





45V PNP SMALL SIGNAL TRANSISTOR IN SOT23

Features

- Ideally Suited for Automatic Insertion
- Epitaxial Planar Die Construction
- Complementary NPN Types Available (BC817)
- · For switching and AF Amplifier Applications
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

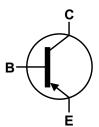
Mechanical Data

- Case: SOT23
- 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 208³
- Weight 0.008 grams (approximate)

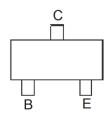
SOT23



Top View



Device Symbol



Top View Pin-Out

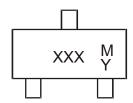
Ordering Information (Notes 5)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
BC807-16-7-F	AEC-Q101	K5A	7	8	3,000
BC807-25-7-F	AEC-Q101	K5B	7	8	3,000
BC807-40-7-F	AEC-Q101	K5C	7	8	3,000
BC807-40-13-F	AEC-Q101	K5C	13	8	10,000
BC807-40Q-7-F	Automotive	K5C	7	8	3,000
BC807-40Q-13-F	Automotive	K5C	13	8	10,000

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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
- 5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



XXX = Product Type Marking Code (See table above)
YM = Date Code Marking

Y = Year ex: X = 2010 M = Month ex: 9 = September

Date Code Key

Date Code Rey	-											
Year	2010	2	011	2012	2	2013	2014		2015	2016		2017
Code	X		Υ	Z		Α	В		С	D		Е
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	/ Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



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}	-5.0	V
Continuous Collector Current	Ic	-0.5	Α
Peak Collector Current	I _{CM}	-1.0	Α
Peak Base Current	I _{BM}	-200	mA

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

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 6)	D-	310	mW
Power Dissipation	(Note 7)	P_{D}	350	IIIVV
Thermal Resistance, Junction to Ambient	(Note 6)	D	403	°C/W
Thermal Resistance, Junction to Ambient	(Note 7)	$R_{\theta JA}$	357	C/VV
Thermal Resistance, Junction to Leads (Note 8)		$R_{ heta JL}$	350	°C/W
Operating and Storage Temperature Range		$T_{J,}T_{STG}$	-55 to +150	°C

ESD Ratings (Note 9)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	≥ 8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	С

Notes:

- 6. For the device mounted on minimum recommended pad layout FR4 PCB with high coverage of single sided 1oz copper in still air condition; device measured when operating in steady state condition.

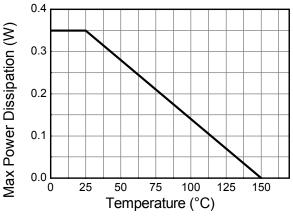
 7. Same as Note 6, except the device is mounted on 15mm X 15mm FR4 PCB.

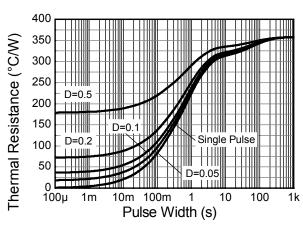
 8. Thermal resistance from junction to solder-point (at the end of the leads).

 9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.



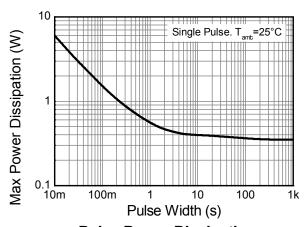
Thermal Characteristics and Derating Information





Derating Curve

Transient Thermal Impedance



Pulse Power Dissipation



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

Characteristic			Min	Тур	Max	Unit	Test Condition
Collector-Base Breakdown Voltage			-50	_	_	V	I _C = -100μA
Collector-Emitter Breakdown Voltage			-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	nΑ μΑ	V _{CE} = -45V V _{CE} = -25V, T _J = +150°C
Emitter-Base Cutoff Current		I _{EBO}	_	_	-100	nA	V _{EB} = -5.0V
DO Compant Cain (Note 40)	BC807-16 BC807-25 BC807-40	h _{FE}	100 160 250		250 400 600		V _{CE} = -1.0V, I _C = -100mA
DC Current Gain (Note 10)	BC807-16 BC807-25 BC807-40		60 100 170	_	_		V _{CE} = -1.0V, I _C = -300mA
Collector-Emitter Saturation Voltage (Note 10)			_	_	-0.7	V	I _C = -500mA, I _B = -50mA
Base-Emitter Voltage (Note 10)			_	_	-1.2	V	V _{CE} = -1.0V, I _C = -300mA
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

Note:

10. Measured under pulsed conditions. Pulse width \leq 300 μ s. Duty cycle \leq 2%



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

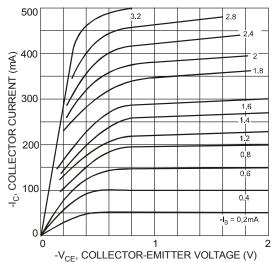


Figure 1 Typical Collector Current vs. Collector-Emitter Voltage

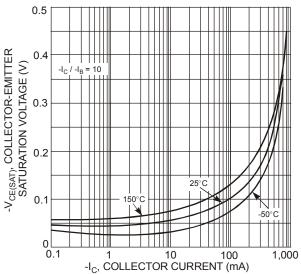
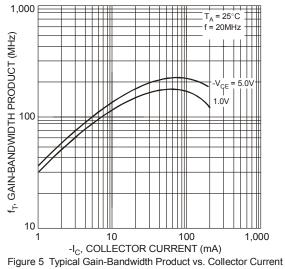


Figure 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current



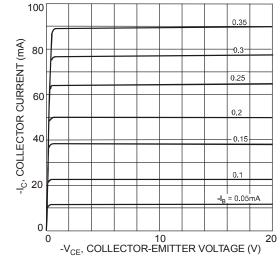


Figure 2 Typical Collector Current vs. Collector-Emitter Voltage

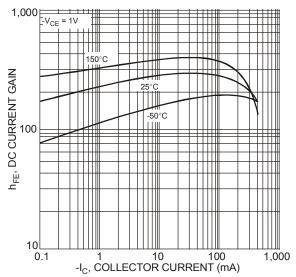
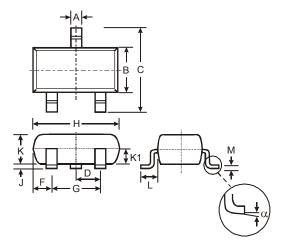


Figure 4 Typical DC Current Gain vs. Collector Current



Package Outline Dimensions

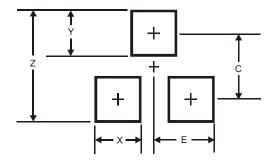
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



	SOT23							
Dim	Min	Max	Тур					
Α	0.37	0.51	0.40					
В	1.20	1.40	1.30					
С	2.30	2.50	2.40					
D	0.89	1.03	0.915					
F	0.45	0.60	0.535					
G	1.78	2.05	1.83					
Н	2.80	3.00	2.90					
J	0.013	0.10	0.05					
K	0.903	1.10	1.00					
K1	-	1	0.400					
L	0.45	0.61	0.55					
М	0.085	0.18	0.11					
α	0°	8°	-					
All	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	2.9
X	0.8
Υ	0.9
С	2.0
Е	1.35



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