



# PNP Transistor Bare Die – 2N5153

Rev 1.0  
10/03/26

General purpose high current bipolar transistor in bare die form  
Complement to NPN 2N5154

## Features:

- -80 Volt  $V_{CE0}$
- Low  $V_{CE(sat)}$
- High gain across wide current range
- High reliability gold back metal
- High reliability tested grades for Military + Space

## Ordering Information:

The following part suffixes apply:

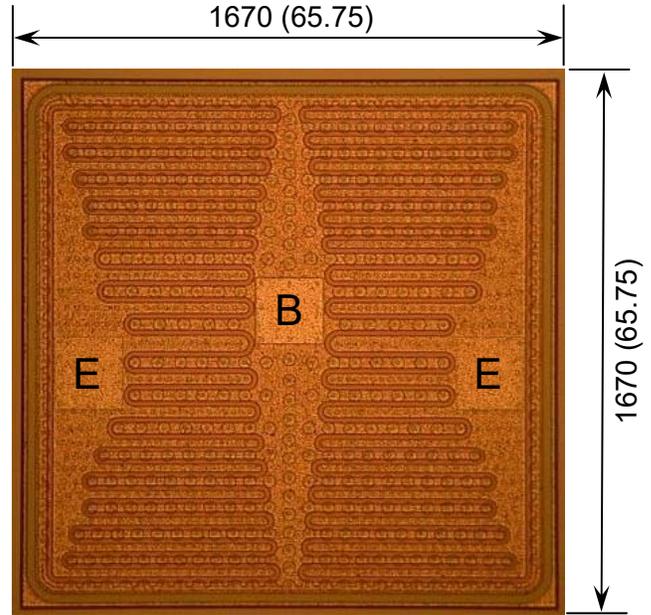
- No suffix - MIL-STD-750 /2072 Visual Inspection
- "H" - MIL-STD-750 /2072 Visual Inspection  
+ MIL-PRF-38534 Class H LAT
- "K" - MIL-STD-750 /2072 Visual Inspection  
+ MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

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

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



**E = EMITTER B = BASE**

**DIE BACK = COLLECTOR**

## Supply Formats:

- Default – Die in Waffle Pack (100 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

## Mechanical Specification

Die Size (Excluding Saw Street)	1670 x 1670 65.75 x 65.75	$\mu\text{m}$ mils
Base Pad Size	200 x 200 7.87 x 7.87	$\mu\text{m}$ mils
Emitter Pad Size	200 x 220 7.87 x 8.66	
Die Thickness	230 ( $\pm 20$ ) 9.06 ( $\pm 0.79$ )	$\mu\text{m}$ mils
Top Metal Composition	Al-Si	
Back Metal Composition	Au	





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

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	-100	V
Collector-Emitter Voltage	$V_{CEO}$	-80	V
Emitter-Base Voltage	$V_{EBO}$	-5.5	V
Collector Current	$I_C$	-5	A
Collector Current Pulsed	$I_{CM}$	-10	A
Junction Temperature	$T_J$	200	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to 200	$^\circ\text{C}$

## 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	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0$	-100	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -100\text{mA}, I_B = 0$	-80	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}, I_C = 0$	-5.5	-	-	V
Collector Cut-off Current	$I_{CES}$	$V_{CE} = -60\text{V}, V_{BE} = 0$	-	-	-1	$\mu\text{A}$
		$V_{CE} = -100\text{V}, V_{BE} = 0$	-	-	-1	mA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = -4\text{V}, I_C = 0$	-	-	-1	$\mu\text{A}$
		$V_{EB} = -5.5\text{V}, I_C = 0$	-	-	-1	mA
<b>ON CHARACTERISTICS</b>						
Forward-Current Transfer Ratio	$h_{FE}$	$V_{CE} = -5\text{V}, I_C = -50\text{mA}$	50	-	-	-
		$V_{CE} = -5\text{V}, I_C = -2.5\text{A}$	70	-	200	-
		$V_{CE} = -5\text{V}, I_C = -5\text{A}$	40	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -2.5\text{A}, I_B = -250\text{mA}$	-	-	-0.75	V
		$I_C = -5\text{A}, I_B = -500\text{mA}$	-	-	-1.5	V
Base Saturation Voltage	$V_{BE(sat)}$	$I_C = -2.5\text{A}, I_B = -250\text{mA}$	-	-	-1.45	V
		$I_C = -5\text{A}, I_B = -500\text{mA}$	-	-	-2.2	V
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = -5\text{V}, I_C = -250\text{mA}$	-	-	-1.45	V
<b>SMALL SIGNAL CHARACTERISTICS<sup>1</sup></b>						
Magnitude of AC forward current transfer ratio	$ h_{fe} $	$V_{CE} = 5\text{V}, I_C = 500\text{mA}, f = 10\text{MHz}$	7	-	-	-
AC forward current transfer ratio	$h_{fe}$	$V_{CE} = 5\text{V}, I_C = 100\text{mA}, f = 1\text{kHz}$	50	-	-	-
Collector Output Capacitance	$C_{obo}$	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$	-	-	250	pF

Note 1: Not production testing in die form. Characterized by chip design and package test.





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

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
<b>SWITCHING CHARACTERISTICS<sup>1</sup></b>						
Turn-On Time	$t_{on}$	$I_C = 5A,$ $I_{B1} = 500mA, I_{B2} = -500mA,$ $R_L = 6\Omega,$ $V_{BE(OFF)} = 3.7V$	-	-	0.5	$\mu s$
Turn-Off Time	$t_{off}$		-	-	1.5	$\mu s$
Storage Time	$t_s$		-	-	1.4	$\mu s$
Fall Time	$t_f$		-	-	0.5	$\mu s$

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