Features

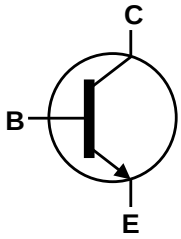
- Ideally Suited for Automatic Insertion
- Epitaxial Planar Die Construction
- Complementary PNP Types: BC807-xxW
- For switching and AF Amplifier Applications
- **Totally Lead-Free & Fully RoHS Compliant (Note 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

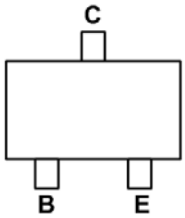
- Case: SOT323
- Case Material: molded plastic, “Green” molding compound UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight 0.006 grams (approximate)

SOT323

Top View



Device Symbol



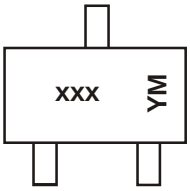
Top View
Pin-Out

Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
BC817-16W-7	K6A	7	8	3,000
BC817-25W-7	K6B	7	8	3,000
BC817-40W-7	K6C	7	8	3,000

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated’s definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



xxx = Product Type Marking Code
(Please see Ordering Information)
YM = Date Code Marking
Y or $\overline{Y}$ = Year (ex: A = 2013)
M or $\overline{M}$ = Month (ex: 9 = September)

Date Code Key

Year	2010	2011	2012	2013	2014	2015	2016	2017
Code	X	Y	Z	A	B	C	D	E

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Continuous Collector Current	I_C	500	mA
Peak Collector Current	I_{CM}	1.0	A
Peak Base Current	I_{BM}	200	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	200	mW
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range		T_J,T_{STG}	-65 to +150	°C

ESD Ratings (Note 6)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Emitter Breakdown Voltage (Note 7)		BV_{CEO}	45	—	—	V	I_C = 10mA
Emitter-Base Breakdown Voltage		BV_{EBO}	5	—	—	V	I_C = 100μA
Collector-Emitter Cutoff Current		I_{CES}	—	—	100 5.0	nA μA	V_{CE} = 45V V_{CE} = 25V, T_J = +150°C
Collector-Base Cutoff Current		I_{CBO}	—	—	100 5.0	nA μA	V_{CE} = 20V V_{CE} = 20V, T_J = +150°C
Emitter-Base Cutoff Current		I_{EBO}	—	—	100	nA	V_{EB} = 5V
DC Current Gain (Note 7)	BC817-16W BC817-25W BC817-40W	h_{FE}	100 160 250	—	250 400 600	—	I_C = 100mA, V_{CE} = 1.0V
	BC817-16W BC817-25W BC817-40W		60 100 170		—		I_C = 300mA, V_{CE} = 1.0V
Collector-Emitter Saturation Voltage (Note 7)		$V_{CE(SAT)}$	—	—	700	mV	I_C = 500mA, I_B = 50mA
Base-Emitter Voltage (Note 7)		V_{BE}	—	—	1200	mV	I_C = 300mA, V_{CE} = 1.0V
Gain Bandwidth Product		f_T	100	—	—	MHz	V_{CE} = 5.0V, I_C = 10mA, f = 50MHz
Collector-Base Capacitance		C_{CBO}	—	—	12	pF	V_{CB} = 10V, f = 1.0MHz

Notes:
5. For a device mounted on minimum recommended pad layout 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Refer to JEDEC specification JESD22-A114 and JESD22-A115.
7. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

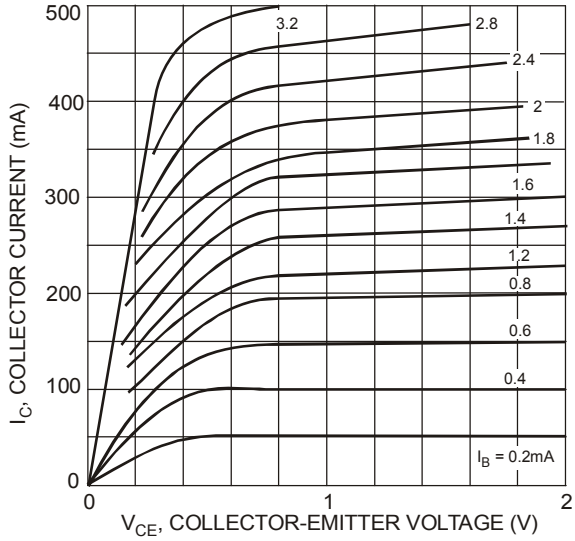


Figure 1 Typical Collector Current vs. Collector-Emitter Voltage

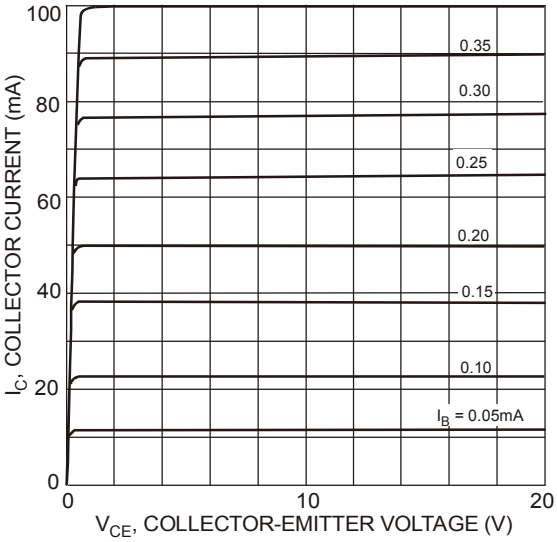


Figure 2 Typical Collector Current vs. Collector-Emitter Voltage

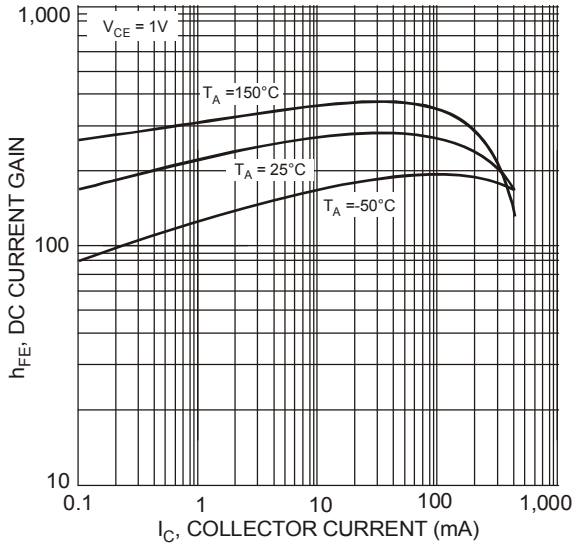


Figure 3 Typical DC Current Gain vs. Collector Current

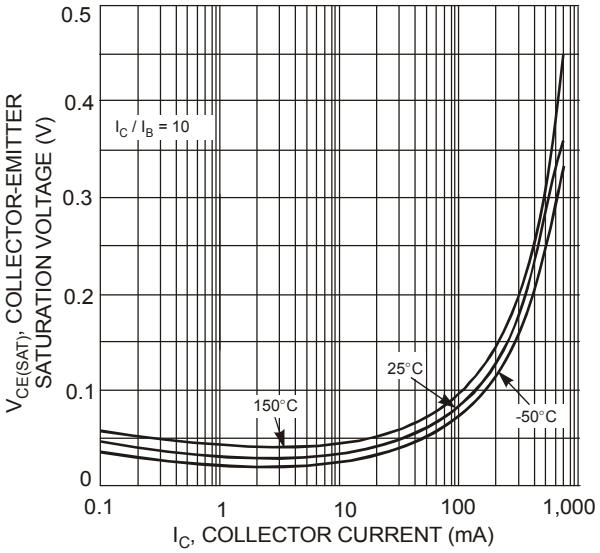


Figure 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

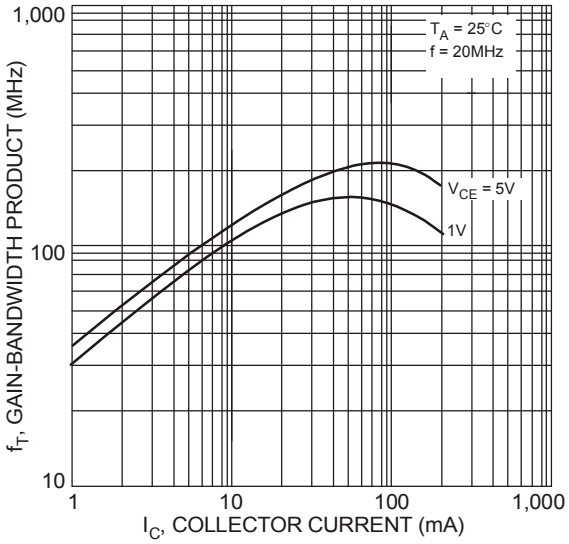
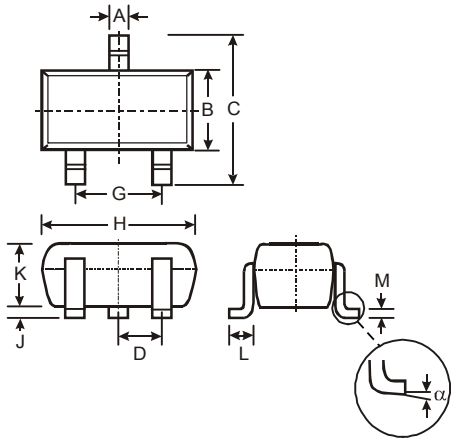


Figure 5 Typical Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions

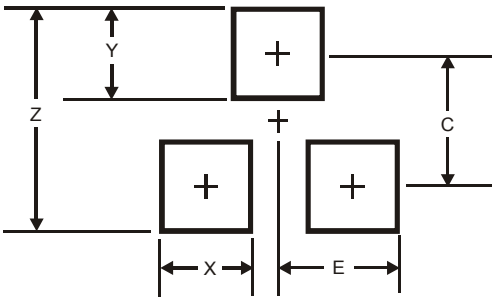
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SOT323			
Dim	**Min**	**Max**	**Typ**
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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