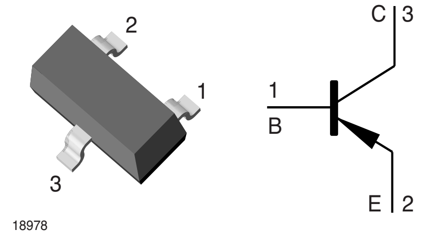
Small Signal Transistors (PNP)

Features

- PNP Silicon Epitaxial Planar Transistors for switching, AF driver and amplifier applications.
- Especially suited for automatic insertion in thick and thin-film circuits.
- These transistors are subdivided into three groups (- 16, - 25, and - 40) according to their current gain.
- As complementary types, the NPN transistors BC817 and BC818 are recomended.



Mechanical Data

Case: SOT-23 Plastic case
Weight: approx. 8.8 mg

Pinning: 1 = Base, 2 = Emitter, 3 = Collector
Packaging Codes/Options:
GS18 / 10 k per 13" reel (8 mm tape), 10 k/box
GS08 / 3 k per 7" reel (8 mm tape), 15 k/box

Parts Table

Part	Ordering code	Marking	Remarks
BC807-16	BC807-16-GS08	5A	Tape and Reel
BC807-25	BC807-25-GS08	5B	Tape and Reel
BC807-40	BC807-40-GS08	5C	Tape and Reel
BC808-16	BC808-16-GS08	5E	Tape and Reel
BC808-25	BC808-25-GS08	5F	Tape and Reel
BC808-40	BC808-40-GS08	5G	Tape and Reel

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Part	Symbol	Value	Unit
Collector - emitter voltage (Base shorted)		BC807	$- V_{CES}$	50	V
		BC808	$- V_{CES}$	30	V
Collector - emitter voltage (Base open)		BC807	$- V_{CEO}$	45	V
		BC808	$- V_{CEO}$	25	V
Emitter - base voltage			$- V_{EBO}$	5	V
Collector current			$- I_C$	800	mA
Peak collector current			$- I_{CM}$	1000	mA
Peak base current			$- I_{BM}$	200	mA
Peak emitter current			I_{EM}	1000	mA
Power dissipation			P_{tot}	310[1)]	mW

[1)] Device on fiberglass substrate, see layout on next page.

Maximum Thermal Resistance

Parameter	Test condition	Symbol	Value	Unit
Thermal resistance junction to ambient air		$R\theta_{JA}$	450[1]	°C/W
Thermal resistance junction to substrate backside		$R\theta_{SB}$	320[1]	°C/W
Junction temperature		T_j	150	°C
Storage temperature range		T_S	- 65 to + 150	°C

[1] Device on fiberglass substrate, see layout on next page.

Electrical DC Characteristics

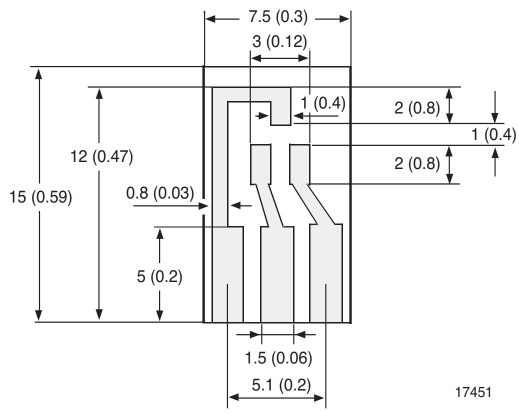
Parameter	Test condition	Part	Symbol	Min	Typ	Max	Unit
DC current gain (current gain group - 16)	$- V_{CE}$ = 1 V, $- I_C$ = 100 mA		h_{FE}	100		250	
DC current gain (current gain group - 25)	$- V_{CE}$ = 1 V, $- I_C$ = 100 mA		h_{FE}	160		400	
DC current gain (current gain group - 40)	$- V_{CE}$ = 1 V, $- I_C$ = 100 mA		h_{FE}	250		600	
DC current gain	$- V_{CE}$ = 1 V, $- I_C$ = 500 mA		h_{FE}	40			
Collector saturation voltage	$- I_C$ = 500 mA, $- I_B$ = 50 mA		$- V_{CEsat}$			0.7	V
Base saturation voltage	$- I_C$ = 500 mA, $- I_B$ = 50 mA		V_{BEsat}			1.3	V
Base - emitter voltage	$- V_{CE}$ = 1 V, $- I_C$ = 500 mA		$- V_{BEon}$			1.2	V
Collector - emitter cutoff current	$- V_{CE}$ = 45 V	BC807	$- I_{CES}$			100	nA
	$- V_{CE}$ = 25 V	BC808	$- I_{CES}$			100	nA
	$- V_{CE}$ = 25 V, T_j = 150 °C		$- I_{CES}$			5	μA
Emitter - base cutoff current	$- V_{EB}$ = 4 V		$- I_{EBO}$			100	nA

Electrical AC Characteristics

Parameter	Test condition	Symbol	Min	Typ	Max	Unit
Gain - bandwidth product	$- V_{CE}$ = 5 V, $- I_C$ = 10 mA, f = 50 MHz	f_T		100		MHz
Collector - base capacitance	$- V_{CB}$ = 10 V, f = 1 MHz	C_{CBO}		12		pF

Layout for $R\theta_{JA}$ test

Thickness: Fiberglass 1.5 mm (0.059 in.)
Copper leads 0.3 mm (0.012 in.)



Typical Characteristics (Tamb = 25 °C unless otherwise specified)

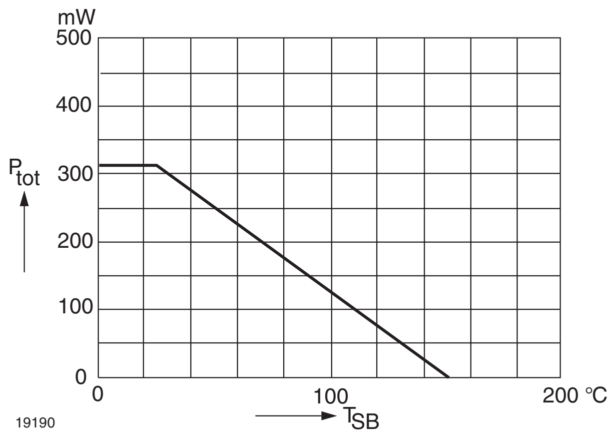


Figure 1. Admissible Power Dissipation vs. Temperature of Substrate Backside

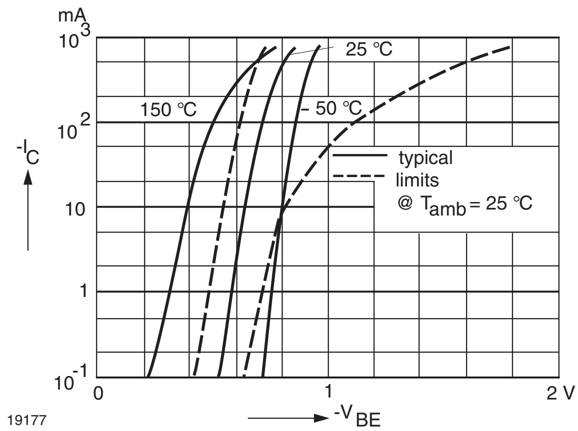


Figure 2. Collector Current vs. Base-Emitter Voltage

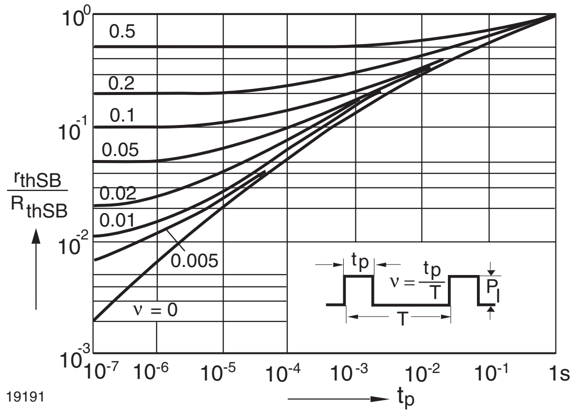


Figure 3. Pulse Thermal Resistance vs. Pulse Duration (normalized)

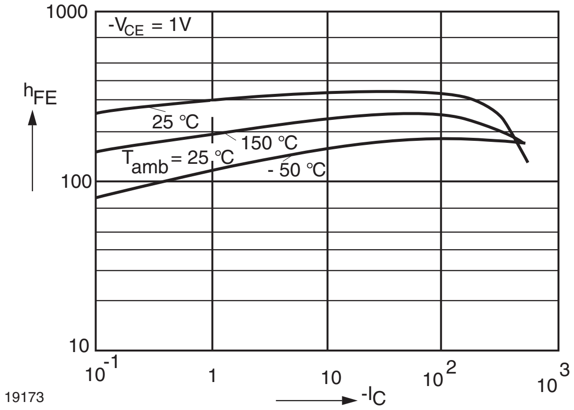


Figure 6. DC Current Gain vs. Collector Current

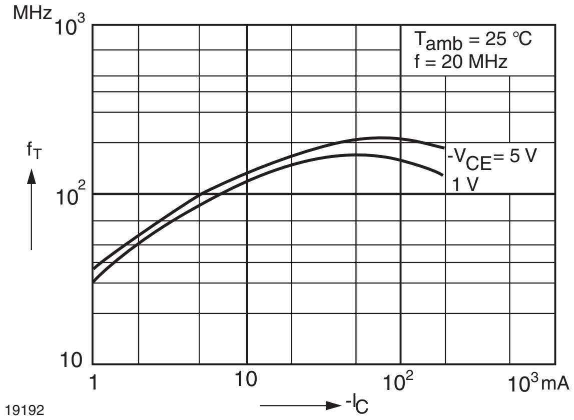


Figure 4. Gain-Bandwidth Product vs. Collector Current

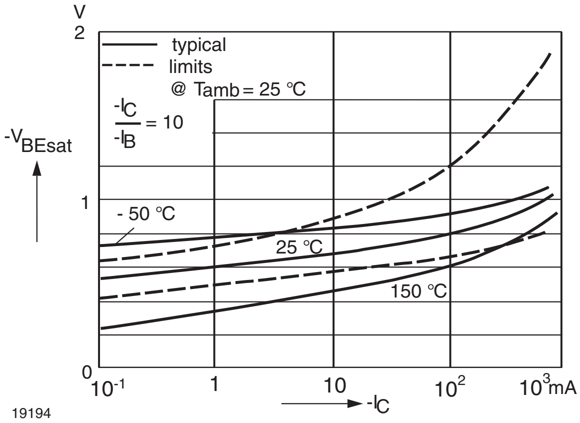


Figure 7. Base Saturation Voltage vs. Collector Current

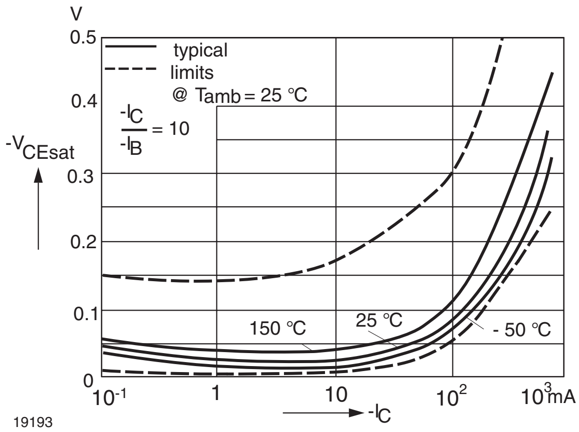


Figure 5. Collector Saturation Voltage vs. Collector Current

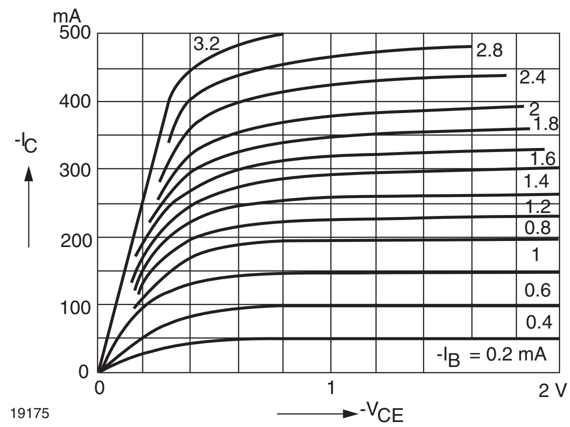


Figure 8. Common Emitter Collector Characteristics

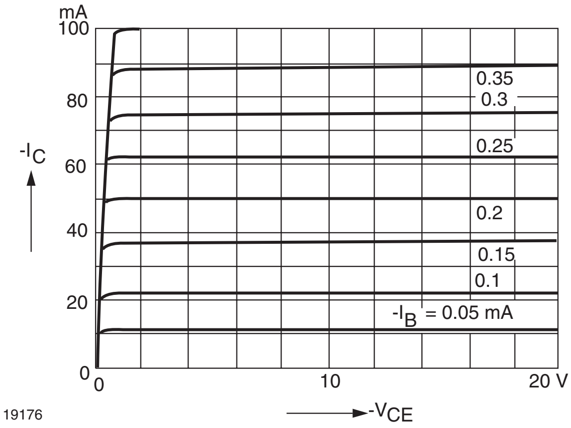


Figure 9. Common Emitter Collector Characteristics

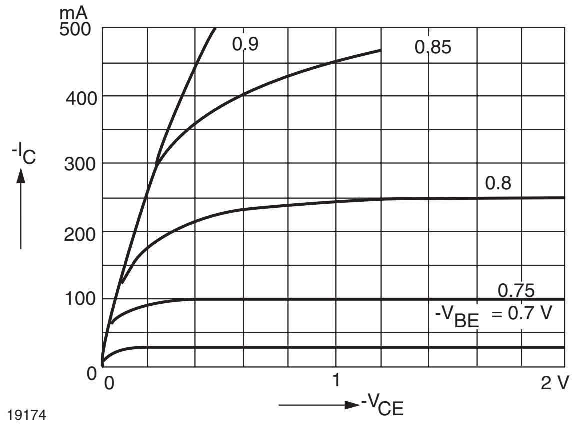
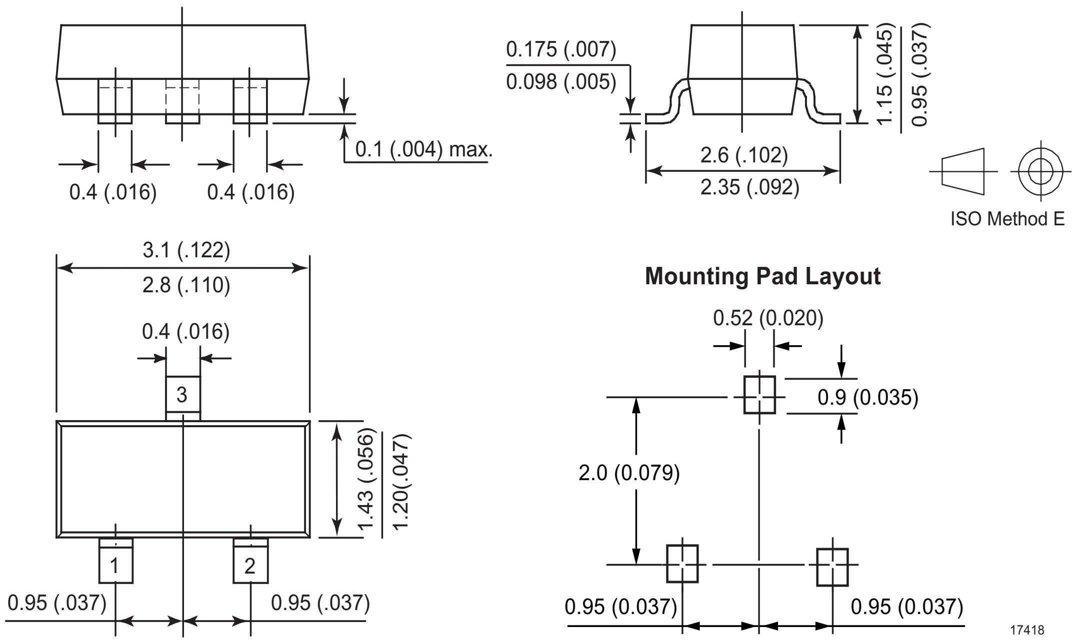


Figure 10. Common Emitter Collector Characteristics

Package Dimensions in mm (Inches)



Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operatingsystems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

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