

BC847CDXV6T1, BC847CDXV6T5 BC848CDXV6T1, BC848CDXV6T5

Dual General Purpose Transistors

NPN Duals

These transistors are designed for general purpose amplifier applications. They are housed in the SOT-563 which is designed for low power surface mount applications.

Features

- These are Pb-Free Devices

MAXIMUM RATINGS

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

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

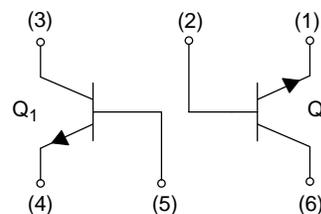
Characteristic (One Junction Heated)	Symbol	Max	Unit
Total Device Dissipation, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	357 2.9	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	350	$^\circ\text{C}/\text{W}$
Characteristic (Both Junctions Heated)	Symbol	Max	Unit
Total Device Dissipation, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	500 4.0	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	250	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

1. FR-4 @ Minimum Pad



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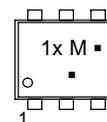


BC847CDXV6T1



SOT-563
CASE 463A
PLASTIC

MARKING DIAGRAMS



- 1x = Device Code
x = G or M
- M = Date Code
- = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

BC847CDXV6T1, BC847CDXV6T5 BC848CDXV6T1, BC848CDXV6T5

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)	BC847CDXV6T1 BC848CDXV6T1	V _{(BR)CEO}	45 30	– –	– –	V
Collector–Emitter Breakdown Voltage (I _C = 10 μA, V _{EB} = 0)	BC847CDXV6T1 BC848CDXV6T1	V _{(BR)CES}	50 30	– –	– –	V
Collector–Base Breakdown Voltage (I _C = 10 μA)	BC847CDXV6T1 BC848CDXV6T1	V _{(BR)CBO}	50 30	– –	– –	V
Emitter–Base Breakdown Voltage (I _E = 1.0 μA)	BC847CDXV6T1 BC848CDXV6T1	V _{(BR)EBO}	6.0 5.0	– –	– –	V
Collector Cutoff Current (V _{CB} = 30 V) (V _{CB} = 30 V, T _A = 150°C)		I _{CBO}	– –	– –	15 5.0	nA μA

ON CHARACTERISTICS

DC Current Gain (I _C = 10 μA, V _{CE} = 5.0 V) (I _C = 2.0 mA, V _{CE} = 5.0 V)		h _{FE}	– 420	270 520	– 800	–
Collector–Emitter Saturation Voltage (I _C = 10 mA, I _B = 0.5 mA) (I _C = 100 mA, I _B = 5.0 mA)		V _{CE(sat)}	– –	– –	0.25 0.6	V
Base–Emitter Saturation Voltage (I _C = 10 mA, I _B = 0.5 mA) (I _C = 100 mA, I _B = 5.0 mA)		V _{BE(sat)}	– –	0.7 0.9	– –	V
Base–Emitter Voltage (I _C = 2.0 mA, V _{CE} = 5.0 V) (I _C = 10 mA, V _{CE} = 5.0 V)		V _{BE(on)}	580 –	660 –	700 770	mV

SMALL–SIGNAL CHARACTERISTICS

Current–Gain – Bandwidth Product (I _C = 10 mA, V _{CE} = 5.0 Vdc, f = 100 MHz)		f _T	100	–	–	MHz
Output Capacitance (V _{CB} = 10 V, f = 1.0 MHz)		C _{obo}	–	–	4.5	pF
Noise Figure (I _C = 0.2 mA, V _{CE} = 5.0 Vdc, R _S = 2.0 kΩ, f = 1.0 kHz, BW = 200 Hz)		NF	–	–	10	dB

ORDERING INFORMATION

Device	Specific Marking	Package	Shipping†
BC847CDXV6T1	1G	SOT–563	4000 Units / Tape & Reel
BC847CDXV6T1G		SOT–563 (Pb–Free)	4000 Units / Tape & Reel
BC847CDXV6T5		SOT–563	8000 Units / Tape & Reel
BC847CDXV6T5G		SOT–563 (Pb–Free)	8000 Units / Tape & Reel
BC848CDXV6T1	1L	SOT–563	4000 Units / Tape & Reel
BC848CDXV6T1G		SOT–563 (Pb–Free)	4000 Units / Tape & Reel
BC848CDXV6T5		SOT–563	8000 Units / Tape & Reel
BC848CDXV6T5G		SOT–563 (Pb–Free)	8000 Units / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

TYPICAL CHARACTERISTICS

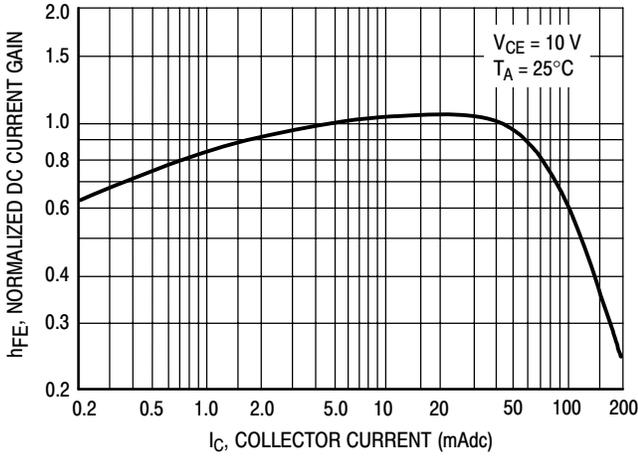


Figure 1. Normalized DC Current Gain

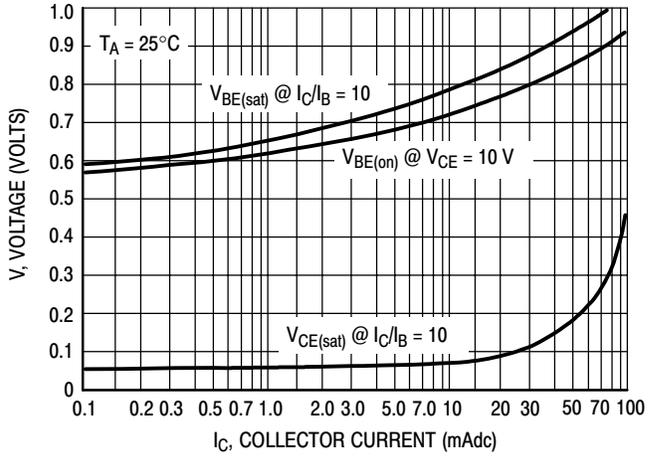


Figure 2. "Saturation" and "On" Voltages

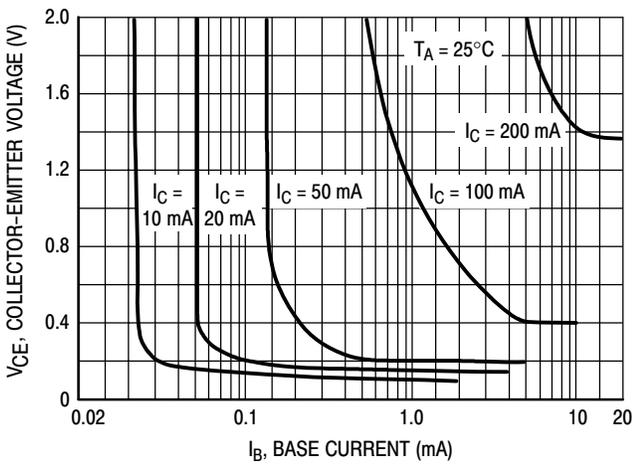


Figure 3. Collector Saturation Region

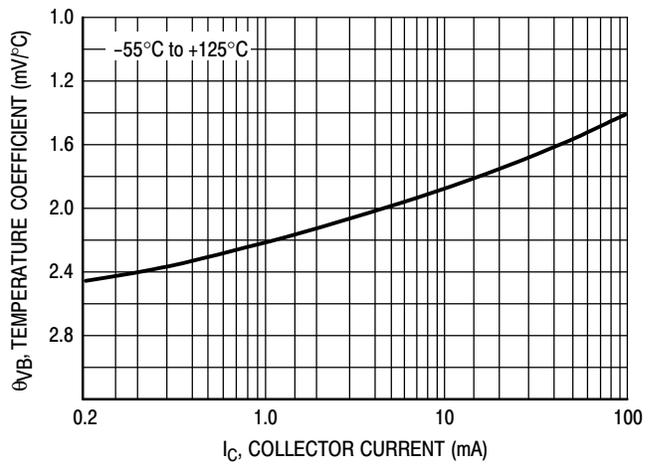


Figure 4. Base-Emitter Temperature Coefficient

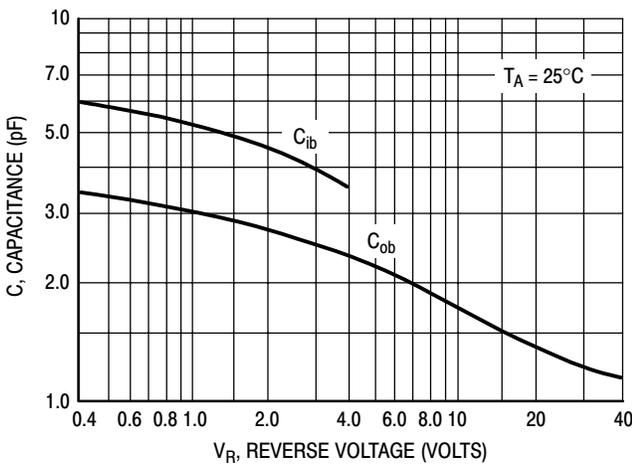


Figure 5. Capacitances

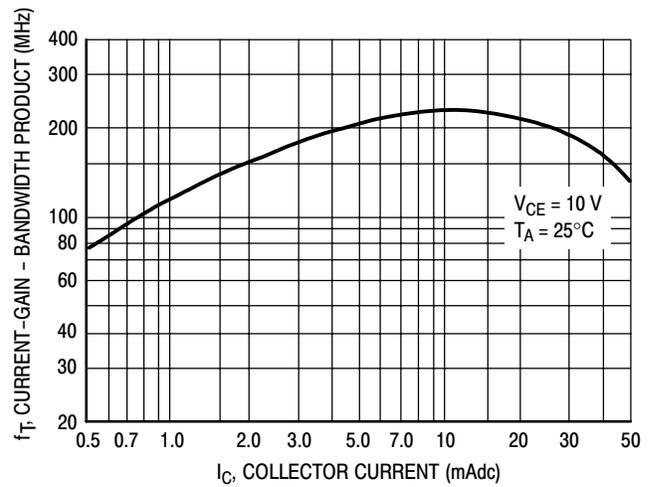
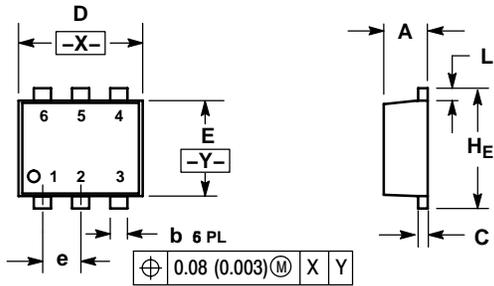


Figure 6. Current-Gain - Bandwidth Product

BC847CDXV6T1, BC847CDXV6T5 BC848CDXV6T1, BC848CDXV6T5

PACKAGE DIMENSIONS

SOT-563, 6 LEAD
CASE 463A-01
ISSUE F



NOTES:

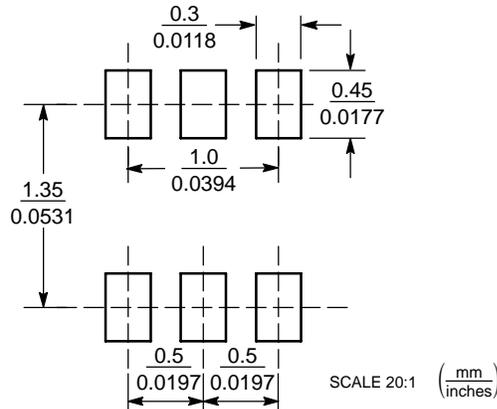
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.55	0.60	0.020	0.021	0.023
b	0.17	0.22	0.27	0.007	0.009	0.011
C	0.08	0.12	0.18	0.003	0.005	0.007
D	1.50	1.60	1.70	0.059	0.062	0.066
E	1.10	1.20	1.30	0.043	0.047	0.051
e	0.5 BSC			0.02 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
H _E	1.50	1.60	1.70	0.059	0.062	0.066

STYLE 1:

- PIN 1. EMITTER 1
- BASE 1
- COLLECTOR 2
- EMITTER 2
- BASE 2
- COLLECTOR 1

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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