NPN Transistor Bare Die, BC337

Rev 1.0
02/09/17

General purpose medium power amplifier or switch in bare die form
Complement to PNP BC327

Features:

- High Collector Current
- High Current Gain with grade options
- Characterized at temperature extremes
- High Reliability Gold Back Metal
- High Reliability tested grades for Military + Space

Ordering Information:

The following part suffixes apply:

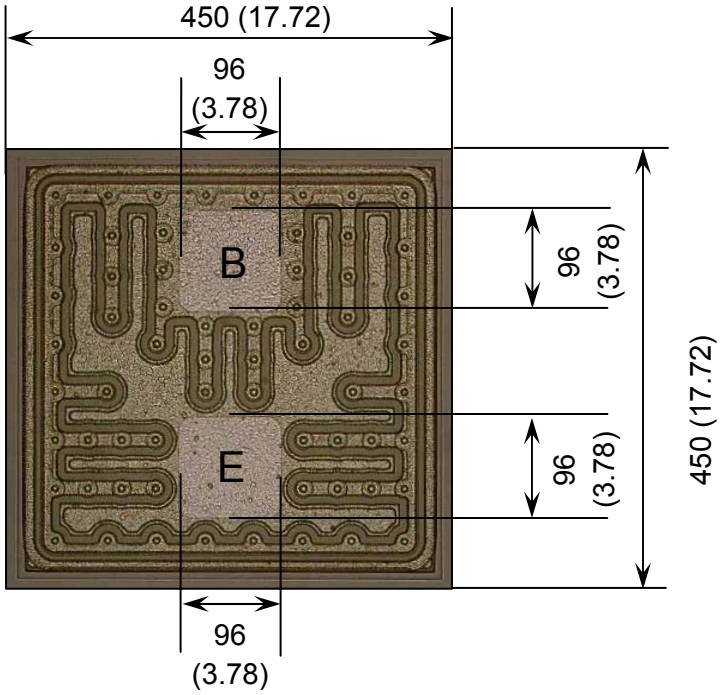
- No suffix - MIL-STD-750 /2072 Visual Inspection
- "**H**" - MIL-STD-750 /2072 Visual Inspection
  + MIL-PRF-38534 Class H LAT
- "**K**" - MIL-STD-750 /2072 Visual Inspection
  + MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

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

Die Dimensions in µm (mils)



E = EMITTER **B** = BASE

DIE BACK = COLLECTOR

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)	450 x 450 17.72 x 17.72	µm mils
Base & Emitter Pad Size	96 x 96 3.78 x 3.78	µm mils
Die Thickness	230 (±20) 9.06 (±0.79)	µm mils
Top Metal Composition	Al - 1.3µm	
Back Metal Composition	AuAs - 0.9µm	

NPN Transistor Bare Die, BC337

Rev 1.0
07/07/17

Absolute Maximum Ratings T_A = 25°C unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CES}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	800	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	$V_{(BR)CES}$	I_C = 0.1mA, V_{BE} = 0		50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, I_{BE}= 0		45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 1µA		5	-	-	V
Collector Cut-off Current	I_{CES}	V_{CE} = 45V, I_B = 0		-	-	100	nA
ON CHARACTERISTICS							
Forward-Current Transfer Ratio	h_{FE}	BC337	V_{CE} = 1V, I_C = 100mA	100	-	630	-
			V_{CE} = 1V, I_C = 300mA	60	-	-	-
		BC337-16	V_{CE} = 1V, I_C = 100mA	100	-	250	-
			V_{CE} = 1V, I_C = 300mA	60	-	-	-
		BC337-25	V_{CE} = 1V, I_C = 100mA	160	-	400	-
			V_{CE} = 1V, I_C = 300mA	100	-	-	-
		BC337-40	V_{CE} = 1V, I_C = 100mA	250	-	630	-
			V_{CE} = 1V, I_C = 300mA	170	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 500mA, I_B = 50mA		-	-	0.7	V
Base-Emitter On Voltage	$V_{BE(on)}$	I_C = 500mA, V_{CE}= 1V		-	-	1.2	V
SMALL SIGNAL CHARACTERISTICS[1]							
Transition Frequency	f_T	V_{CE} = 5V, I_C = 10mA		100	-	-	MHz
Output Capacitance	C_{obo}	V_{CB} = 10V, I_E = 0, f = 1MHz		-	5	-	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

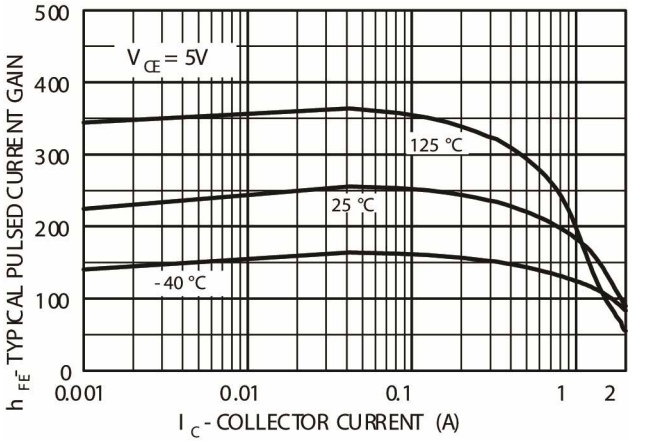


Fig 1 - Typical Pulsed Current Gain versus Collector Current

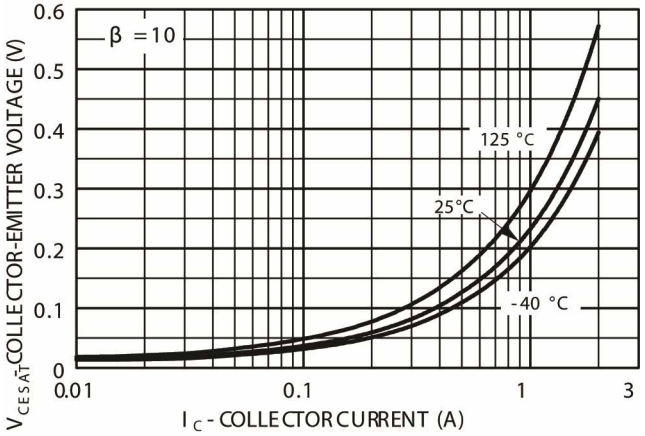


Fig 2 - Collector-Emitter Saturation Voltage versus Collector Current

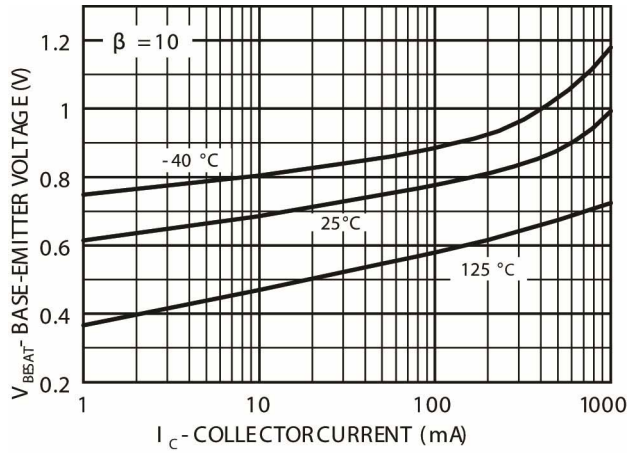


Fig 3 - Base-Emitter Saturation Voltage versus Collector Current

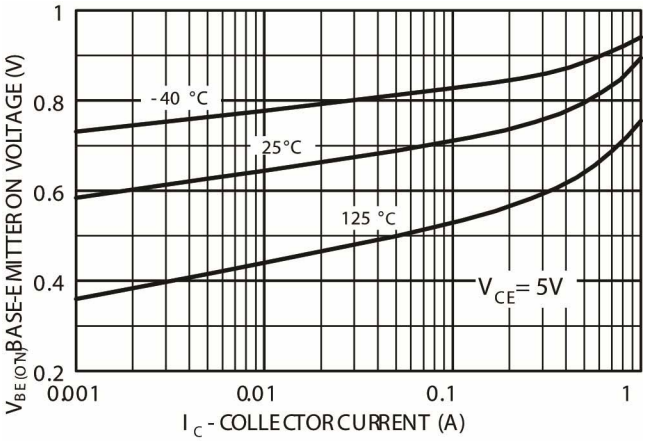


Fig 4 - Base-Emitter ON Voltage versus Collector Current

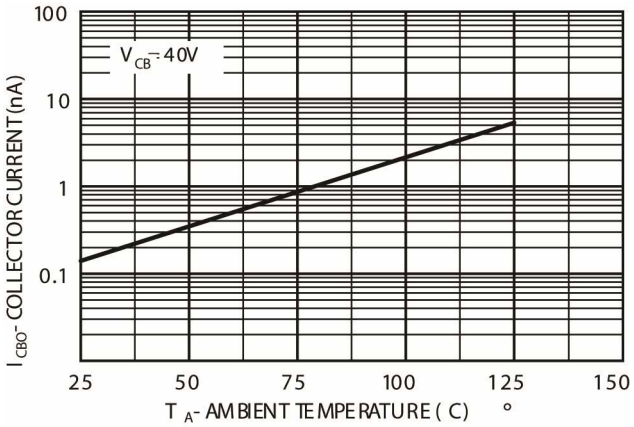


Fig 5 - Collector-Cut-off Current versus Ambient Temperature

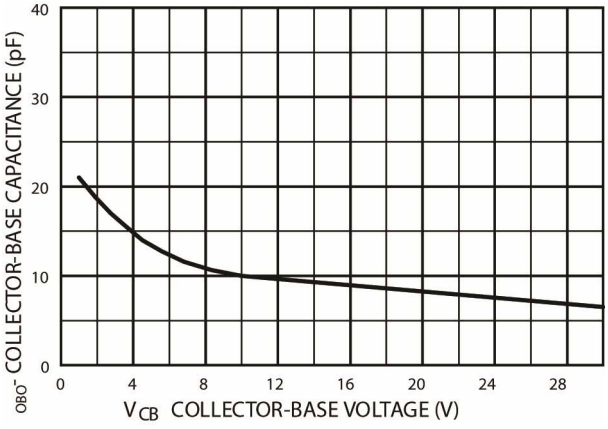


Fig 6 – Collector-Base Capacitance versus Collector-Base Voltage

Typical Electrical Characteristics (Continued)

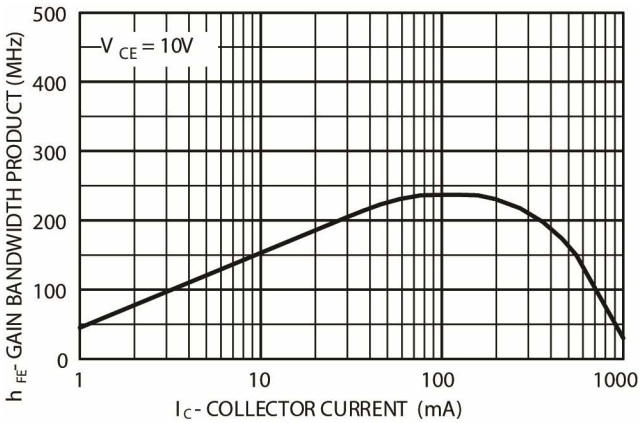


Fig 7 – Gain Bandwidth Product versus Collector Current