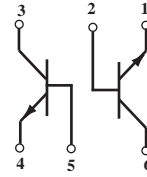
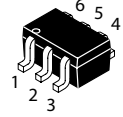


General Purpose Transistor NPN Duals

 Lead(Pb)-Free



NPN+NPN



SOT-363(SC-88)

Maximum Ratings

Rating	Symbol	BC846	BC847	BC848	Unit
Collector-Emitter Voltage	V_{CE0}	65	45	30	Vdc
Collector-Base Voltage	V_{CBO}	80	50	30	Vdc
Emitter-Base Voltage	V_{EBO}	6.0	6.0	5.0	Vdc
Collector Current-Continuous	I_C	100	100	100	mAdc

Thermal Characteristics

Characteristics	Symbol	Max	Unit
Total Device Dissipation Per Device FR-5 Board(1) $T_A = 25^\circ\text{C}$ Derate Above 25°C	P_D	380 250 3.0	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	328	$^\circ\text{C}/\text{W}$
Junction and Storage, Temperature	$T_{J,Tstg}$	-55 to +150	$^\circ\text{C}$

Device Marking

BC846BDW=1B, BC847BDW=1F, BC848CDW=1L

Note:
FR-5=1.0×0.75×0.062 in

Electrical Characteristics (TA=25°C Unless Otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit
Off Characteristics					
Collector-Emitter Breakdown Voltage (IC=10mAdc)	V(BR)CEO	65 45 30	- - -	- - -	Vdc
	BC846	65	-	-	
	BC847	45	-	-	
	BC848	30	-	-	
Collector-Emitter Breakdown Voltage (IC=10 uAdc, VEB=0)	V(BR)CES	80 50 30	- - -	- - -	Vdc
	BC846	80	-	-	
	BC847	50	-	-	
	BC848	30	-	-	
Emitter-Base Breakdown Voltage (IC=10 uAdc)	V(BR)CBO	80 50 30	- - -	- - -	Vdc
	BC846	80	-	-	
	BC847	50	-	-	
	BC848	30	-	-	
Emitter-Base Breakdown Voltage (IE=1.0 uAdc)	V(BR)EBO	6.0 6.0 5.0	- - -	- - -	Vdc
	BC846	6.0	-	-	
	BC847	6.0	-	-	
	BC848	5.0	-	-	
Collector Cutoff Current (VCB=30Vdc) (VCB=30Vdc, TA=150°C)	ICBO	- -	- -	15 5.0	nAdc uAdc

On Characteristics

DC Current Gain (IC= 10 uAdc, VCE=5.0Vdc)	BC846B,BC847B BC848C	HFE	- -	150 270	- -	-
(IC= 2.0 mAdc, VCE= 5.0 Vdc)	BC846B,BC847B BC848C		200 420	290 520	450 800	
Collector-Emitter Saturation Voltage (IC= 10 mAdc, IB= 0.5 mAdc) (IC= 100 mAdc, IB= 5.0mAdc)		VCE(sat)	- -	- -	0.25 0.6	Vdc
Base-Emitter Saturation Voltage (IC= 10 mAdc, IB= 0.5 mAdc) (IC= 100 mAdc, IB= 5.0 mAdc)		VBE(sat)	- -	0.7 0.9	- -	Vdc
Base-Emitter Voltage (IC= 2.0 mAdc, VCE= 5.0 mAdc) (IC= 10 mAdc, VCE= 5.0 mAdc)		VBE(on)	580 -	660 -	700 770	mVdc

Small-Signal Characteristics

Current-Gain-Bandwidth Product (IC= 10 mAdc, VCE= 5.0 Vdc, f=100MHz)	fT	100	-	MHz
Output Capacitance (VCB= 10 Vdc, f=1.0MHz)	Cobo	-	4.5	pF
Noise Figure (VCE= 5.0Vdc, IC= 0.2 mAdc, RS=2.0k Ω, f=1.0kHz, BW=200Hz)	NF	-	5.0	dB

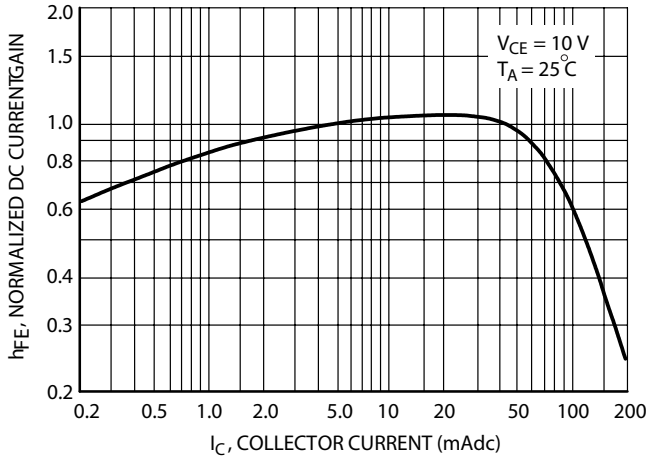


FIG.1 Normalized DC Current Gain

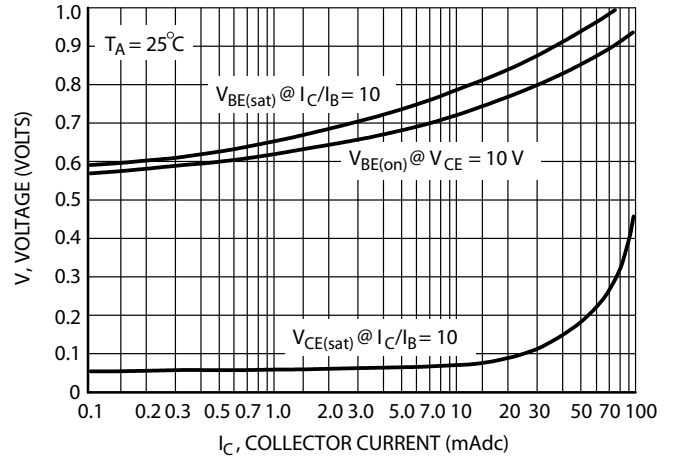


FIG.2 "Saturation" and "On" Voltages

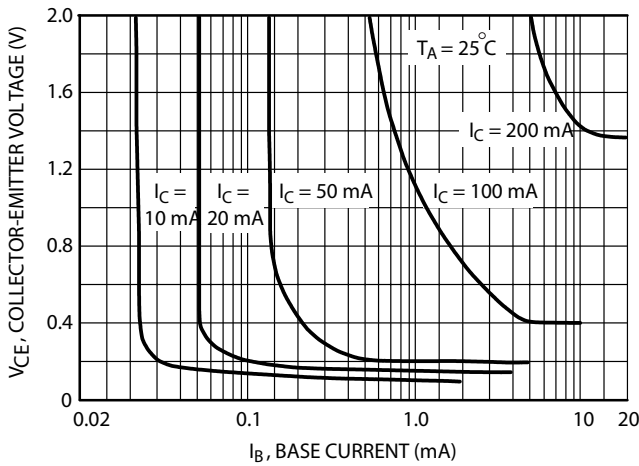


FIG.3 Collector Saturation Region

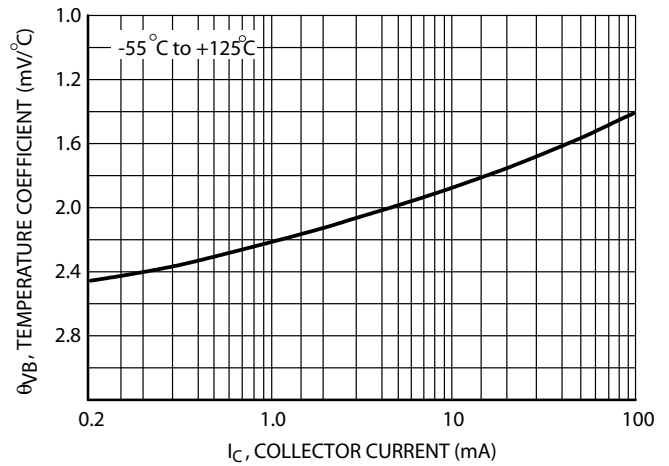


FIG.4 Base-Emitter Temperature Coefficient

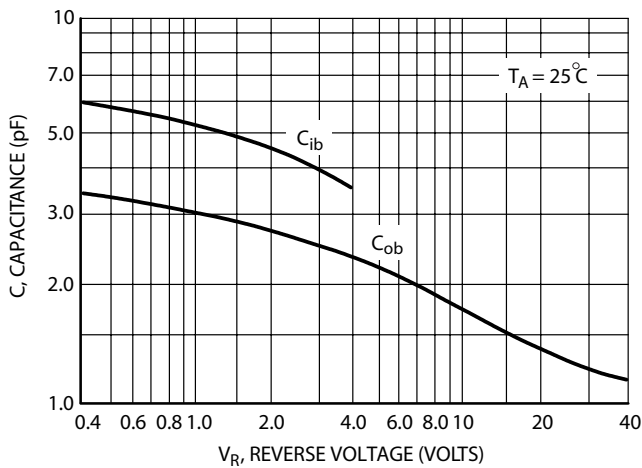


FIG.5 Capacitances

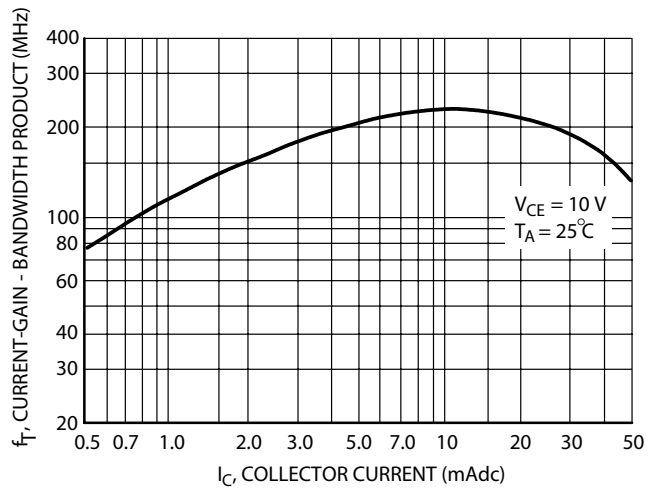


FIG.6 Current-Gain - Bandwidth Product

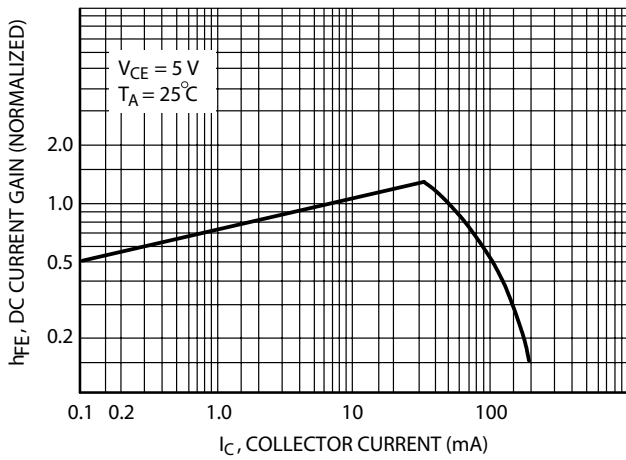


FIG.7 Normalized DC Current Gain

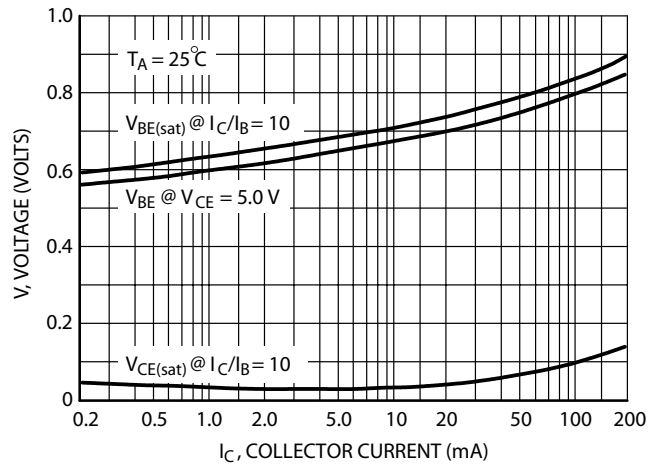


FIG.8 "On" Voltage

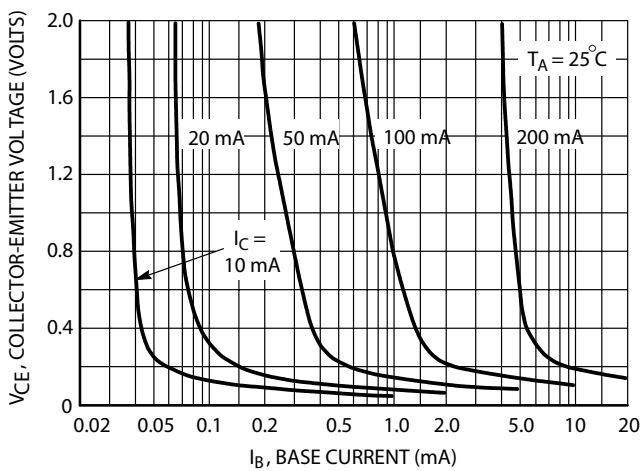


FIG.9 Collector Saturation Region

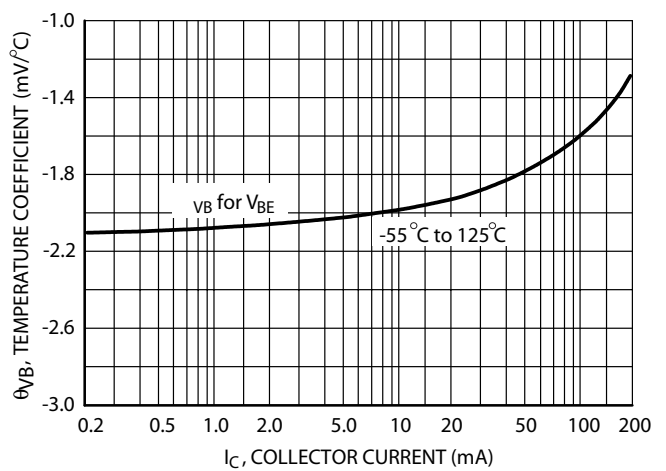


FIG.10 Base-Emitter Temperature Coefficient

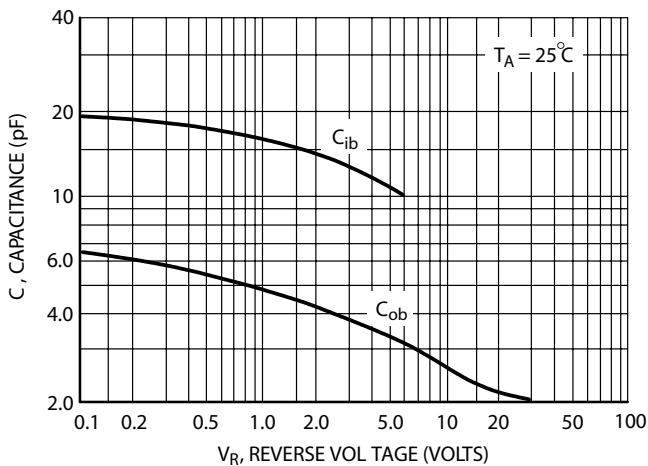


FIG.11 Capacitance

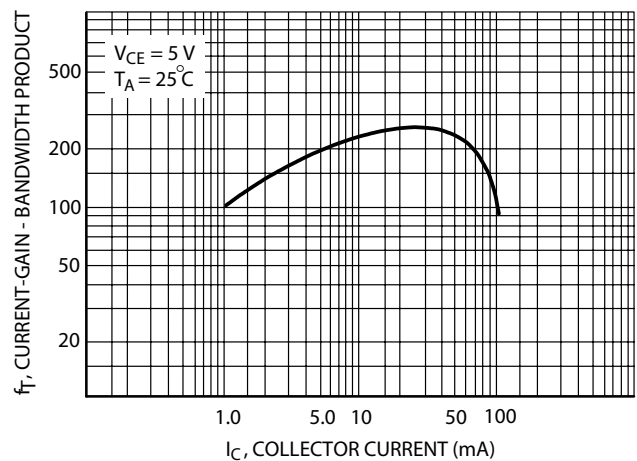


FIG.12 Current-Gain - Bandwidth Product

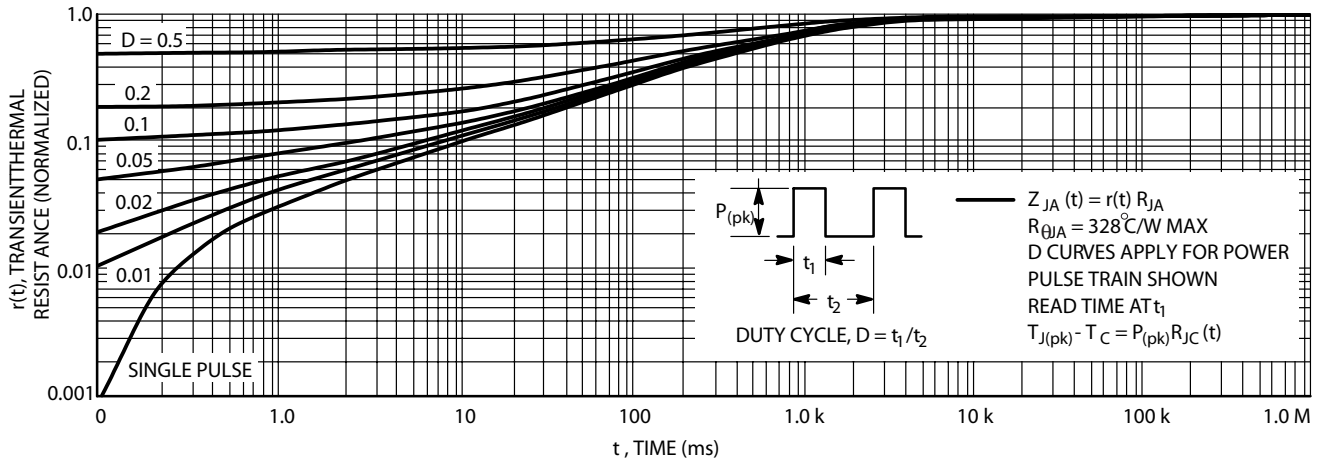


FIG.13 Thermal Response

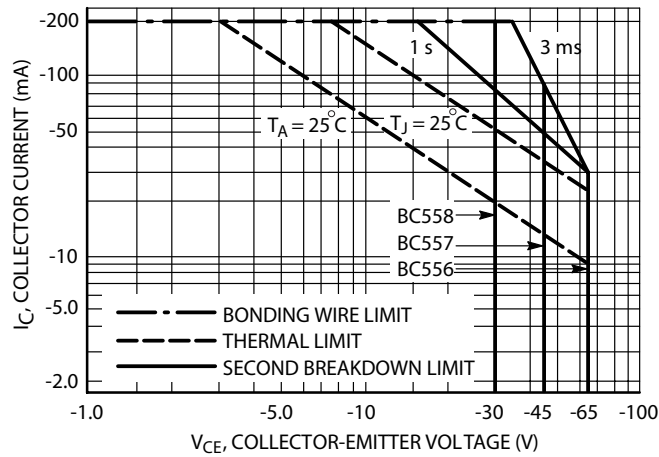
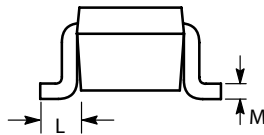
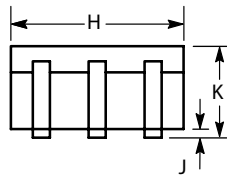
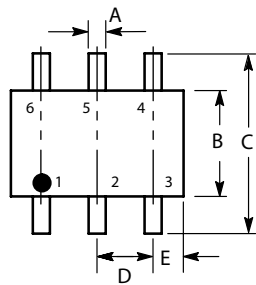


FIG.14 Active Region Safe Operating Area

SOT-363 Package Outline Dimensions

Unit:mm



SOT-363

Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 REF	
E	0.30	0.40
H	1.80	2.20
J	-	0.10
K	0.80	1.10
L	0.25	0.40
M	0.10	0.25