

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage (Note 3)	BC846 BC847 BC848	$V_{(BR)CBO}$	80 50 30	— — —	— — —	V	$I_C = 10\mu\text{A}, I_B = 0$
Collector-Emitter Breakdown Voltage (Note 3)	BC846 BC847 BC848	$V_{(BR)CEO}$	65 45 30	— — —	— — —	V	$I_C = 10\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage (Note 3)	BC846, BC847 BC848	$V_{(BR)EBO}$	6 5	—	—	V	$I_E = 1\mu\text{A}, I_C = 0$
H-Parameters							
Small Signal Current Gain	Current Gain Group A	h_{fe}	—	220	—	—	$V_{CE} = 5.0\text{V}, I_C = 2.0\text{mA},$ $f = 1.0\text{kHz}$
	B	h_{fe}	—	330	—	—	
	C	h_{fe}	—	600	—	—	
Input Impedance	Current Gain Group A	h_{ie}	—	2.7	—	k Ω	
	B	h_{ie}	—	4.5	—	k Ω	
	C	h_{ie}	—	8.7	—	k Ω	
Output Admittance	Current Gain Group A	h_{oe}	—	18	—	μS	
	B	h_{oe}	—	30	—	μS	
	C	h_{oe}	—	60	—	μS	
Reverse Voltage Transfer Ratio	A	h_{re}	—	1.5×10^{-4}	—	—	
Current Gain Group	B	h_{re}	—	2×10^{-4}	—	—	
	C	h_{re}	—	3×10^{-4}	—	—	
DC Current Gain	Current Gain Group A B (Note 3) C	h_{FE}	110 200 420	180 290 520	220 450 800	—	$V_{CE} = 5.0\text{V}, I_C = 2.0\text{mA}$
Collector-Emitter Saturation Voltage (Note 3)		$V_{CE(SAT)}$	—	90 200	250 600	mV	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5.0\text{mA}$
Base-Emitter Saturation Voltage (Note 3)		$V_{BE(SAT)}$	—	700 900	—	mV	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5.0\text{mA}$
Base-Emitter Voltage (Note 3)		$V_{BE(ON)}$	580 —	660 —	700 770	mV	$V_{CE} = 5.0\text{V}, I_C = 2.0\text{mA}$ $V_{CE} = 5.0\text{V}, I_C = 10\text{mA}$
Collector-Cutoff Current (Note 3)	BC846 BC847 BC848	I_{CES}	— — —	— — —	15 15 15	nA	$V_{CE} = 80\text{V}$ $V_{CE} = 50\text{V}$ $V_{CE} = 30\text{V}$ $V_{CB} = 40\text{V}$ $V_{CB} = 30\text{V}, T_A = 150^\circ\text{C}$
		I_{CBO}	— —	— —	15 5.0	nA μA	
Gain Bandwidth Product		f_T	100	300	—	MHz	$V_{CE} = 5.0\text{V}, I_C = 10\text{mA},$ $f = 100\text{MHz}$
Collector-Base Capacitance		C_{CBO}	—	3.0	—	pF	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$
Noise Figure		NF	—	2	10	dB	$V_{CE} = 5\text{V}, I_C = 200\mu\text{A},$ $R_S = 2.0\text{k}\Omega,$ $f = 1.0\text{kHz}, \Delta f = 200\text{Hz}$

Notes: 3. Short duration pulse test used to minimize self-heating effect.

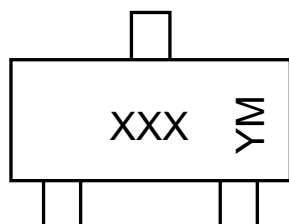
Ordering Information (Note 4)

Device	Packaging	Shipping
BC84xx-7*	SOT-23	3000/Tape & Reel

Notes: 4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

* xx = device type, e.g. BC846A-7.

Marking Information



XXX = Product Type Marking Code (See Page 1), e.g. K1Q or 1A = BC846A

YM = Date Code Marking

Y = Year ex: N = 2002

M = Month ex: 9 = September

Date Code Key

Year	1998	1999	2000	2001	2002	2003	2004
Code	J	K	L	M	N	P	R

Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D