



# PNP Transistor Bare Die - BC558

Rev 1.0  
08/01/19

General purpose medium power amplifier or switch in bare die form  
Complement to NPN BC548

## 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.

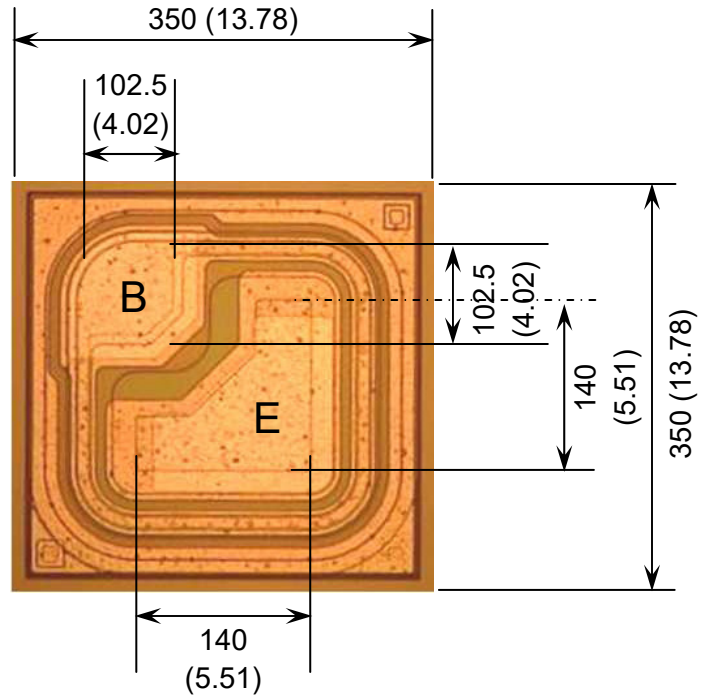
For further information on LAT process flows see below.

[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 $\mu\text{m}$	





# PNP Transistor Bare Die - BC558

Rev 1.0  
08/01/19

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

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CB0}$	-30	V
Collector-Emitter Voltage	$V_{CEO}$	-30	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>	$h_{FE}$	BC558	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	110	-	800	-
		BC558A		110	-	220	-
		BC558B		200	-	450	-
		BC558C		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

**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.

