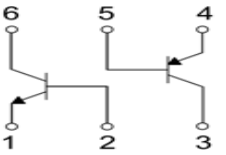
Plastic-Encapsulate Transistors

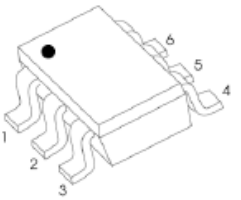
DUAL TRANSISTOR (NPN+PNP)



FEATURES

- Epitaxial Die Construction
- Two isolated NPN/PNP(BC817W+BC807W) Transistors in one package

MAKING: 56B



SOT23-6L

MAXIMUM RATINGS TR1 (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 -Continuous	0.5	A
P_C	Collector Dissipation	0.2	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	625	℃/W
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55~+150	℃

CHARACTERISTICS of TR1 (NPN Transistor) (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test 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}=20V,I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5V,I_C=0			0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=1V,I_C=100mA	160		400	
	$h_{FE(2)}$	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
Transition frequency	f_T	V_{CE}=5V,I_C=10mA,f=100MHz	100			MHz
Collector output capacitance	C_{ob}	V_{CB}=10V,f=1MHz			5	pF

MAXIMUM RATINGS TR2 (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	200	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	417	℃/W
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55 ~ +150	℃

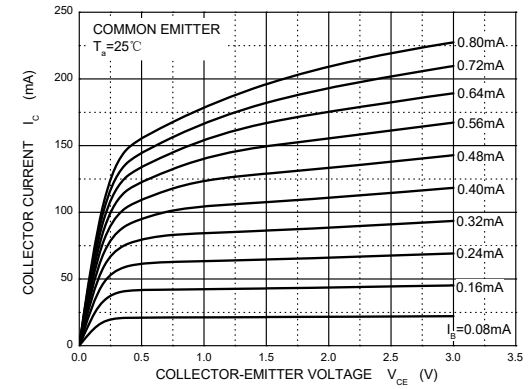
CHARACTERISTICS of TR2 (PNP Transistor) (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	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}=-20 V , I_E=0		-0.1	μA
Collector cut-off current	I_{CEO}	V_{CE}=-20 V , I_B=0		-0.2	μA
Emitter cut-off current	I_{EBO}	V_{EB}=-5 V , I_C=0		-0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=-1V,I_C= -100mA	160	400	
	$h_{FE(2)}$	V_{CE}=-1V,I_C= -500mA	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-500mA,I_B=-50 mA		-0.7	V
Base-emitter voltage	$V_{BE(on)}$	V_{CE}= -1V,I_C= -500mA		-1.2	V
Transition frequency	f_T	V_{CE}=-5 V, I_C= -10mA f=100MHz	80		MHz
Collector output capacitance	C_{ob}	V_{CB}=-10V,f=1MHz		10	pF

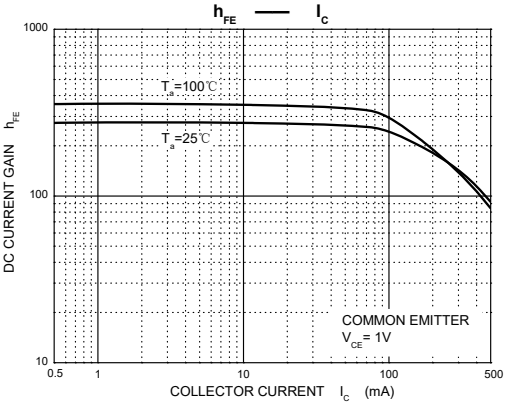
Typical Characteristics

BC817DPN/TR1

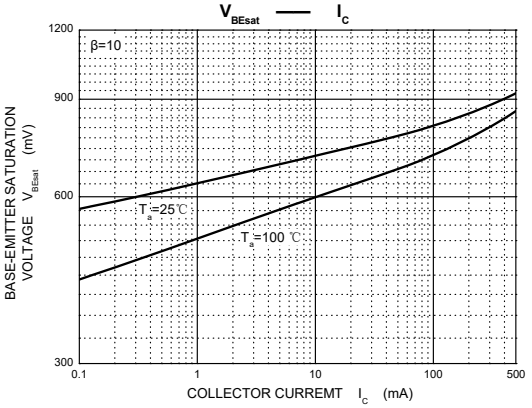
Static Characteristic



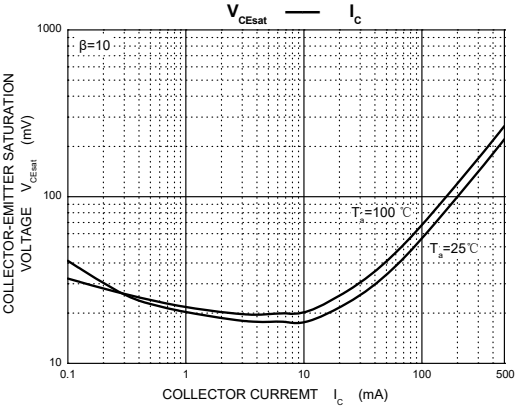
hFE — IC



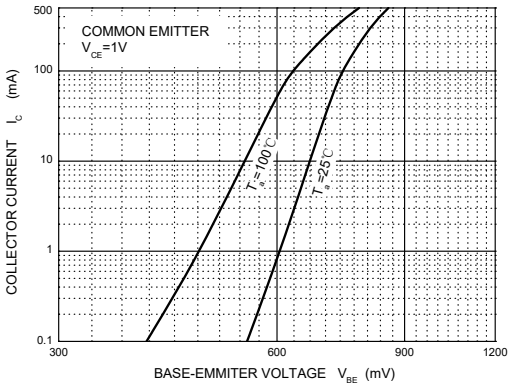
VBEsat — IC



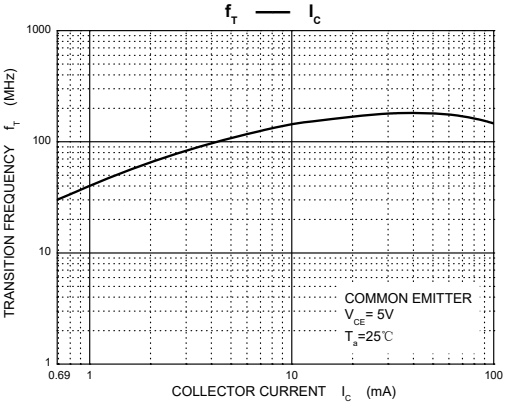
VCEsat — IC



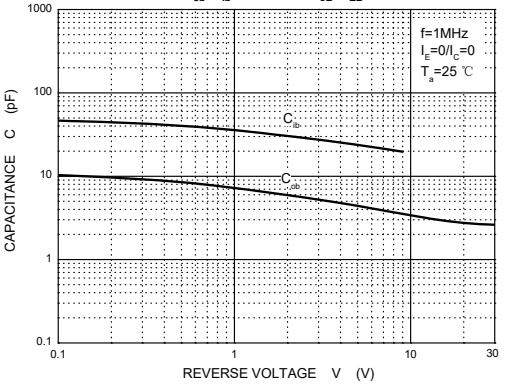
IC — VBE



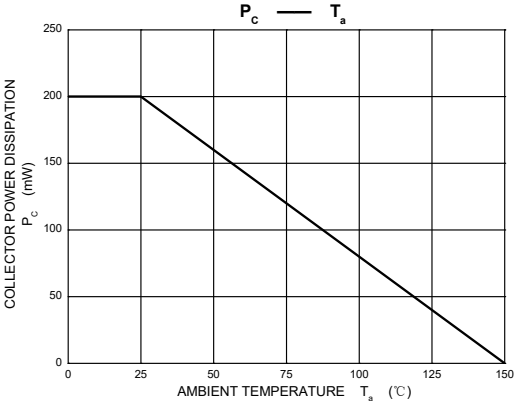
fT — IC



Cob/Cib — VCB/VEB



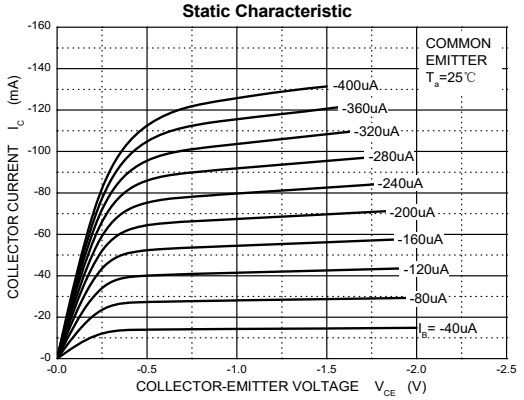
PC — Ta



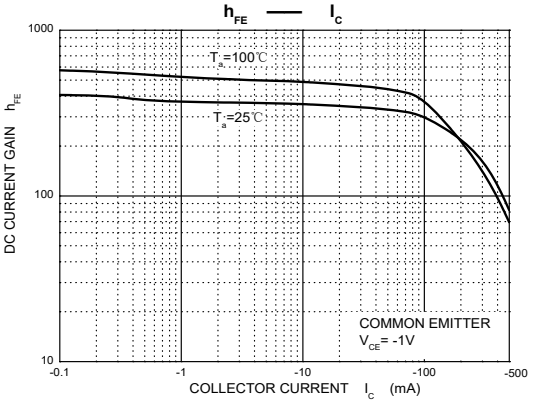
Typical Characteristics

BC807DPN/TR2

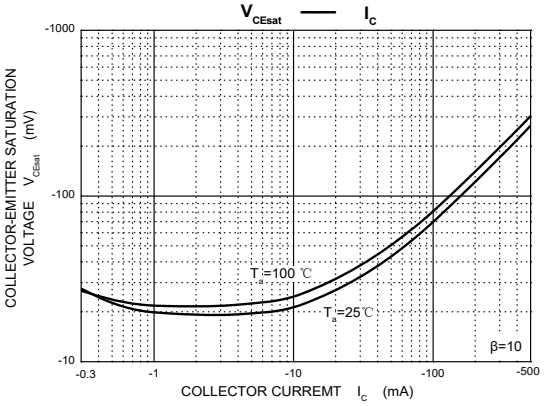
Static Characteristic



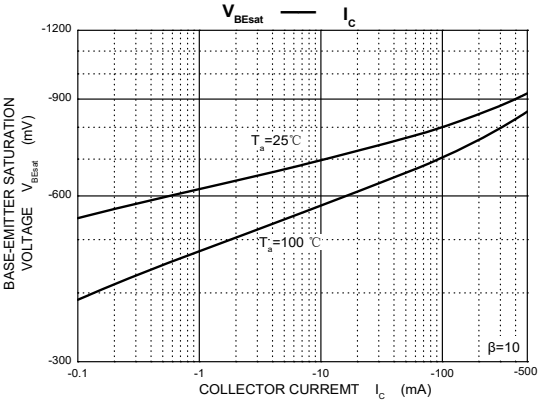
hFE — IC



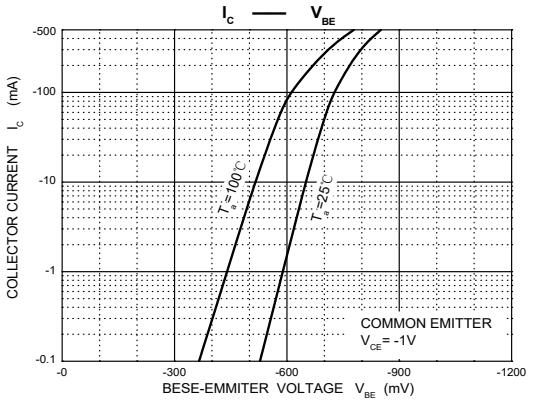
VCEsat — IC



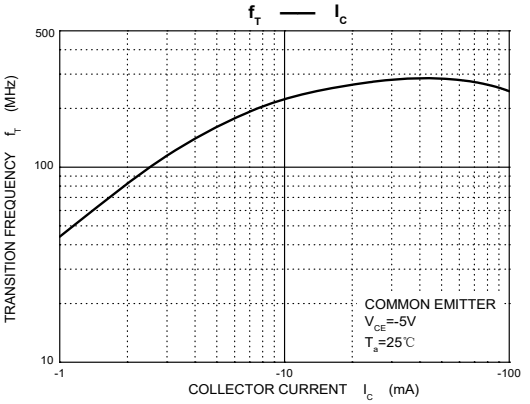
VBEsat — IC



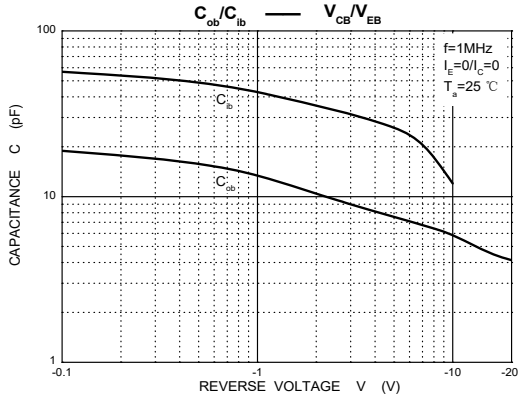
IC — VBE



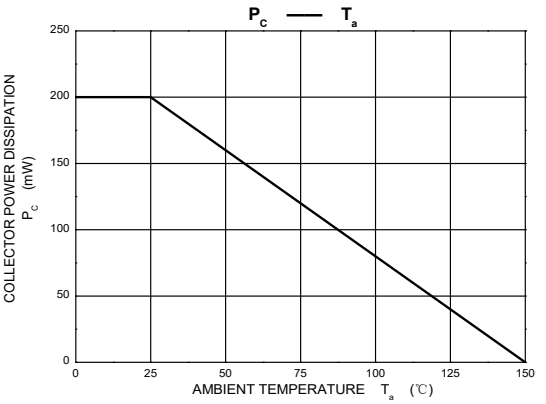
fT — IC



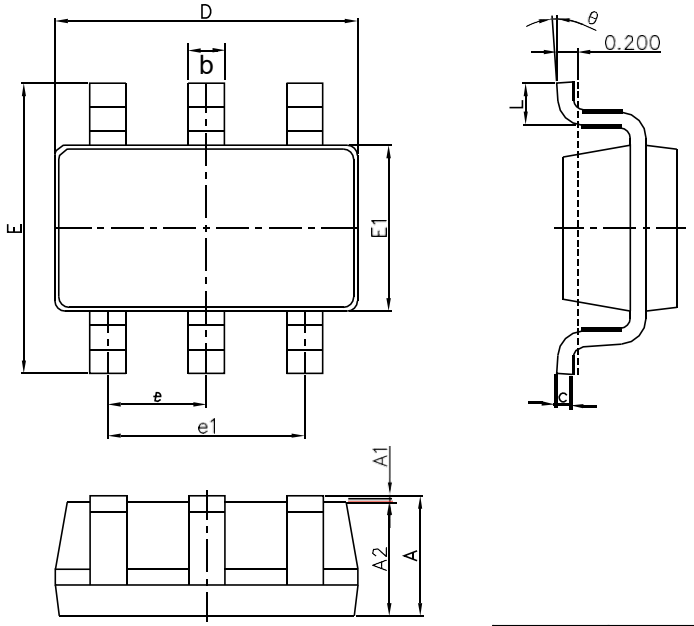
Cob/Cib — VCB/VEB



PC — Ta

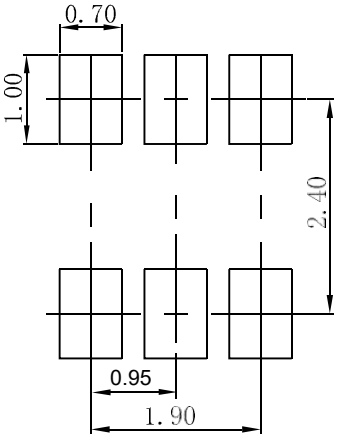


SOT-23-6L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

SOT-23-6L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.