

**DESCRIPTION**

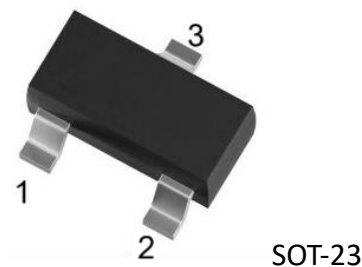
The BC846_BC847_BC848_BC849_BC850 are available in SOT-23 package.

ORDERING INFORMATION

Package Type	Part Number	
SOT-23	BC846AL	BC848CL
	BC846BL	BC849AL
	BC846CL	BC849BL
	BC847AL	BC849CL
	BC847BL	BC850AL
	BC847CL	BC850BL
	BC848AL	BC850CL
	BC848BL	
SPQ	3,000pcs/Reel	
AiT provides all RoHS Compliant Products		

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 65 V)

PIN DESCRIPTION

PIN#	DESCRIPTION
1	Base
2	Emitter
3	Collector

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise specified.

Parameter	BC846	BC847	BC848	BC849	BC850
V _{CBO} , Collector Base Voltage	80V	50V	30V	30V	50V
V _{CEO} , Collector Emitter Voltage	65V	45V	30V	30V	45V
V _{EBO} , Emitter Base Voltage	6V	6V	5V	5V	5V
Parameter	Value				
I _C , Collector Current - Continuous	100mA				
I _{CM} , Peak collector current, t _p ≤ 10 ms	200mA				
P _C , Collector Power Dissipation	300mW				
T _J , Junction Temperature	150°C				
T _{stg} , Storage Temperature Range	-55°C ~ +150°C				
R _{θJA} , Thermal Resistance from Junction to Ambient Air	417°C/W				

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



ELECTRICAL CHARACTERISTICS

T_A=25°C unless otherwise specified.

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
Collector Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\text{ }\mu\text{A}, I_E = 0$	BC846	80	-	-	V
			BC847	50	-	-	
			BC848	30	-	-	
			BC849	30	-	-	
			BC850	50	-	-	
Collector Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	BC846	65	-	-	V
			BC847	45	-	-	
			BC848	30	-	-	
			BC849	30	-	-	
			BC850	45	-	-	
Emitter Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\text{ }\mu\text{A}, I_C = 0$	BC846	6	-	-	V
			BC847	6	-	-	
			BC848	5	-	-	
			BC849	5	-	-	
			BC850	5	-	-	
Collector cut-off current	I_{CBO}	$V_{CB} = 30\text{ V}, I_E = 0$		-	-	15	nA
DC Current Gain	h_{FE}	$V_{CE} = 5\text{ V}, I_C = 2\text{ mA}$	BC846AL~BC850AL	110	-	220	-
			BC846BL~BC850BL	200	-	450	-
			BC846CL~BC850CL	420	-	800	-
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$	-	-	0.25	V	
		$I_C = 100\text{ mA}, I_B = 5\text{ mA}$	-	-	0.6		
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$	-	0.7	0.85	V	
		$I_C = 100\text{ mA}, I_B = 5\text{ mA}$	-	0.9	1.1		
Transition Frequency	f_T	$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$		-	300	-	MHz
Base Emitter on Voltage	$V_{BE(on)}$	$I_C = 2\text{ mA}, V_{CE} = 5\text{ V}$		0.58	-	0.7	V
		$I_C = 10\text{ mA}, V_{CE} = 5\text{ V}$		-	-	0.77	
Output Capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_C = 0, f = 1\text{ MHz}$		-	-	6	pF
Input Capacitance	C_{ib}	$V_{EB} = 0.5\text{ V}, I_C = 0, f = 1\text{ MHz}$		-	9	-	pF
Noise Figure	NF	$I_C = 200\text{ }\mu\text{A}, V_{CE} = 5\text{ V}, R_G = 2\text{ K}\Omega, f = 1\text{ KHz}$	BC846, BC847, BC848	-	-	10	dB
			BC849, BC850	-	-	4	
		$I_C = 200\text{ }\mu\text{A}, V_{CE} = 5\text{ V}, R_G = 2\text{ K}\Omega, f=30\sim15\text{ KHz}$	BC849	-	-	4	
			BC850	-	-	3	



TYPICAL CHARACTERISTICS

Fig 1. Static Characteristic

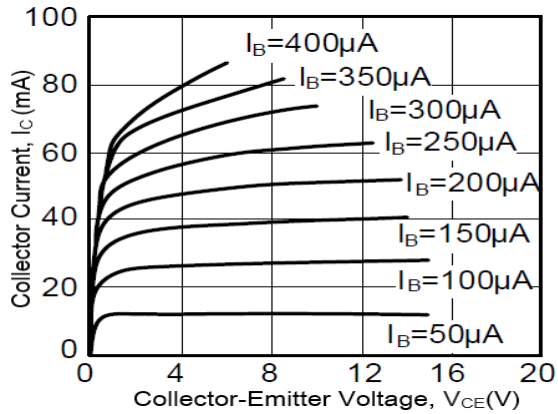


Fig 2. DC Current Gain

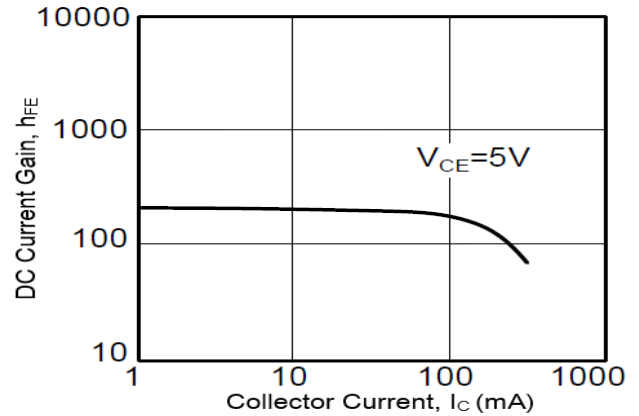


Fig 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

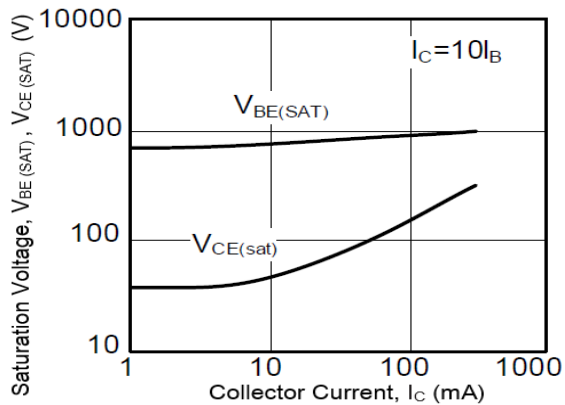


Fig 4. Base-Emitter on Voltage

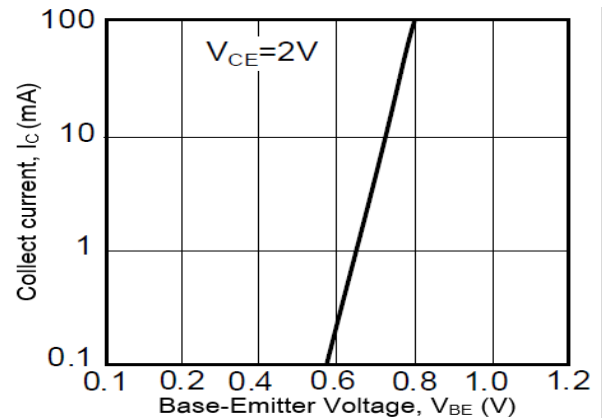


Fig 5. Collector Output Capacitance

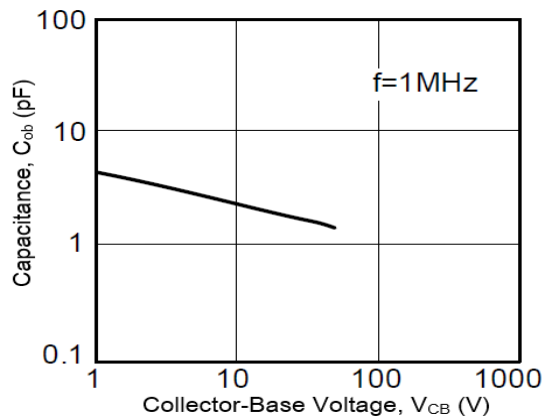
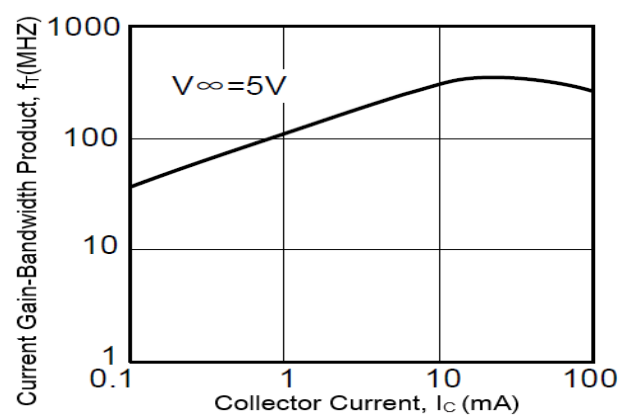


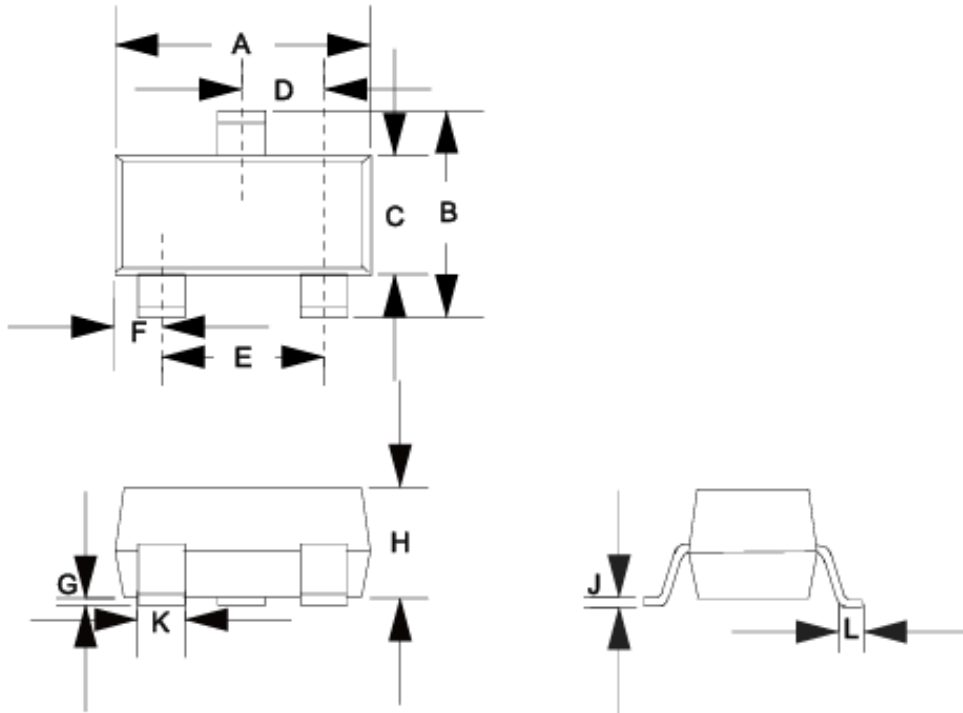
Fig 6. Current Gain Bandwidth Product



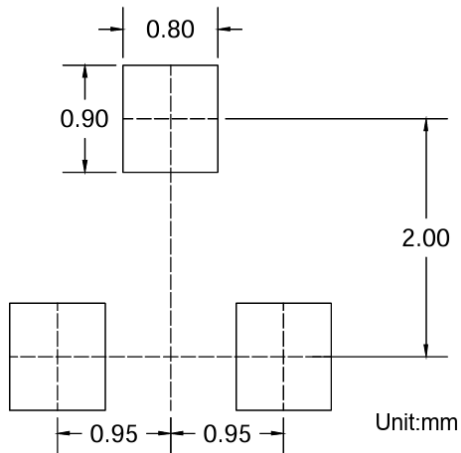


PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



Suggested Solder Pad Layout



Symbol	MILLIMETER	
	Min.	Max.
A	2.800	3.040
B	2.100	2.640
C	1.200	1.400
D	0.850	1.050
E	1.700	2.100
F	0.450	0.600
G	0.010	0.150
H	0.900	1.100
J	0.080	0.180
K	0.300	0.510
L	0.200	0.500



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