

BC212, BC212B, BC213

Amplifier Transistors

PNP Silicon



ON Semiconductor™

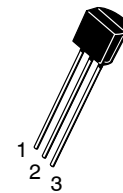
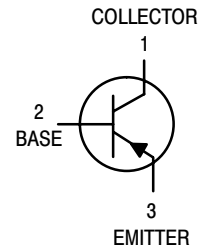
<http://onsemi.com>

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage BC212 BC213	V_{CEO}	-50 -30	Vdc
Collector-Base Voltage BC212 BC213	V_{CBO}	-60 -45	Vdc
Emitter-Base Voltage	V_{EBO}	-5.0	Vdc
Collector Current – Continuous	I_C	-100	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	350 2.8	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.0 8.0	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

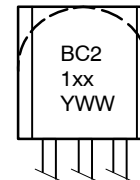
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	$^\circ\text{C}/\text{W}$



TO-92
CASE 29
STYLE 17

MARKING DIAGRAMS



BC21xx = Specific Device Code
xx = 2, 2B, or 3
Y = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
BC212	TO-92	5000 Units/Box
BC212B	TO-92	5000 Units/Box
BC212BRL1	TO-92	2000/Tape & Reel
BC212BZL1	TO-92	2000/Ammo Pack
BC213	TO-92	5000 Units/Box

BC212, BC212B, BC213

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

Characteristic		Symbol	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage ($I_C = -2.0\text{ mA}$, $I_B = 0$)	BC212 BC213	$V_{(BR)CEO}$	-50 -30	- -	- -	Vdc
Collector–Base Breakdown Voltage ($I_C = -10\ \mu\text{A}$, $I_E = 0$)	BC212 BC213	$V_{(BR)CBO}$	-60 -45	- -	- -	Vdc
Emitter–Base Breakdown Voltage ($I_E = -10\ \mu\text{A}$, $I_C = 0$)	BC212 BC213	$V_{(BR)EBO}$	-5 -5	- -	- -	Vdc
Collector–Emitter Leakage Current ($V_{CB} = -30\text{ V}$)	BC212 BC213	I_{CBO}	- -	- -	-15 -15	nAdc
Emitter–Base Leakage Current ($V_{EB} = -4.0\text{ V}$, $I_C = 0$)	BC212 BC213	I_{EBO}	- -	- -	-15 -15	nAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = -10\ \mu\text{A}$, $V_{CE} = -5.0\text{ Vdc}$)	BC212 BC213	h_{FE}	40 40	- -	- -	-
($I_C = -2.0\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)	BC212 BC213		60 80	- -	- -	
($I_C = -100\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$) (Note 1)	BC212 BC213		- -	120 140	- -	
Collector–Emitter Saturation Voltage ($I_C = -10\text{ mA}$, $I_B = -0.5\text{ mA}$) ($I_C = -100\text{ mA}$, $I_B = -5.0\text{ mA}$) (Note 1)		$V_{CE(sat)}$	- -	-0.10 -0.25	- -0.6	Vdc
Base–Emitter Saturation Voltage ($I_C = -100\text{ mA}$, $I_B = -5.0\text{ mA}$)		$V_{BE(sat)}$	-	-1.0	-1.4	Vdc
Base–Emitter On Voltage ($I_C = -2.0\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)		$V_{BE(on)}$	-0.6	-0.62	-0.72	Vdc

DYNAMIC CHARACTERISTICS

Current–Gain – Bandwidth Product ($I_C = -10\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$, $f = 100\text{ MHz}$)	BC212 BC213	f_T	- -	280 360	- -	MHz
Common–Base Output Capacitance ($V_{CB} = -10\text{ Vdc}$, $I_C = 0$, $f = 1.0\text{ MHz}$)		C_{ob}	-	-	6.0	pF
Noise Figure ($I_C = -0.2\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$, $R_S = 2.0\text{ k}\Omega$, $f = 1.0\text{ kHz}$, $f = 200\text{ Hz}$)	BC212, BC213	NF	-	-	10	dB
Small–Signal Current Gain ($I_C = -2.0\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$, $f = 1.0\text{ kHz}$)	BC212 BC213 BC212B	h_{fe}	60 80 200	- - -	- - 400	-

1. Pulse Test: T_p 300 s, Duty Cycle 2.0%.

BC212, BC212B, BC213

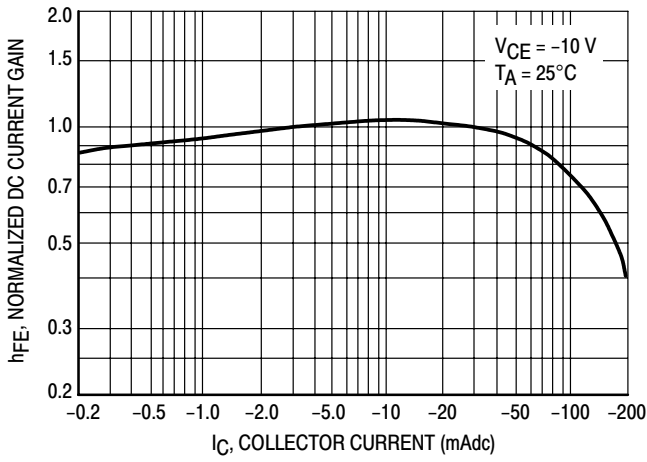


Figure 1. Normalized DC Current Gain

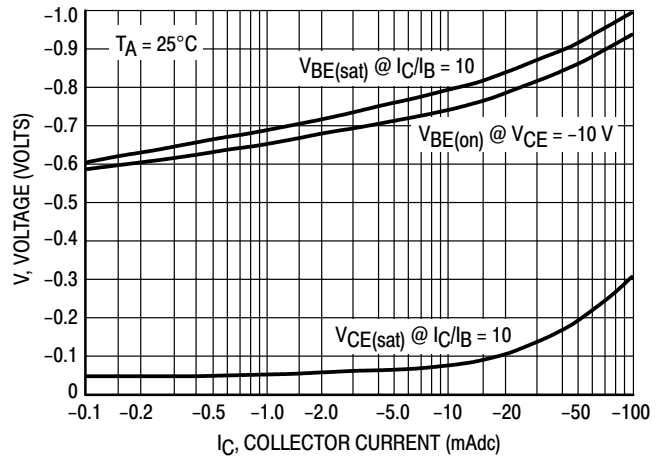


Figure 2. "Saturation" and "On" Voltages

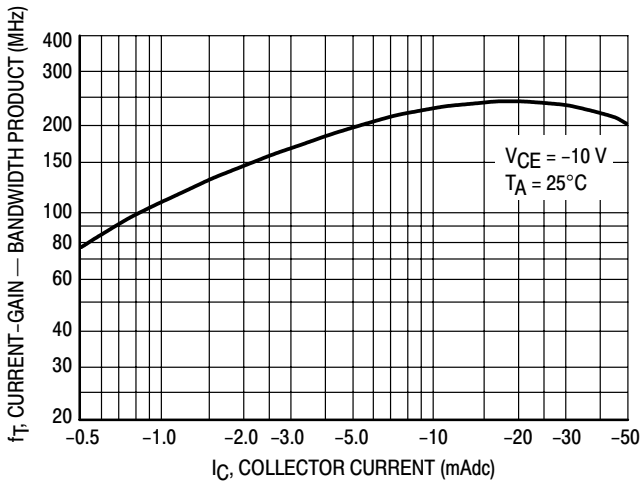


Figure 3. Current-Gain - Bandwidth Product

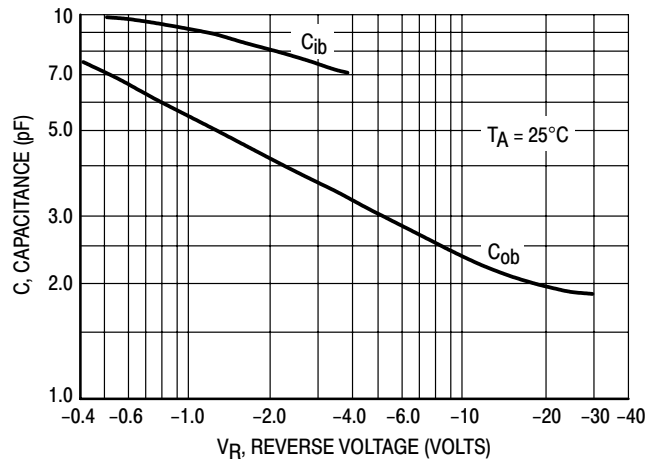


Figure 4. Capacitances

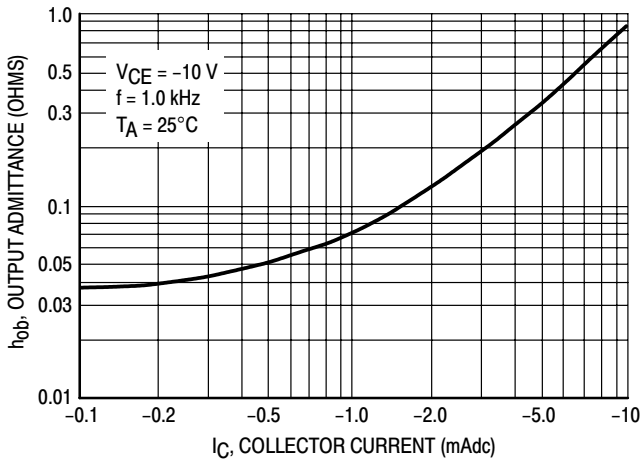


Figure 5. Output Admittance

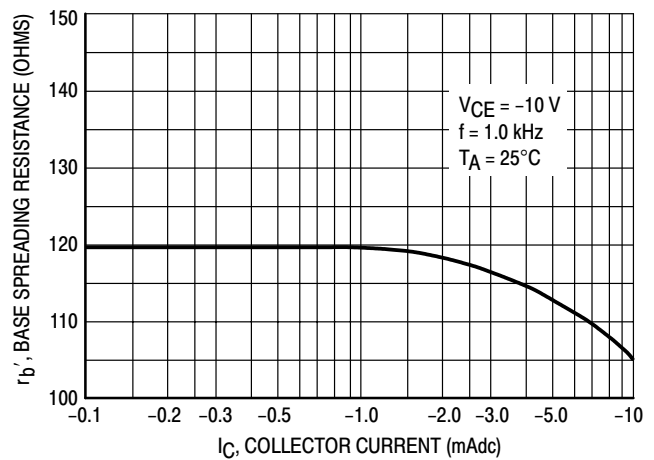


Figure 6. Base Spreading Resistance