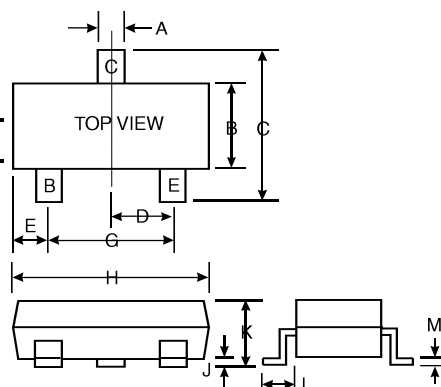


## Features

- 310 mW Power Dissipation
- Ideally Suited for Automatic Insertion
- Epitaxial Planar Die Construction
- For Switching, AF Driver and Amplifier Applications
- Complementary NPN Types Available (BC817)

## Mechanical Data

- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Mounting Position: Any
- Pin Connections: See Diagram
- Marking: BC807-16    5A  
BC807-25    5B  
BC807-40    5C
- Approx. Weight: 0.008 grams



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.19	1.40
C	2.10	2.50
D	0.89	1.05
E	0.45	0.61
G	1.78	2.05
H	2.65	3.05
J	0.013	0.15
K	0.89	1.10
L	0.45	0.61
M	0.076	0.178
All Dimensions in mm		

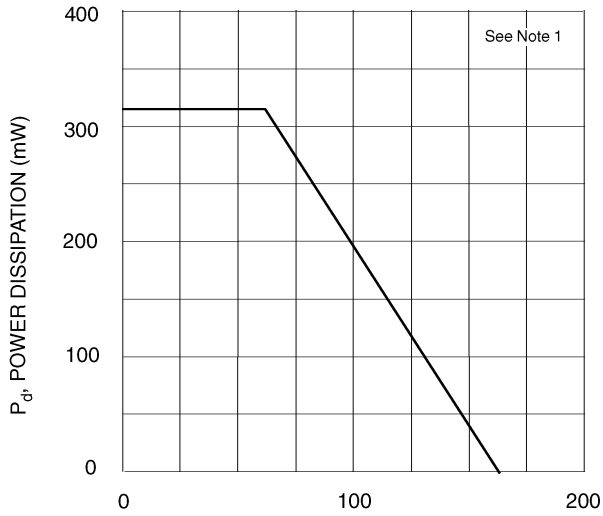
## Maximum Ratings @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Emitter Voltage	-V <sub>CEO</sub>	45	V
Emitter-Base Voltage	-V <sub>EBO</sub>	5.0	mV
Collector Current	-I <sub>C</sub>	500	mA
Peak Collector Current	-I <sub>CM</sub>	1000	mA
Peak Emitter Current	-I <sub>EM</sub>	1000	mA
Power Dissipation at T <sub>SB</sub> = 50°C (Note 1)	P <sub>d</sub>	310	mW
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-65 to +150	°C

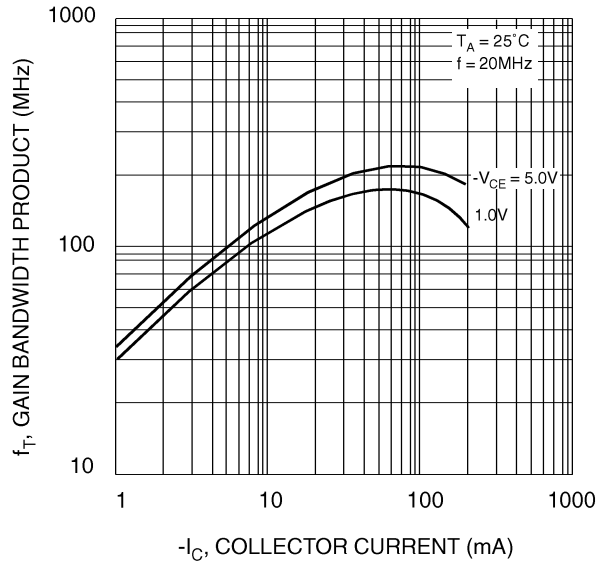
## Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
DC Current Gain	h <sub>FE</sub>	100	—	250	—	-V <sub>CE</sub> = 1.0V, -I <sub>C</sub> = 100mA
		160		400		
		250		600		
		60		—		
		100		—		
		170		—		
Thermal Resistance, Junction to Substrate Backside	R <sub>JSB</sub>	—	—	320	K/W	Note 1
Thermal Resistance, Junction to Ambient Air	R <sub>JA</sub>	—	—	400	K/W	Note 1
Collector-Emitter Saturation Voltage	-V <sub>CE(SAT)</sub>	—	—	0.7	V	-I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA
Base-Emitter Voltage	-V <sub>BE</sub>	—	—	1.2	V	-V <sub>CE</sub> = 1.0V, -I <sub>C</sub> = 300mA
Collector-Emitter Cutoff Current	-I <sub>CES</sub>	—	—	100 5.0	nA μA	-V <sub>CE</sub> = 45V -V <sub>CE</sub> = 25V, T <sub>j</sub> = 150°C
Emitter-Base Cutoff Current	-I <sub>EBO</sub>	—	—	100	nA	-V <sub>EB</sub> = 4.0V
Gain Bandwidth Product	f <sub>T</sub>	100	—	—	MHz	-V <sub>CE</sub> = 5.0V, -I <sub>C</sub> = 10mA, f = 50MHz
Collector-Base Capacitance	C <sub>CB0</sub>	—	—	12	pF	-V <sub>CB</sub> = 10V, f = 1.0MHz

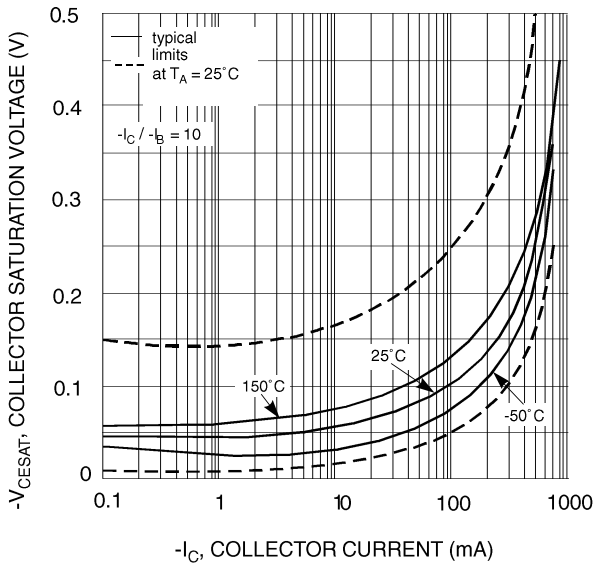
Notes: 1. Device mounted on ceramic substrate 0.7mm; 2.5cm<sup>2</sup> area.



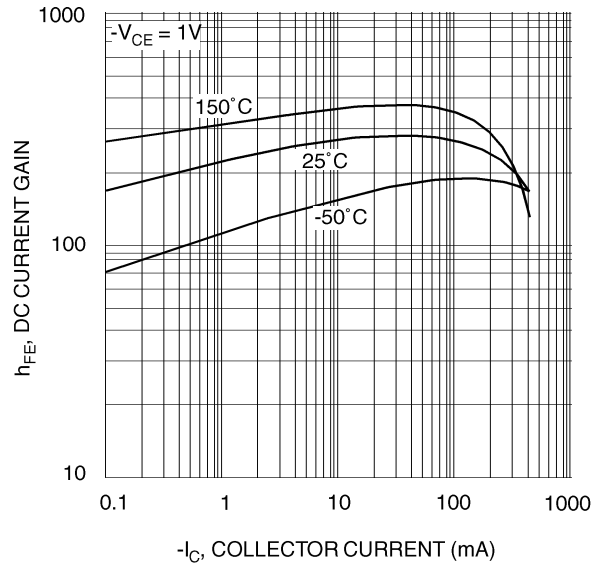
$T_{SB}$ , SUBSTRATE TEMPERATURE ( $^{\circ}C$ )  
Fig. 1, Power Derating Curve



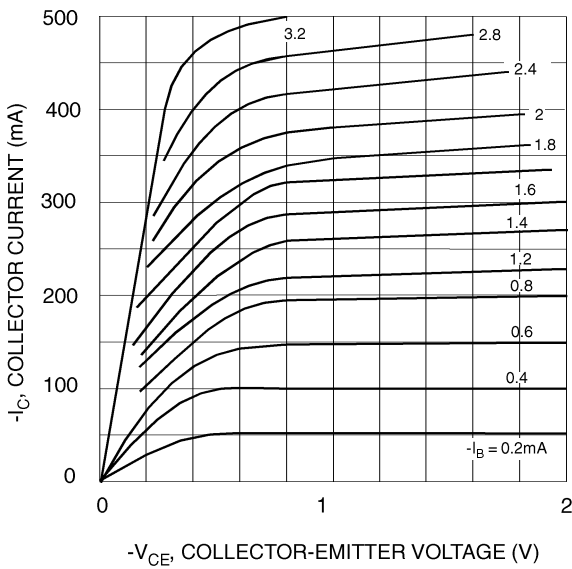
$-I_C$ , COLLECTOR CURRENT (mA)  
Fig. 2, Gain-Bandwidth Product vs Collector Current



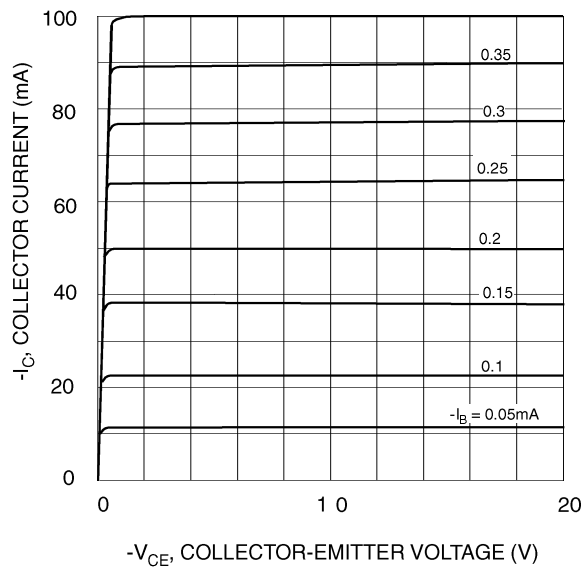
$-I_C$ , COLLECTOR CURRENT (mA)  
Fig. 3, Collector Sat. Voltage vs Collector Current



$-I_C$ , COLLECTOR CURRENT (mA)  
Fig. 4, DC Current Gain vs Collector Current



$-V_{CE}$ , COLLECTOR-EMITTER VOLTAGE (V)  
Fig. 5, Typical Emitter-Collector Characteristics



$-V_{CE}$ , COLLECTOR-EMITTER VOLTAGE (V)  
Fig. 6, Typical Emitter-Collector Characteristics