

## 500mW, NPN Small Signal Transistor

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- RoHS Compliant

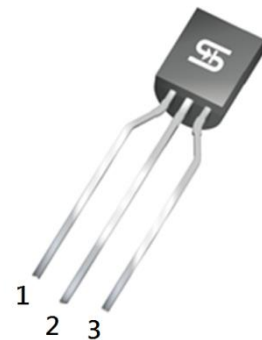
### APPLICATIONS

- 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
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight: 190mg (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 Die	



1: Collector 2: Base 3: Emitter

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Marking code on the device <sup>(1)</sup>		BC5xA/B/C	
Power dissipation	$P_D$	500	mW
Junction temperature	$T_J$	-65 to +150	$^\circ\text{C}$
Storage temperature	$T_{STG}$	-65 to +150	$^\circ\text{C}$

#### Notes:

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

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

PARAMETER		SYMBOL	VALUE	UNIT
Collector-base voltage, emitter open	BC546	$V_{CBO}$	80	V
	BC547,BC550		50	V
	BC548,BC549		30	V
Collector-emitter voltage, base open	BC546	$V_{CEO}$	65	V
	BC547,BC550		45	V
	BC548,BC549		30	V
Emitter-base voltage, collector open	BC546	$V_{EBO}$	6	V
	BC547,BC550		6	V
	BC548,BC549		6	V
Collector current		$I_C$	100	mA
Peak collector current		$I_{CM}$	200	mA

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

PARAMETER	CONDITIONS		SYMBOL	MIN	TYP	MAX	UNIT
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	-	-	V
		BC548,BC549		30	-	-	V
Collector-emitter voltage, base open	$I_C = 10\text{mA}$	BC546	$V_{CEO}$	65	-	-	V
		BC547,BC550		45	-	-	V
		BC548,BC549		30	-	-	V
Emitter-base voltage, collector open	$I_E = 100\mu\text{A}$	BC546	$V_{EBO}$	6	-	-	V
		BC547,BC550		6	-	-	V
		BC548,BC549		6	-	-	V
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	

**ORDERING INFORMATION**

ORDERING CODE <sup>(1)(2)</sup>	PACKAGE	PACKING
BC5xA/B/C A1G	TO-92	4,000 / Ammo Box
BC5xA/B/C B1G	TO-92	5,000 / Bulk
BC5xA/B/C A1	TO-92	4,000 / Ammo Box
BC5xA/B/C B1	TO-92	5,000 / Bulk

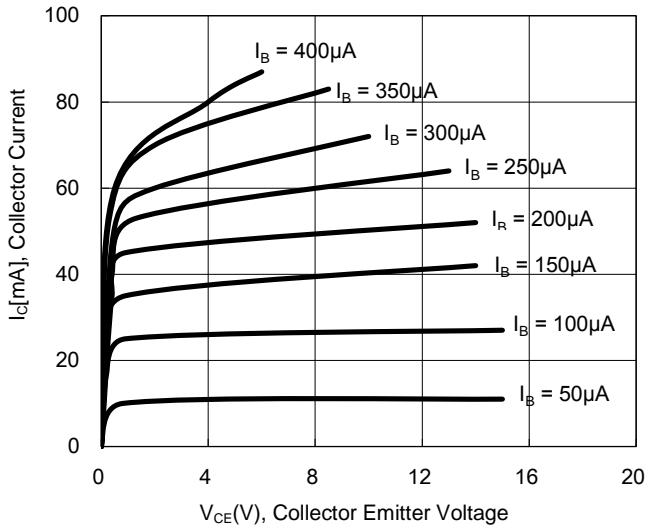
**Notes:**

- "x" is device code from "46" to "50"
- "G" is means green compound (halogen free)

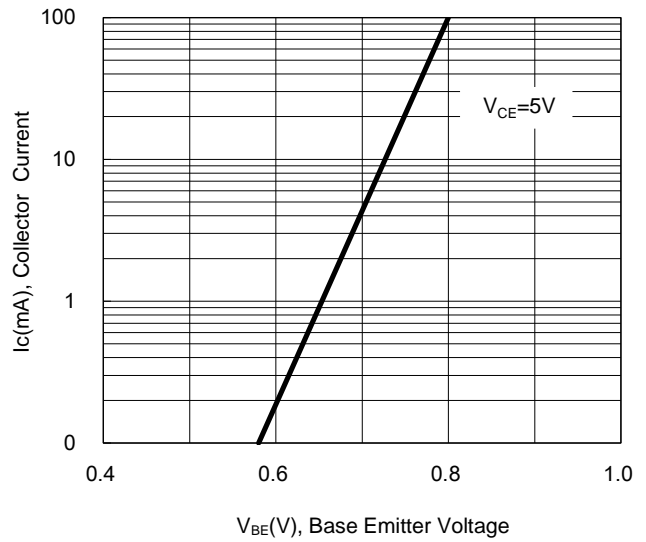
**CHARACTERISTICS CURVES**

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

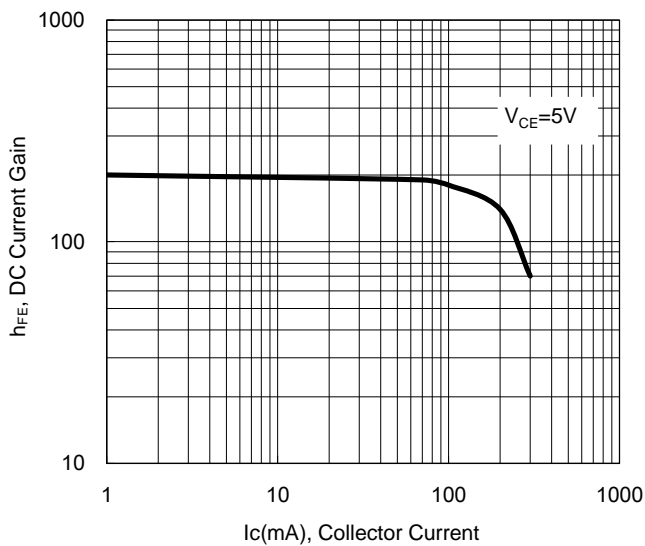
**Fig.1 Static Characteristic**



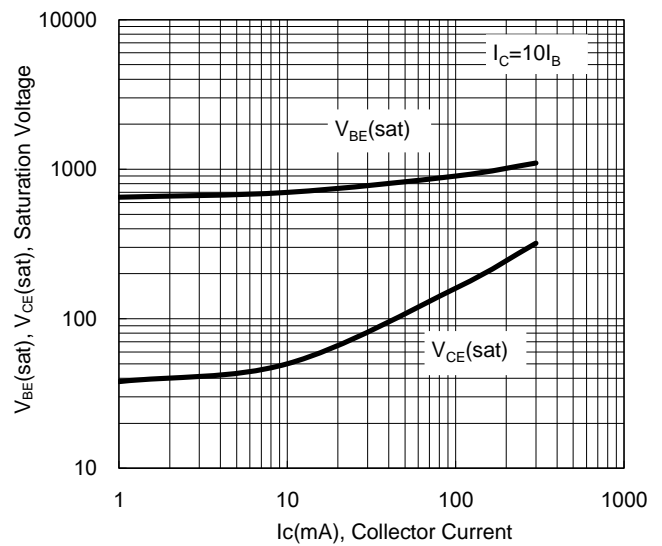
**Fig.2 Transfer Characteristic**



**Fig.3 DC Current Gain**

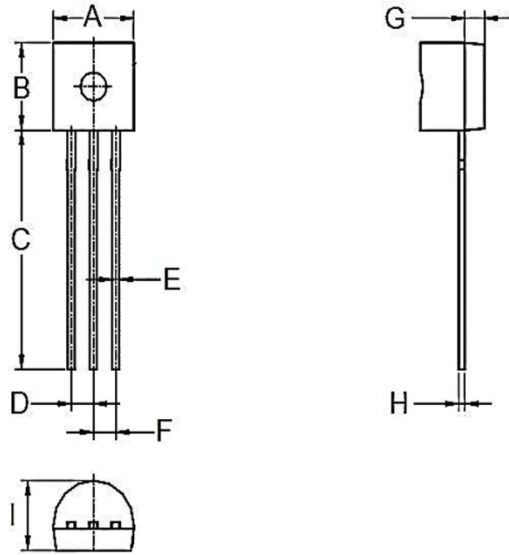


**Fig.4 Base Emitter Saturation Voltage  
Collector Emitter Saturation Voltage**



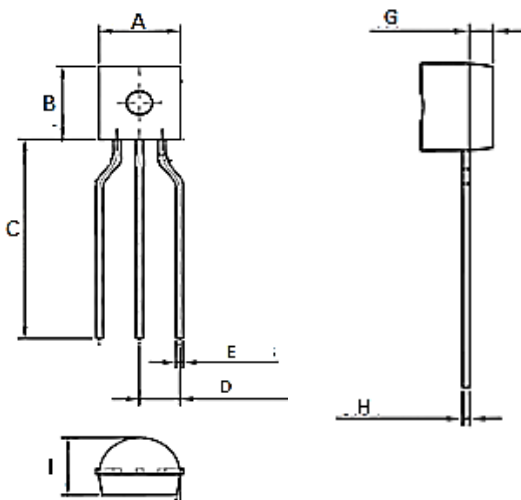
**PACKAGE OUTLINE DIMENSION**

**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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