

# BC546/547/548/549/550

## **Switching and Applications**

High Voltage: BC546, V<sub>CEO</sub>=65V
Low Noise: BC549, BC550
Complement to BC556 ... BC560

TO-92

1. Collector 2. Base 3. Emitter

# **NPN Epitaxial Silicon Transistor**

# **Absolute Maximum Ratings** $T_a$ =25°C unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage : BC546	80	V
	: BC547/550	50	V
	: BC548/549	30	V
V <sub>CEO</sub>	Collector-Emitter Voltage : BC546	65	V
	: BC547/550	45	V
	: BC548/549	30	V
$V_{EBO}$	Emitter-Base Voltage : BC546/547	6	V
	: BC548/549/550	5	V
Ic	Collector Current (DC)	100	mA
P <sub>C</sub>	Collector Power Dissipation	500	mW
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature	-65 ~ 150	°C

## **Electrical Characteristics** $T_a$ =25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Units
I <sub>CBO</sub>	Collector Cut-off Current	$V_{CB}$ =30V, $I_{E}$ =0			15	nA
h <sub>FE</sub>	DC Current Gain	V <sub>CE</sub> =5V, I <sub>C</sub> =2mA	110		800	
V <sub>CE</sub> (sat)	Collector-Emitter Saturation Voltage	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA I <sub>C</sub> =100mA, I <sub>B</sub> =5mA		90 200	250 600	mV mV
V <sub>BE</sub> (sat)	Base-Emitter Saturation Voltage	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA I <sub>C</sub> =100mA, I <sub>B</sub> =5mA		700 900		mV mV
V <sub>BE</sub> (on)	Base-Emitter On Voltage	$V_{CE}$ =5V, $I_{C}$ =2mA $V_{CE}$ =5V, $I_{C}$ =10mA	580	660	700 720	mV mV
f <sub>T</sub>	Current Gain Bandwidth Product	V <sub>CE</sub> =5V, I <sub>C</sub> =10mA, f=100MHz		300		MHz
C <sub>ob</sub>	Output Capacitance	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz		3.5	6	pF
C <sub>ib</sub>	Input Capacitance	V <sub>EB</sub> =0.5V, I <sub>C</sub> =0, f=1MHz		9		pF
NF	Noise Figure : BC546/547/548	V <sub>CE</sub> =5V, I <sub>C</sub> =200μA		2	10	dB
	: BC549/550	$f=1KHz$ , $R_G=2K\Omega$		1.2	4	dB
	: BC549	$V_{CE}$ =5V, $I_{C}$ =200 $\mu$ A		1.4	4	dB
	: BC550	$R_G=2K\Omega$ , $f=30\sim15000MHz$		1.4	3	dB

# **h**<sub>FE</sub> Classification

Classification A		В	С
h <sub>FE</sub>	110 ~ 220	200 ~ 450	420 ~ 800

# **Typical Characteristics**

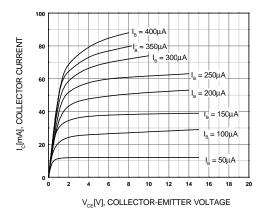


Figure 1. Static Characteristic

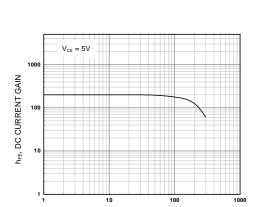


Figure 3. DC current Gain

I<sub>c</sub>[mA], COLLECTOR CURRENT

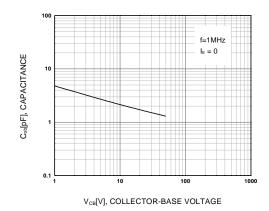


Figure 5. Output Capacitance

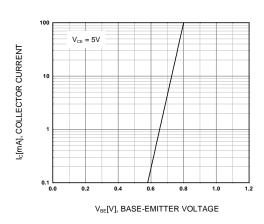


Figure 2. Transfer Characteristic

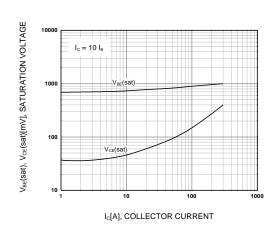


Figure 4. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

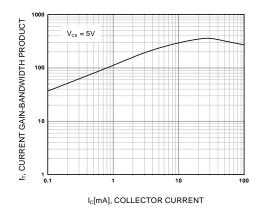
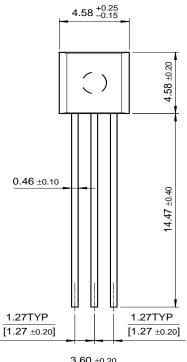


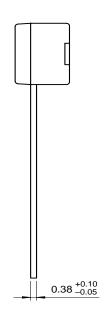
Figure 6. Current Gain Bandwidth Product

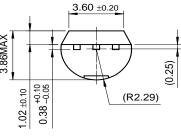
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# **Package Dimensions**

TO-92







Dimensions in Millimeters

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DOME™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
E <sup>2</sup> CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	$I^2C^{TM}$	$OCX^{TM}$	RapidConfigure™	UHC™
Across the board.	Around the world.™	OCXPro™	RapidConnect™	UltraFET <sup>®</sup>
The Power Franci	hise™	OPTOLOGIC <sup>®</sup>	SILENT SWITCHER®	VCX <sup>TM</sup>
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#### **Definition of Terms**

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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### **BC550**

NPN Epitaxial Silicon Transistor

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#### **Features**

High Voltage V<sub>CFO</sub>=65V

• Low Noise: BC549,BC550

• Complement to BC556...BC560

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### **Applications**

**Switching and Amplifier** 

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Product status/pricing/packaging

BUY

# BUY

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#### **Related Links**

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**Product Change Notices** (PCNs)

Support

Sales support

Quality and reliability

Design center

Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
BC550	Full Production	Full Production	\$0.0473	<u>TO-92</u>	3	BULK	Line 1: <b>\$Y</b> (Fairchild logo) & <b>Z</b> (Asm. Plant Code) & <b>3</b> (3-Digit Date Code) Line 2: BC Line 3: 550
BC550ABU	Full Production	Full Production	\$0.0238	<u>TO-92</u>	3	BULK	Line 1: BC550 Line 2: A Line 3: -&3

BC550ATA	Full Production	Full Production	\$0.0238	<u>TO-92</u>	3	АММО	Line 1: BC550 Line 2: A Line 3: -&3
BC550B	Full Production	Full Production	\$0.0473	<u>TO-92</u>	3	BULK	Line 1: <b>\$Y</b> (Fairchild logo) & <b>Z</b> (Asm. Plant Code) & <b>3</b> (3-Digit Date Code) Line 2: BC Line 3: 550B
BC550BBU	Full Production	Full Production	\$0.0238	<u>TO-92</u>	3	BULK	Line 1: BC550 Line 2: B Line 3: -&3
BC550BTA	Full Production	Full Production	\$0.0238	<u>TO-92</u>	3	АММО	Line 1: BC550 Line 2: B Line 3: -&3
BC550BTAR	Full Production	Full Production	\$0.0238	<u>TO-92</u>	3	АММО	Line 1: BC550 Line 2: B Line 3: -&3
BC550BU	Full Production	Full Production	\$0.0238	<u>TO-92</u>	3	BULK	Line 1: BC550 Line 3: -&3
BC550CBU	Full Production	Full Production	\$0.0238	<u>TO-92</u>	3	BULK	Line 1: BC550 Line 2: C Line 3: -&3
BC550CTA	Full Production	Full Production	\$0.0238	TO-92	3	АММО	Line 1: BC550 Line 2: C Line 3: -&3

<sup>\*</sup> Fairchild 1,000 piece Budgetary Pricing
\*\* A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a Fairchild distributor to obtain samples



Indicates product with Pb-free second-level interconnect. For more information click here.

Package marking information for product BC550 is available. Click here for more information.

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#### Models

Package & leads	Condition	Temperature range	Software version	Revision date
		PSPICE		
TO-92-3	Electrical/Thermal	-25°C to 100°C	9.2	Apr 12, 2001

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## **Qualification Support**

Click on a product for detailed qualification data

Product
BC550
BC550ABU
BC550ATA
BC550B
BC550BBU
BC550BTA
BC550BTAR
BC550BU
BC550CBU
BC550CTA

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