5 GHz Wideband NPN Chip – BFR91

Silicon NPN Planar RF Transistor in bare die form

Rev 1.1
3/11/17

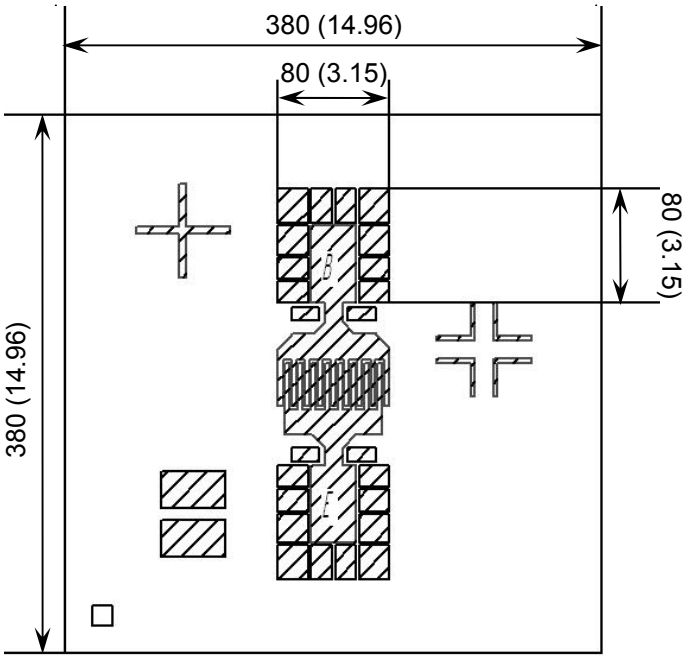
Description

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.

Features:

- High Power Gain
- Low Noise
- Wide Transition Frequency

Die Dimensions in µm (mils)



B = BASE, E = EMITTER
CHIP BACKSIDE IS COLLECTOR

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

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 1.5µm	
Back Metal Composition	Au 0.35µm	

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Absolute Maximum Ratings T_A = 25°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	ºC
T_J	junction temperature	-	-	175	ºC

Electrical Characteristics T_A = 25°C

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	SYMBOL
I_{CBO}	collector cut-off current	I_E = 0 ; V_{CB} = 20V	-	-	100	nA
h_{FE}	DC current gain	I_C = 30mA;V_{CE} = 5V	25	50	150	
f_T	transition frequency	I_C = 30mA; V_{CE}= 5V; f = 300 MHz	-	5	-	GHz
G_P	power gain	I_C = 30mA; V_{CE} = 5V; f = 800 MHz	-	13	-	dB
NF	noise figure	I_C = 2mA; V_{CE} = 5V; f = 500 MHz	-	1.9	-	dB