

General purpose high voltage amplifier or switch in bare die form

Complement to PNP 2N5401

Features:

- High Collector Breakdown Voltage
- Low Collector Saturation Voltage
- Characterized at temperature extremes
- 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.

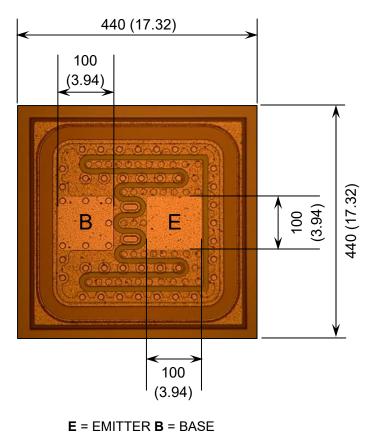
For further information on LAT process flows see below.

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

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 µm (mils)



DIE BACK = COLLECTOR

Mechanical Specification

Die Size (Excluding Saw Street)	440 x 440 17.32 x 17.32	µm mils	
Base & Emitter Pad Size	100 x 100 3.94 x 3.94	µm mils	
Die Thickness	230 (±20) 9.06 (±0.79)	µm mils	
Top Metal Composition	Al - 1.3µm		
Back Metal Composition	AuAs - 0.9µm		





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

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V _{CBO}	180	V
Collector-Emitter Voltage	V _{CEO}	160	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current	Ic	600	mA
Junction Temperature	TJ	150	°C
Storage Temperature	T _{stg}	-55 to 150	C°

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

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT	
OFF CHARACTERISTICS							
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C = 100μA, I _E = 0A	180	-	-	V	
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = 1mA, I _B = 0A	160	-	-	V	
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	$I_{E} = 10 \mu A, I_{C} = 0 A$	6	-	-	V	
Collector Cut-off Current	I _{CBO}	V _{CB} = 120V, I _E = 0A	-	-	50	nA	
Emitter Cut-off Current	I _{EBO}	$V_{EB} = 4V, I_{C} = 0A$	-	-	50	nA	
ON CHARACTERISTICS							
Forward-Current Transfer Ratio	h _{FE}	V_{CE} = 5V, I_C = 1mA	80	-	-	-	
		$V_{CE} = 5V, I_{C} = 10mA$	80	-	250	-	
		$V_{CE} = 5V, I_{C} = 50mA$	30	-	-	-	
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C = 10mA, I _B = 1mA	-	-	0.15	V	
		I _C = 50mA, I _B = 5mA	-	-	0.20	V	
Base Saturation Voltage	V _{BE(sat)}	I _C = 10mA, I _B = 1mA	-	-	1	V	
		I _C = 50mA, I _B = 5mA	-	-	1	V	
SMALL SIGNAL CHARACTERISTICS ¹							
Transition Frequency	f _T	$V_{CE} = 10V, I_E = -10mA$	100	-	300	MHz	
Output Capacitance	Cobo	V_{CB} = 10V, I _E = 0, f = 1MHz	-	-	6	pF	

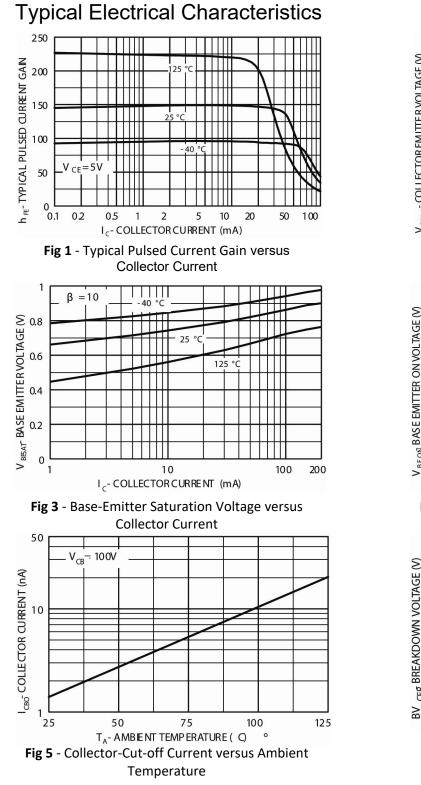
Note 1: Not production testing in die form. Characterized by chip design and tested in package LAT.





NPN Transistor Bare Die, 2N5551

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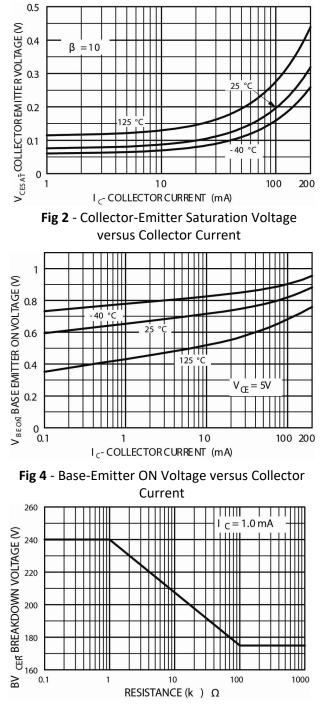


Fig 6 – Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

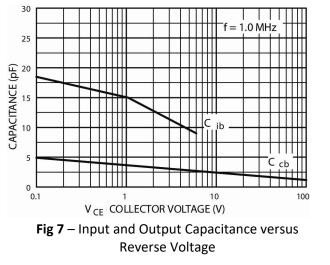


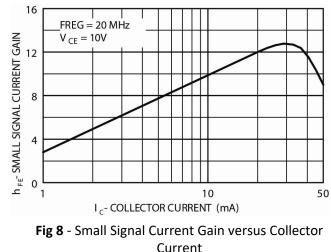


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