

## 500mW, NPN Small Signal Transistor

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

### MECHANICAL DATA

- Case: TO-92
- Molding compound meets UL 94 V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight: 8mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$V_{CBO}$	30-80	V
$V_{CEO}$	30-65	V
$V_{EBO}$	6	V
$I_C$	100	mA
$h_{FE}$	220-800	
Package	TO-92	
Configuration	Single Dice	



1. Collector 2. Base 3. Emitter  
TO-92 Plastic Package

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Marking code on the device		BC8xxA/B/C (Note 1)	
Power dissipation	$P_D$	500	mW

#### Notes:

1. "xx" is device code from "46" to "50", "MARKING" should follow the "PART NO."

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)				
<b>PARAMETER</b>		<b>SYMBOL</b>	<b>VALUE</b>	<b>UNIT</b>
Collector-base voltage, emitter open	BC546	$V_{CBO}$	80	V
	BC547,BC550		50	
	BC548,BC549		30	
Collector-emitter voltage, base open	BC546	$V_{CEO}$	65	V
	BC547,BC550		45	
	BC548,BC549		30	
Emitter-base voltage, collector open	BC546	$V_{EBO}$	6	V
	BC547,BC550		6	
	BC548,BC549		6	
Collector current		$I_C$	100	mA
Peak collector current		$I_{CM}$	200	mA
Junction temperature		$T_J$	-65 to +150	$^\circ\text{C}$
Storage temperature		$T_{STG}$	-65 to +150	$^\circ\text{C}$

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)							
<b>PARAMETER</b>	<b>CONDITIONS</b>		<b>SYMBOL</b>	<b>MIN</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Collector cutoff current, emitter open	$V_{CB} = 30\text{ V}$		$I_{CBO}$	-	-	15	nA
Emitter cutoff current, collector open	$V_{EB} = 5\text{ V}$		$I_{EBO}$	-	-	100	nA
Collector-base voltage, emitter open	$I_C = 100\ \mu\text{A}$	BC546	$V_{CBO}$	80	-	-	V
		BC547,BC550		50	-	-	
		BC548,BC549		30	-	-	
Collector-emitter voltage, base open	$I_C = 10\text{ mA}$	BC546	$V_{CEO}$	65	-	-	V
		BC547,BC550		45	-	-	
		BC548,BC549		30	-	-	
Emitter-base voltage, collector open	$I_E = 100\ \mu\text{A}$	BC546	$V_{EBO}$	6	-	-	V
		BC547,BC550		6	-	-	
		BC548,BC549		6	-	-	
DC current gain	$V_{CE} = 5\text{ V},$ $I_C = 2\text{ mA}$	Current gain group :A	$h_{FE}$	110	-	220	
		B		200	-	450	
		C		420	-	800	

<b>ORDERING INFORMATION</b>				
<b>PART NO.</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX(*)</b>	<b>PACKAGE</b>	<b>PACKING</b>
BC5xxA/B/C (Note 1)	A1	G	TO-92	4K / Ammo
	B1			5K / Bulk

**Notes:**

1. "xx" is device code from "46" to "50"

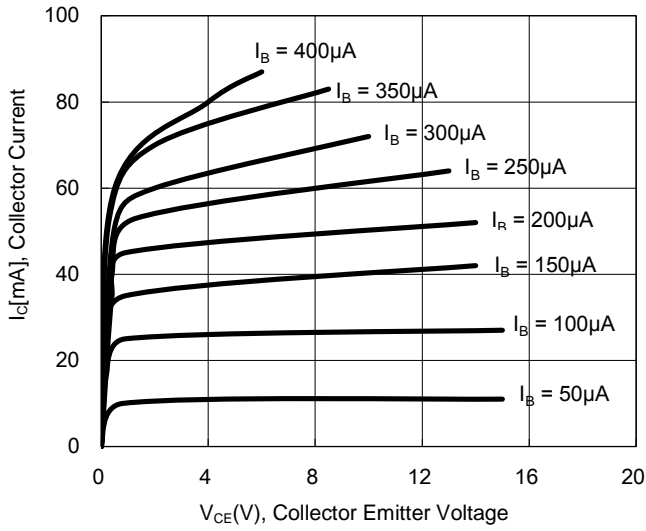
\*: optional available

<b>EXAMPLE</b>				
<b>EXAMPLE P/N</b>	<b>PART NO.</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>DESCRIPTION</b>
BC546A A1G	BC546A	A1	G	Green compound

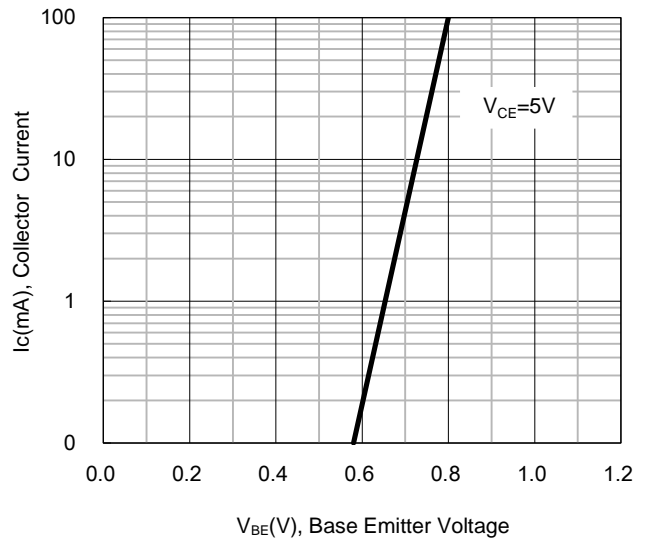
**CHARACTERISTICS CURVES**

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

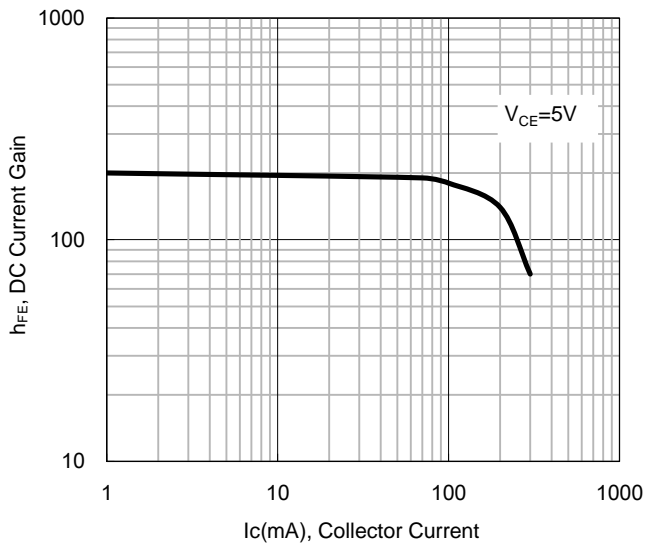
**Fig. 1 Static Characteristic**



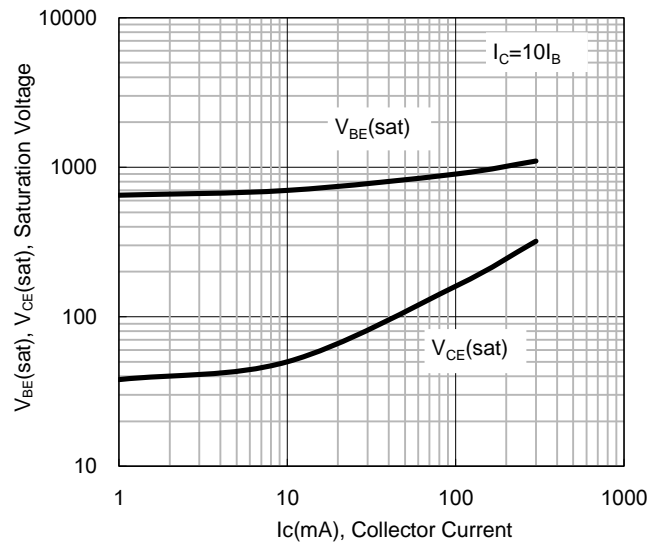
**Fig. 2 Transfer Characteristic**



**Fig. 3 DC Current Gain**

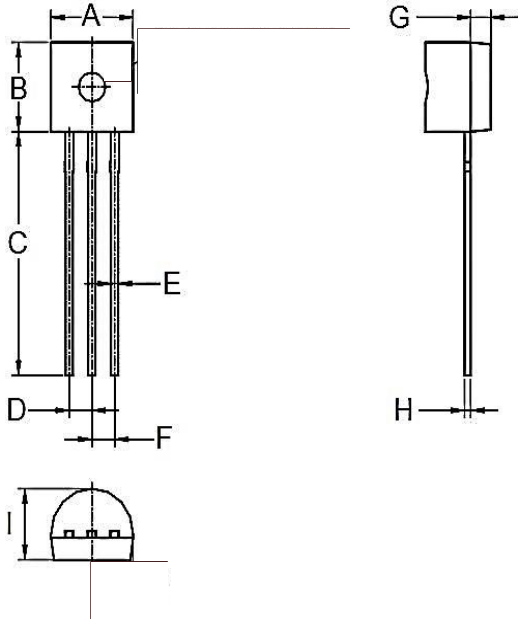


**Fig. 4 Base Emitter Saturation Voltage  
Collector Emitter Saturation Voltage**



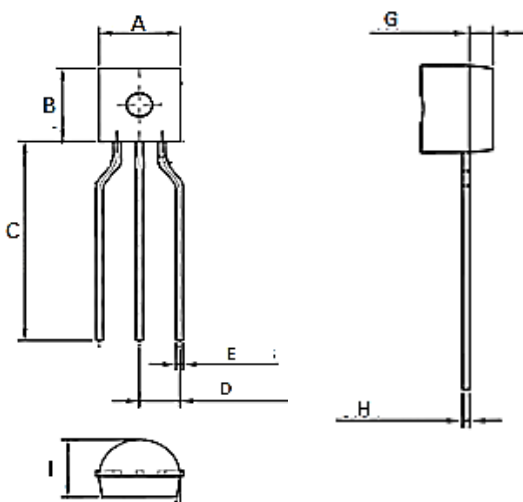
**PACKAGE OUTLINE DIMENSION**

TO-92 Bulk



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	4.40	5.10	0.173	0.201
B	4.30	4.70	0.169	0.185
C	12.50	14.50	0.492	-
D	1.17	1.37	0.046	0.054
E	0.35	0.55	0.014	0.022
F	1.17	1.37	0.046	0.054
G	0.59	1.40	0.023	0.055
H	0.29	0.51	0.011	0.020
I	3.30	4.10	0.130	0.161

TO-92 Ammo



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	4.30	4.70	0.169	0.185
B	4.30	4.70	0.169	0.185
C	12.50	-	0.492	-
D	2.20	2.80	0.087	0.110
E	0.35	0.55	0.014	0.022
G	1.00	1.20	0.039	0.047
H	0.29	0.51	0.011	0.020
I	3.30	3.70	0.130	0.146

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