

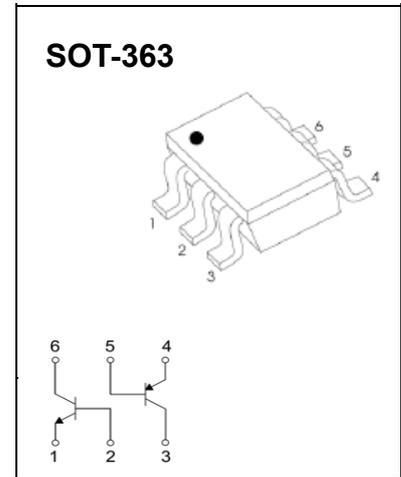
## Plastic-Encapsulate Transistors

DUAL TRANSISTOR (NPN+PNP)

### FEATURES

- Epitaxial Die Construction
- Two isolated NPN/PNP(BC846W+BC856W) Transistors in one package

MAKING: BB



### MAXIMUM RATINGS TR1 ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
$V_{CB0}$	Collector-Base Voltage	80	V
$V_{CE0}$	Collector-Emitter Voltage	65	V
$V_{EB0}$	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	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^\circ\text{C}$

### CHARACTERISTICS of TR1 (NPN Transistor) ( $T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	65			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=1\mu\text{A}, I_C=0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=30\text{V}, I_E=0$			15	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			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
	$V_{CE(sat)}$	$I_C=100\text{mA}, I_B=5\text{mA}$			0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$		0.7		V
	$V_{BE(sat)}$	$I_C=100\text{mA}, I_B=5\text{mA}$		0.9		V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE}=5\text{V}, I_C=2\text{mA}$	0.58		0.7	V
	$V_{BE(on)}$	$V_{CE}=5\text{V}, I_C=10\text{mA}$			0.72	V
Collector output capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$			6.0	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

**MAXIMUM RATINGS TR2 ( $T_a=25^\circ\text{C}$  unless otherwise noted)**

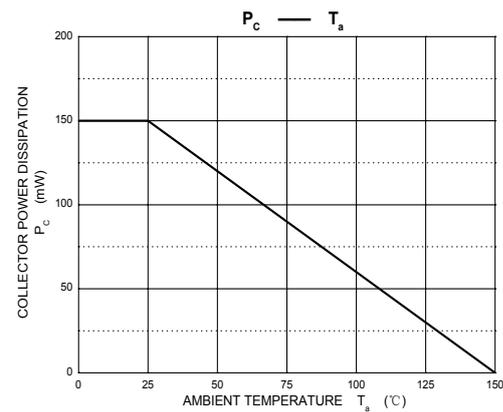
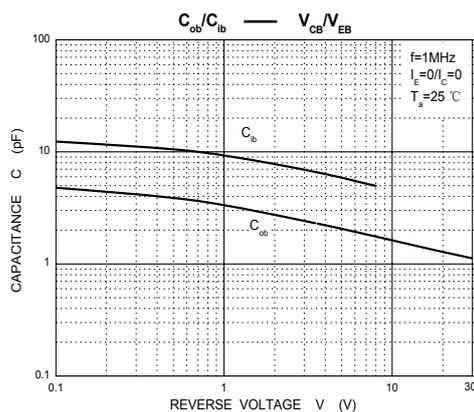
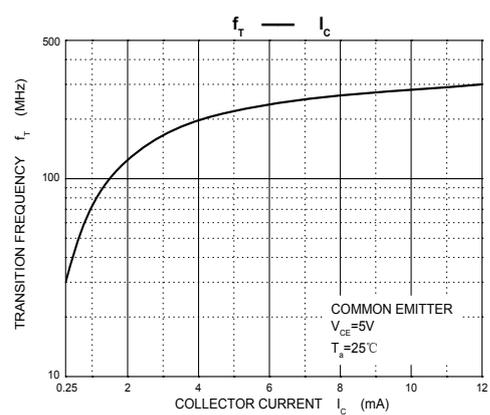
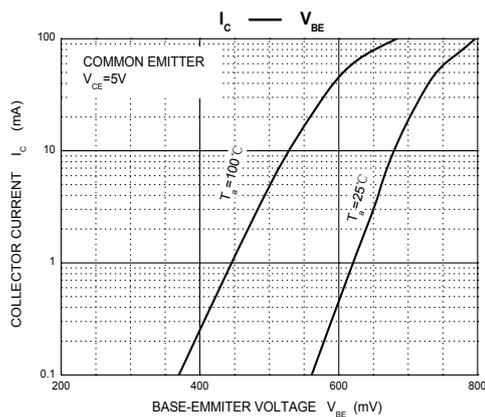
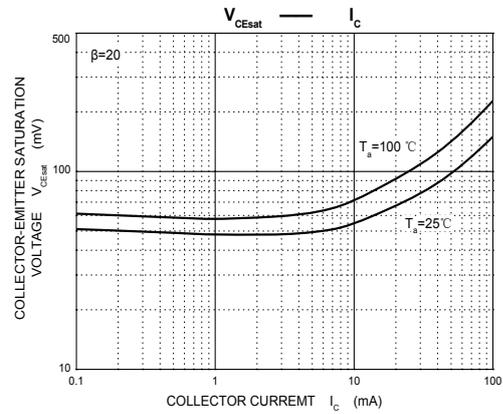
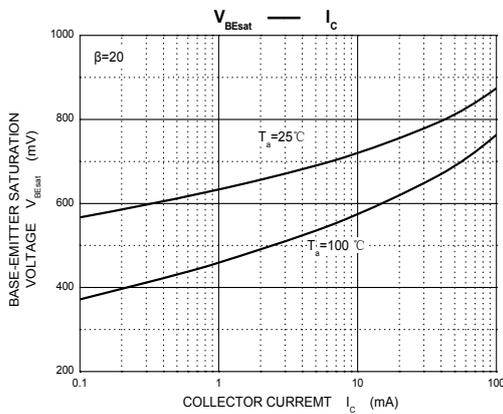
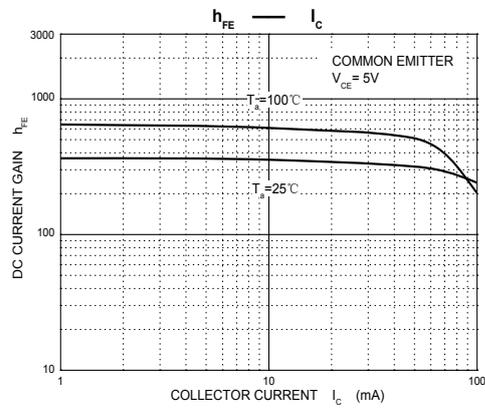
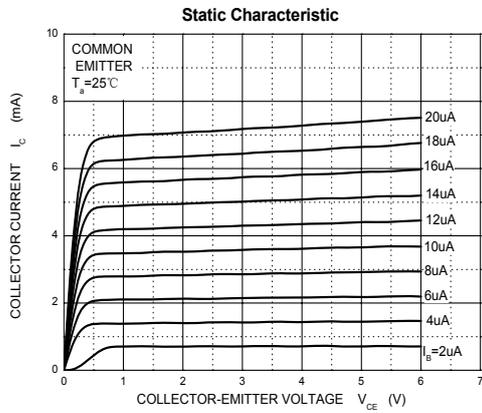
Symbol	Parameter	Value	Units
$V_{CB0}$	Collector-Base Voltage	-80	V
$V_{CEO}$	Collector-Emitter Voltage	-65	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_c$	Collector Current –Continuous	-0.1	A
$P_{C^*}$	Collector Power Dissipation	200	mW
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^\circ\text{C}$

**CHARACTERISTICS of TR2 (PNP Transistor) ( $T_a=25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CB0}$	$I_C=-10\mu\text{A}, I_E=0$	-80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-10\text{mA}, I_B=0$	-65			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-1\mu\text{A}, I_C=0$	-5			V
Collector cut-off current	$I_{CB0}$	$V_{CB}=-30\text{V}, I_E=0$			-15	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-5\text{V}, I_C=0$			-15	nA
DC current gain	$h_{FE1}$	$V_{CE}=-5\text{V}, I_C=-2\text{mA}$	220		475	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-10\text{mA}, I_B=-0.5\text{mA}$			-0.3	V
	$V_{CE(sat)}$	$I_C=-100\text{mA}, I_B=-5\text{mA}$			-0.65	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-10\text{mA}, I_B=-0.5\text{mA}$		-0.7		V
	$V_{BE(sat)}$	$I_C=-100\text{mA}, I_B=-5\text{mA}$			-0.95	V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE}=-5\text{V}, I_C=-2\text{mA}$	-0.6		-0.75	V
	$V_{BE(on)}$	$V_{CE}=-5\text{V}, I_C=-10\text{mA}$			-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

BC846PN/TR1



## Typical Characteristics

BC846PN/TR2

