PNP Transistor Bare Die, 2N5400

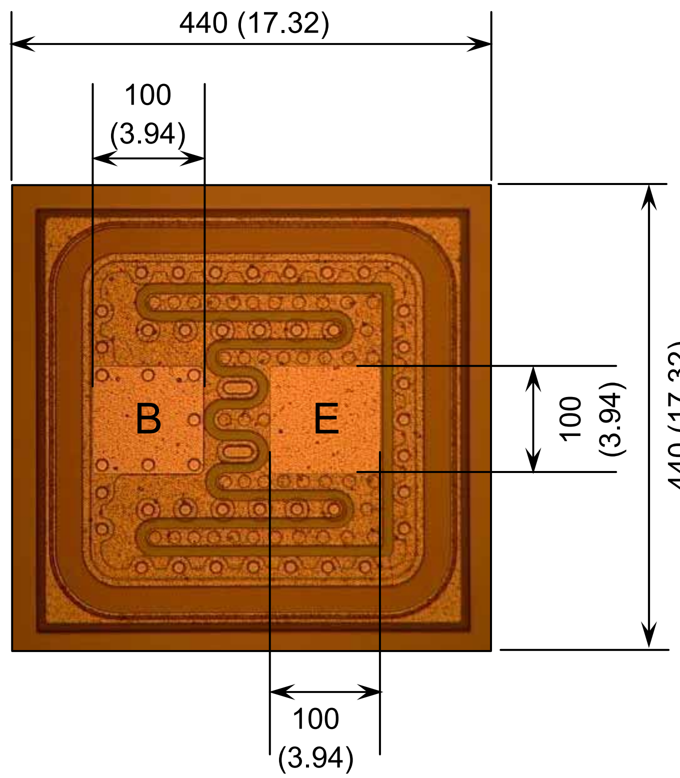
Rev 1.0
02/09/17

General purpose high voltage amplifier or switch in bare die form
Complement to PNP 2N5550

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

Die Dimensions in µm (mils)



E = EMITTER **B** = BASE

DIE BACK = 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 – 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)	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	

PNP Transistor Bare Die, 2N5401

Rev 1.0
07/07/17

Absolute Maximum Ratings T_A = 25°C unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-130	V
Collector-Emitter Voltage	V_{CEO}	-120	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-600	mA
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55 to 150	°C

Electrical Characteristics T_A = 25°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	-130	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = -1mA, I_B = 0A	-120	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = -10µA, I_C = 0A	-5	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = -100V, I_E = 0A	-	-	-100	nA
		V_{CB} = -100V, I_E = 0A, T_A = 100°C	-	-	-100	µa
Emitter Cut-off Current	I_{EBO}	V_{EB} = -3V, I_C = 0A	-	-	-50	nA
ON CHARACTERISTICS						
Forward-Current Transfer Ratio	h_{FE}	V_{CE} = -5V, I_C = -1mA	30	-	-	-
		V_{CE} = -5V, I_C = -10mA	40	-	180	-
		V_{CE} = -5V, I_C = -50mA	50	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = -10mA, I_B = -1mA	-	-	-0.2	V
		I_C = -50mA, I_B = -5mA	-	-	-0.5	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	-	400	MHz
Output Capacitance	C_{obo}	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.

Rev 1.0
07/07/17

Typical Electrical Characteristics

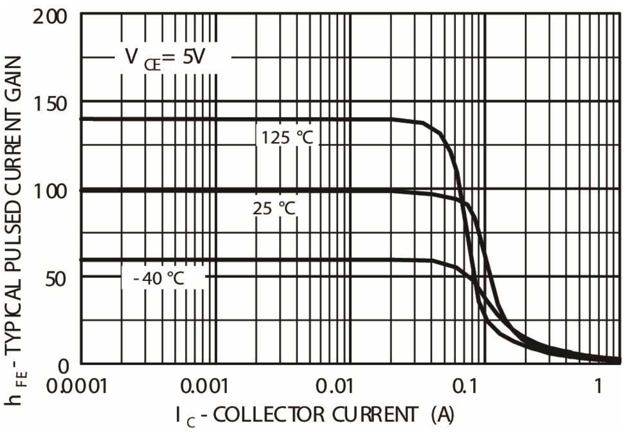


Fig 1 - Typical Pulsed Current Gain versus Collector Current

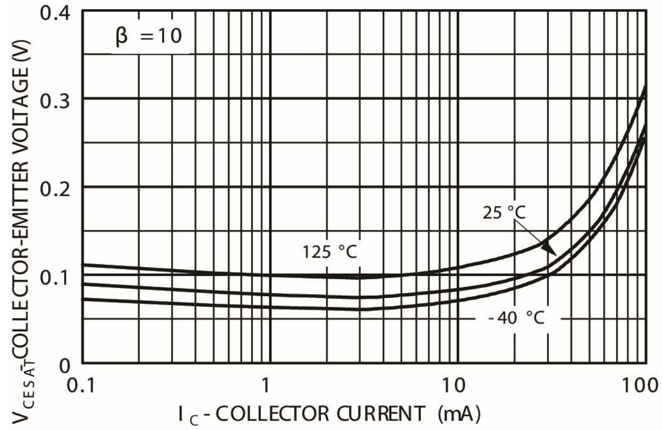


Fig 2 - Collector-Emitter Saturation Voltage versus Collector Current

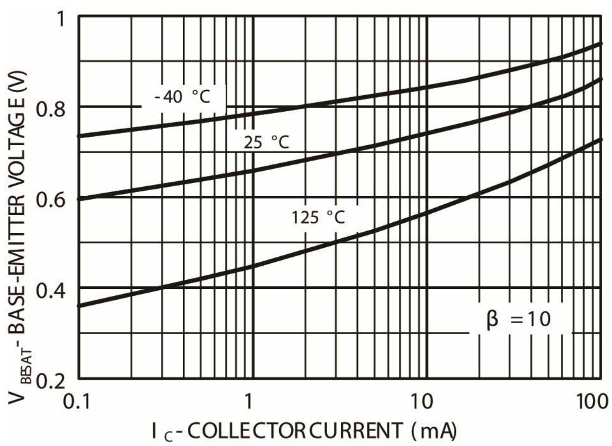


Fig 3 - Base-Emitter Saturation Voltage versus Collector Current

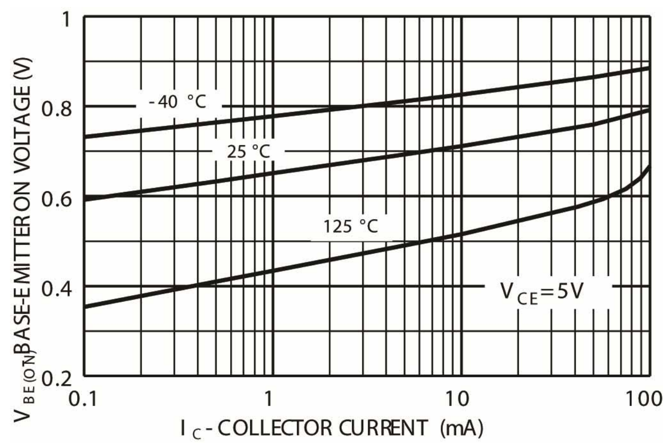


Fig 4 - Base-Emitter ON Voltage versus Collector Current

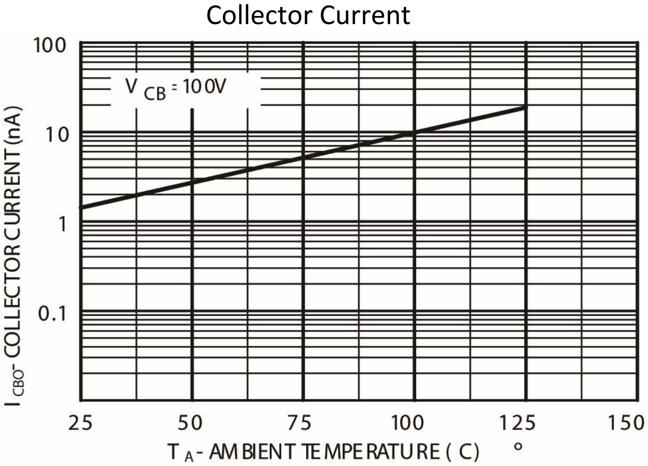


Fig 5 - Collector-Cut-off Current versus Ambient Temperature

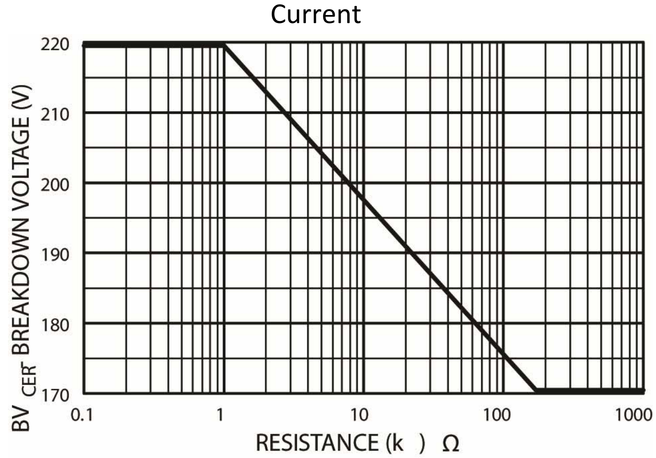


Fig 6 – Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

Typical Electrical Characteristics (Continued)

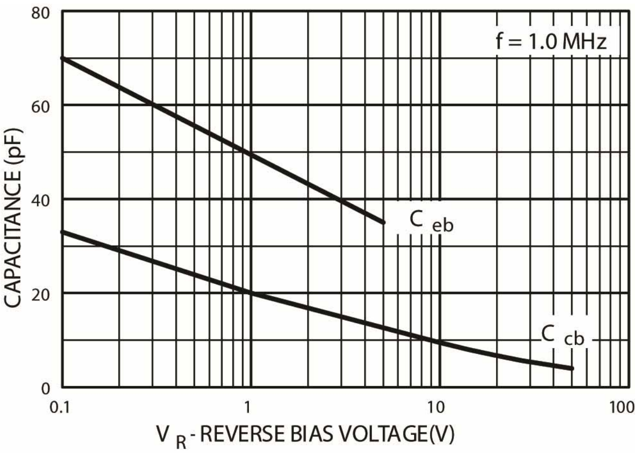


Fig 7 – Input and Output Capacitance versus Reverse Voltage