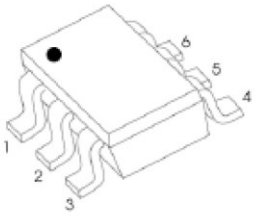
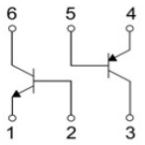
BC847PN

Plastic-Encapsulate Transistors

BC847PN Dual Transistor(NPN+PNP)

SOT-363





Application

- Two isolated NPN/PNP Transistors in one package

Marking: 7P

MAXIMUM RATINGS (NPN ,T_A=25℃ 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}	6	V
Collector Current -Continuous	I_C	0.1	A
Collector Power Dissipation	P_C	0.2	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

ELECTRICAL CHARACTERISTICS(NPN ,T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	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=1mA , I_B=0	45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA,I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}=30V, I_E=0V			15	nA
Emitter cut-off current	I_{EBO}	V_{EB}=5V, I_C=0V			15	nA
DC current gain	h_{FE}	V_{CE}=5V, I_C=2mA	200		450	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=10mA, I_B= 0.5mA			0.25	V
		I_C=100mA, I_B= 5mA			0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=10mA, I_B= 0.5mA		0.7		V
		I_C=100mA, I_B= 5mA		0.9		V
Base-emitter voltage	$V_{BE(on)}$	V_{CE}=5V, I_C=2mA	0.58		0.7	V
		V_{CE}=5V, I_C=10mA			0.72	V
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0,f=1MHz			6	pF
Transition frequency	f_T	V_{CE}= 5V, I_C=10mA,f =30MHz	100			MHZ
Noise figure	NF	V_{CE}=5V,I_C=0.2mA, f=1kHz,Rg=2KΩ,Δf=200Hz			10	dB

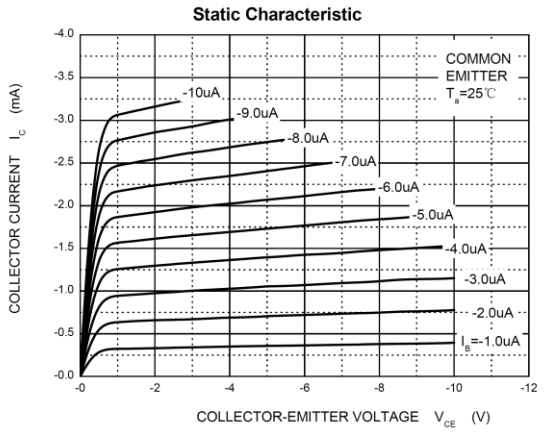
MAXIMUM RATINGS (PNP ,T_A=25℃ unless otherwise noted)

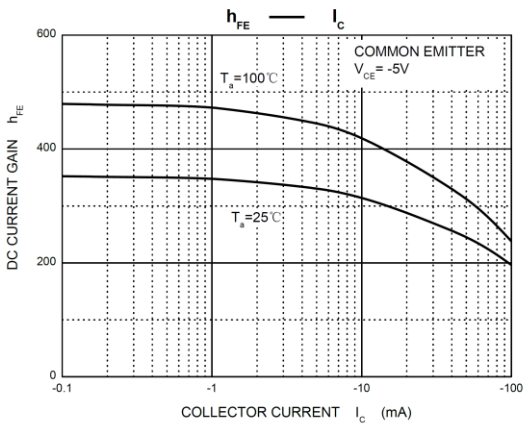
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-45	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current -Continuous	I_C	0.1	A
Collector Power Dissipation	P_C	0.2	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

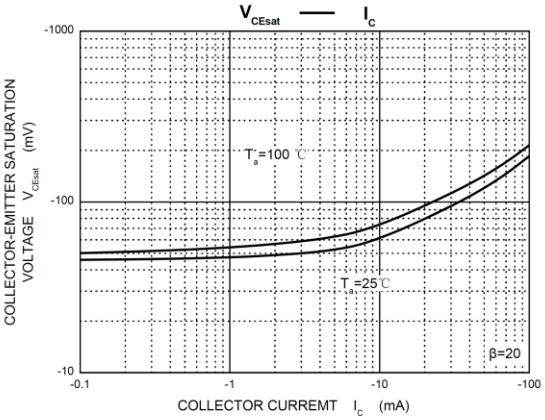
ELECTRICAL CHARACTERISTICS(PNP ,T_A=25℃ unless otherwise noted)

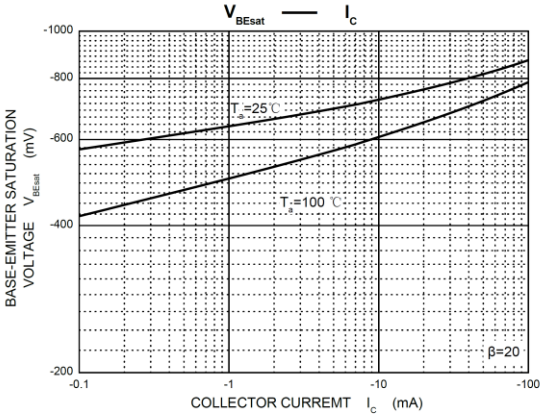
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-10μA ,I_E=0	-50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=-1mA , I_B=0	-45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-10μA,I_C=0	-5			V
Collector cut-off current	I_{CBO}	V_{CB}=-30V, I_E=0V			-15	nA
Emitter cut-off current	I_{EBO}	V_{EB}=-5V, I_C=0V			-15	nA
DC current gain	h_{FE}	V_{CE}=-5V, I_C=-2mA	220		475	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-10mA, I_B= -0.5mA			-0.3	V
		I_C=-100mA, I_B= -5mA			-0.65	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=-10mA, I_B= -0.5mA		-0.7		V
		I_C=-100mA, I_B= -5mA			-0.95	V
Base-emitter voltage	$V_{BE(on)}$	V_{CE}=-5V, I_C=-2mA	-0.6		-0.75	V
		V_{CE}=-5V, I_C=-10mA			-0.82	V
Collector output capacitance	C_{ob}	V_{CB}=-10V,I_E=0,f=1MHz			4.5	pF
Transition frequency	f_T	V_{CE}= -5V, I_C=-10mA,f =100MHz	100			MHZ
Noise figure	NF	V_{CE}=-5V,I_C=-0.2mA, f=1kHz,Rg=2KΩ,Δf=200Hz			10	dB

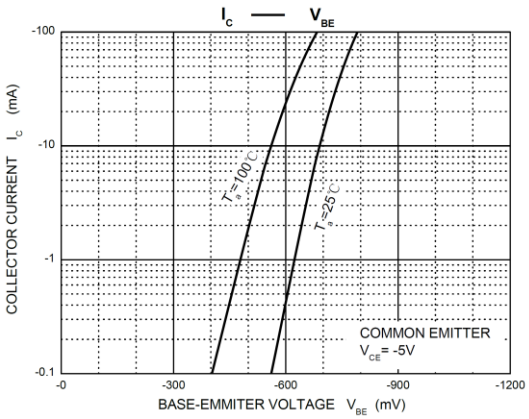
Typical Characteristics (NPN)

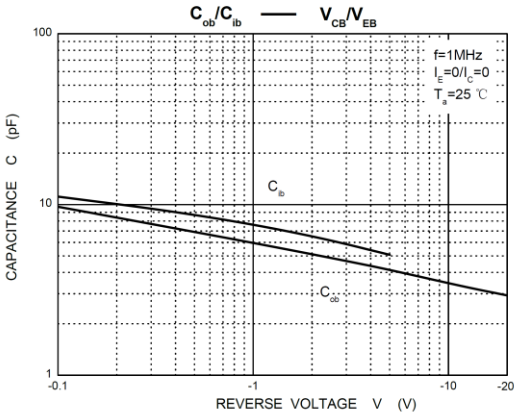


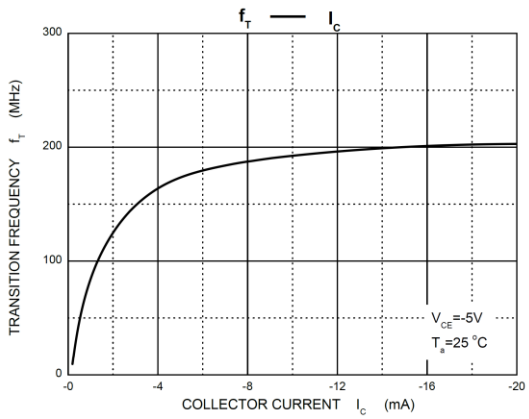


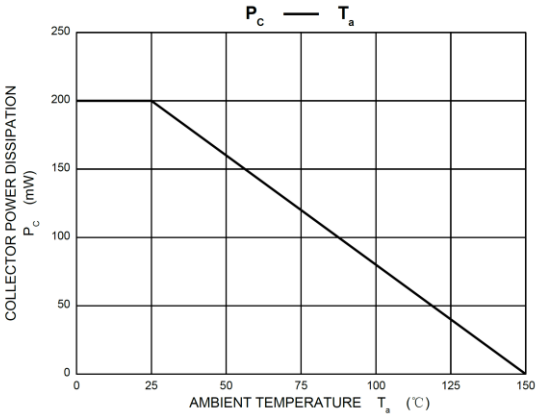






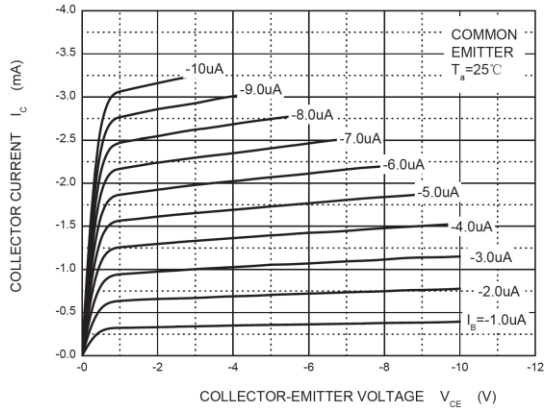




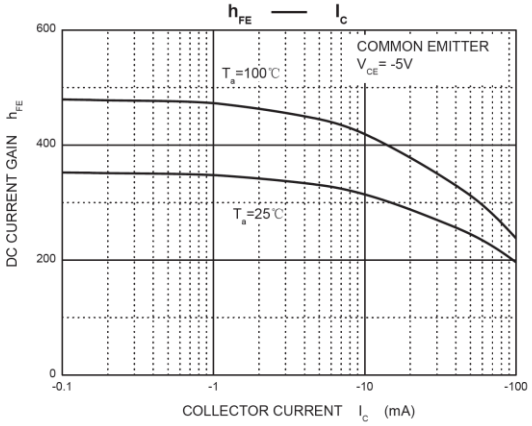


Typical Characteristics (PNP)

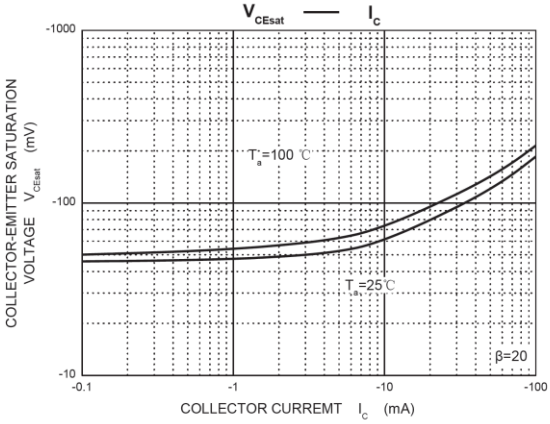
Static Characteristic



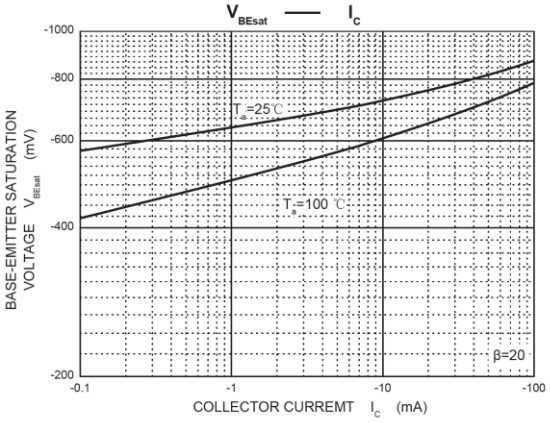
hFE — IC



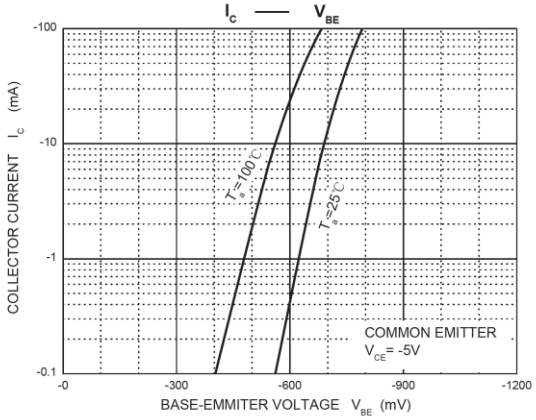
VCEsat — IC



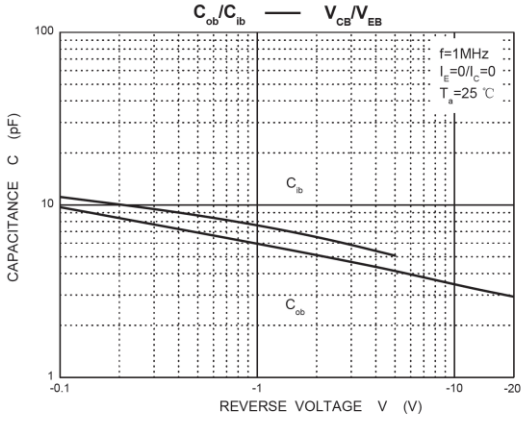
VBEsat — IC



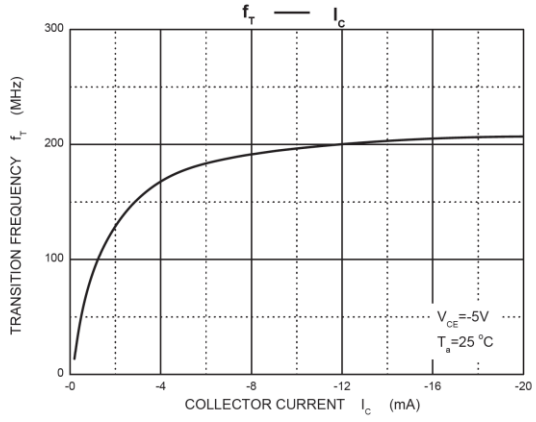
IC — VBE



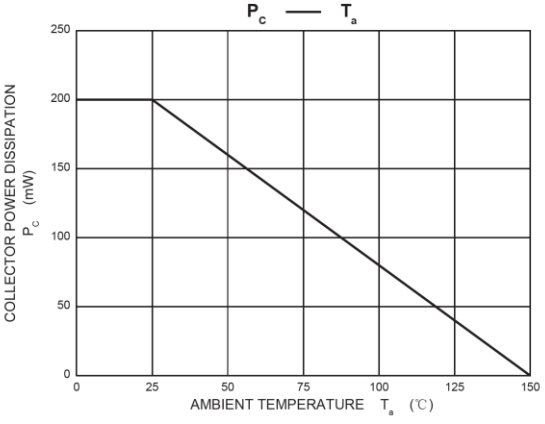
Cob/Cib — VCB/VEB



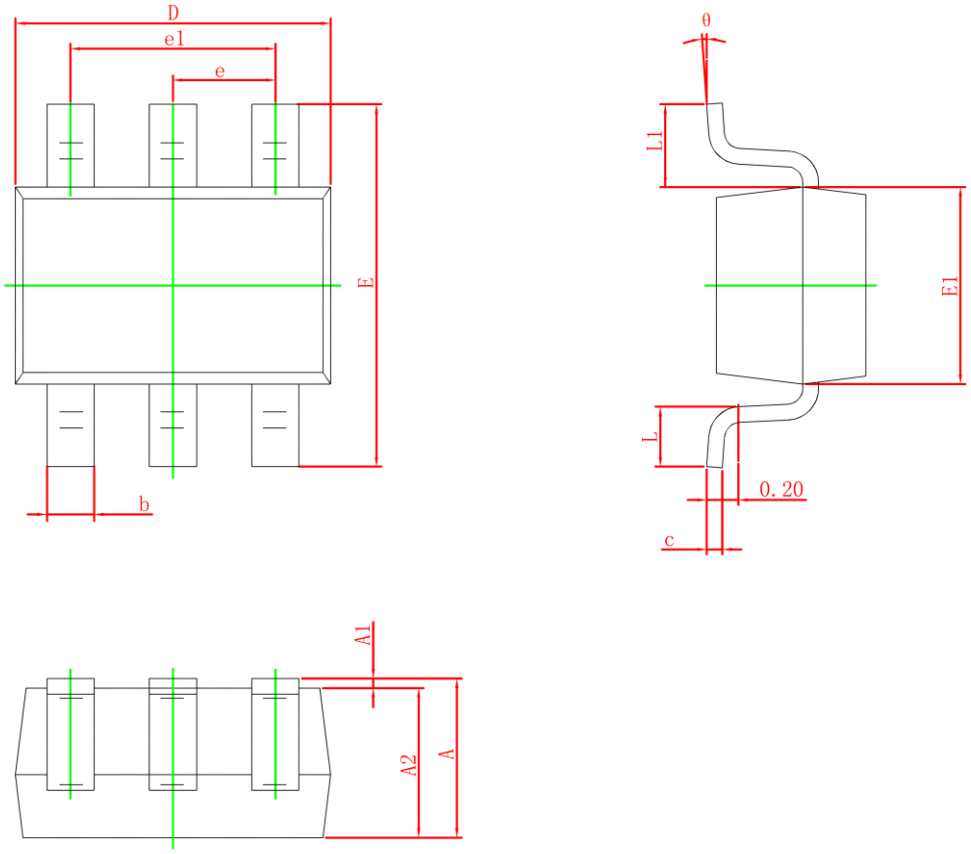
fT — IC



PC — Ta



SOT-363 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A1	0	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	1.800	2.200	0.071	0.087
E	2.000	2.450	0.079	0.096
E1	1.150	1.350	0.045	0.053
e	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L1	0.525REF		0.021REF	
L	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°