

Plastic-Encapsulate Transistors

DUAL TRANSISTOR (NPN+PNP)

Features

- Epitaxial Die Construction
- Two isolated NPN/PNP(BC847W+BC857W) Transistors in one package

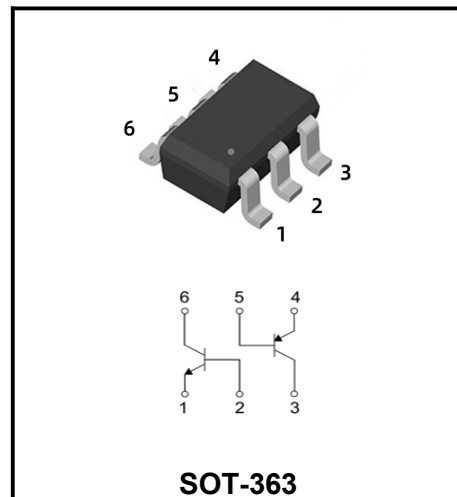
Marking Code

BC847PN

7P

Maximum Ratings TR1 (Ta=25℃ unless otherwise specified.)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	45	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current –Continuous	0.1	A
P_C	Collector Power Dissipation	200	mW
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃



SOT-363

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=1\mu A, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=30V, I_E=0$			15	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=5V, I_C=0$			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
	$V_{CE(sat)}$	$I_C=100mA, I_B=5mA$			0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=0.5mA$		0.7		V
	$V_{BE(sat)}$	$I_C=100mA, I_B=5mA$		0.9		V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE}=5V, I_C=2mA$	0.58		0.7	V
	$V_{BE(on)}$	$V_{CE}=5V, I_C=10mA$			0.72	V
Collector output capacitance	C_{ob}	$V_{CB}=10V, I_E=0, f=1MHz$			6.0	pF
Transition frequency	f_T	$V_{CE}=5V, I_C=10mA, f=100MHz$	100			MHz
Noise figure	NF	$V_{CE}=5V, I_C=0.2mA, f=1kHz, R_g=2K\Omega, \Delta f=200Hz$			10	dB

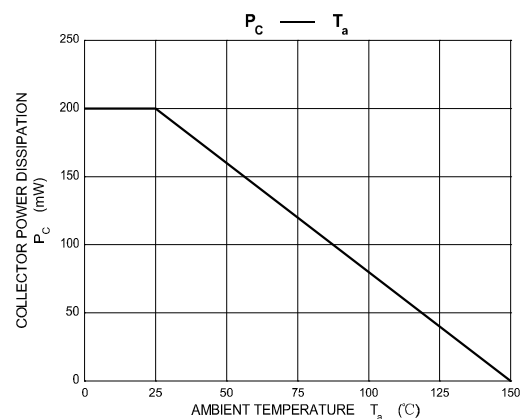
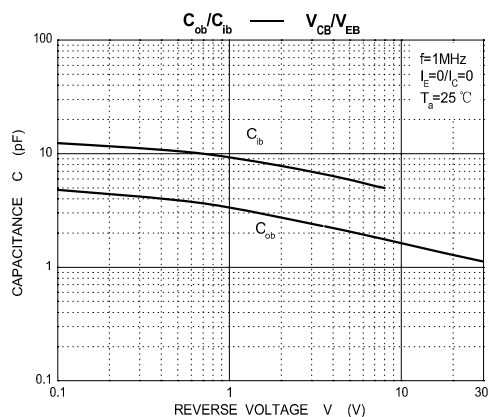
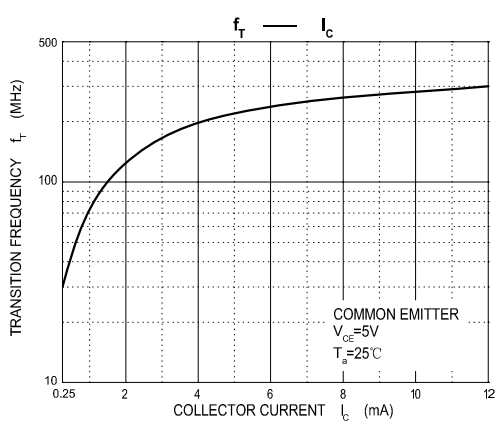
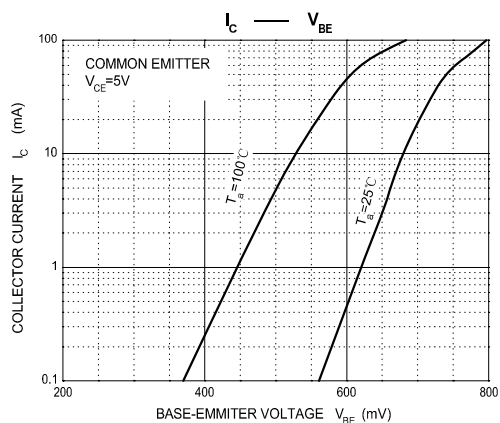
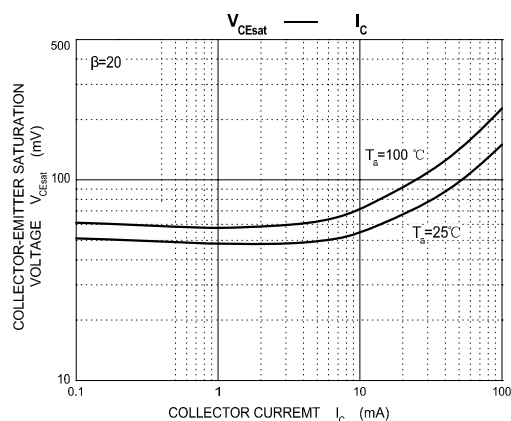
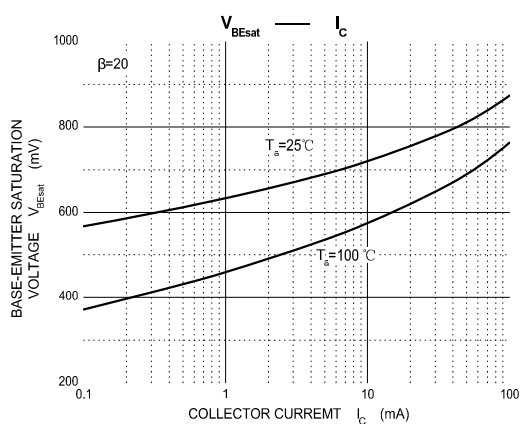
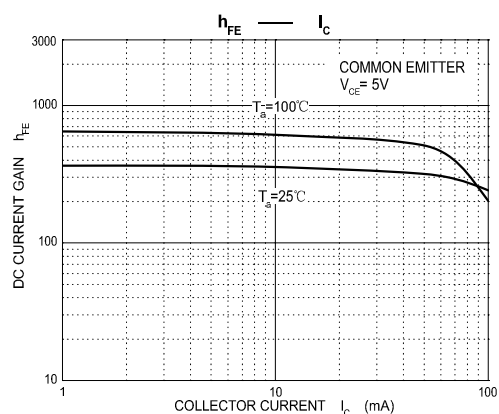
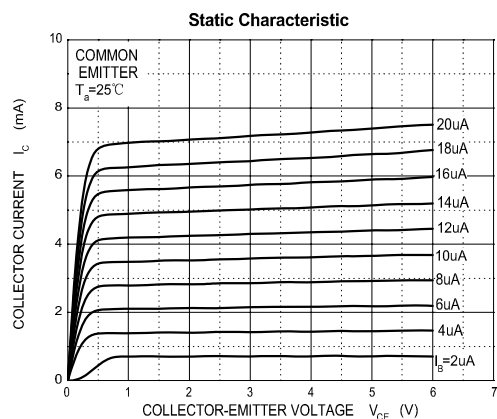
Maximum Ratings TR2 (Ta=25℃ unless otherwise specified.)

Symbol	Parameter	Value	Units
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	-0.1	A
P_C^*	Collector Power Dissipation	200	mW
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

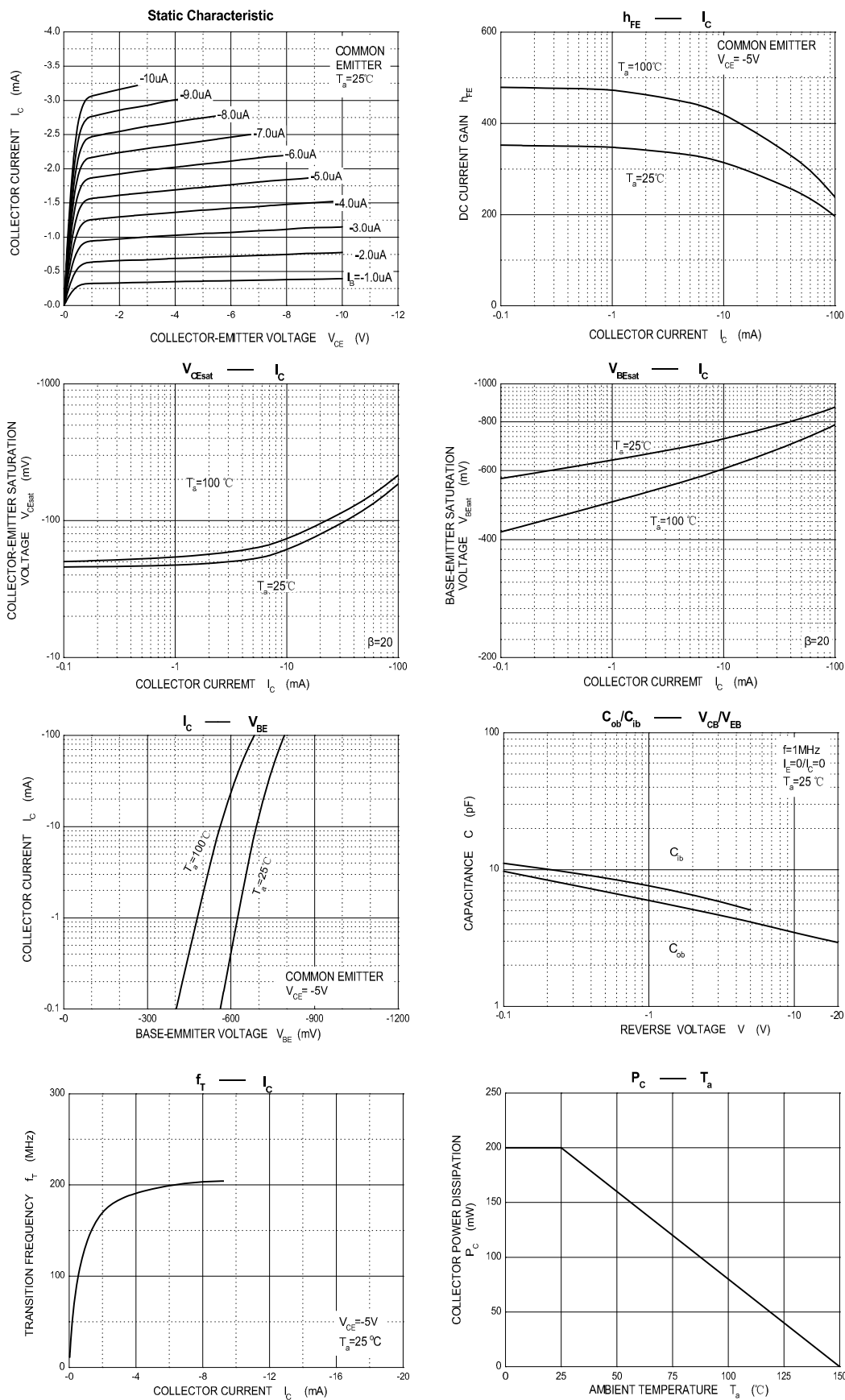
Characteristics of TR2 (NPN Transistor)(Ta=25℃ unless otherwise specified.)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0$	-50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-10mA, I_B=0$	-45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-1\mu A, I_C=0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB}=-30V, I_E=0$			-15	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=-5V, I_C=0$			-15	nA
DC current gain	h_{FE1}	$V_{CE}=-5V, I_C=-2mA$	220		475	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-10mA, I_B=-0.5mA$			-0.3	V
	$V_{CE(sat)}$	$I_C=-100mA, I_B=-5mA$			-0.65	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-10mA, I_B=-0.5mA$		-0.7		V
	$V_{BE(sat)}$	$I_C=-100mA, I_B=-5mA$			-0.95	V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE}=-5V, I_C=-2mA$	-0.6		-0.75	V
	$V_{BE(on)}$	$V_{CE}=-5V, I_C=-10mA$			-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	$V_{CE}=-5V, I_C=-0.2mA$, $f=1kHz, R_g=2K\Omega, \Delta f=200Hz$			10	dB

Typical Characteristics



Typical Characteristics



Ordering information

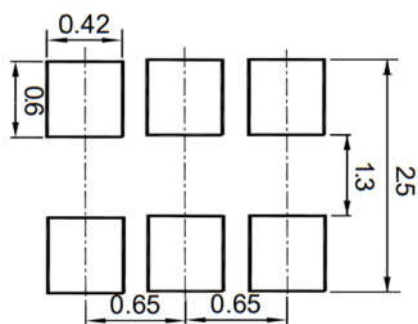
Package	Packing Description	Packing Quantity
SOT-363	Tape/Reel, 7" reel	3000PCS/Reel 120000PCS/Carton

Package Dimensions

SOT-363

Dim.	Millimeter(mm)		mil	
	Min.	Max.	Min.	Max.
A	0.8	1.1	32	43
A1	-	0.1	-	3.94
bp	0.20	0.30	7.87	11.81
c	0.10	0.25	3.94	9.84
D	1.8	2.2	70.87	86.61
E	1.15	1.35	45.28	53.15
e	1.3		51.18	
e1	0.65		25.6	
HE	2.0	2.2	78.74	86.6
Lp	0.15	0.45	5.90	17.71
Q	0.15	0.25	5.90	9.84
v	0.2		7.78	
w	0.2		7.78	
y	0.1		3.94	

The recommended mounting pad size



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