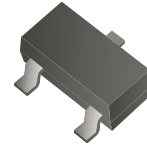


BC817-16W-P2-HF/25W-P2-HF/40W-P2-HF (NPN)

RoHS Device

Halogen Free



Features

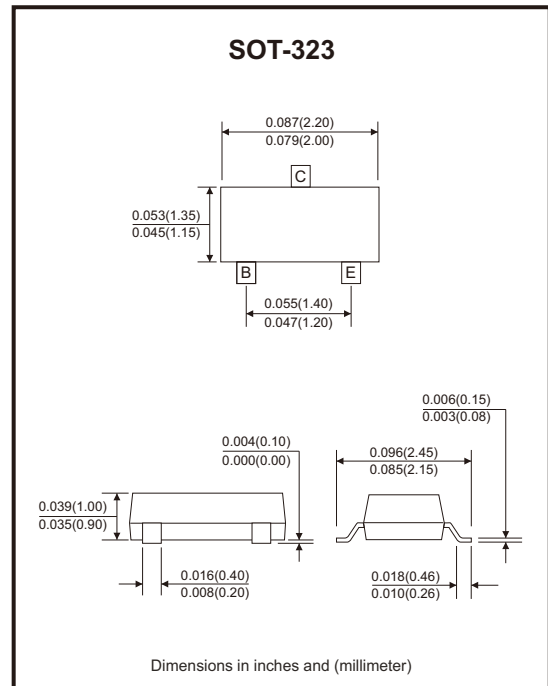
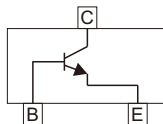
- Small outlines surface mount package.
- Low current leakage.
- For high-speed switching applications.

Mechanical data

- Case: SOT-323, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Mounting position: Any.

Circuit Diagram

B: Base
E: Emitter
C: Collector



Maximum Ratings (at $T_A=25^{\circ}\text{C}$ 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	200	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	625	$^{\circ}\text{C}/\text{W}$
Junction temperature	T_J	150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$, $I_E = 0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $I_B = 0$	45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1\mu\text{A}$, $I_C = 0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB} = 20\text{V}$, $I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{V}$, $I_C = 0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 1\text{V}$, $I_C = 100\text{mA}$	100		600	
	$h_{FE(2)}$	$V_{CE} = 1\text{V}$, $I_C = 500\text{mA}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}$, $I_B = 50\text{mA}$			1.2	V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE} = 1\text{V}$, $I_C = 500\text{mA}$			1.2	V
Transition frequency	f_T	$V_{CE} = 5\text{V}$, $I_C = 10\text{mA}$, $f = 100\text{MHz}$	100			MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $f = 10\text{MHz}$			10	pF

Classification of $h_{FE(1)}$

Rank	BC817-16W-P2-HF	BC817-25W-P2-HF	BC817-40W-P2-HF
Range	100-250	160-400	250-600

Typical Rating and Characteristic Curves (BC817-16W-P2-HF/25W-P2-HF/40W-P2-HF)

Fig.1 - Static Characteristic

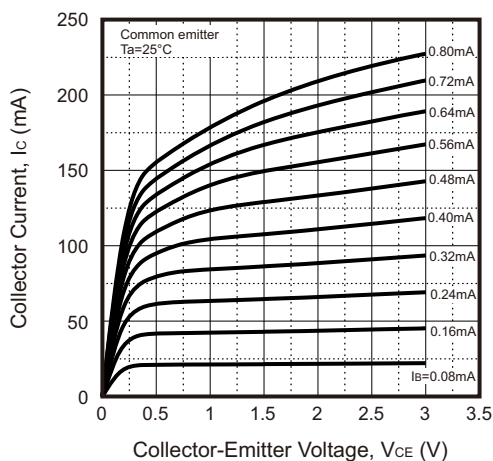
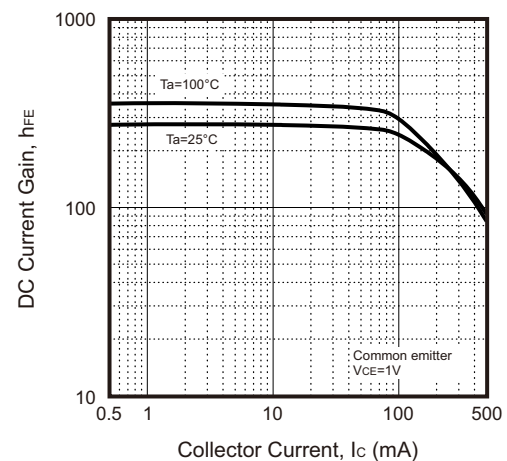


Fig.2 - $h_{FE} - I_C$



Typical Rating and Characteristic Curves (BC817-16W-P2-HF/25W-P2-HF/40W-P2-HF)

Fig.3 - V_{BEsat} — I_C

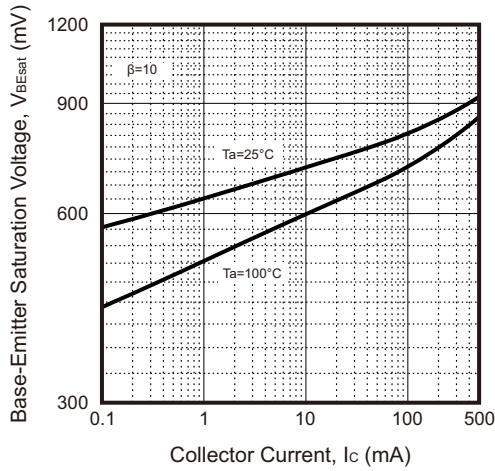


Fig.4 - V_{CEsat} — I_C

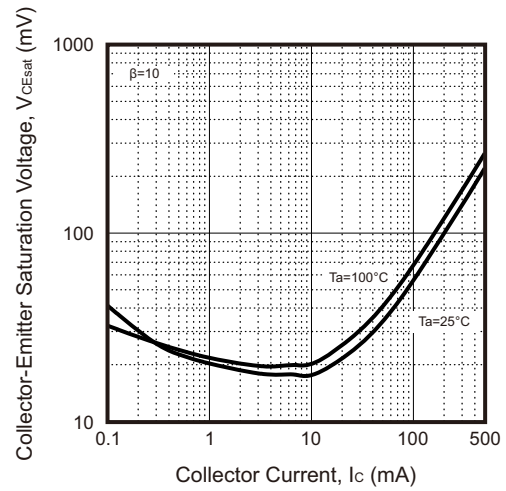


Fig.5 - I_C — V_{BE}

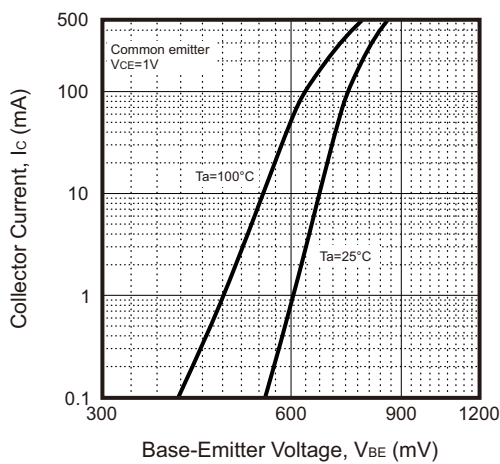


Fig.6 - f_T — I_C

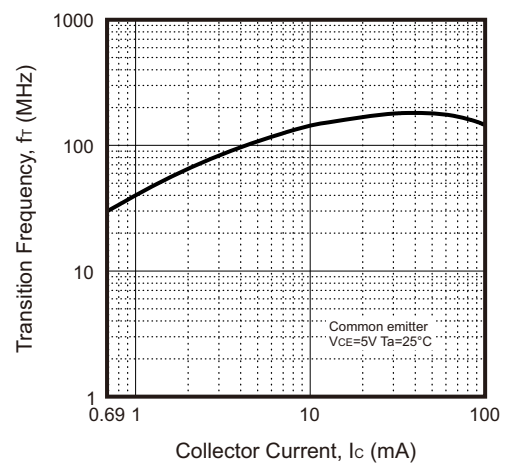


Fig.7 - C_{ob}/C_{ib} — V_{CB}/V_{EB}

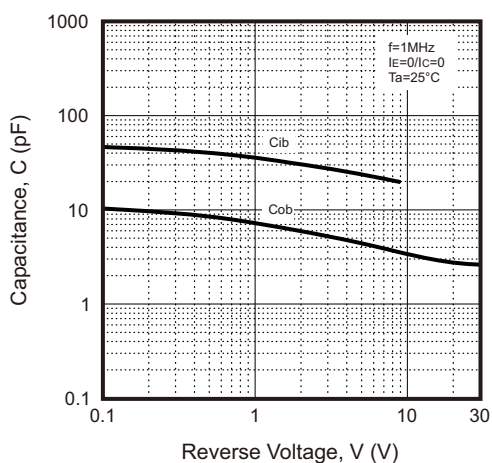
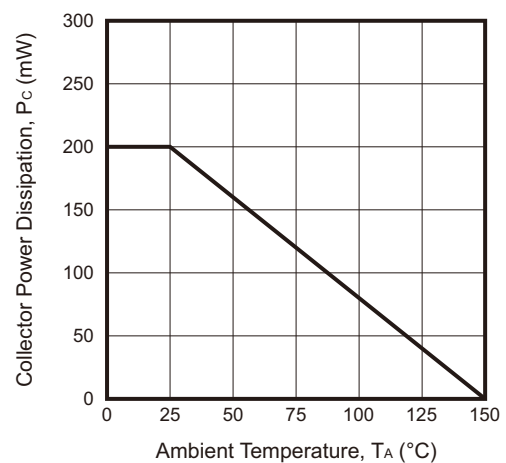
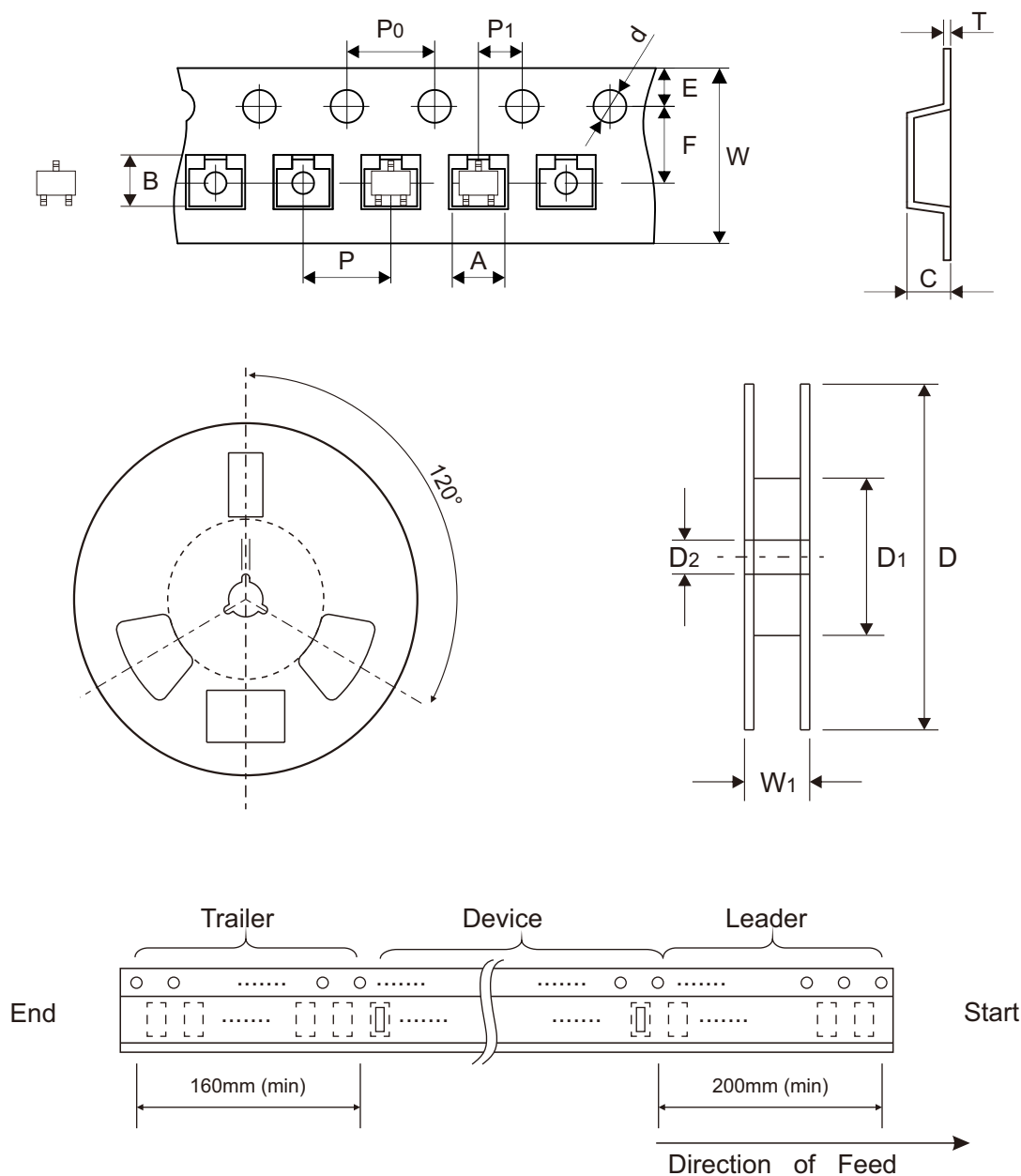


Fig.8 - P_C — T_A



Reel Taping Specification

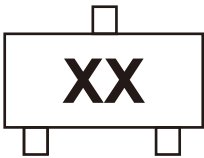


SOT-323	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	2.25 ± 0.10	2.55 ± 0.10	1.19 ± 0.10	$1.50 + 0.10 - 0.00$	178.00 ± 2.00	50.00 ± 0.50	13.00 ± 0.25
	(inch)	0.089 ± 0.004	0.100 ± 0.004	0.047 ± 0.004	$0.059 + 0.004 - 0.000$	7.008 ± 0.079	1.969 ± 0.020	0.512 ± 0.010

SOT-323	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.02	$8.00 + 0.30 - 0.10$	12.10 ± 1.50
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	$0.315 + 0.012 - 0.004$	0.476 ± 0.059

Marking Code

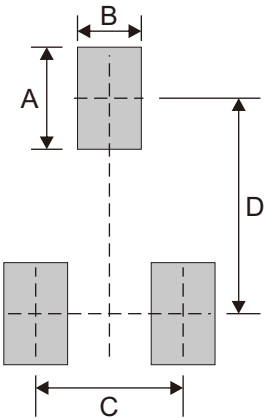
Part Number	Marking Code
BC817-16W-P2-HF	6A
BC817-25W-P2-HF	6B
BC817-40W-P2-HF	6C



xx = Product type marking code

Suggested P.C.B. PAD Layout

SIZE	SOT-323	
	(mm)	(inch)
A	0.80	0.031
B	0.50	0.020
C	1.30	0.051
D	2.20	0.087



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-323	3,000	7