

BC817

SOT-23 Plastic-Encapsulate Transistors

FEATURES

- For general AF applications
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BC807 (PNP)

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	45	V
V_{EBO}	Emitter-Base Voltage	5	V
I_{C}	Collector Current	500	mA
P_{C}	Collector Power Dissipation	300	mW
$R_{\theta\text{JA}}$	Thermal Resistance From Junction To Ambient	417	$^\circ\text{C}/\text{W}$
$T_{\text{J}}, T_{\text{stg}}$	Operation Junction and Storage Temperature Range	-55~+150	$^\circ\text{C}$

TRANSISTOR (NPN)



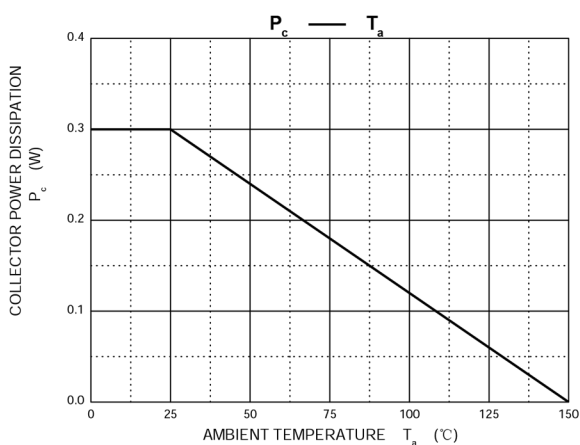
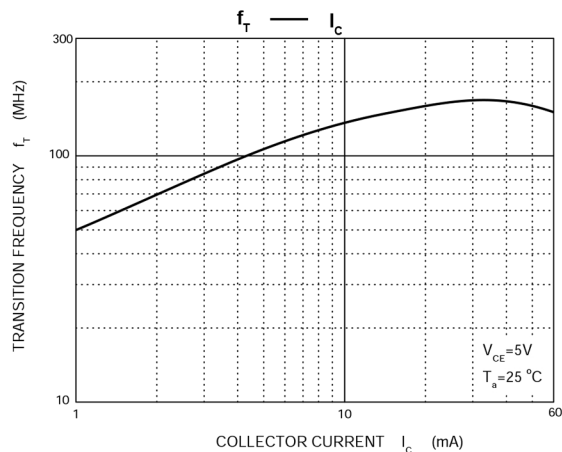
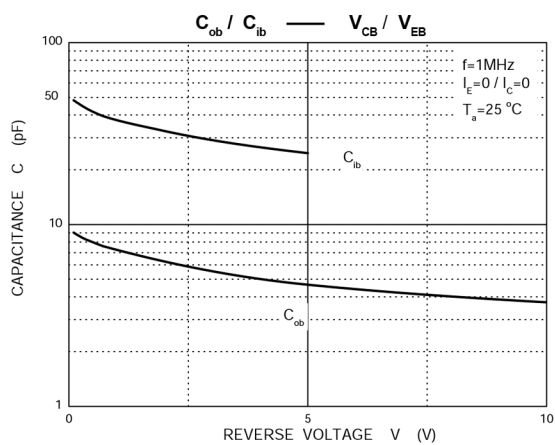
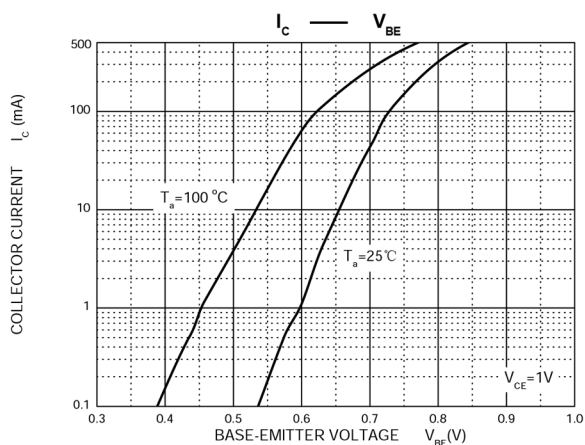
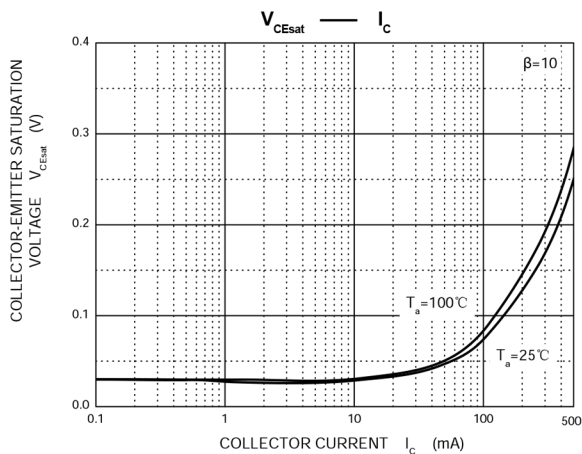
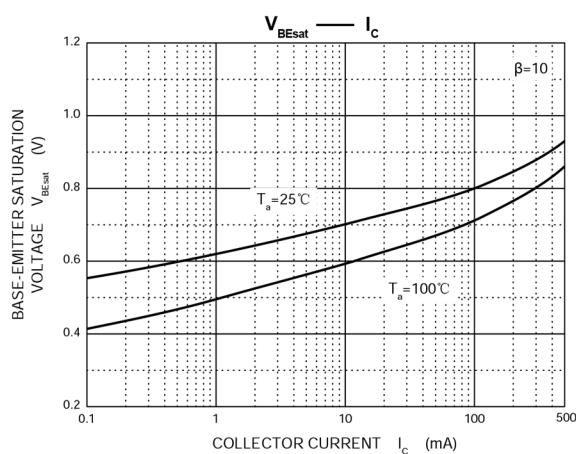
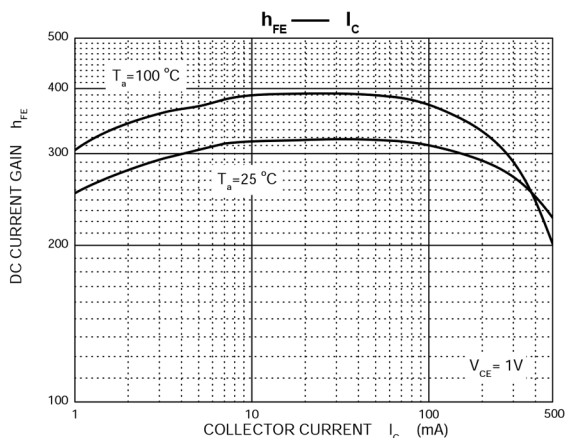
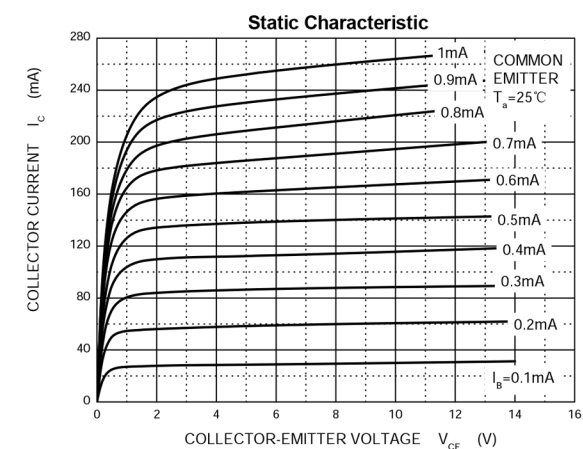
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CBO}	$I_{\text{C}} = 10\mu\text{A}, I_{\text{E}} = 0$	50			V
Collector-emitter breakdown voltage	V_{CEO}	$I_{\text{C}} = 10\text{mA}, I_{\text{B}} = 0$	45			V
Emitter-base breakdown voltage	V_{EBO}	$I_{\text{E}} = 1\mu\text{A}, I_{\text{C}} = 0$	5			V
Collector cut-off current	I_{CBO}	$V_{\text{CB}} = 45\text{V}, I_{\text{E}} = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{\text{EB}} = 4\text{V}, I_{\text{C}} = 0$			0.1	μA
DC current gain	$h_{\text{FE}(1)}$	$V_{\text{CE}} = 1\text{V}, I_{\text{C}} = 100\text{mA}$	100		600	
	$h_{\text{FE}(2)}$	$V_{\text{CE}} = 1\text{V}, I_{\text{C}} = 500\text{mA}$	40			
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = 500\text{mA}, I_{\text{B}} = 50\text{mA}$			0.7	V
Base-emitter saturation voltage	$V_{\text{BE(sat)}}$	$I_{\text{C}} = 500\text{mA}, I_{\text{B}} = 50\text{mA}$			1.2	V
Base-emitter voltage	V_{BE}	$V_{\text{CE}} = 1\text{V}, I_{\text{C}} = 500\text{mA}$			1.2	V
Collector capacitance	C_{ob}	$V_{\text{CB}} = 10\text{V}, f = 1\text{MHz}$		10		pF
Transition frequency	f_{T}	$V_{\text{CE}} = 5\text{V}, I_{\text{C}} = 10\text{mA}$ $f = 100\text{MHz}$	100			MHz

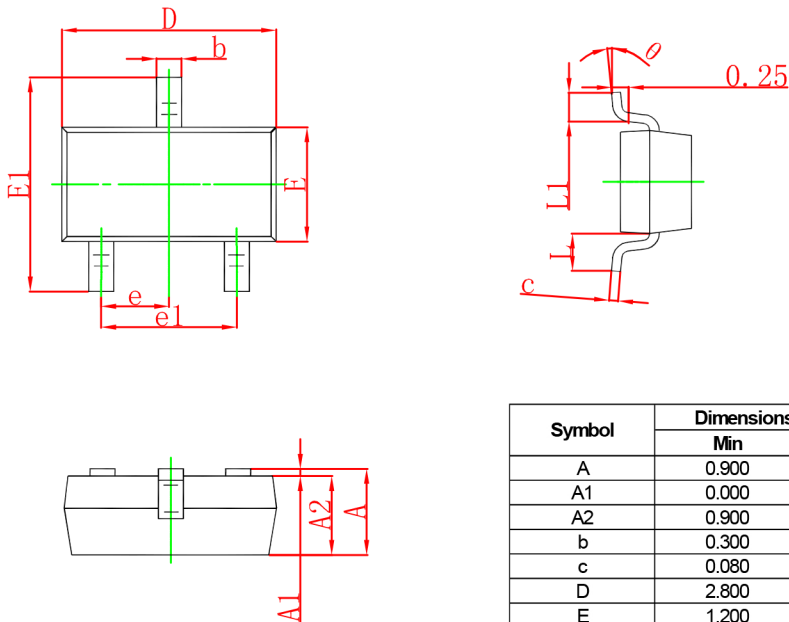
CLASSIFICATION OF $h_{\text{FE}(1)}$

Rank	BC817-16	BC817-25	BC817-40
Range	100-250	160-400	250-600
Marking	6A	6B	6C

Typical Characteristics

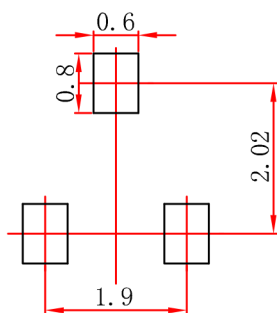


SOT-23 Package Outline Dimensions



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	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
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

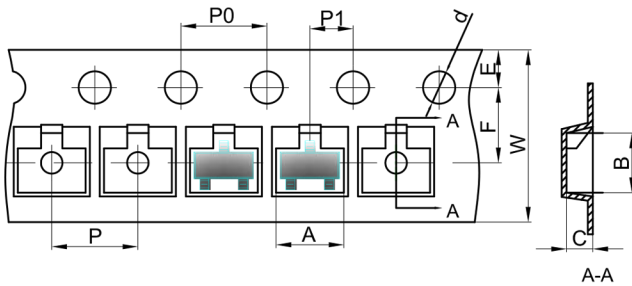


Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape



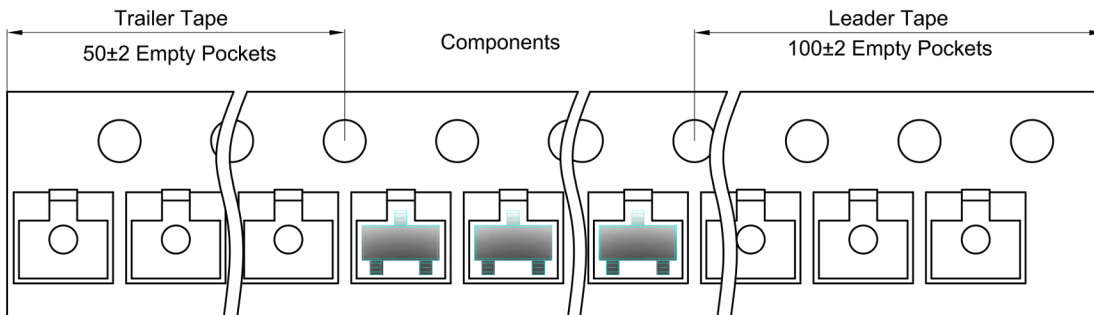
Packaging Description:

SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

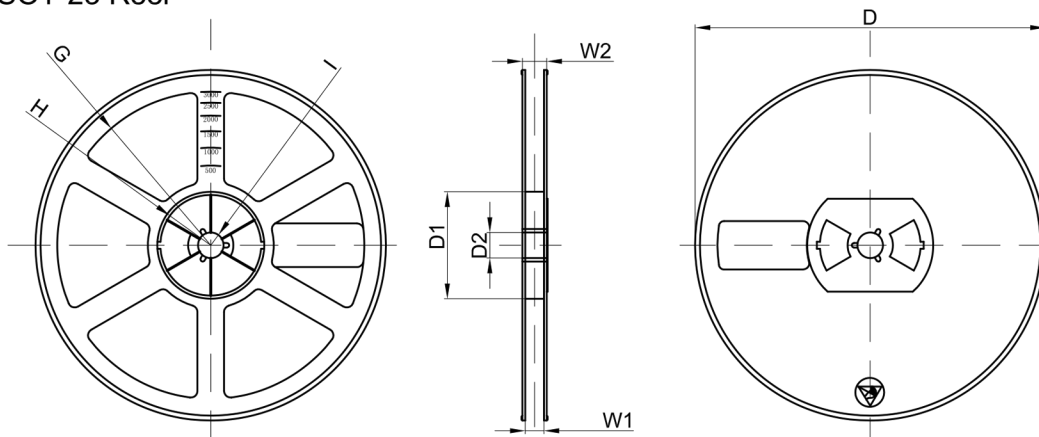
Dimensions are in millimeter

Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



SOT-23 Reel



Dimensions are in millimeter

Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	