

REPLACEMENT TYPE : BC556/BC557/BC558

FEATURES

- Low current
- High Voltage
- Complement to HCBC546,HCBC547,HCBC548



TO-92

1: COLLECTOR 2: BASE 3: EMITTER

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

Parameter		Symbol	Value	Unit
Collector-Base Voltage	BC546	V_{CBO}	-80	V
	BC547		-50	
	BC548		-30	
Collector-Emitter Voltage	BC546	V_{CEO}	-65	V
	BC547		-45	
	BC548		-30	
Emitter-Base Voltage	BC546	V_{EBO}	-5	V
	BC547		-5	V
	BC548		-5	V
Collector Current-Continuous		I_C	-0.1	A
Collector Power Dissipation		P_C	625	mW
Thermal Resistance from Junction to Ambient		$R_{\theta JA}$	200	$^{\circ}\text{C/W}$
Junction Temperature		T_j	150	$^{\circ}\text{C}$
Storage Temperature		T_{stg}	-55~+150	$^{\circ}\text{C}$

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

Parameter		Symbol	Test conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BC556	V_{CBO}	$I_C = -0.1\text{mA}, I_E = 0$	-80			V
	BC557			-50			
	BC558			-30			
Collector-Emitter Breakdown Voltage	BC556	V_{CEO}	$I_C = -2\text{mA}, I_B = 0$	-65			V
	BC557			-45			
	BC558			-30			
Emitter-Base Breakdown Voltage	BC556	V_{EBO}	$I_E = -100\mu\text{A}, I_C = 0$	-5			V
	BC557			-5			
	BC558			-5			
Collector Cut-off Current	BC556	I_{CBO}	$V_{CB} = -70\text{V}, I_E = 0$			-0.1	μA
	BC557		$V_{CB} = -45\text{V}, I_E = 0$			-0.1	μA
	BC558		$V_{CB} = -25\text{V}, I_E = 0$			-0.1	μA
Collector Cut-off Current	BC556	I_{CEO}	$V_{CE} = -60\text{V}, I_B = 0$			-0.1	μA
	BC557		$V_{CE} = -45\text{V}, I_B = 0$			-0.1	μA
	BC558		$V_{CE} = -20\text{V}, I_B = 0$			-0.1	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = -5\text{V}, I_C = 0$			0.1	μA
DC Current Gain		h_{FE}	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	120		800	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$			0.3	V
			$I_C = -100\text{mA}, I_B = -5\text{mA}$			0.65	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$			0.8	V
			$I_C = -100\text{mA}, I_B = -5\text{mA}$			1	V
Base-Emitter Voltage		V_{BE}	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	-0.55		-0.7	V
			$V_{CE} = -5\text{V}, I_C = -10\text{mA}$			-0.8	V
Collector Output Capacitance		C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$			5	pF
Transition Frequency		f_T	$V_{CE} = -5\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$		150		MHz

CLASSIFICATION OF h_{FE}

Rank	556A	557B	558C
Range	110-220	200-450	420-800

Typical Characteristics

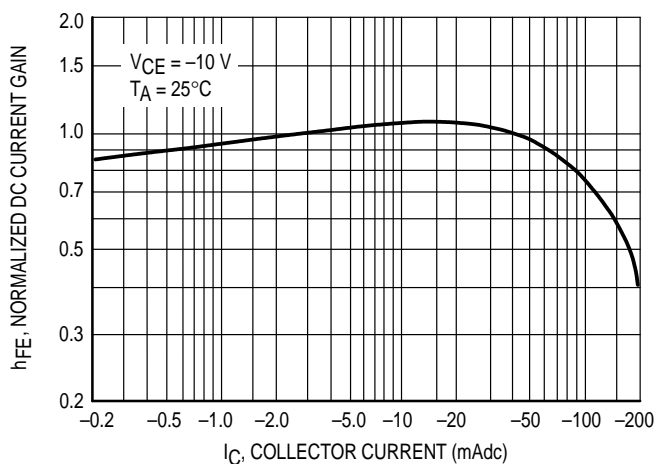


Figure 1. Normalized DC Current Gain

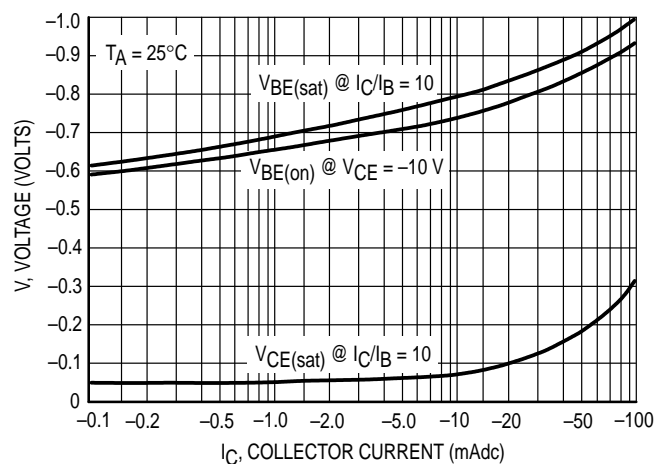


Figure 2. "Saturation" and "On" Voltages

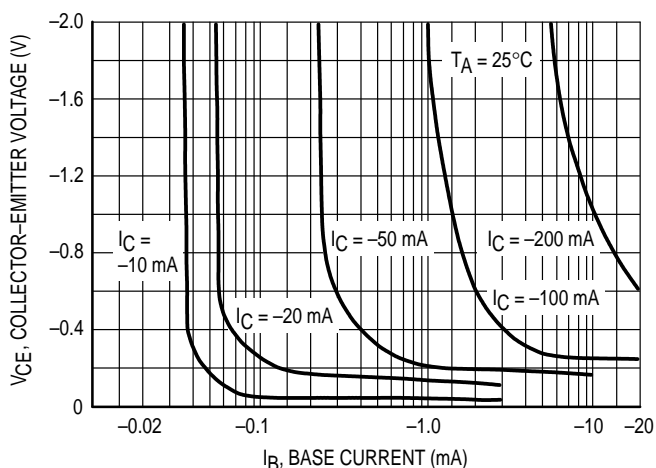


Figure 3. Collector Saturation Region

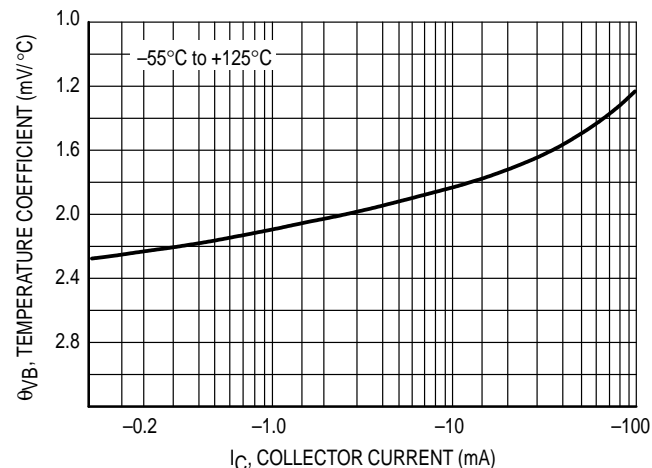


Figure 4. Base-Emitter Temperature Coefficient

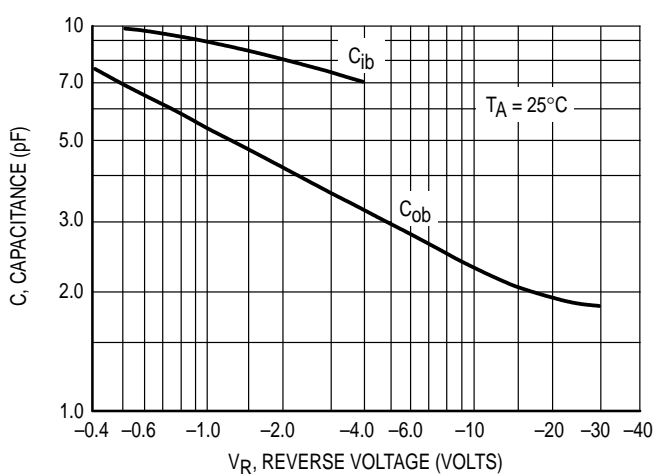


Figure 5. Capacitances

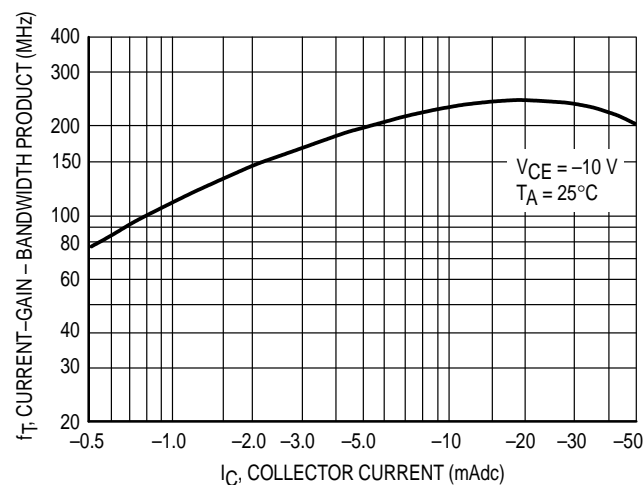


Figure 6. Current-Gain - Bandwidth Product

BC556/BC557/BC558 Typical Characteristics

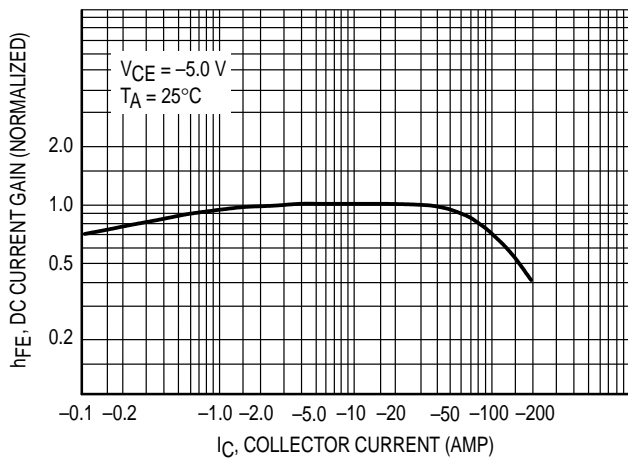


Figure 7. DC Current Gain

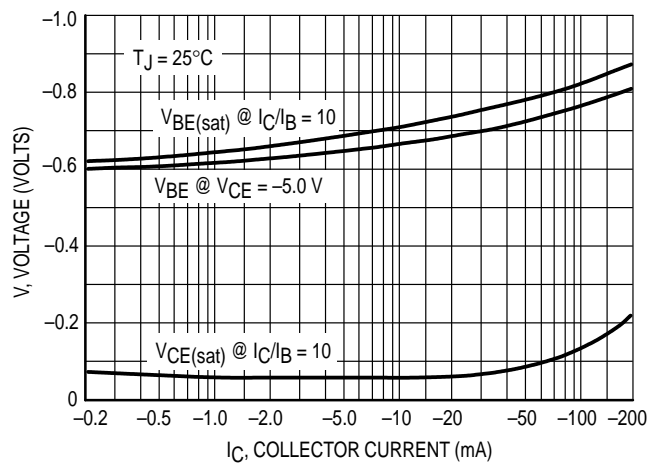


Figure 8. "On" Voltage

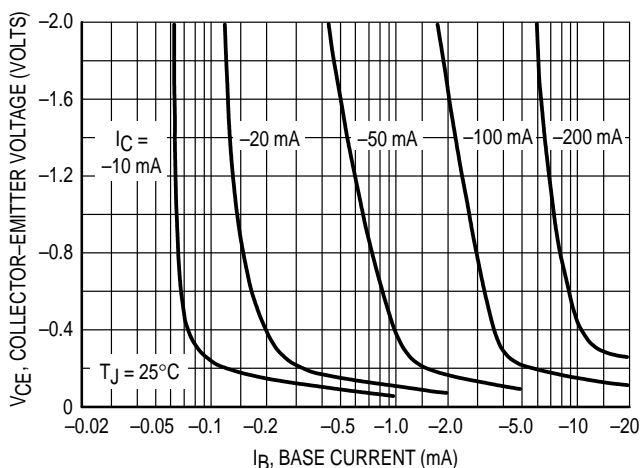


Figure 9. Collector Saturation Region

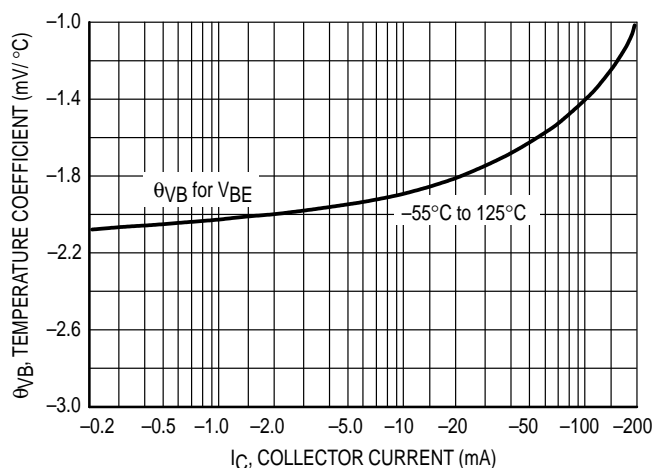


Figure 10. Base-Emitter Temperature Coefficient

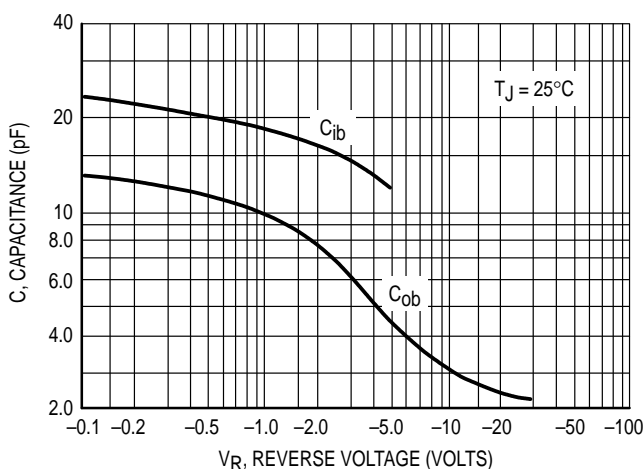


Figure 11. Capacitance

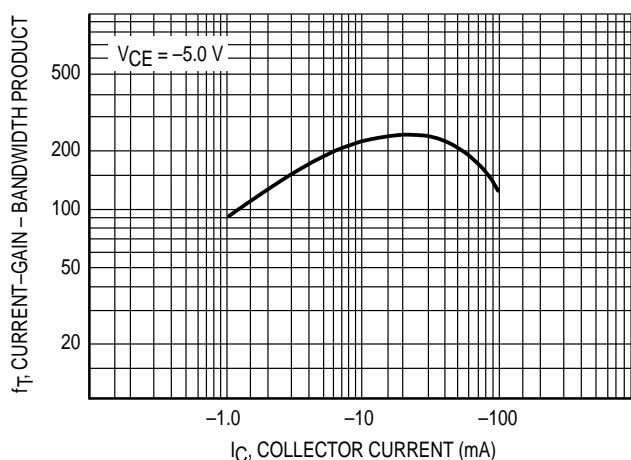
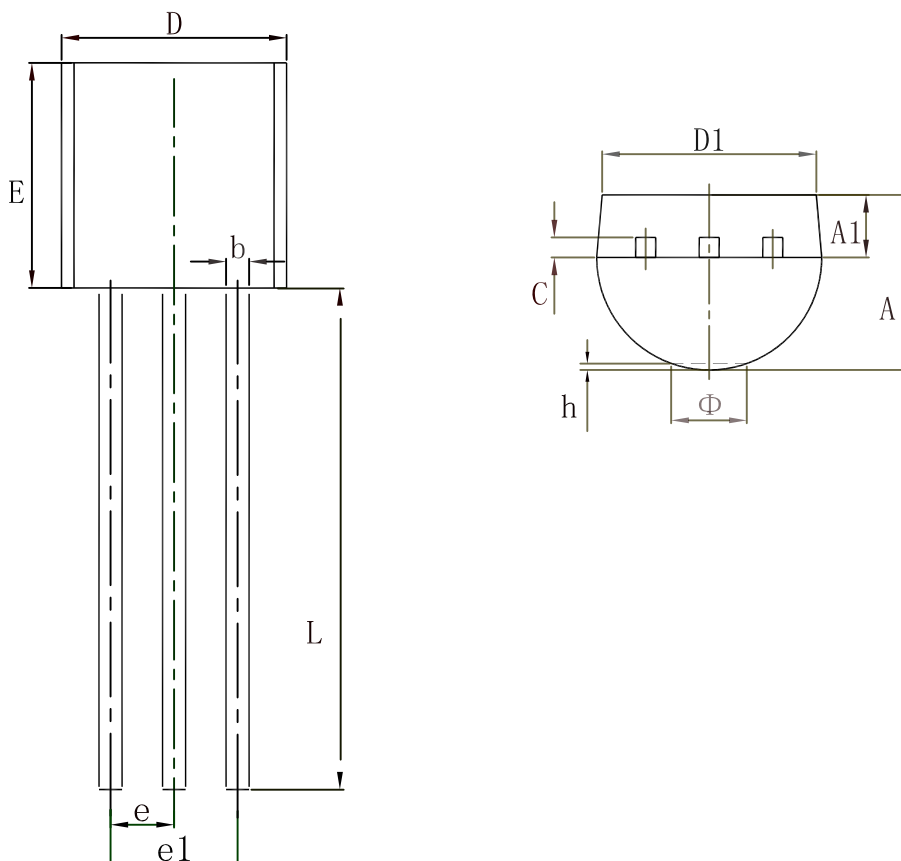
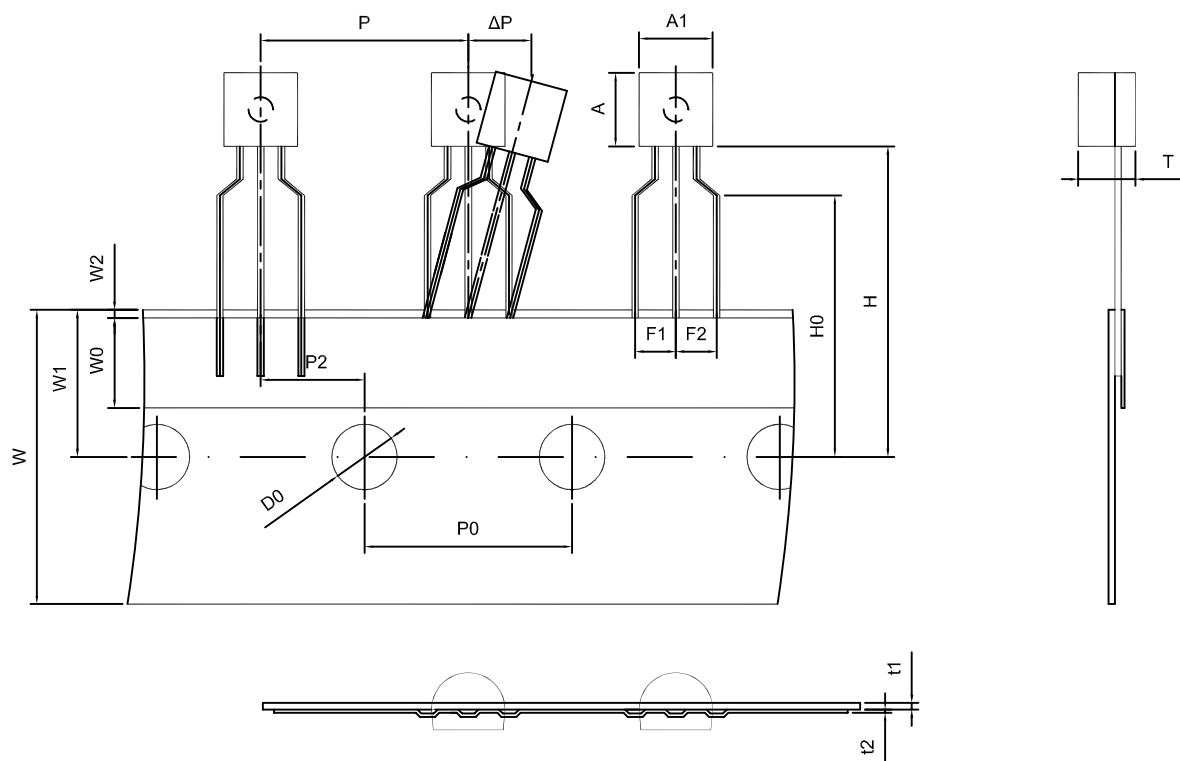


Figure 12. Current-Gain - Bandwidth Product

TO-92 Package Outline Dimensions


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP.		0.050 TYP.	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

TO-92 Package Outline Dimensions


Dimiensions are in millimeter

A1	A	T	P	P0	P2	F1	F2	W
4.5±0.2	4.5±0.2	3.5±0.2	12.7±0.3	12.7±0.2	6.35±0.3	2.5±0.3	2.5±0.3	18.0+1.0/-0.5
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0±0.5	9.0±0.5	1.0 MAX.	19.0±1.0	16.0±0.5	4.0±0.5	0.4±0.05	0.2±0.05	0 ± 1.0

