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	۱ _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

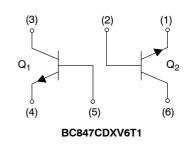
Characteristic (One Junction Heated)	Symbol	Мах	Unit
Total Device Dissipation, (Note 1) T _A = 25°C Derate above 25°C	P _D	357 2.9	mW mW/°C
Thermal Resistance, Junction-to-Ambient (Note 1)	R_{\thetaJA}	350	°C/W
Characteristic (Both Junctions Heated)	Symbol	Max	Unit
Total Device Dissipation, (Note 1)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

1. FR-4 @ Minimum Pad



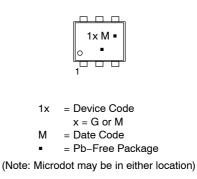
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MARKING DIAGRAMS



ORDERING INFORMATION

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



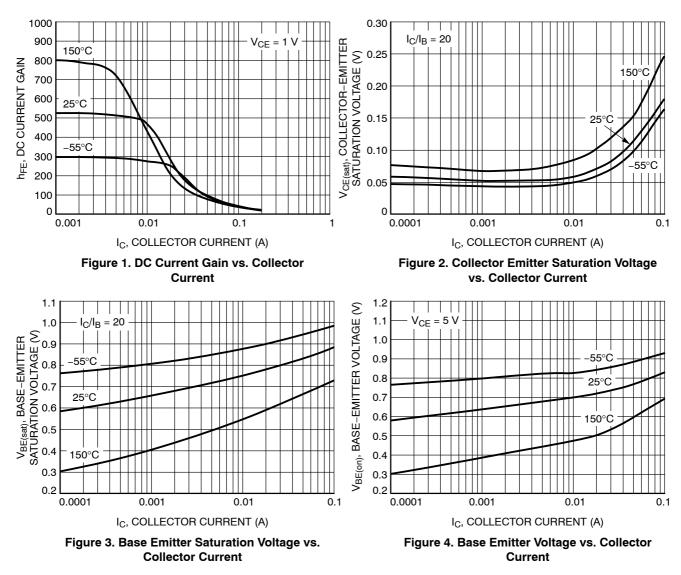
Characteristic	Symbol	Min	Тур	Max	Unit	
OFF CHARACTERISTICS				•		
Collector – Emitter Breakdown Voltage (I _C = 10 mA)	BC847CDXV6T1 BC848CDXV6T1	V _{(BR)CEO}	45 30		-	V
Collector – Emitter Breakdown Voltage (I _C = 10 μ A, V _{EB} = 0)	BC847CDXV6T1 BC848CDXV6T1	V _{(BR)CES}	50 30		-	V
Collector – Base Breakdown Voltage (I _C = 10 μ A)	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 μ A, 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 (I _C = 100 mA, I _B = 5.4 $(I_C = 100 \text{ mA}, I_B = 5.4 \text{ m})$		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 ($I_C = 10 \text{ mA}, V_{CE} = 5.0 \text{ Vdc}, f = 100 \text{ MHz}$)		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 k Ω ,f = 1.0 kHz, BV	W = 200 Hz)	NF	_	_	10	dB

ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}C$ unless otherwise noted)

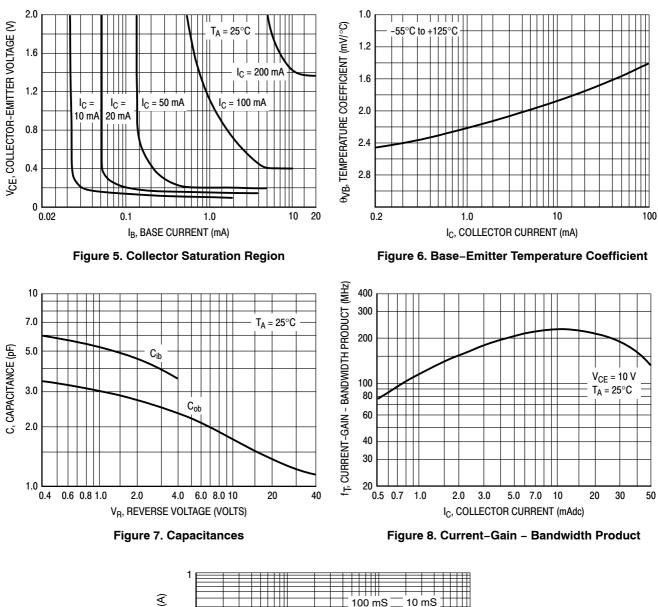
ORDERING INFORMATION

Device	Specific Marking	Package	Shipping [†]
BC847CDXV6T1		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		SOT-563	4000 Units / Tape & Reel
BC848CDXV6T1G	1L	SOT–563 (Pb–Free)	4000 Units / Tape & Reel
BC848CDXV6T5		SOT-563	8000 Units / Tape & Reel
BC848CDXV6T5G		SOT-563 (Pb-Free)	8000 Units / Tape & Reel

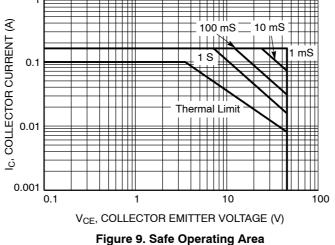
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.



TYPICAL CHARACTERISTICS

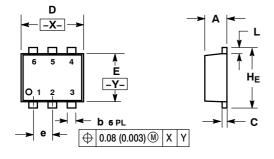


TYPICAL CHARACTERISTICS



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.

	MILLIMETERS		INCHES			
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α	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
С	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
е		0.5 BSC		0.02 BSC		<u>, </u>
L	0.10	0.20	0.30	0.004	0.008	0.012
HE	1.50	1.60	1.70	0.059	0.062	0.066

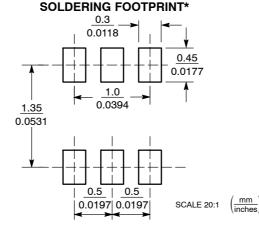
STYLE 1:

PIN 1. EMITTER 1 2. BASE 1

3. COLLECTOR 2

4. EMITTER 2

5. BASE 2 6. COLLECTOR 1



*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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