

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

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

THERMAL CHARACTERISTICS

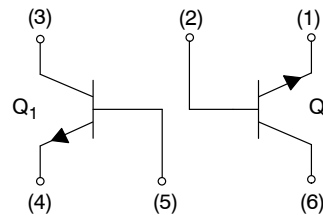
Characteristic (One Junction Heated)	Symbol	Max	Unit
Total Device Dissipation, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	357 2.9	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	350	$^\circ\text{C}/\text{W}$
Characteristic (Both Junctions Heated)	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



ON Semiconductor®

<http://onsemi.com>

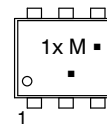


BC847CDXV6T1



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

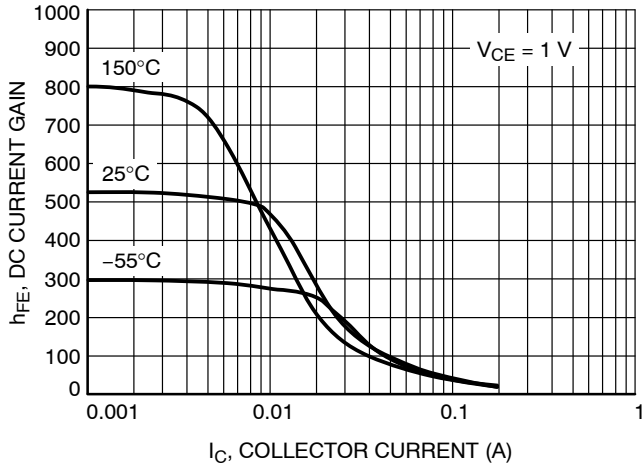


Figure 1. DC Current Gain vs. Collector Current

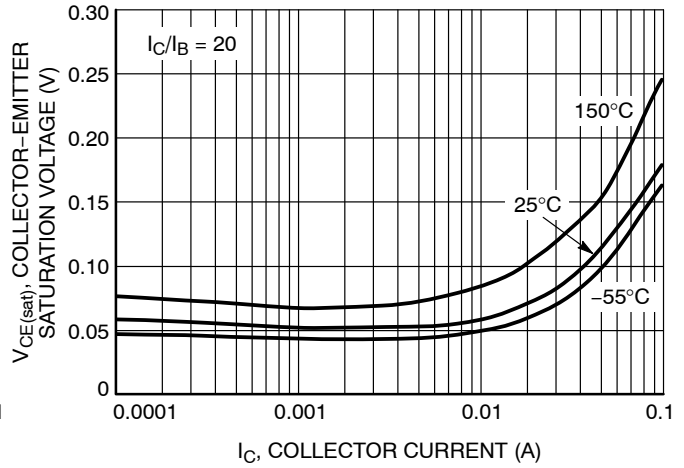


Figure 2. Collector Emitter Saturation Voltage vs. Collector Current

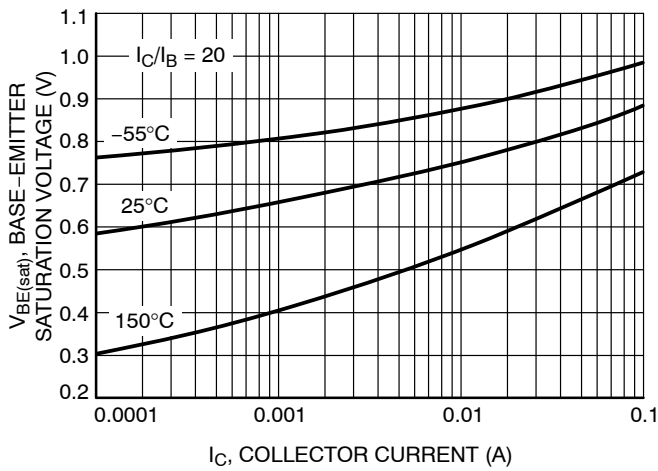


Figure 3. Base Emitter Saturation Voltage vs. Collector Current

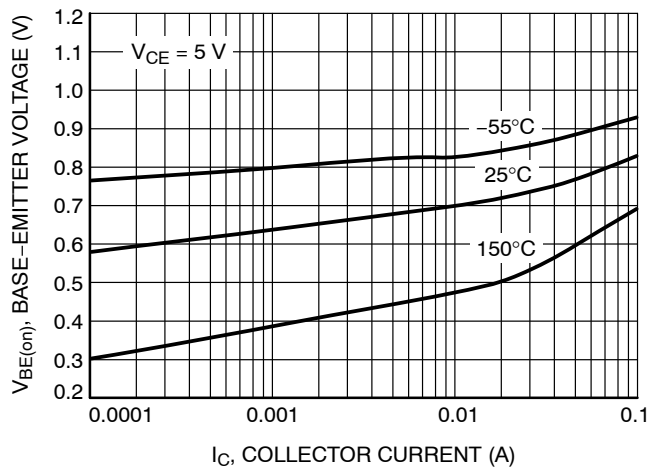


Figure 4. Base Emitter Voltage vs. Collector Current

TYPICAL CHARACTERISTICS

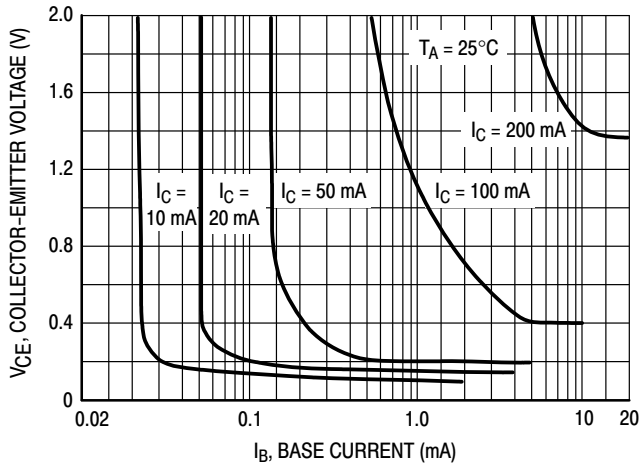


Figure 5. Collector Saturation Region

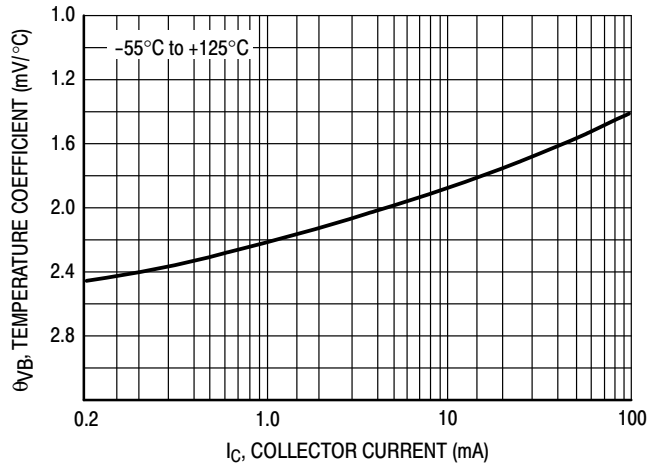


Figure 6. Base-Emitter Temperature Coefficient

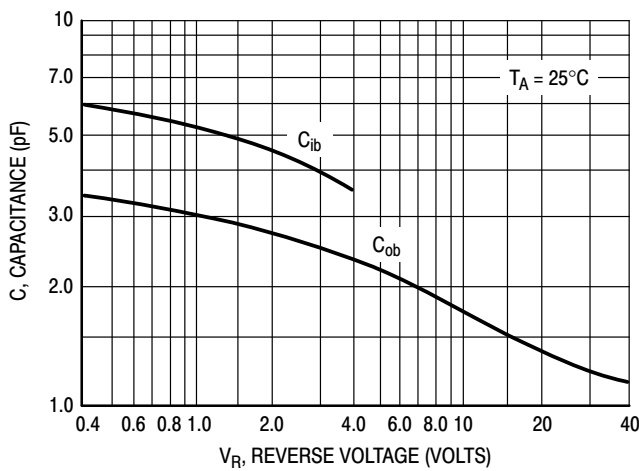


Figure 7. Capacitances

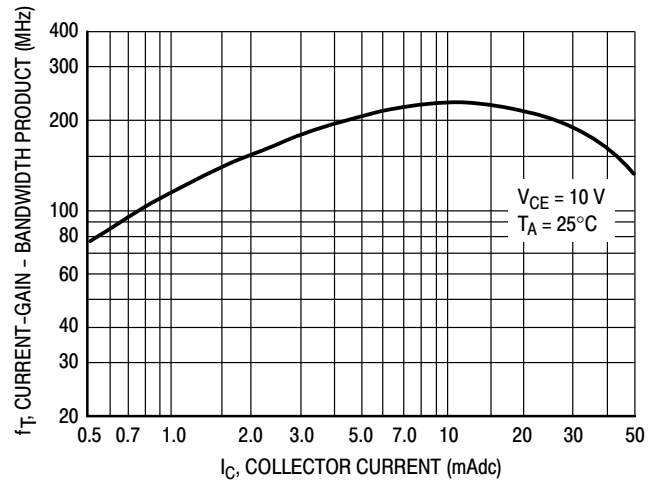


Figure 8. Current-Gain - Bandwidth Product

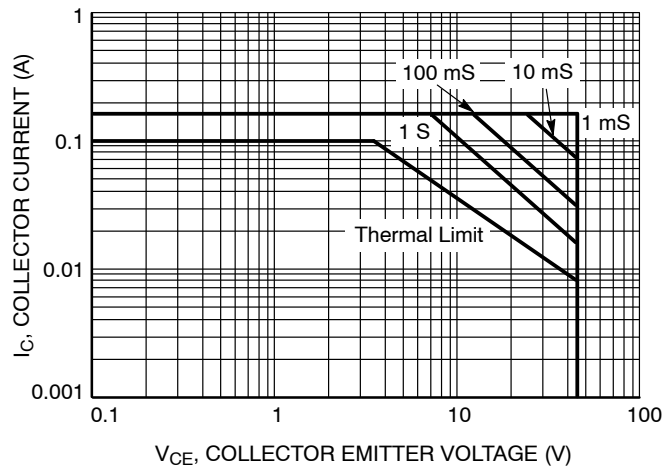
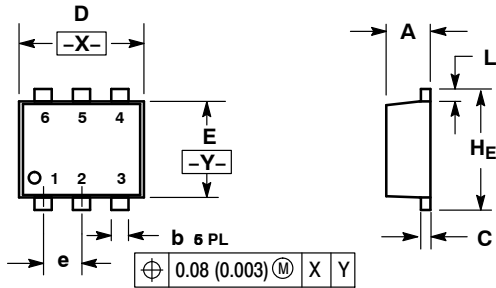


Figure 9. Safe Operating Area

BC847CDXV6T1, BC847CDXV6T5 BC848CDXV6T1, BC848CDXV6T5

PACKAGE DIMENSIONS

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



NOTES:

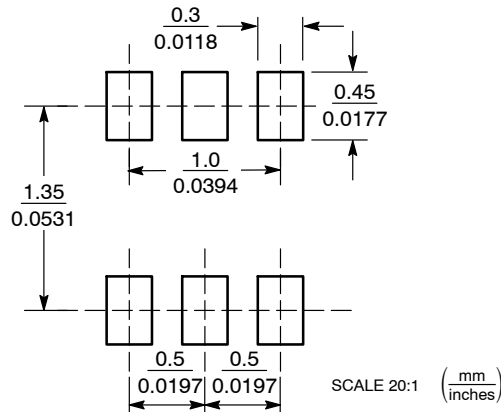
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

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.

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5773-3850

ON Semiconductor Website: www.onsemi.com
Order Literature: <http://www.onsemi.com/orderlit>
For additional information, please contact your local Sales Representative