WILLAS

RoHS COMPLIANT

General Purpose Transistors

BC846A/BWT1
BC847A/B/CWT1
BC848A/B/CWT1

NPN Silicon

We declare that the material of product compliance with RoHS requirements. RoHS product for packing code suffix "G"
Halogen free product for packing code suffix "H"
Moisture Sensitivity Level 1

SOT–323

ORDERING INFORMATION

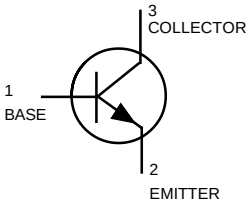
Device	Package	Shipping
BC84xxWT1	SOT-323	3000/Tape&Reel

MAXIMUM RATINGS

Rating	Symbol	BC846	BC847	BC848	Unit
Collector–Emitter Voltage	V_{CEO}	65	45	30	V
Collector–Base Voltage	V_{CBO}	80	50	30	V
Emitter–Base Voltage	V_{EBO}	6.0	6.0	5.0	V
Collector Current — Continuous	I_C	100	100	100	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR– 5 Board, (1) T_A = 25°C	P_D	150	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	°C/W
Total Device Dissipation	P_D	2.4	mW/°C
Junction and Storage Temperature	T_J , T_{stg}	–55 to +150	°C



DEVICE MARKING

BC846AWT1= 1A; BC846BWT1 = 1B; BC847AWT1 = 1E; BC847BWT1= 1F
BC847CWT1 = 1G ; BC848AWT1 = 1J ; BC848BWT1 = 1K; BC848CWT1 = 1L

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector–Emitter Breakdown Voltage (I_C = 10 mA)	BC846 Series	$V_{(BR)CEO}$	65	—	—	v
	BC847 Series		45	—	—	
	BC848 Series		30	—	—	
Collector–Emitter Breakdown Voltage (I_C = 10 µA, V_{EB} = 0)	BC846 Series	$V_{(BR)CES}$	80	—	—	v
	BC847 Series		50	—	—	
	BC848 Series		30	—	—	
Collector–Base Breakdown Voltage (I_C = 10 µA)	BC846 Series	$V_{(BR)CBO}$	80	—	—	v
	BC847 Series		50	—	—	
	BC848 Series		30	—	—	
Emitter–Base Breakdown Voltage (I_E = 1.0 µA)	BC846 Series	$V_{(BR)EBO}$	6.0	—	—	v
	BC847 Series		6.0	—	—	
	BC848 Series		5.0	—	—	
Collector Cutoff Current (V_{CB} = 30 V)		I_{CBO}	—	—	15	nA
(V_{CB} = 30 V, T_A = 150°C)			—	—	5.0	µA

1.FR–5=1.0 x 0.75 x 0.062in

General Purpose Transistors

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)

Characteristic		Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS						
DC Current Gain	BC846A, BC847A, BC848A	h_{FE}	—	90	—	—
(I_C = 10 µA, V_{CE} = 5.0 V)	BC846B, BC847B, BC848B		—	150	—	
	BC847C, BC848C		—	270	—	
(I_C = 2.0 mA, V_{CE} = 5.0 V)	BC846A, BC847A, BC848A		110	180	220	
	BC846B, BC847B, BC848B		200	290	450	
	BC847C, BC848C		420	520	800	
Collector–Emitter Saturation Voltage (I_C = 10 mA, I_B = 0.5 mA)		$V_{CE(sat)}$	—	—	0.25	V
(I_C = 100 mA, I_B = 5.0 mA)			—	—	0.6	
Base–Emitter Saturation Voltage (I_C = 10 mA, I_B = 0.5 mA)		$V_{BE(sat)}$	—	0.7	—	V
(I_C = 100 mA, I_B = 5.0 mA)			—	0.9	—	
Base–Emitter Voltage (I_C = 2.0 mA, V_{CE} = 5.0 V)		$V_{BE(on)}$	580	660	700	mV
(I_C = 10 mA, V_{CE} = 5.0 V)			—	—	770	
SMALL–SIGNAL CHARACTERISTICS						
Current–Gain — Bandwidth Product		f_T	100	—	—	MHz
(I_C = 10 mA, V_{CE} = 5.0 Vdc, f = 100 MHz)						
Output Capacitance (V_{CB} = 10 V, f = 1.0 MHz)		C_{obo}	—	—	4.5	pF
Noise Figure (I_C = 0.2 mA,	BC846A, BC847A, BC848A	NF				dB
V_{CE} = 5.0 V_{dc}, R_S = 2.0 kΩ,	BC846B, BC847B, BC848B		—	—	10	
f = 1.0 kHz, BW = 200 Hz)	BC847C, BC848C		—	—	4.0	

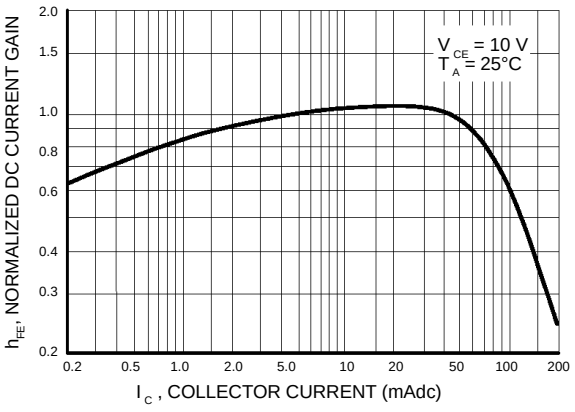


Figure 1. Normalized DC Current Gain

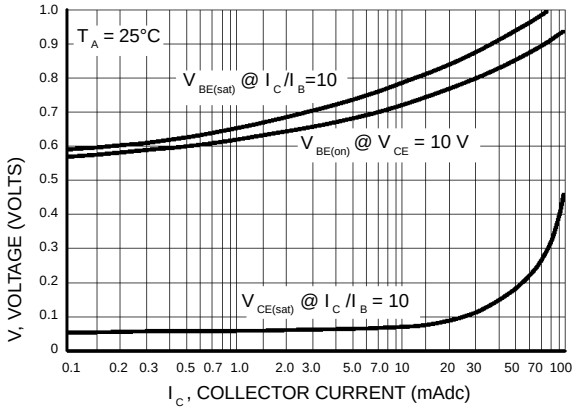


Figure 2. "Saturation" and "On" Voltages

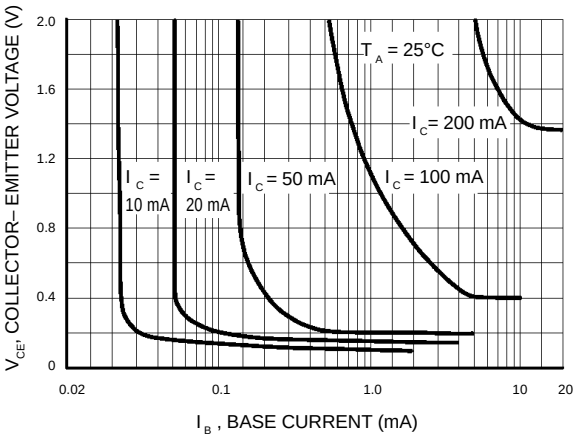


Figure 3. Collector Saturation Region

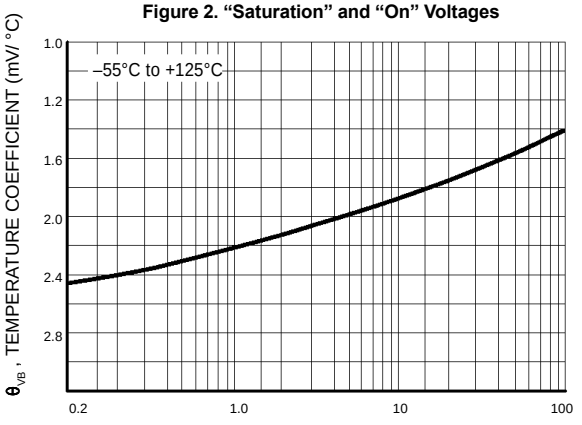


Figure 4. Base–Emitter Temperature Coefficient

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BC847A/B/CWT1
BC848A/B/CWT1

BC847 / BC848

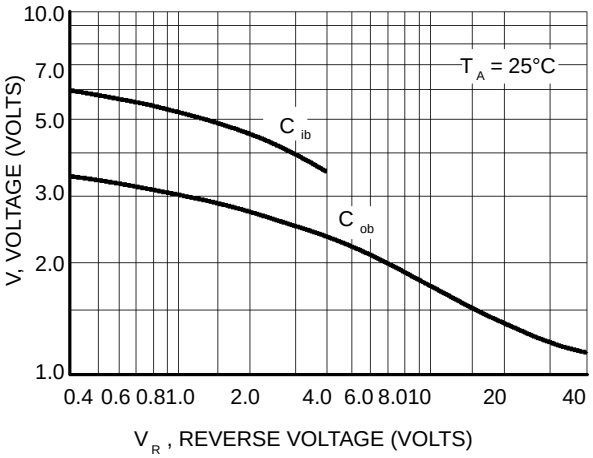

Figure 5. Capacitances

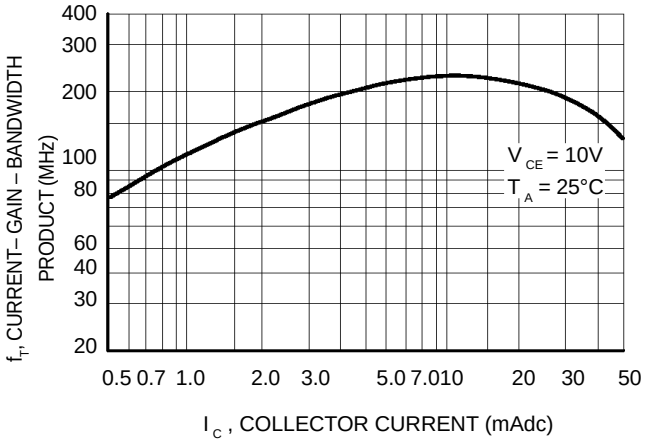

Figure 6. Current–Gain – Bandwidth Product

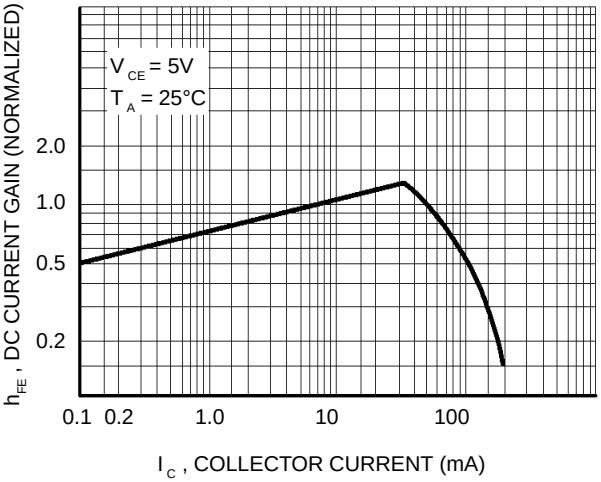

Figure 7. DC Current Gain

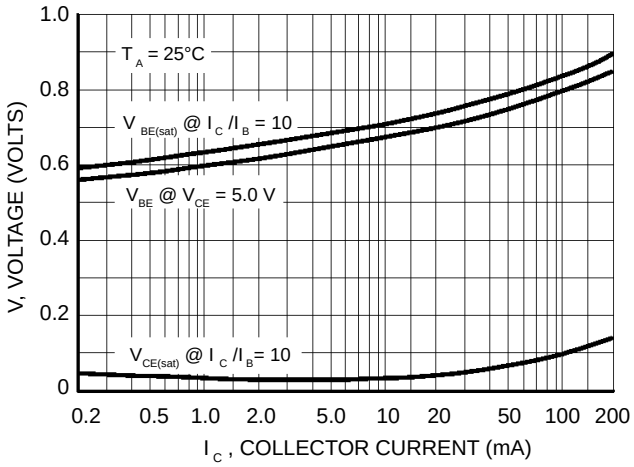

Figure 8. “On” Voltage

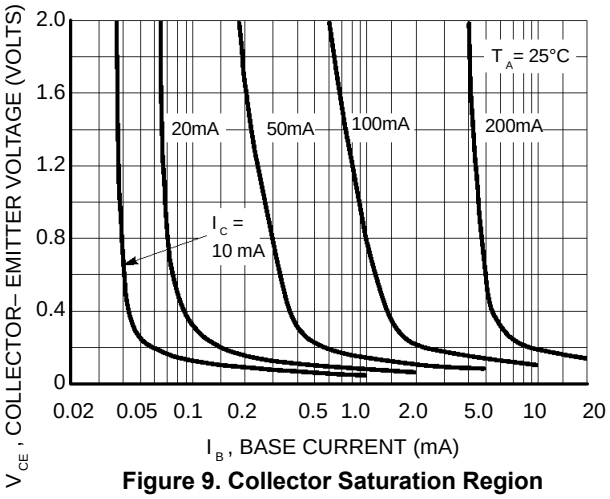

Figure 9. Collector Saturation Region

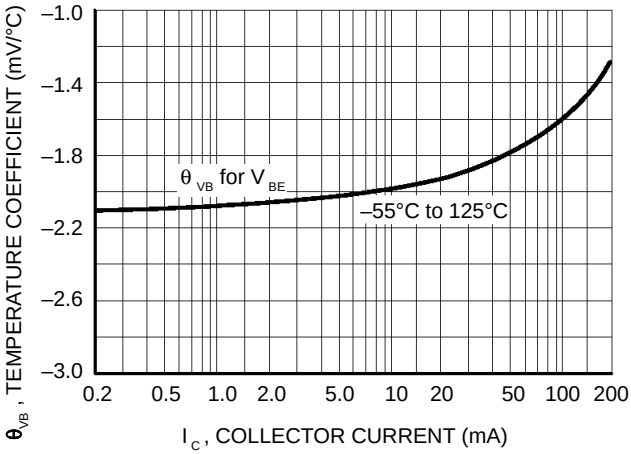

Figure 10. Base–Emitter Temperature Coefficient

BC846

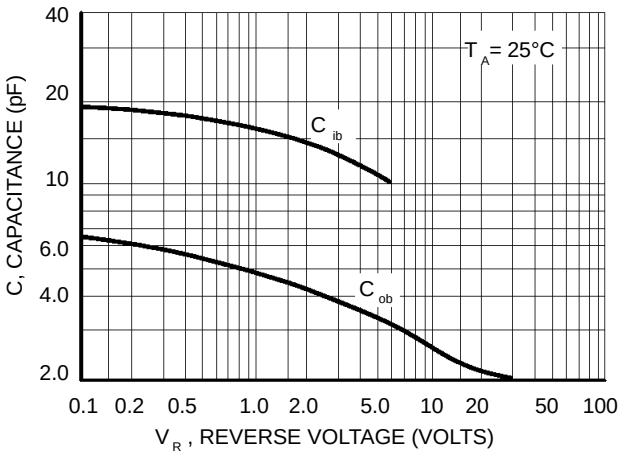

Figure 11. Capacitance

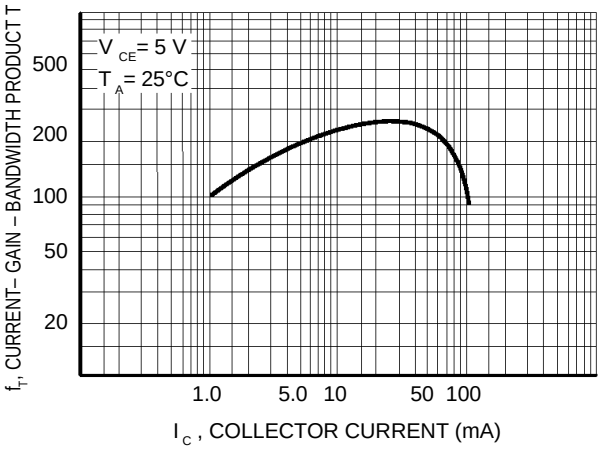

Figure 12. Current–Gain – Bandwidth Product

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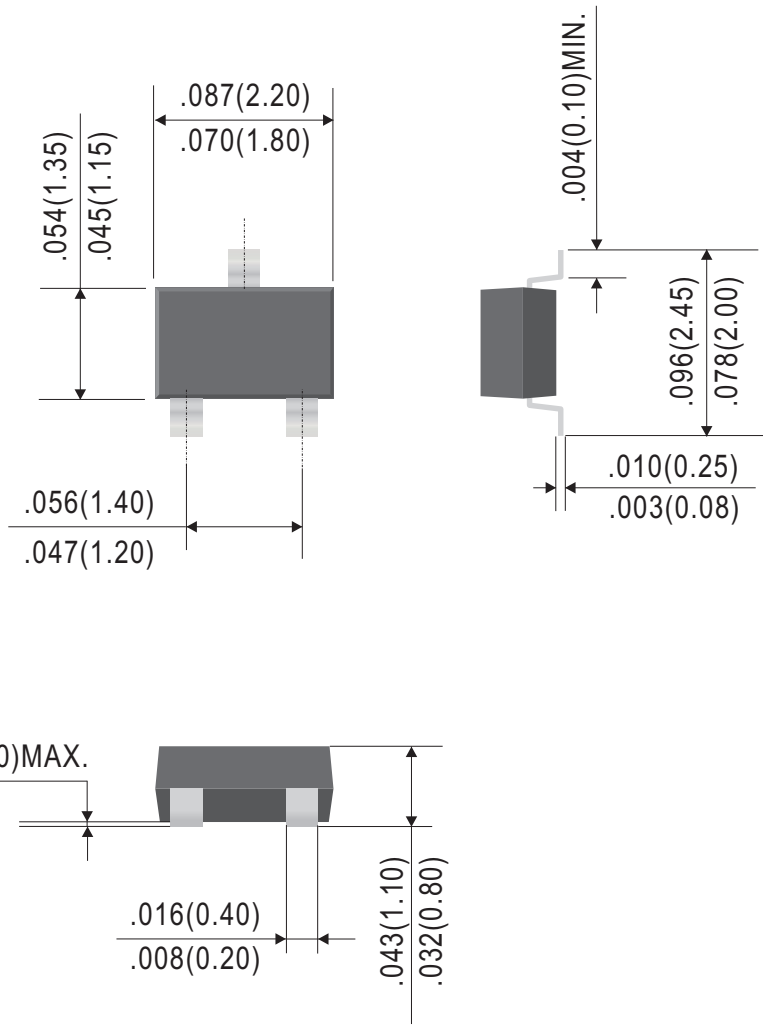

Dimensions in inches and (millimeters)

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General Purpose Transistors

BC846A/BWT1
BC847A/B/CWT1
BC848A/B/CWT1

Ordering Information:

Device PN	Packing
Part Number G(1)-WS	Tape&Reel: 3 Kpcs/Reel

Note: (1) RoHS product for packing code suffix "G"；Halogen free product for packing code suffix "H"