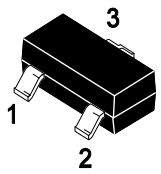
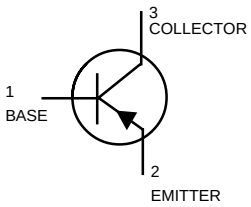
General Purpose Transistors PNP Silicon

FEATURE

- Collector current capability I_C = -500 mA.
- Collector-emitter voltage V_{CEO}(max) = -45 V.
- General purpose switching and amplification.
- PNP complement: BC807 Series.
- We declare that the material of product compliance with RoHS requirements.
- AEC-Q101 qualified (Automotive grade with suffix "Q".)



SOT23



DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
BC807-16	5A	3000/Tape&Reel
BC807-25	5B	3000/Tape&Reel
BC807-40	5C	3000/Tape&Reel

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	–45	V
Collector–Base Voltage	V_{CBO}	–50	V
Emitter–Base Voltage	V_{EBO}	–5.0	V
Collector Current — Continuous	I_C	–500	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR– 5 Board, (1)	P_D		
T_A = 25°C		225	mW
Derate above 25°C		1.8	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation	P_D		
Alumina Substrate, (2) T_A = 25°C		300	mW
Derate above 25°C		2.4	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J , T_{stg}	–55 to +150	°C

1. FR–5 = 1.0 x 0.75 x 0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage (I_C = –10 mA)	$V_{(BR)CEO}$	–45	—	—	V
Collector–Emitter Breakdown Voltage (V_{EB} = 0, I_C = –10 μA)	$V_{(BR)CES}$	–50	—	—	V
Emitter–Base Breakdown Voltage (I_E = –1.0 μA)	$V_{(BR)EBO}$	–5.0	—	—	V
Collector Cutoff Current	I_{CBO}				
(V_{CB} = –20 V)		—	—	–100	nA
(V_{CB} = –20 V, T_J = 150°C)		—	—	–5.0	μA

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				—
(I_C= –100 mA, V_{CE} = –1.0 V)	BC807–16		100	—	250	
	BC807–25		160	—	400	
	BC807–40		250	—	600	
(I_C = –500 mA, V_{CE} = –1.0 V)			40	—	—	
Collector–Emitter Saturation Voltage (I_C = –500 mA, I_B = –50 mA)		$V_{CE(sat)}$	—	—	–0.7	V
Base–Emitter On Voltage (I_C = –500 mA, V_{CE}= –1.0 V)		$V_{BE(on)}$	—	—	–1.2	V
SMALL–SIGNAL CHARACTERISTICS						
Current–Gain — Bandwidth Product (I_C = –10 mA, V_{CE} = –5.0 V_{dc}, f = 100 MHz)		f_T	100	—	—	MHz
Output Capacitance (V_{CB} = –10 V, f = 1.0 MHz)		C_{obo}	—	10	—	pF

TYPICAL CHARACTERISTICS –BC807–16

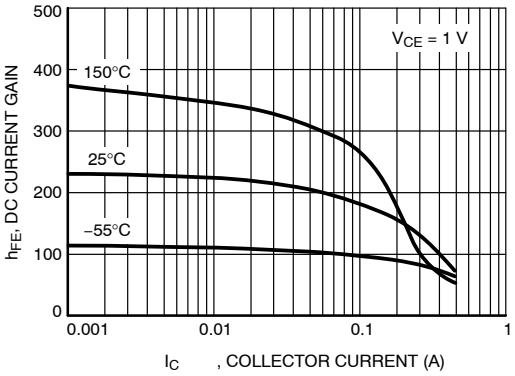


Figure 1. DC Current Gain vs. Collector Current

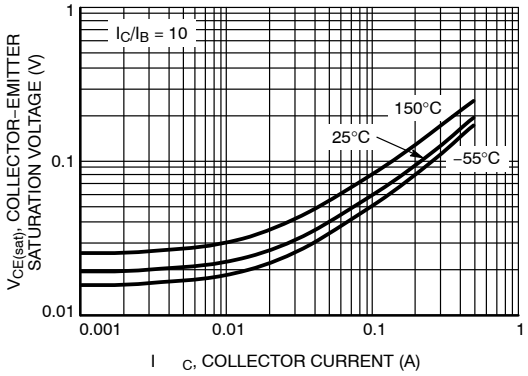


Figure 2. Collector Emitter Saturation Voltage vs. Collector Current

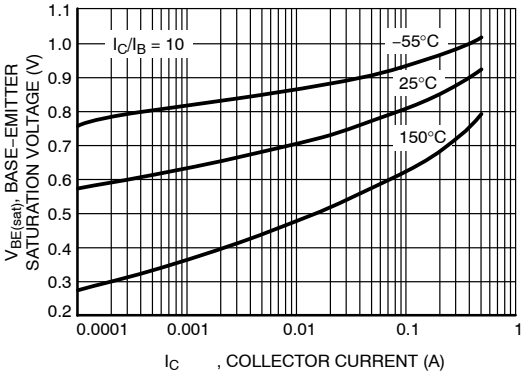


Figure 3. Base Emitter Saturation Voltage vs. Collector Current

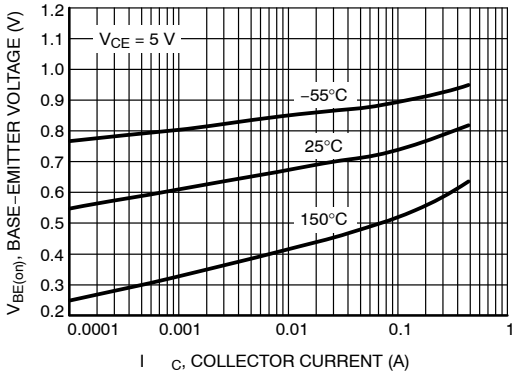


Figure 4. Base Emitter Voltage vs. Collector Current

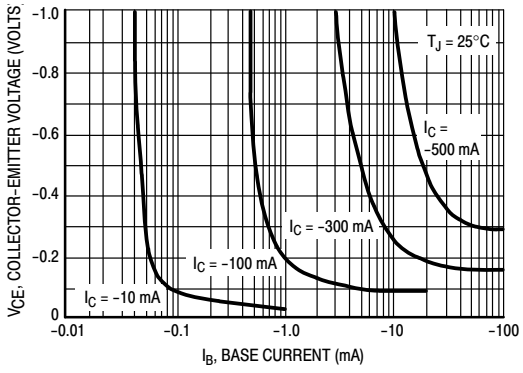


Figure 5. Saturation Region

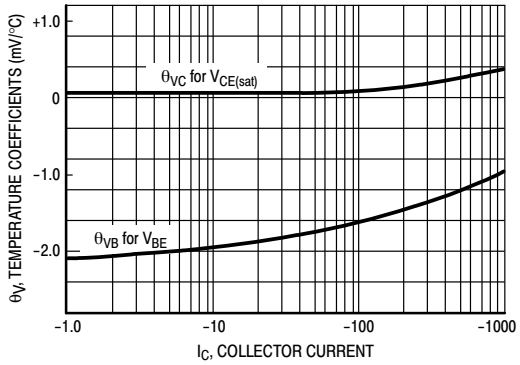


Figure 6. Temperature Coefficients

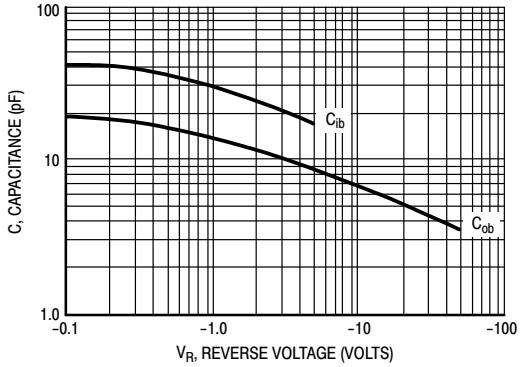


Figure 7. Capacitances

TYPICAL CHARACTERISTICS – BC807–25

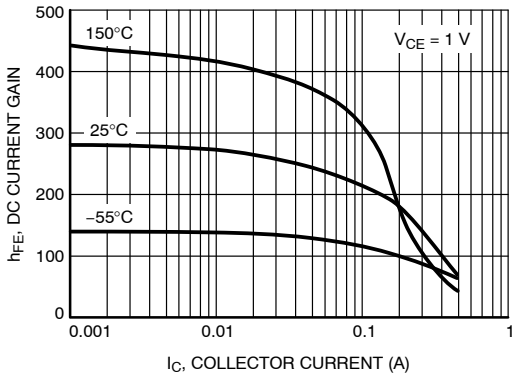


Figure 8. DC Current Gain vs. Collector Current

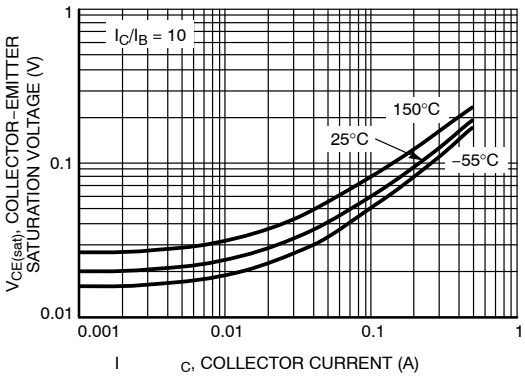


Figure 9. Collector Emitter Saturation Voltage vs. Collector Current

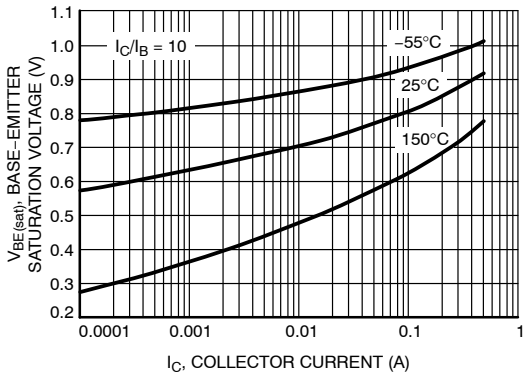


Figure 10. Base Emitter Saturation Voltage vs. Collector Current

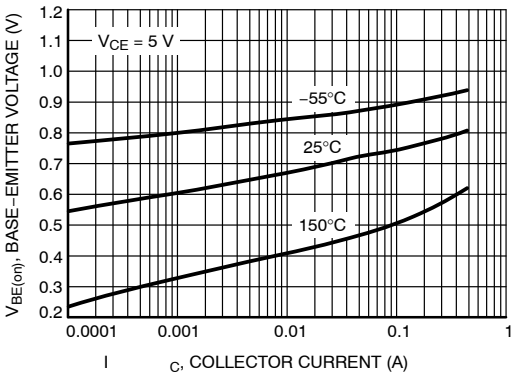


Figure 11. Base Emitter Voltage vs. Collector Current

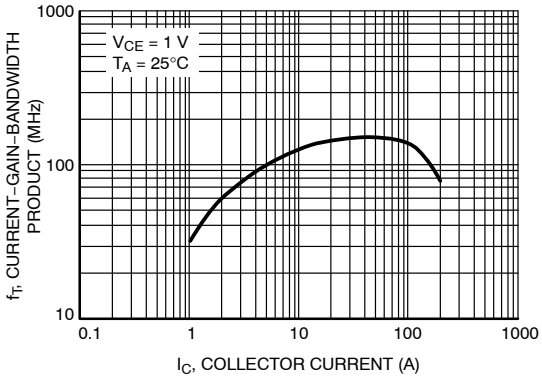


Figure 12. Current Gain Bandwidth Product vs. Collector Current

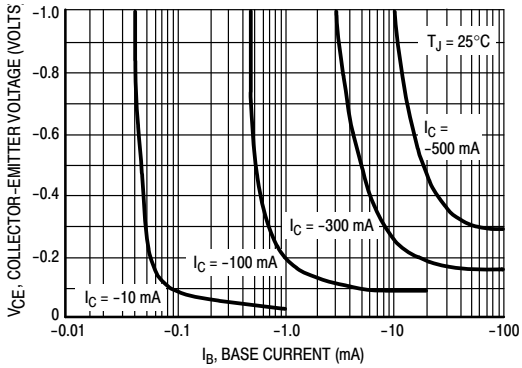


Figure 13. Saturation Region

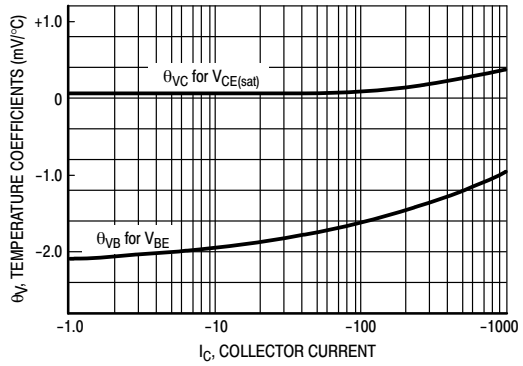


Figure 14. Temperature Coefficients

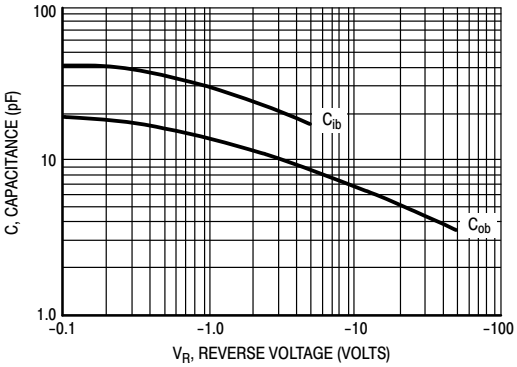


Figure 15. Capacitances

TYPICAL CHARACTERISTICS – BC807–40

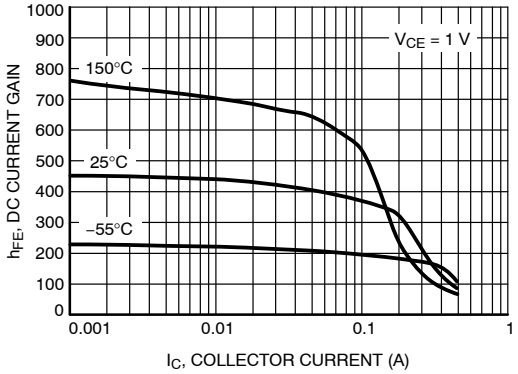


Figure 16. DC Current Gain vs. Collector Current

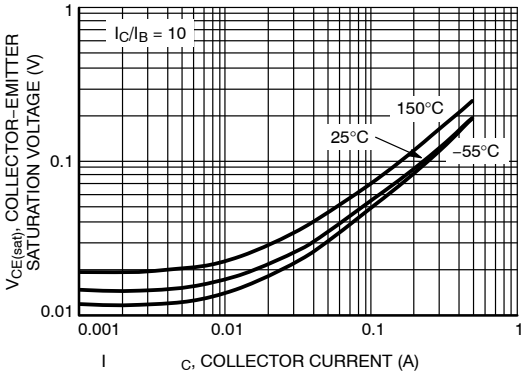


Figure 17. Collector Emitter Saturation Voltage vs. Collector Current

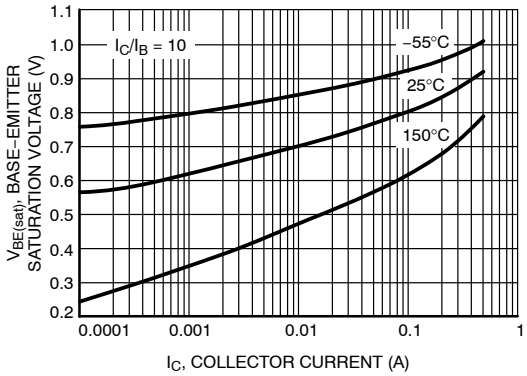


Figure 18. Base Emitter Saturation Voltage vs. Collector Current

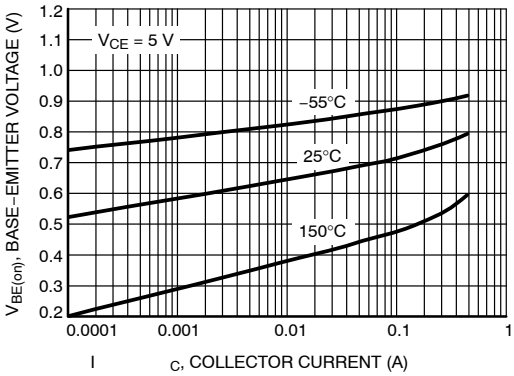


Figure 19. Base Emitter Voltage vs. Collector Current

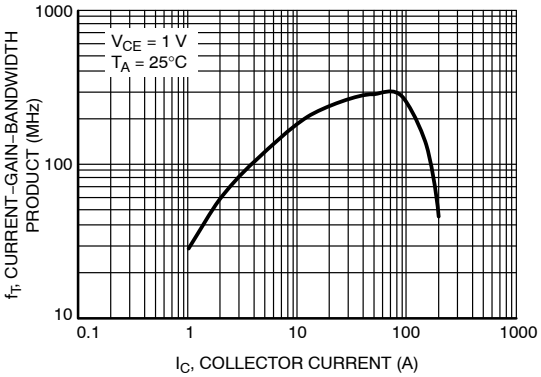


Figure 20. Current Gain Bandwidth Product vs. Collector Current

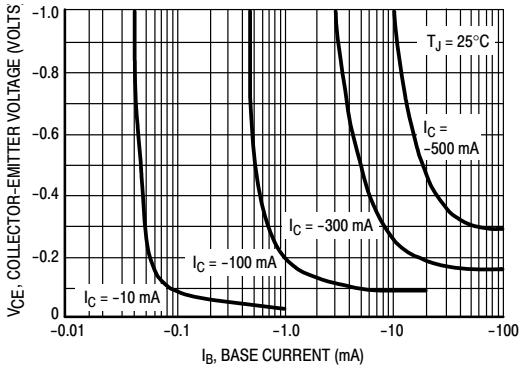


Figure 21. Saturation Region

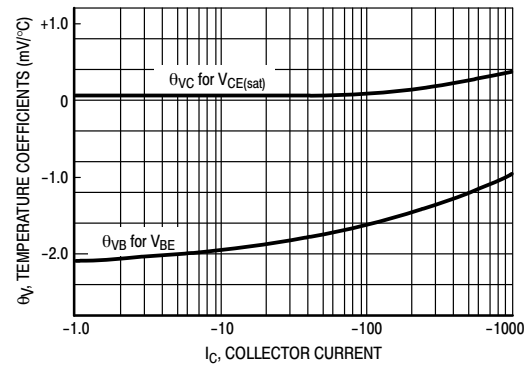


Figure 22. Temperature Coefficients

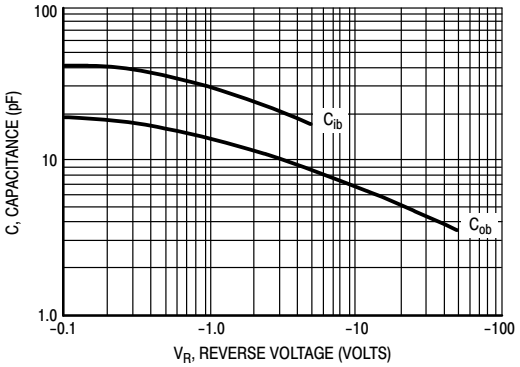
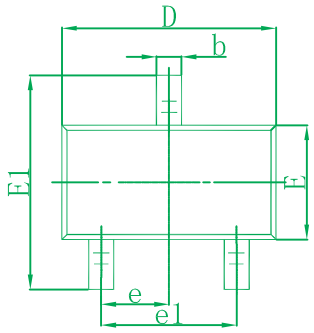
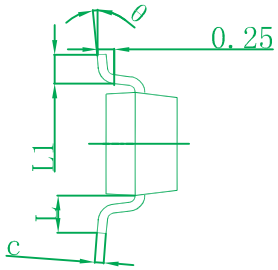
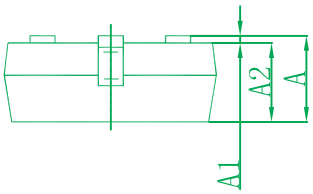


Figure 23. Capacitances

SOT-23 Package Information

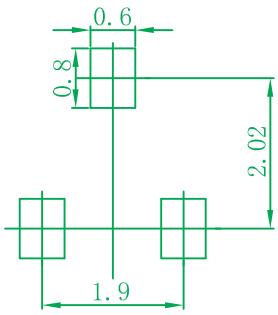






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.150	0.035	0.045
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.050	0.110	0.120
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

Ordering information

Device	Package	Shipping
BC807-16/25/40	SOT-23	3000/Tape&Reel