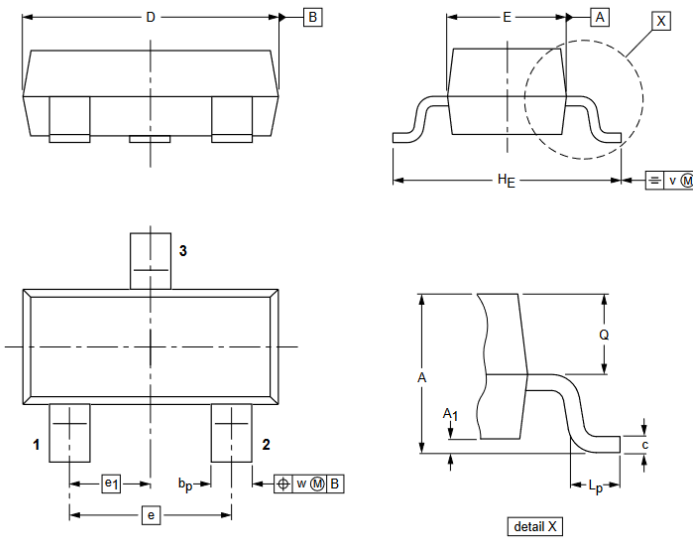
Silicon SMD NPN Epitaxial Transistors

Primary characteristics			
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
P_C	Collector power dissipation	300	mW

Features

- **SOT-23** case for easy automatic insertion.
- Pb-free and **RoHS** compliant
- Epitaxial planar die construction
- Complementary **PNP** type available (**BC807**)

Case dimensions



1 – Base; 2 – Emitter; 3 - Collector

SOT-23 (TO-236AB)

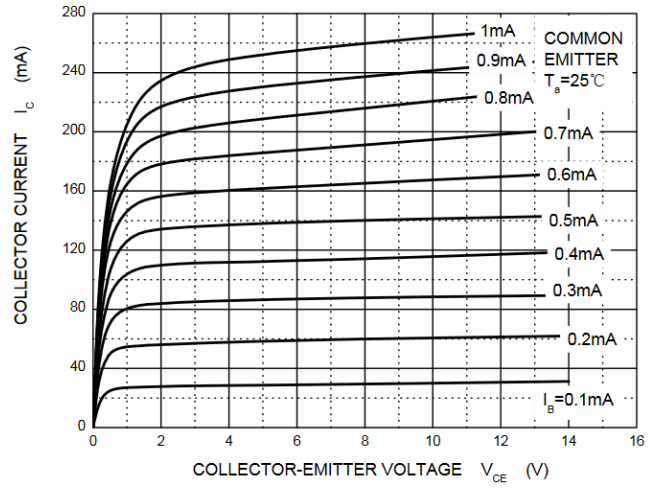
Unit	A	A_1max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.0 ±0.1	0.1	0.43 ±0.05	0.12 ±0.03	2.9 ±0.1	1.3 ±0.1	1.9	0.95	2.3 ±0.2	0.3 ±0.15	0.5 ±0.05	0.2	0.1

Part numbering system	
BC817-	**25**
↓	↓
Series code	H_{FE} classification (see: Classification of $h_{FE(1)}$)

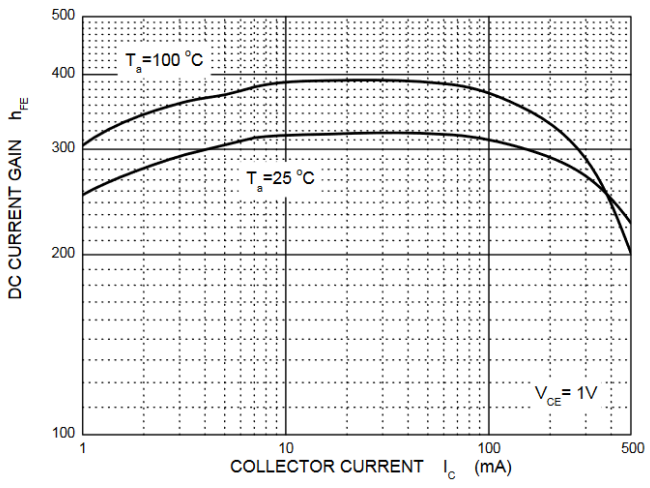
Electrical characteristics and maximum ratings (T_a = 25°C)					
Parameter	**Symbol**	**Test conditions**	**Value**		**Unit**
			Min	**Max**	
Collector-base voltage	V_{CBO}	I_C= 10μA, I_E=0	50		V
Collector-emitter voltage	V_{CEO}	I_C= 10μA, I_B=0	45		V
Emitter-base voltage	V_{EBO}	I_E= 1μA, I_C=0	5		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
Collector current	I_C			500	mA
Collector power dissipation	P_C			300	mW
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
Transition frequency	f_T	V_{CE}=5V, I_C=10mA f=100MHz	100		MHz
Junction temperature	T_j			150	°C
Storage temperature range	T_s		-55	150	°C
Thermal resistance junction to ambient air[1)]	R_{thA}			417	°C/W

Classification of $h_{FE(1)}$		
Part number	**Range**	
	Min	**Max**
BC807-16	100	250
BC807-25	160	400
BC807-40	250	600

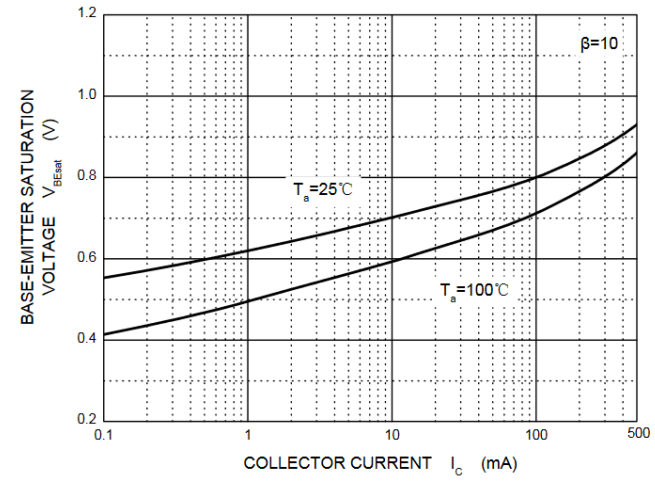
Static characteristic



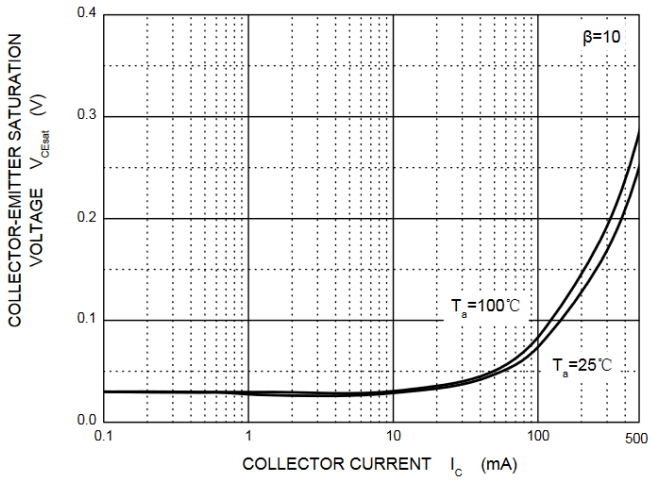
H_{FE} - I_C



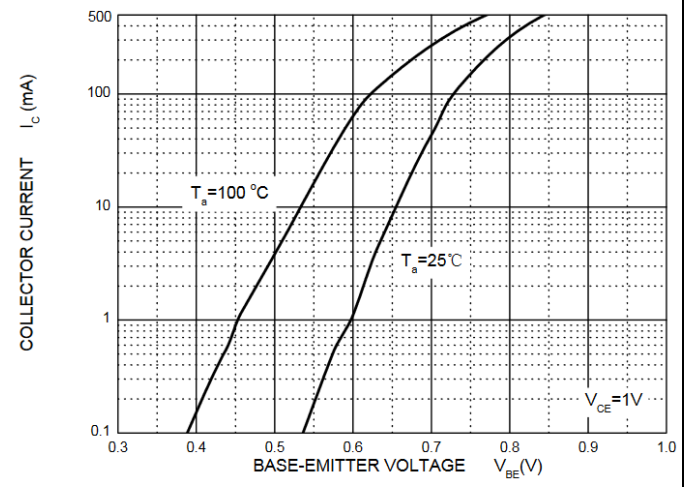
$V_{BE(sat)}$ - I_C



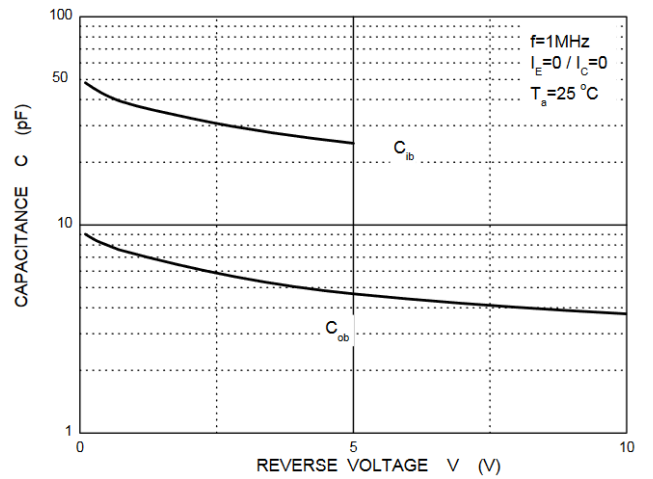
$V_{CE(sat)}$ - I_C



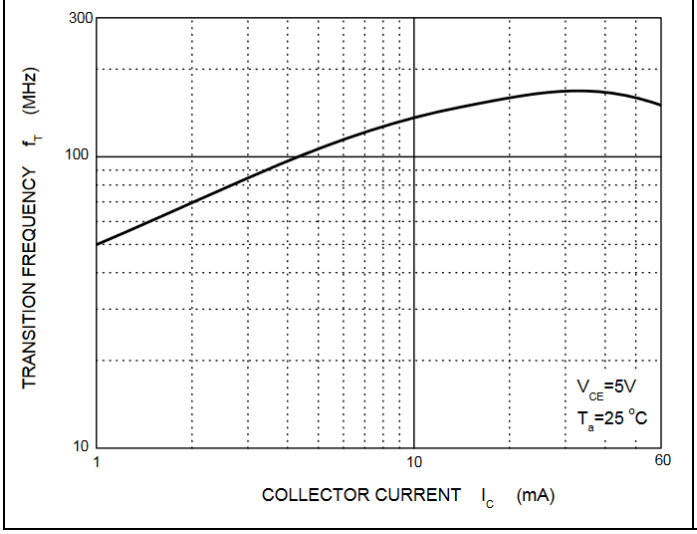
I_C - V_{BE}



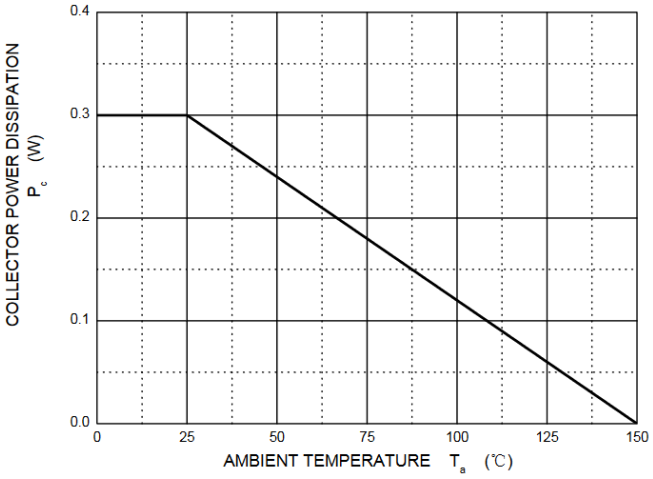
C_{ob} / C_{ib} - V_{CB} / V_{EB}



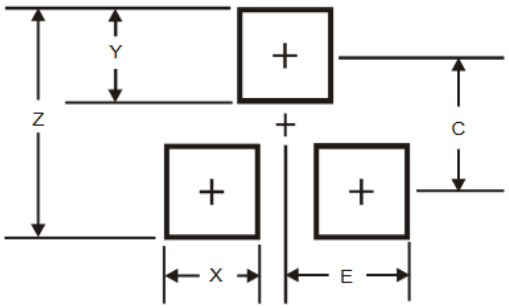
f_T - I_C



P_C - T_a



Suggested soldering pad layout



SOT-23 (TO-236AB)

Pad dimensions

Unit	Z	X	Y	C	E
mm	2.9	0.8	0.9	2.0	1.35

Ordering information

Part Number	Package	Shipping Quantity	Dimensions
BC817-16 ~ BC817-40	SOT-23 (TO-236AB)	**3000 pcs / reel** **144 000 pcs / box**	--- 400 x 370 x 270 mm

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