BC817 TRANSISTOR (NPN)

1.BASE
2.COLLECTOR
3.EMITTER

SOT-23-3

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℃ unless otherwise noted)

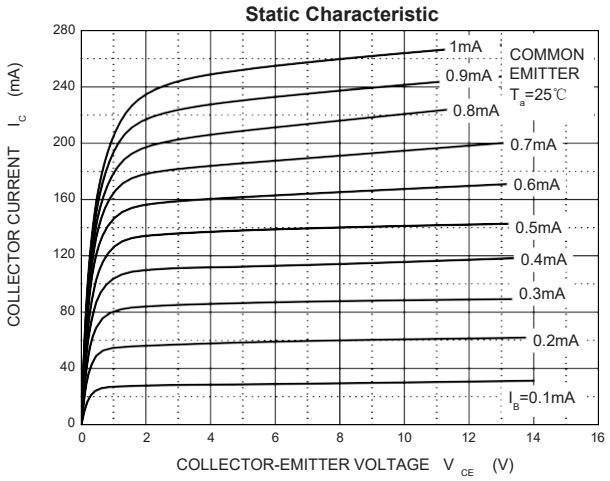
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	45	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	500	mA
P_C	Collector Power Dissipation	300	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	417	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150	℃

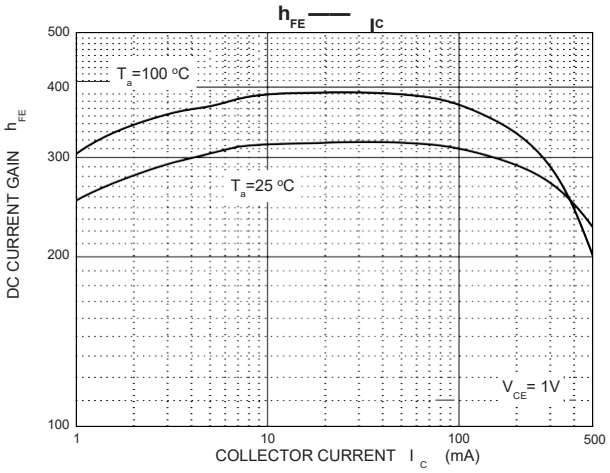
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

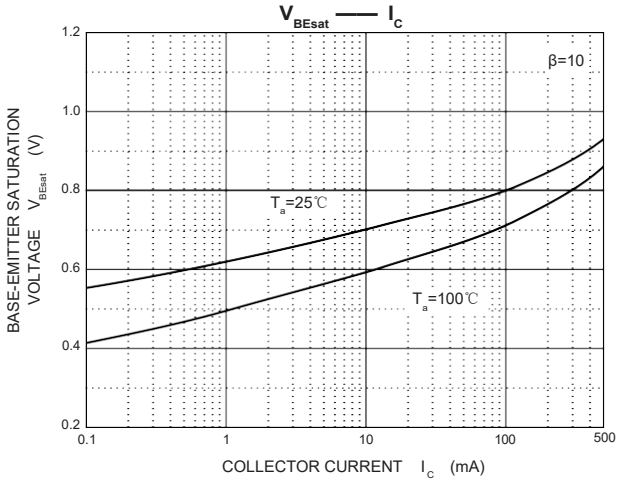
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CBO}	I_C= 10μA, I_E=0	50			V
Collector-emitter breakdown voltage	V_{CEO}	I_C= 10mA, I_B=0	45			V
Emitter-base breakdown voltage	V_{EBO}	I_E= 1μA, I_C=0	5			V
Collector cut-off current	I_{CBO}	V_{CB}= 45 V , I_E=0			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}	V_{CE}= 1 V, I_C= 500mA			1.2	V
Collecter capactiance	C_{ob}	V_{CB}=10V ,f=1MHz		10		pF
Transition frequency	f_T	V_{CE}= 5 V, I_C= 10mA f=100MHz	100			MHz

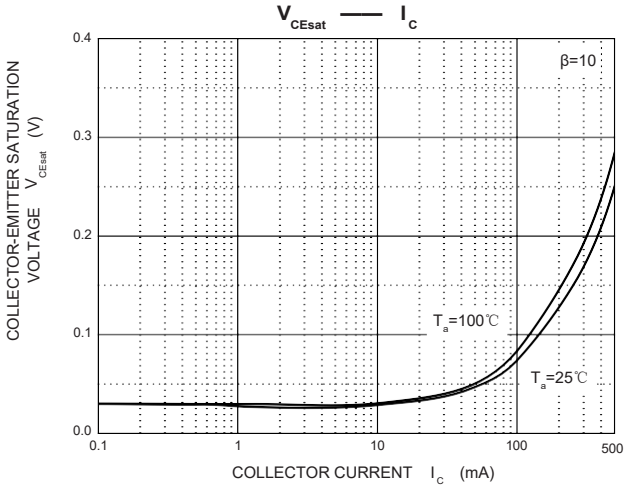
CLASSIFICATION OF $h_{FE\ (1)}$

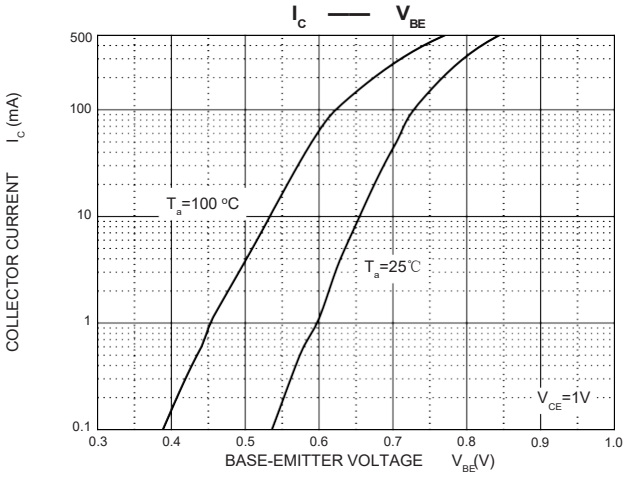
Rank	BC817-16	BC817-25	BC817-40
Range	100-250	160-400	250-600
Marking	6A	6B	6C

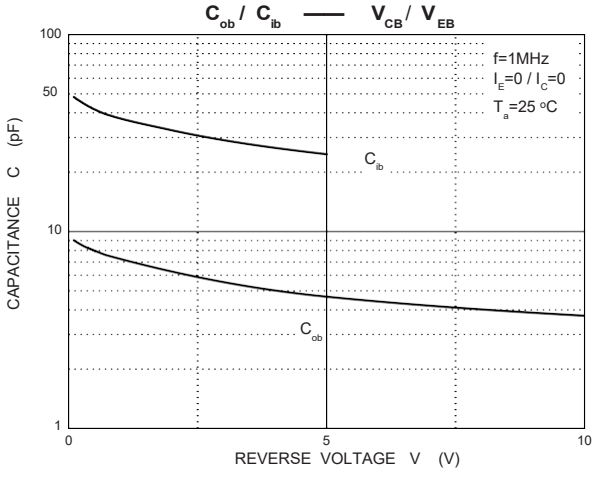

Static Characteristic
COLLECTOR CURRENT I_C (mA)
COLLECTOR-EMITTER VOLTAGE V_CE (V)
COMMON EMITTER
T_a=25℃
1mA
0.9mA
0.8mA
0.7mA
0.6mA
0.5mA
0.4mA
0.3mA
0.2mA
I_B=0.1mA

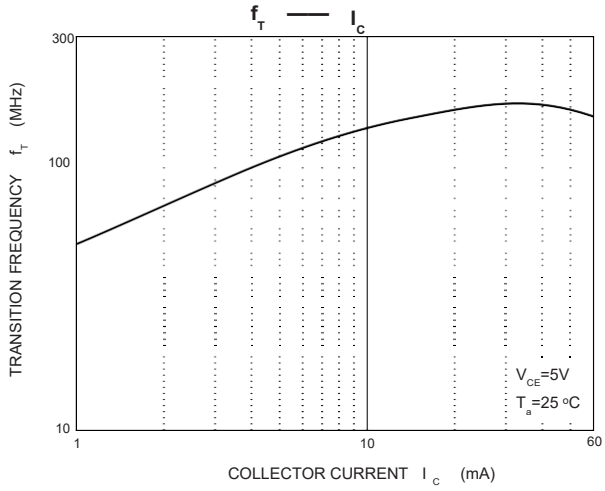

h_FE — I_C
DC CURRENT GAIN h_FE
COLLECTOR CURRENT I_C (mA)
T_a=100 °C
T_a=25 °C
V_CE= 1V

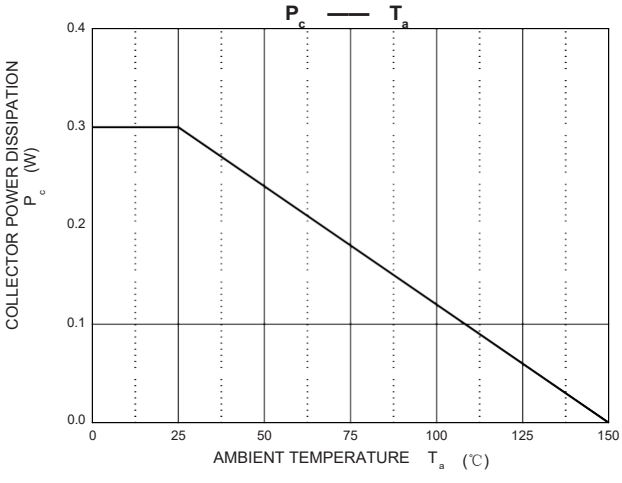

V_BEsat — I_C
BASE-EMITTER SATURATION VOLTAGE V_BEsat (V)
COLLECTOR CURRENT I_C (mA)
β=10
T_a=25℃
T_a=100℃


V_CEsat — I_C
COLLECTOR-EMITTER SATURATION VOLTAGE V_CEsat (V)
COLLECTOR CURRENT I_C (mA)
β=10
T_a=100℃
T_a=25℃


I_C — V_BE
COLLECTOR CURRENT I_C (mA)
BASE-EMITTER VOLTAGE V_BE(V)
T_a=100 °C
T_a=25℃
V_CE=1V


C_ob / C_ib — V_CB / V_EB
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)
f=1MHz
I_E=0 / I_C=0
T_a=25 °C
C_ib
C_ob


f_T — I_C
TRANSITION FREQUENCY f_T (MHz)
COLLECTOR CURRENT I_C (mA)
V_CE=5V
T_a=25 °C


P_C — T_a
COLLECTOR POWER DISSIPATION P_C (W)
AMBIENT TEMPERATURE T_a (℃)