



# PNP Transistor Bare Die - BC556

Rev 1.0  
08/01/19

General purpose medium power amplifier or switch in bare die form  
Complement to NPN BC546

## Features:

- High Collector Current
- Very low saturation voltage
- Well suited for low noise amplifier applications
- High Reliability Gold Back Metal
- High Reliability tested grades for Military + Space

## Ordering Information:

The following part suffixes apply:

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

LAT = Lot Acceptance Test.

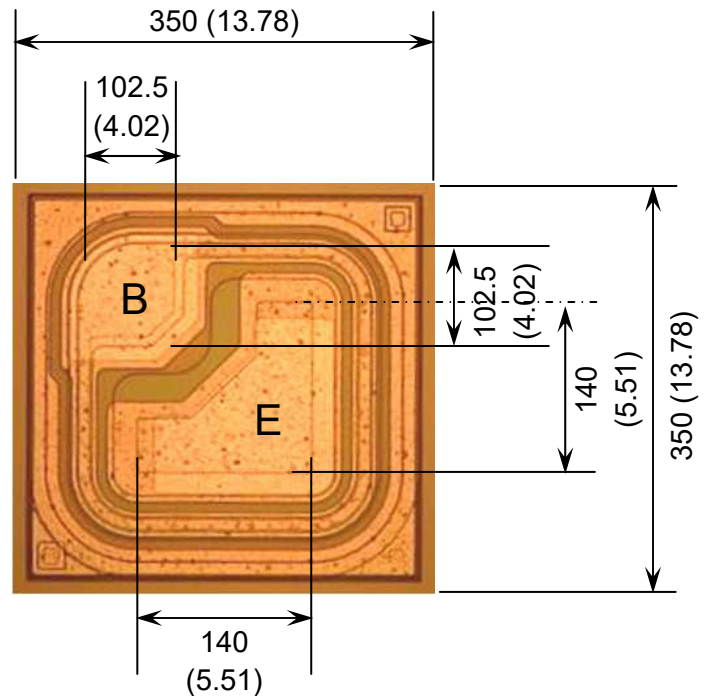
For further information on LAT process flows see below.

[www.siliconsupplies.com/quality/bare-die-lot-qualification](http://www.siliconsupplies.com/quality/bare-die-lot-qualification)

## Supply Formats:

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

## Die Dimensions in $\mu\text{m}$ (mils)



**E** = EMITTER **B** = BASE

**DIE BACK** = COLLECTOR

## Mechanical Specification

Die Size (Excluding Saw Street)	350 x 350 13.78 x 13.78	$\mu\text{m}$ mils
Base Pad Size	102.5 x 102.5 4.02 x 4.02	$\mu\text{m}$ mils
Emitter Pad Size	96 x 96 5.51 x 5.51	$\mu\text{m}$ mils
Die Thickness	230 ( $\pm 15$ ) 9.06 ( $\pm 0.59$ )	$\mu\text{m}$ mils
Top Metal Composition	Al - 1.3 $\mu\text{m}$	
Back Metal Composition	AuAs - 0.9 $\mu\text{m}$	





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

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CB0}$	-80	V
Collector-Emitter Voltage	$V_{CEO}$	-65	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-100	mA
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to 150	$^\circ\text{C}$

## Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise stated

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT	
<b>OFF CHARACTERISTICS</b>							
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0$	-80	-	-	V	
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-65	-	-	V	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0$	-5	-	-	V	
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = -30\text{V}, I_E = 0$	-	-	-15	nA	
<b>ON CHARACTERISTICS</b>							
Forward-Current Transfer Ratio <sup>1</sup>	$h_{FE}$	BC556	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	110	-	800	-
		BC556A		110	-	220	-
		BC556B		200	-	450	-
		BC556C		420	-	800	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-90	-300	mV	
		$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-250	-650	mV	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-700	-	mV	
		$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-900	-	mV	
Base-Emitter On Voltage	$V_{BE(on)}$	$I_C = -2\text{A}, V_{CE} = -5\text{V}$	-600	-660	-750	mV	
		$I_C = -10\text{A}, V_{CE} = -5\text{V}$	-	-	-800	mV	
<b>SMALL SIGNAL CHARACTERISTICS<sup>2</sup></b>							
		$V_{CE} = -5\text{V}, I_C = -10\text{mA}, f = 10\text{MHz}$	-	150	-	MHz	
Output Capacitance	$C_{obo}$	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$	-	-	6	pF	
Noise Figure	NF	$V_{CE} = -5\text{V}, I_C = -200\mu\text{A}, R_G = 2\text{k}\Omega, f = 1\text{kHz}$	-	2	10	dB	

Note 1: Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

Note 2: Not production testing in die form. Characterized by chip design and tested in package

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