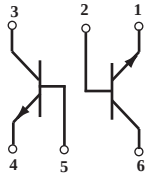
WEITRON

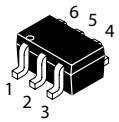
BC846BDW Series

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_{CEO}	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°C Derate Above 25°C	P_D	380 250 3.0	mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	328	°C/W
Junction and Storage, Temperature	$T_{J,Tstg}$	-55 to +150	°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 (I_C=10mAdc) BC846 BC847 BC848	$V_{(BR)CEO}$	 65 45 30	 - - -	 - - -	Vdc
Collector-Emitter Breakdown Voltage (I_C=10 uAdc, V_{EB}=0) BC846 BC847 BC848	$V_{(BR)CES}$	 80 50 30	 - - -	 - - -	Vdc
Emitter-Base Breakdown Voltage (I_C=10 uAdc) BC846 BC847 BC848	$V_{(BR)CBO}$	 80 50 30	 - - -	 - - -	Vdc
Emitter-Base Breakdown Voltage (I_E=1.0 uAdc) BC846 BC847 BC848	$V_{(BR)EBO}$	 6.0 6.0 5.0	 - - -	 - - -	Vdc
Collector Cutoff Current (V_{CB}=30Vdc) (V_{CB}=30Vdc, T_A=150°C)	I_{CBO}	- -	- -	15 5.0	nAdc uAdc
On Characteristics					
DC Current Gain (I_C= 10 uAdc, V_{CE}=5.0Vdc) BC846B,BC847B BC848C (I_C= 2.0 mAdc, V_{CE}= 5.0 Vdc) BC846B,BC847B BC848C	H_{FE}	 - - 200 420	 150 270 290 520	 - - 450 800	-
Collector-Emitter Saturation Voltage (I_C= 10 mAdc, I_B= 0.5 mAdc) (I_C= 100 mAdc, I_B= 5.0mAdc)	$V_{CE(sat)}$	 - -	 - -	 0.25 0.6	Vdc
Base-Emitter Saturation Voltage (I_C= 10 mAdc, I_B= 0.5 mAdc) (I_C= 100 mAdc, I_B= 5.0 mAdc)	$V_{BE(sat)}$	 - -	 0.7 0.9	 - -	Vdc
Base-Emitter Voltage (I_C= 2.0 mAdc, V_{CE}= 5.0 mAdc) (I_C= 10 mAdc, V_{CE}= 5.0 mAdc)	$V_{BE(on)}$	 580 -	 660 -	 700 770	mVdc
Small-Signal Characteristics					
Current-Gain-Bandwidth Product (I_C= 10 mAdc, V_{CE}= 5.0 Vdc, f=100MHz)	f_T	100	-		MHz
Output Capacitance (V_{CB}= 10 Vdc, f=1.0MHz)	C_{obo}	-	4.5		pF
Noise Figure (V_{CE}= 5.0Vdc, I_C= 0.2 mAdc, , R_S=2.0k Ω, f=1.0kHz, BW=200Hz)	NF	-	5.0		dB

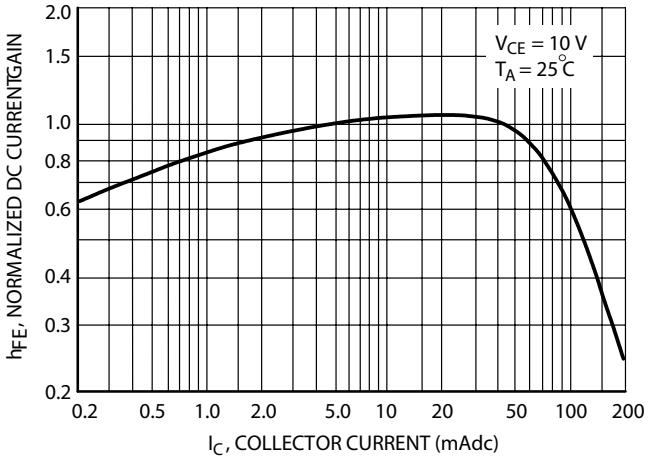


FIG.1 Normalized DC Current Gain

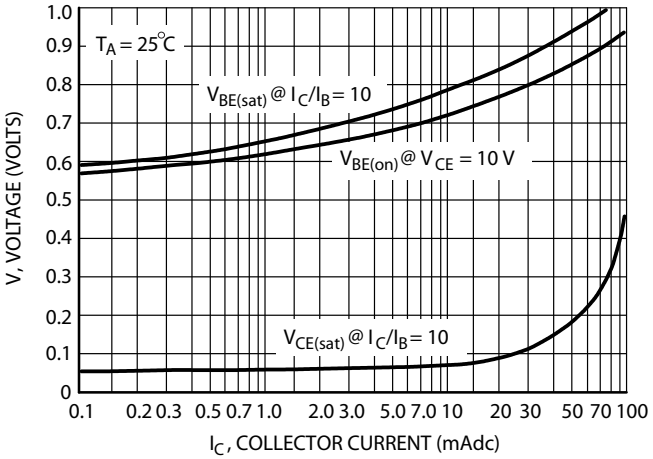


FIG.2 "Saturation" and "On" Voltages

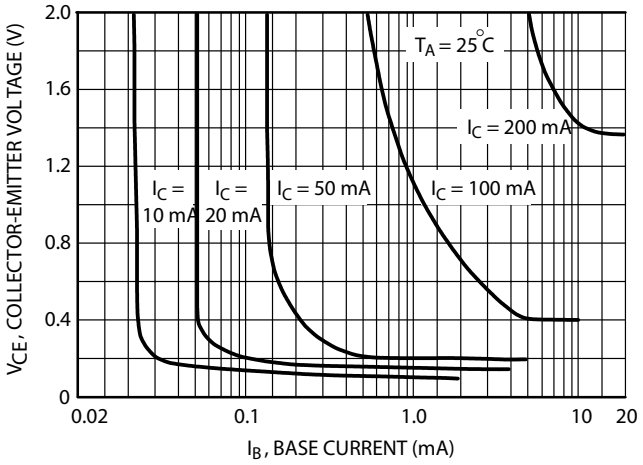


FIG.3 Collector Saturation Region

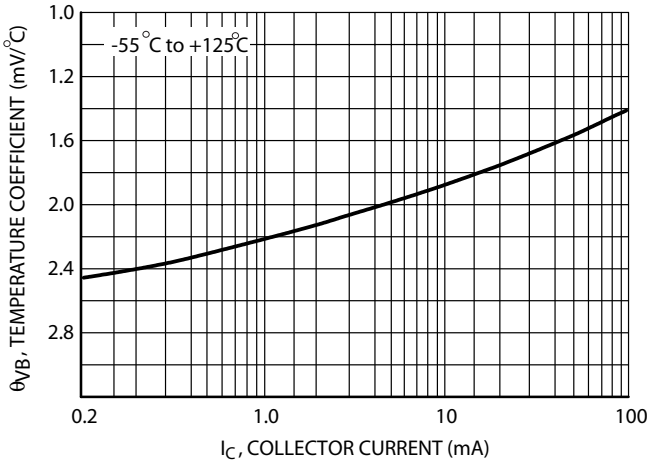


FIG.4 Base-Emitter Temperature Coefficient

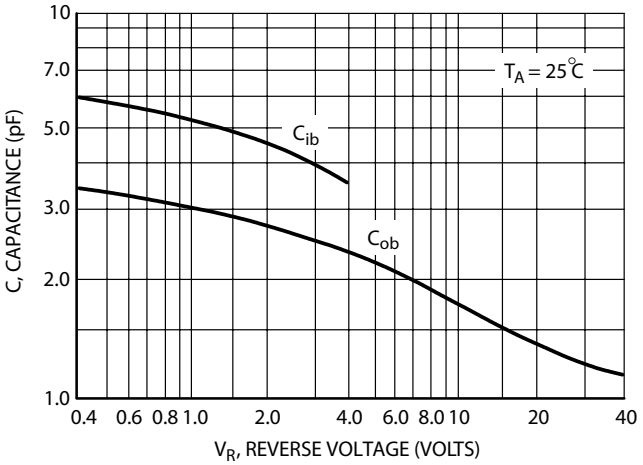


FIG.5 Capacitances

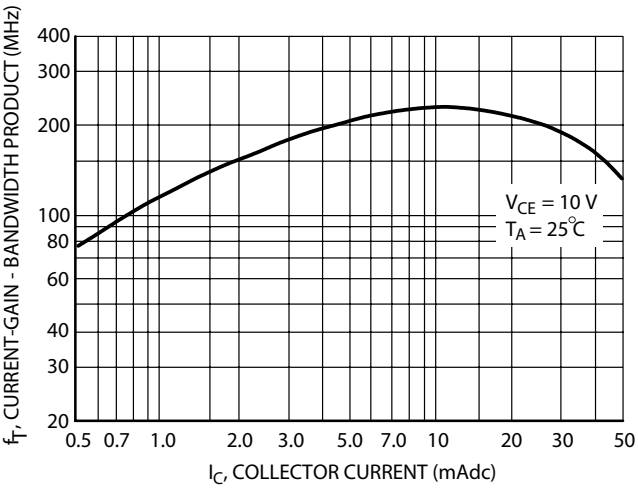


FIG.6 Current-Gain - Bandwidth Product

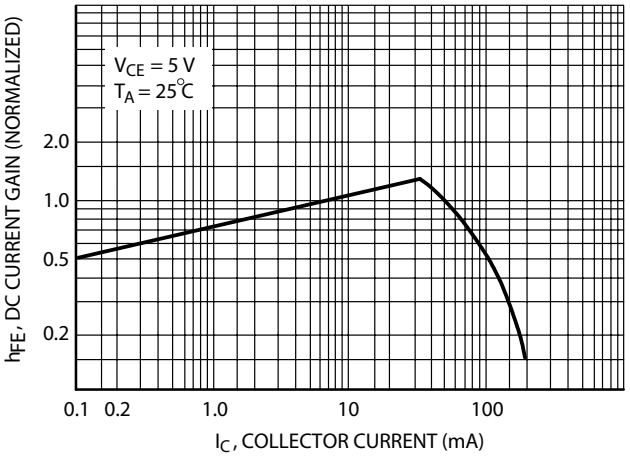


FIG.7 Normalized DC Current Gain

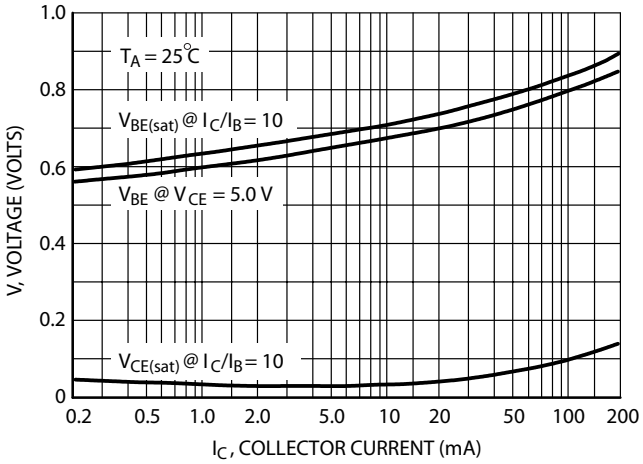


FIG.8 "On" Voltage

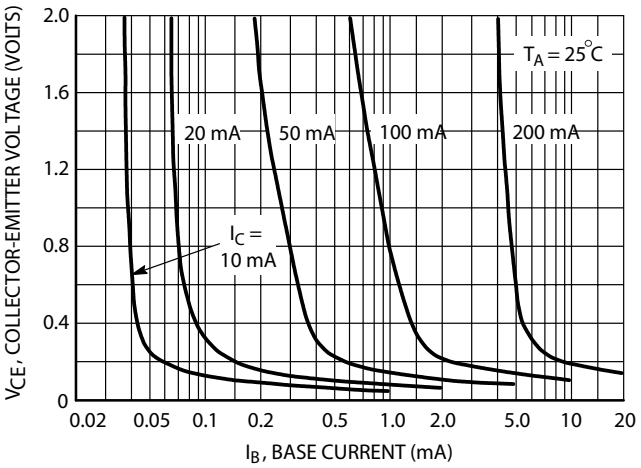


FIG.9 Collector Saturation Region

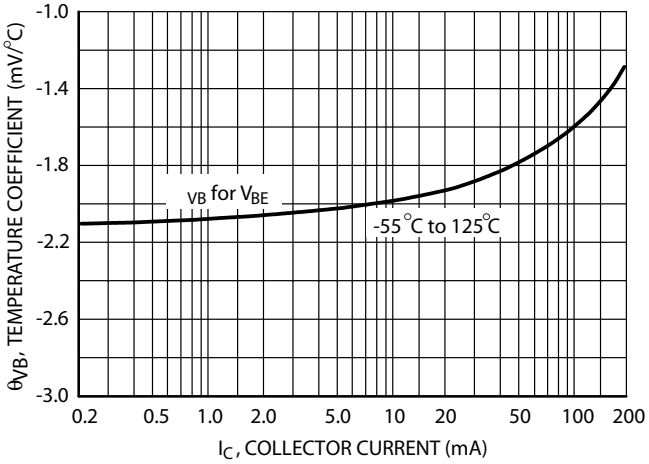


FIG.10 Base-Emitter Temperature Coefficient

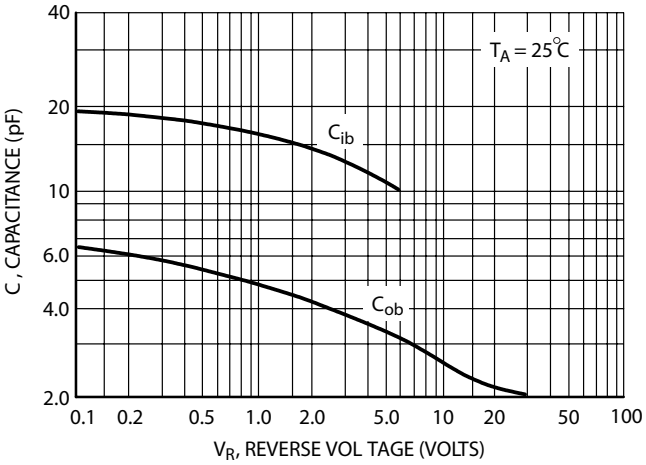


FIG.11 Capacitance

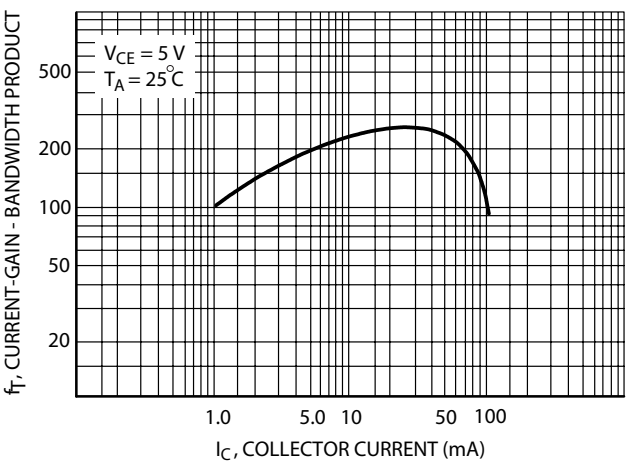


FIG.12 Current-Gain - Bandwidth Product

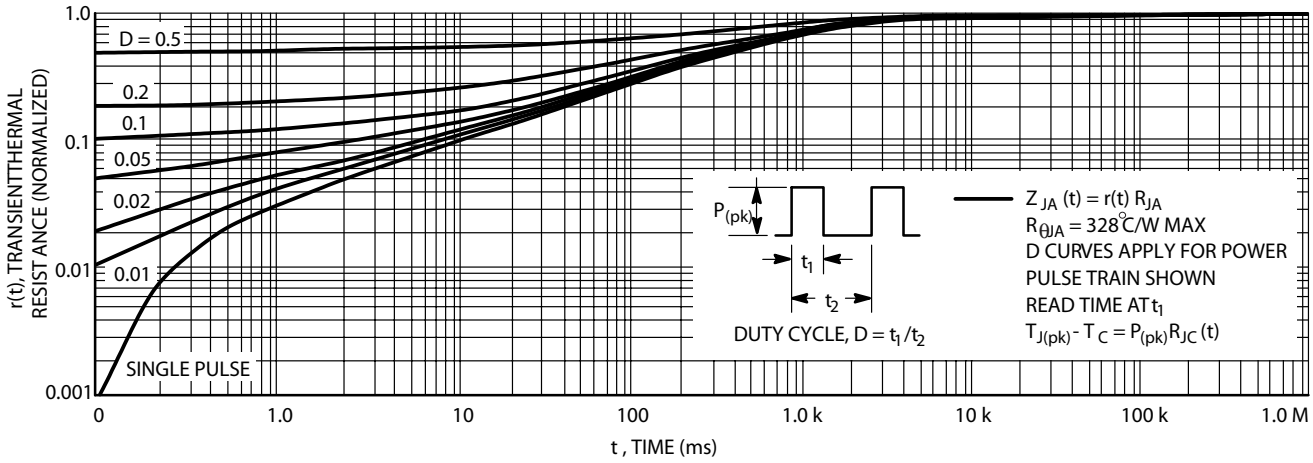


FIG.13 Thermal Response

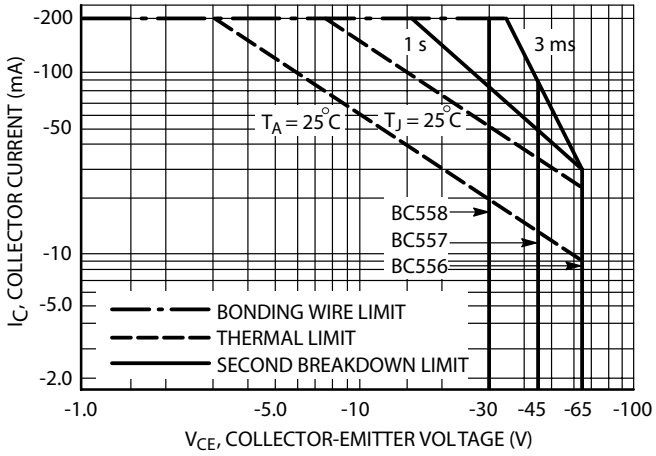
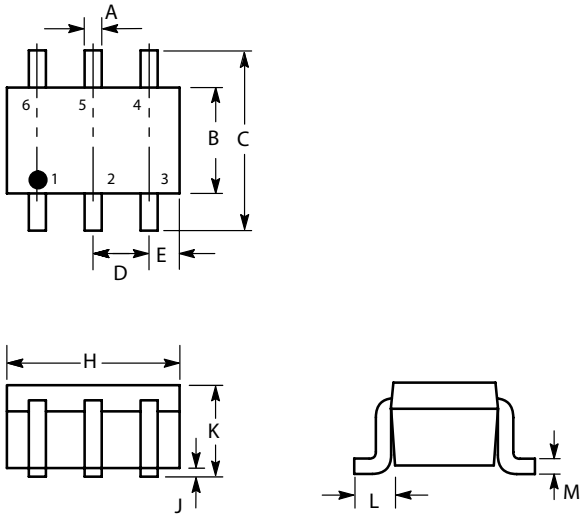


FIG.14 Active Region Safe Operating Area

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