



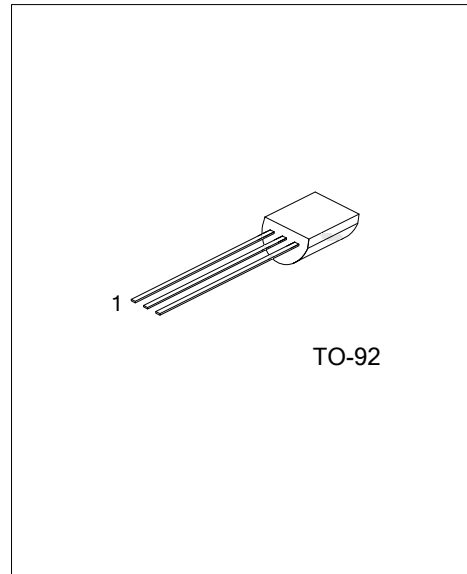
# BC546/547/548

NPN EPITAXIAL SILICON TRANSISTOR

## SWITCHING AND AMPLIFIER APPLICATIONS

### FEATURES

- \* High Voltage: **UTC BC546**,  $V_{CE0}=65V$
- UTC BC547**,  $V_{CE0}=45V$
- UTC BC548**,  $V_{CE0}=30V$



### ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BC546L-x-T92-B	BC546G-x-T92-B	TO-92	C	B	E	Tape Box
BC546L-x-T92-K	BC546G-x-T92-K	TO-92	C	B	E	Bulk
BC547L-x-T92-B	BC547G-x-T92-B	TO-92	C	B	E	Tape Box
BC547L-x-T92-K	BC547G-x-T92-K	TO-92	C	B	E	Bulk
BC548L-x-T92-B	BC548G-x-T92-B	TO-92	C	B	E	Tape Box
BC548L-x-T92-K	BC548G-x-T92-K	TO-92	C	B	E	Bulk

Note: Pin Assignment: C: Collector B: Base E: Emitter

<p>BC546L-x-T92-B</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Rank</p> <p>(4) Halogen Free</p>	<p>(1) B: Tape Box, K: Bulk</p> <p>(2) T92: TO-92</p> <p>(3) refer to CLASSIFICATION OF <math>h_{FE}</math></p> <p>(4) L: Lead Free, G: Halogen Free</p>
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■ **ABSOLUTE MAXIMUM RATING** ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-base voltage	BC546	80	V
	BC547	50	V
	BC548	30	V
Collector-emitter voltage	BC546	65	V
	BC547	45	V
	BC548	30	V
Emitter-base voltage	BC546	6	V
	BC547	6	V
	BC548	5	V
Collector current (DC)	$I_C$	100	mA
Collector dissipation	$P_C$	500	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ **ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=30\text{V}, I_E=0$			15	nA
DC current gain	$h_{FE}$	$V_{CE}=5\text{V}, I_C=2\text{mA}$	110		800	
Collector-emitter saturation voltage	$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$		90	250	mV
		$I_C=100\text{mA}, I_B=5\text{mA}$		200	600	mV
Base-emitter saturation voltage	$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$		700		mV
		$I_C=100\text{mA}, I_B=5\text{mA}$		900		mV
Base-emitter on voltage	$V_{BE(ON)}$	$V_{CE}=5\text{V}, I_C=2\text{mA}$	580	660	700	mV
		$V_{CE}=5\text{V}, I_C=10\text{mA}$			720	mV
Current gain bandwidth product	$f_T$	$V_{CE}=5\text{V}, I_C=10\text{mA}, f=100\text{MHz}$		300		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		3.5	6	pF
Input Capacitance	$C_{ib}$	$V_{EB}=0.5\text{V}, I_C=0, f=1\text{MHz}$		9		pF
Noise Figure	NF	$V_{CE}=5\text{V}, I_C=200\mu\text{A}, f=1\text{KHz}, R_G=2\text{K}\Omega$		2	10	dB

■ **CLASSIFICATION OF  $h_{FE}$**

RANK	A	B	C
$h_{FE}$	110 - 220	200 - 450	420 - 800

## ■ TYPICAL CHARACTERISTICS

Figure 1. Static Characteristic

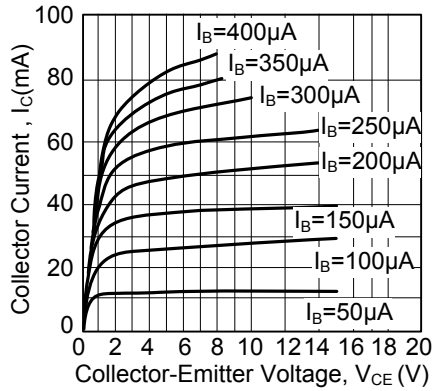


Figure 2. Transfer Characteristic

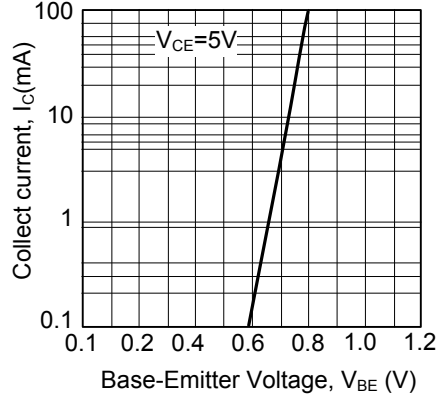


Figure 3. DC Current Gain

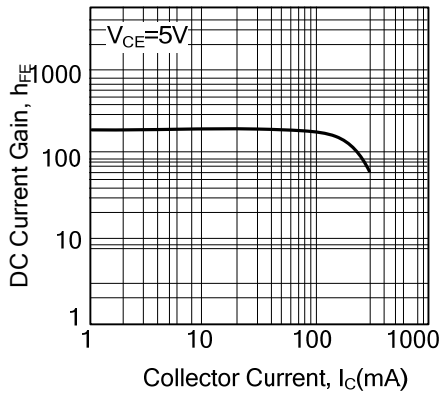


Figure 4. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

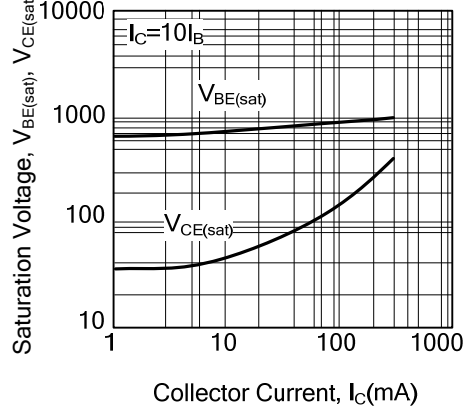


Figure 5. Output Capacitance

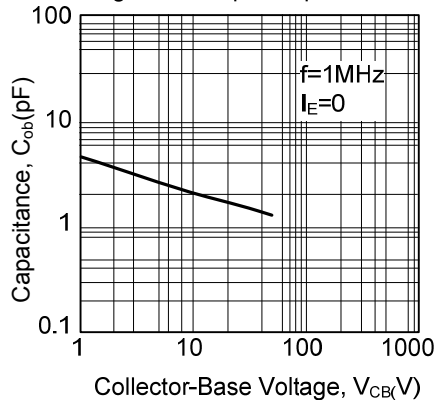
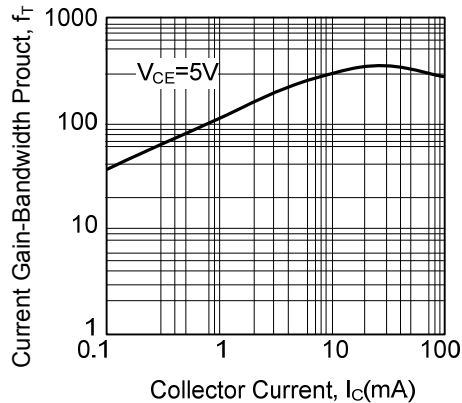


Figure 6. Current Gain Bandwidth Product



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