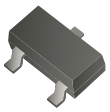
BC817-16-HF/25-HF/40-HF (NPN)

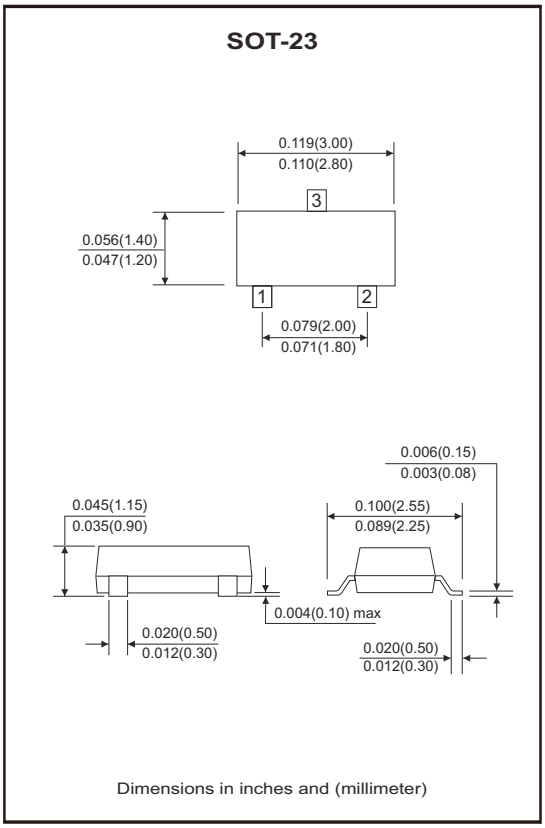
RoHS Device

Halogen Free



Features

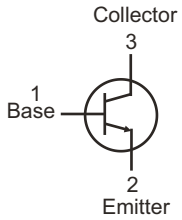
- For general AF applications.
- High collector current.
- High current gain.
- Low collector-emitter saturation voltage.



Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Weight: 0.0078 grams(approx.).

Circuit Diagram



Maximum Ratings (at T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base voltage	V_{CBO}	50	V
Collector-Emitter voltage	V_{CEO}	45	V
Emitter-Base voltage	V_{EBO}	5	V
Collector current-continuous	I_C	500	mA
Collector power dissipation	P_C	300	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	417	°C/W
Junction temperature range	T_J	150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Electrical Characteristics (at T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-Base breakdown voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	50			V
Collector-Emitter breakdown voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	45			V
Emitter-Base breakdown voltage	$V_{(BR)EBO}$	I_E = 1μA, I_C = 0	5			V
Collector cut-off current	I_{CBO}	V_{CB} = 45V, I_E = 0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 4V, I_C = 0			0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE} = 1V, I_C = 100mA	100		600	
	$h_{FE(2)}$	V_{CE} = 1V, I_C = 500mA	40			
Collector-Emitter saturation voltage	$V_{CE(SAT)}$	I_C = 500mA, I_B = 50mA			0.7	V
Base-Emitter saturation voltage	$V_{BE(SAT)}$	I_C = 500mA, I_B = 50mA			1.2	V
Base-Emitter voltage	$V_{BE(ON)}$	V_{CE} = 1V, I_C = 500mA			1.2	V
Collector capacitance	C_{ob}	V_{CB} = 10V, f = 10MHz		10		pF
Transition frequency	f_T	V_{CE} = 5V, I_C = 10mA, f = 100MHz	100			MHz

Classification of $h_{FE(1)}$

Rank	BC817-16-HF	BC817-25-HF	BC817-40-HF
Range	100-250	160-400	250-600

Rating and Characteristic Curves (BC817-16-HF/25-HF/40-HF)

Fig.1 - Static Characteristic

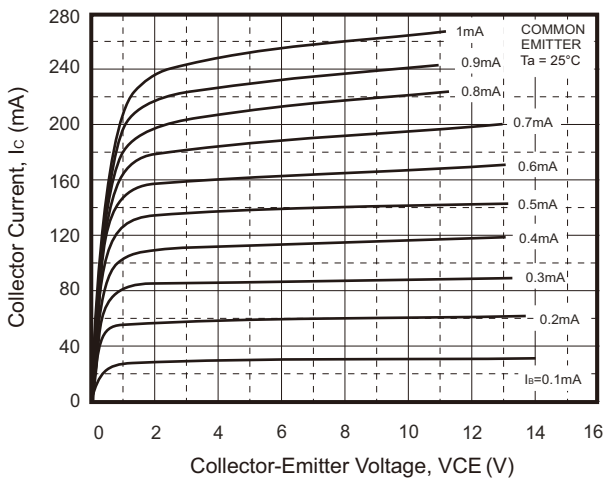
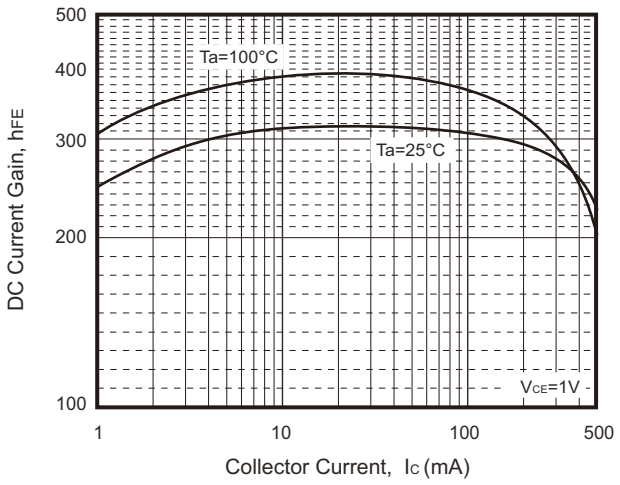


Fig.2 - h_{FE} — I_C



Rating and Characteristic Curves (BC817-16-HF/25-HF/40-HF)

Fig.3 - V_{BEsat} — I_C

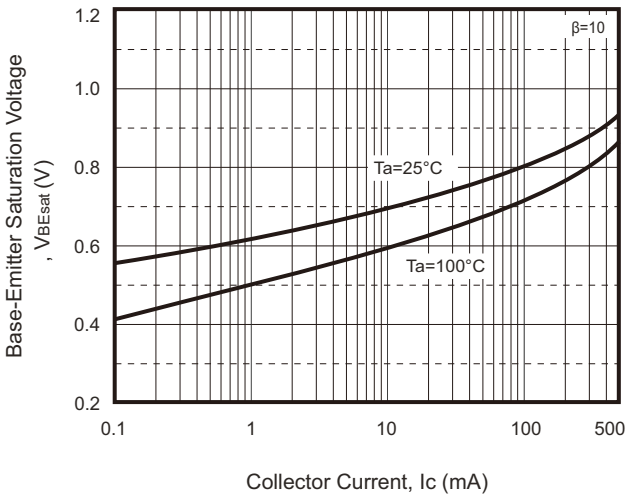


Fig.4 - V_{CEsat} — I_C

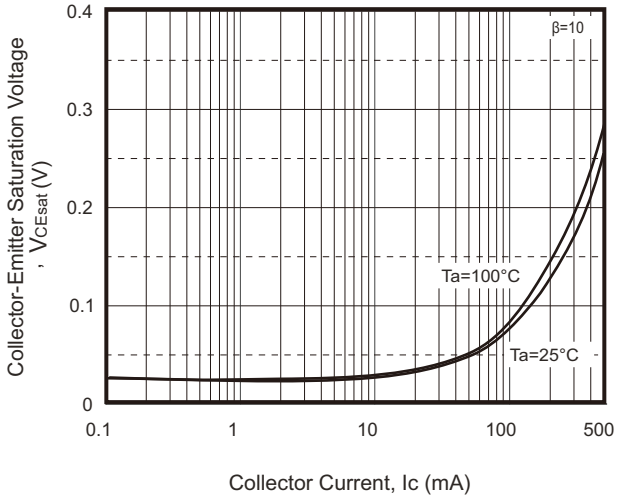


Fig.5 - I_C — V_{BE}

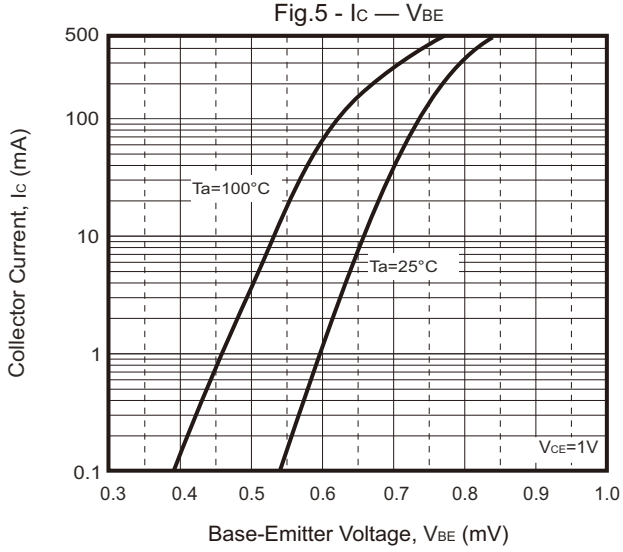


Fig.6 - C_{ob}/C_{ib} — V_{CB}/V_{EB}

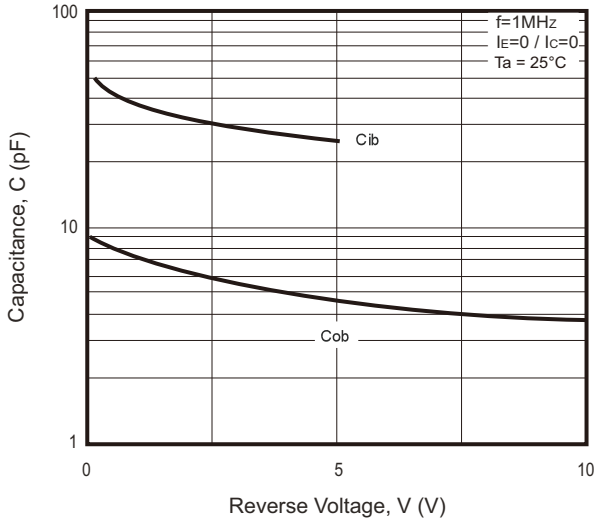


Fig.7 - f_T — I_C

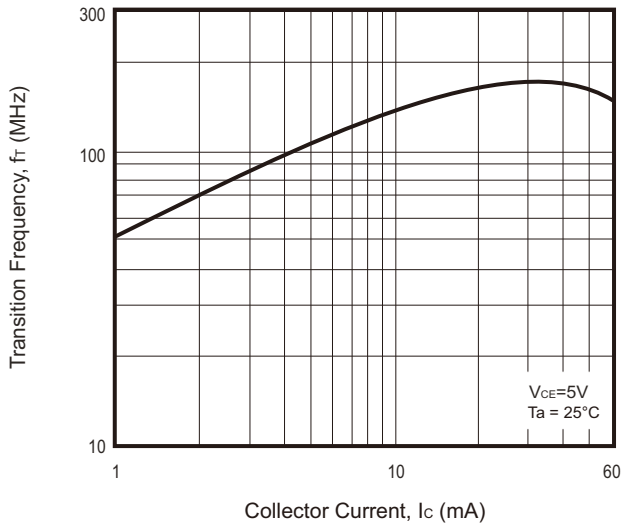
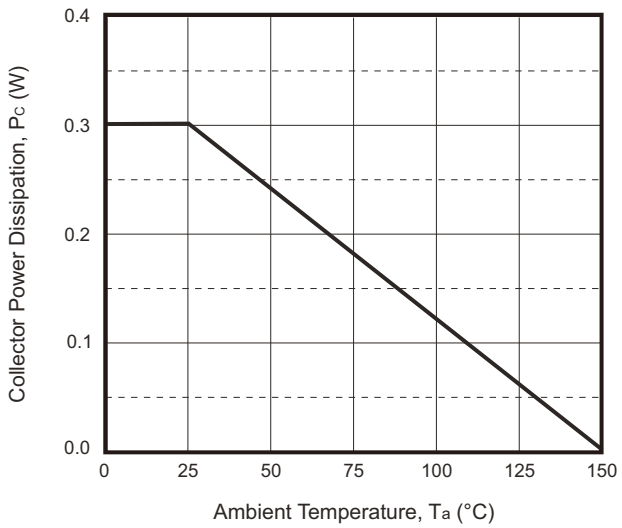
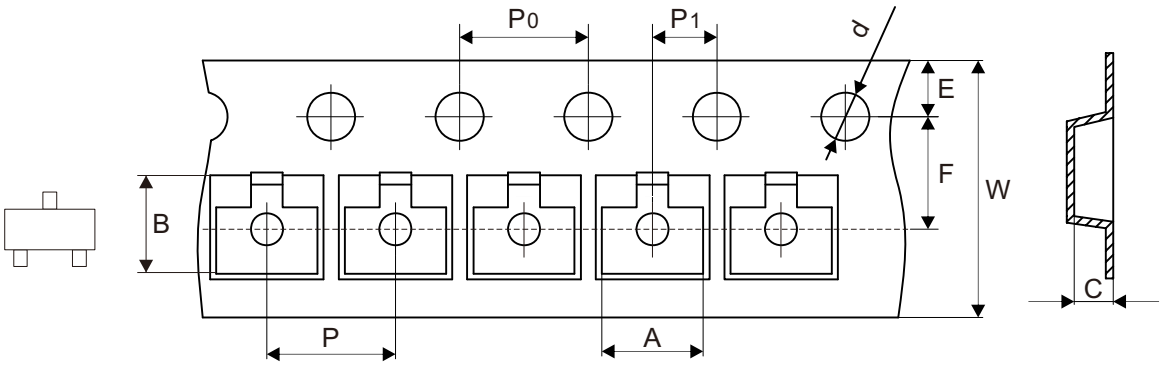
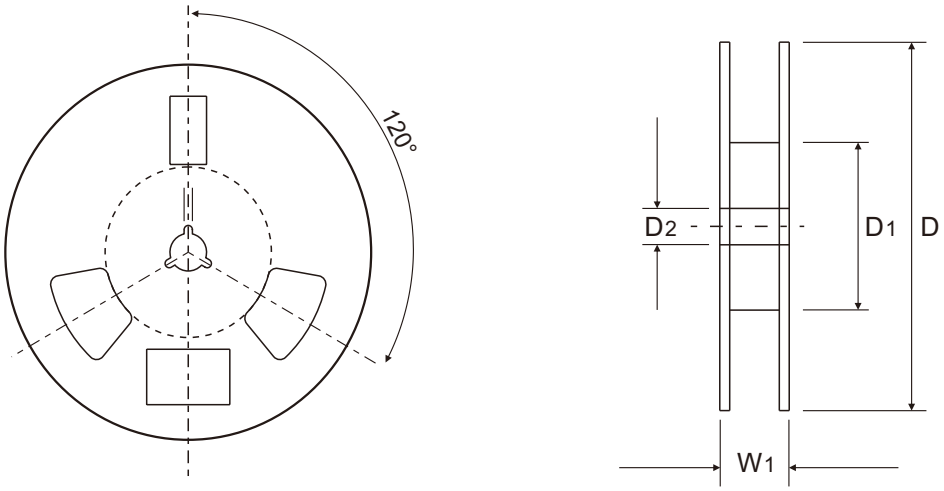


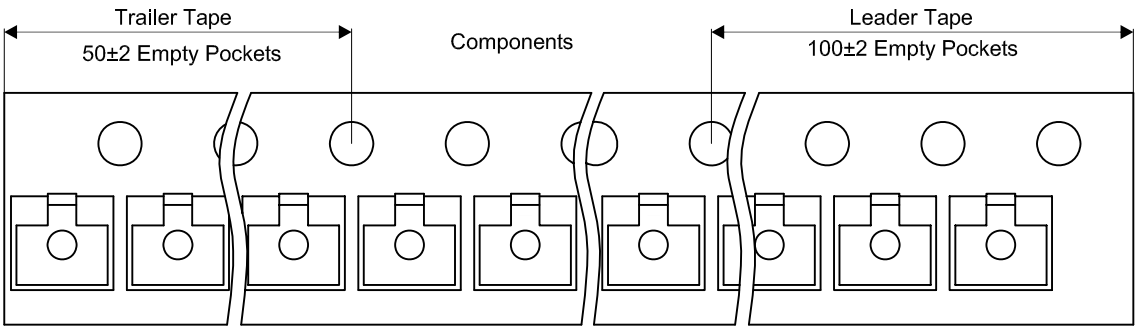
Fig.8 - P_C — Ta



Reel Taping Specification





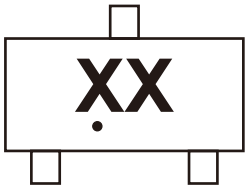


	SYMBOL	A	B	C	d	D	D1	D2
SOT-23	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

	SYMBOL	E	F	P	P0	P1	W	W1
SOT-23	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30 − 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012 − 0.004	0.484 ± 0.039

Marking Code

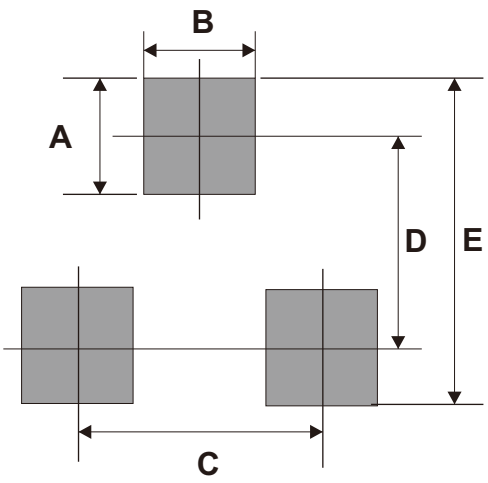
Part Number	Marking Code
BC817-16-HF	6A
BC817-25-HF	6B
BC817-40-HF	6C



Solid dot = Control code
xx = Product type marking code

Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.80	0.031
B	0.60	0.024
C	1.90	0.075
D	2.02	0.080
E	2.82	0.111



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7