transition Frequency

Die Dimensions in μm (mils)



B = BASE, E = EMITTER
CHIP BACKSIDE IS COLLECTOR

Supply Formats:

- Default – Die in Waffle Pack (400 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Unsawn Wafer – By specific request
- With additional electrical selection – Specific request
- Sawn as pairs or adjacent pair pick – Specific request

Mechanical Specification

Die Size (Unsawn)	380 x 380 14.96 x 14.96	μm mils
Base & Emitter Bond Pad Size	80 x 80 3.15 x 3.15	μm mils
Die Thickness	240 (± 20) 9.45 (± 0.78)	μm mils
Top Metal Composition	Au 1.5 μm	
Back Metal Composition	Au 0.35 μm	





6 GHz Wideband NPN Chip – BFR91A

Silicon NPN Planar RF Transistor in bare die form

Rev 1.1
3/11/17

Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V_{CBO}	collector-base voltage	open emitter	-	20	V
V_{CEO}	collector-emitter voltage	open base	-	15	V
V_{EBO}	emitter-base voltage	open collector	-	2	V
I_C	DC collector current	-	-	50	mA
P_{tot}	total power dissipation	-	-	300	mW
T_{stg}	storage temperature	-	-65	150	$^\circ\text{C}$
T_J	junction temperature	-	-	175	$^\circ\text{C}$

Electrical Characteristics $T_A = 25^\circ\text{C}$

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	SYMBOL
I_{CBO}	collector cut-off current	$I_E = 0 ; V_{CB} = 10\text{V}$	-	-	100	nA
h_{FE}	DC current gain	$I_C = 30\text{mA}; V_{CE} = 5\text{V}$	50	120	300	
f_T	transition frequency	$I_C = 30\text{mA}; V_{CE} = 5\text{V}; f = 300\text{ MHz}$	-	6	-	GHz
G_P	power gain	$I_C = 30\text{mA}; V_{CE} = 8\text{V}; f = 800\text{ MHz}$	-	13	-	dB
NF	noise figure	$I_C = 5\text{mA}; V_{CE} = 8\text{V}; f = 800\text{ MHz}$	-	1.6	-	dB

DISCLAIMER: The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Silicon Supplies Ltd hereby disclaims any and all warranties and liabilities of any kind.

LIFE SUPPORT POLICY: Silicon Supplies Ltd components may be used in life support devices or systems only with the express written approval of Silicon Supplies Ltd, if a failure of such components can reasonably be expected to cause the failure of that life support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

