



BC847PN Dual Transistor(NPN+PNP)

Application

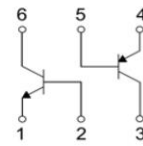
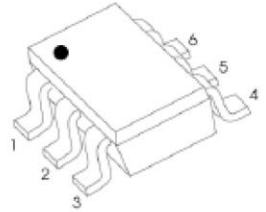
- Two isolated NPN/PNP Transistors in one package

Marking: 7P

MAXIMUM RATINGS (NPN , $T_a=25^{\circ}\text{C}$ 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	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}\text{C}$

SOT-363



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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}$, $I_E=0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$, $I_B=0$	45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}$, $I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=30\text{V}$, $I_E=0\text{V}$			15	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=5\text{V}$, $I_C=0\text{V}$			15	nA
DC current gain	h_{FE}	$V_{CE}=5\text{V}$, $I_C=2\text{mA}$	200		450	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10\text{mA}$, $I_B=0.5\text{mA}$			0.25	V
		$I_C=100\text{mA}$, $I_B=5\text{mA}$			0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10\text{mA}$, $I_B=0.5\text{mA}$		0.7		V
		$I_C=100\text{mA}$, $I_B=5\text{mA}$		0.9		V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE}=5\text{V}$, $I_C=2\text{mA}$	0.58		0.7	V
		$V_{CE}=5\text{V}$, $I_C=10\text{mA}$			0.72	V
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$			6	pF
Transition frequency	f_T	$V_{CE}=5\text{V}$, $I_C=10\text{mA}$, $f=30\text{MHz}$	100			MHZ
Noise figure	NF	$V_{CE}=5\text{V}$, $I_C=0.2\text{mA}$, $f=1\text{kHz}$, $R_g=2\text{K}\Omega$, $\Delta f=200\text{Hz}$			10	dB

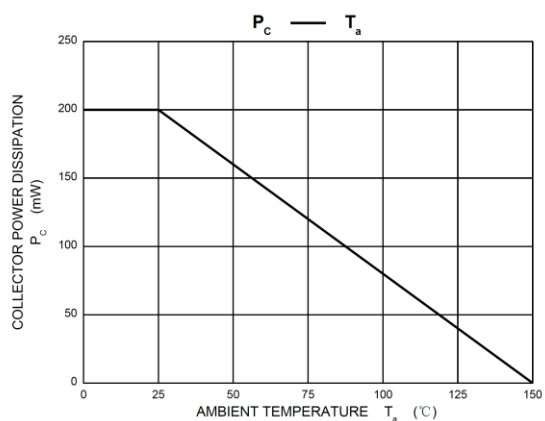
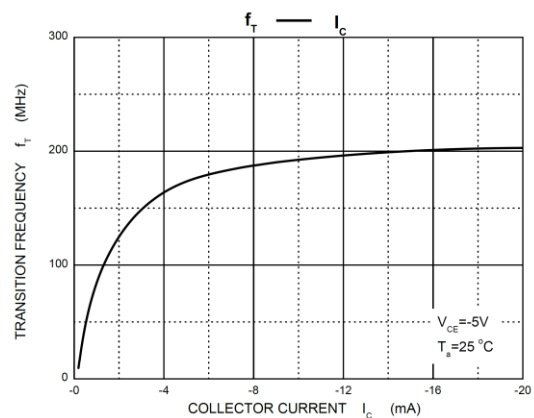
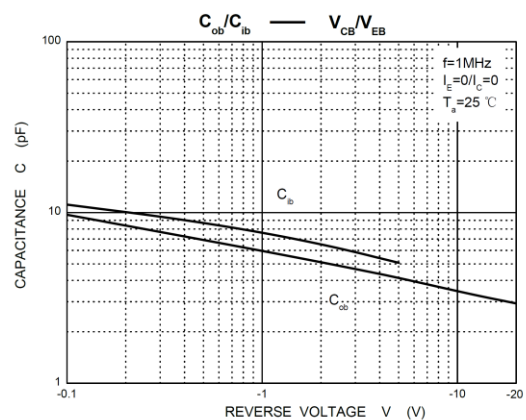
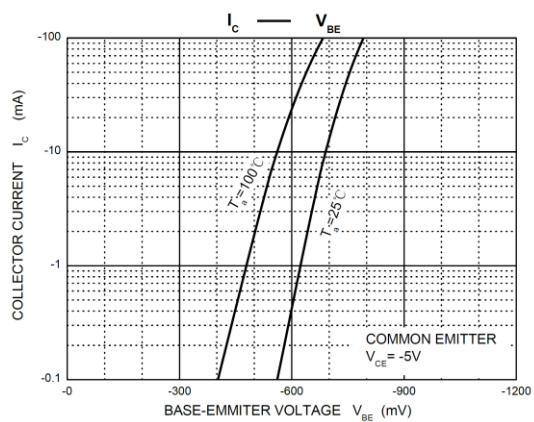
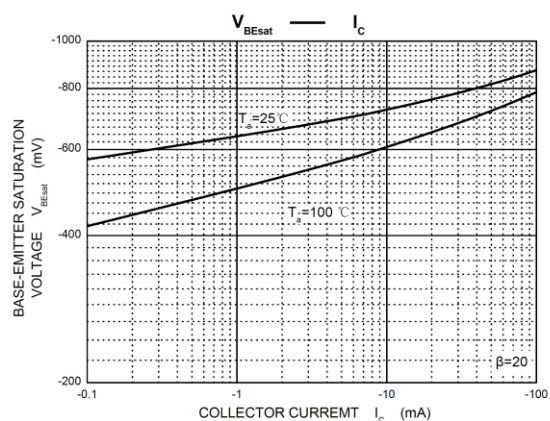
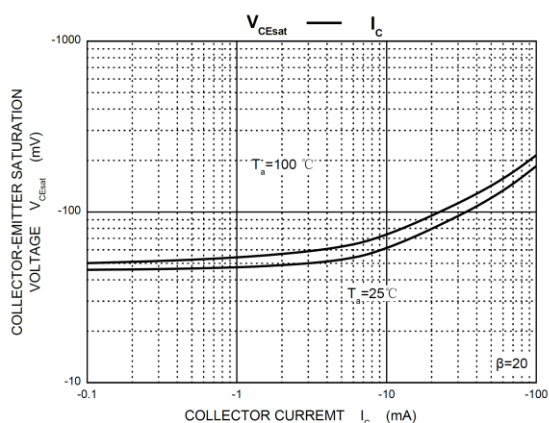
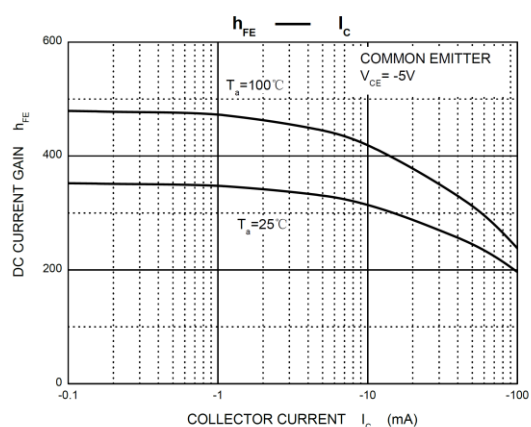
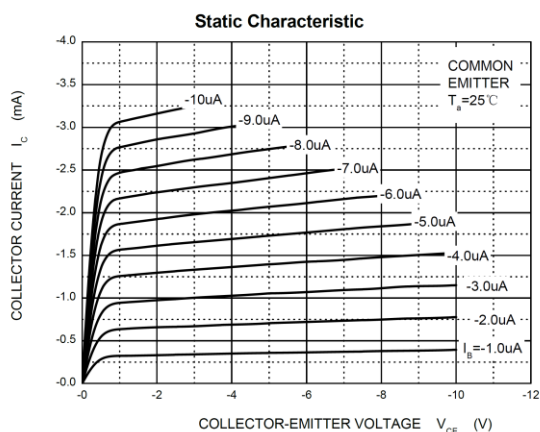
MAXIMUM RATINGS (PNP , $T_a=25^{\circ}\text{C}$ unless otherwise noted)

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	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}\text{C}$

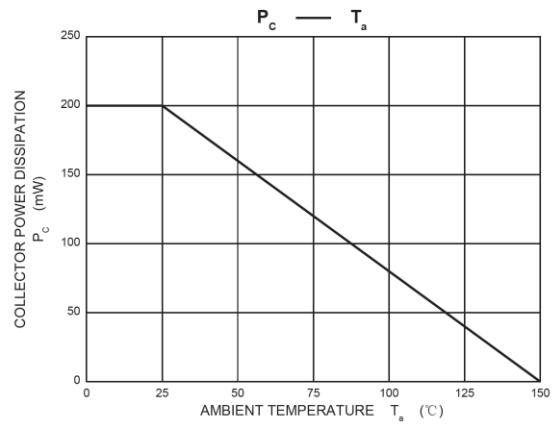
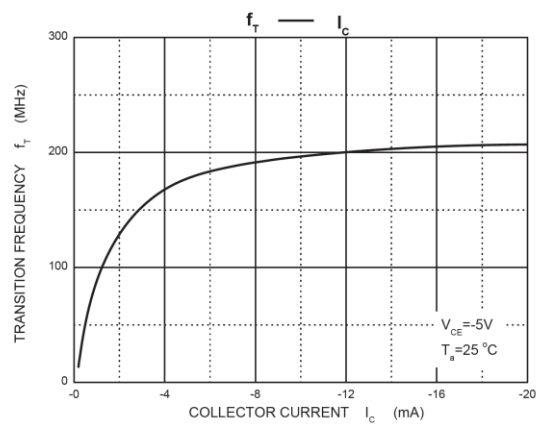
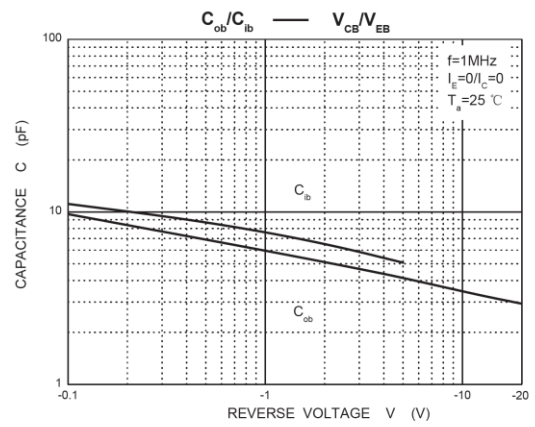
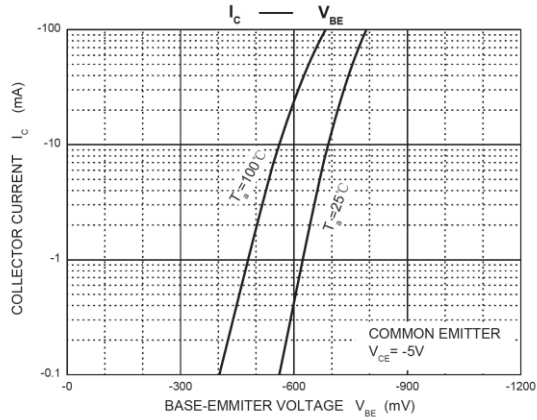
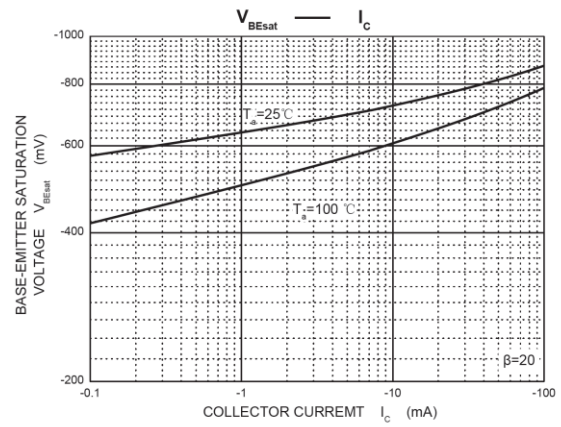
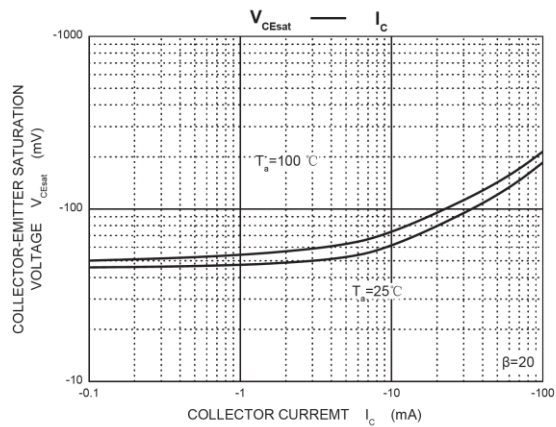
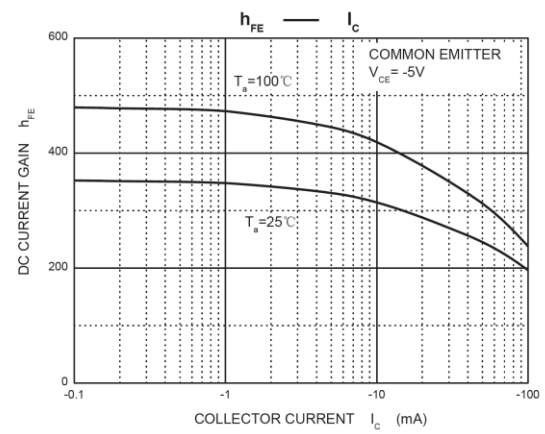
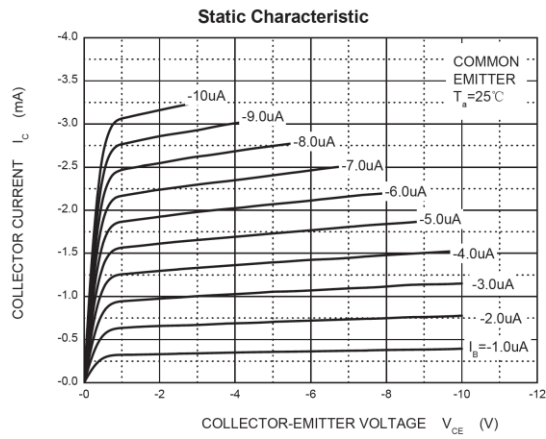
ELECTRICAL CHARACTERISTICS(PNP , $T_a=25^{\circ}\text{C}$ unless otherwise noted)

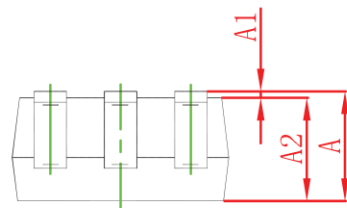
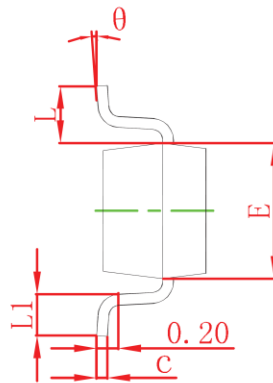
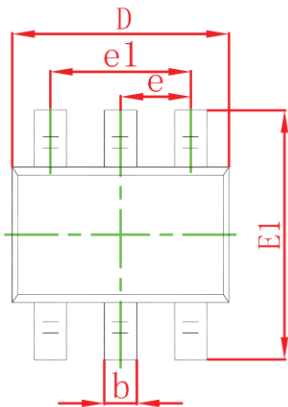
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}$, $I_E=0$	-50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}$, $I_B=0$	-45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}$, $I_C=0$	-5			V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

Typical Characteristics (NPN)



Typical Characteristics (PNP)



SOT-363 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	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	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°