

BC846A-HF Thru. BC848C-HF (NPN)

RoHS Device
Halogen Free



Features

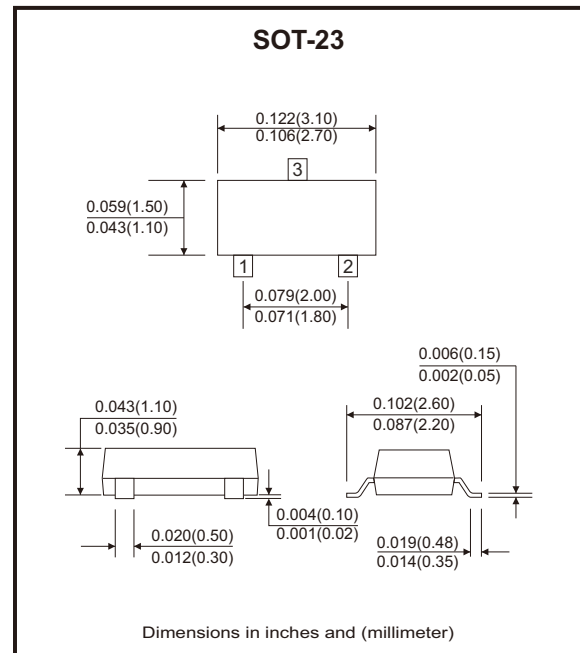
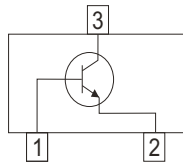
- High current gain.
- Excellent hFE linearity.
- Low noise between 30Hz and 15Hz.
- For AF input stages and driver applications.

Mechanical data

- Case: SOT-23, molded plastic.
- Mounting position: Any.

Circuit Diagram

- 1.BASE
- 2.EMITTER
- 3.COLLECTOR



Maximum Ratings (at Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	UNIT
Collector-base voltage	BC846	80	V
	BC847	50	
	BC848	30	
Collector-emitter voltage	BC846	65	V
	BC847	45	
	BC848	30	
Emitter-base voltage	BC846	6	V
	BC847	6	
	BC848	5	
Collector current-continuous	I _c	0.1	A
Collector dissipation	P _c	250	mW
Thermal resistance, junction to ambient	R _{θJA}	500	°C/W
Junction and storage temperature	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (@TA= 25 °C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage BC846 BC847 BC848	$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	80 50 30			V
Collector-emitter breakdown voltage BC846 BC847 BC848	$V_{(BR)CEO}$	$I_C = 10mA, I_B = 0$	65 45 30			V
Emitter-base break voltage BC846 BC847 BC848	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	6 6 5			V
Collector-base cut-off current	I_{CBO}	$V_{CB} = 30V, I_E = 0$			15	nA
		$V_{CB} = 30V, I_E = 0, T_J = 150^\circ C$			5	μA
Emitter-base cut-off current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			100	nA
Collector-emitter cut-off current	I_{CEO}	$V_{CE} = 30V, I_B = 0$			1	mA
DC current gain BC846A,BC847A,BC848A BC846B,BC847B,BC848B BC847C,BC848C	h_{FE}	$V_{CE} = 5V, I_C = 10\mu A$		110 250 480		
DC current gain BC846A,BC847A,BC848A BC846B,BC847B,BC848B BC847C,BC848C	h_{FE}	$V_{CE} = 5V, I_C = 2mA$	110 200 420		220 450 800	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 0.5mA$ $I_C = 100mA, I_B = 5mA$		0.09 0.2	0.25 0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10mA, I_B = 0.5mA$ $I_C = 100mA, I_B = 5mA$		0.7 0.9	0.9 1.1	V
Base-emitter voltage	$V_{BE(on)}$	$I_C = 2mA, V_{CE} = 5V$ $I_C = 10mA, V_{CE} = 5V$	0.58 -	0.66 -	0.7 0.77	V
Collector capacitance	C_C	$V_{CB} = 10V, I_E = I_C = 0, f = 1MHz$		2.5		pF
Transition frequency	f_T	$V_{CE} = 5V, I_C = 10mA, f = 100MHz$	100			MHz

Rating and Characteristic Curves (BC846A-HF Thru. BC848C-HF)

Fig.1 - DC Current Gain as a Function of Collector Current; Typical Voltage

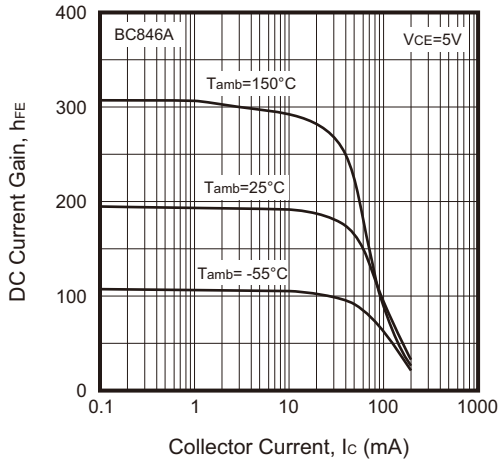


Fig.2 - Base-Emitter Voltage as a Function of Collector Current; Typical Voltage

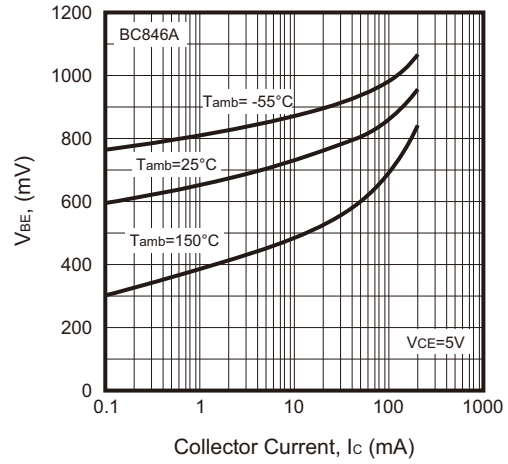


Fig.3 - Collector-Emitter Saturation Voltage as a Function of Collector Current; Typical Voltage

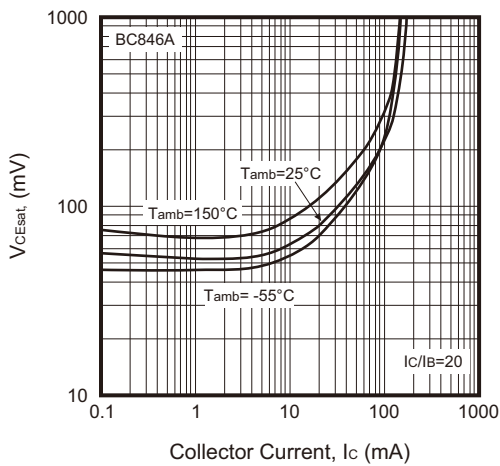


Fig.4 - Base-Emitter Saturation Voltage as a Function of Collector Current; Typical Voltage

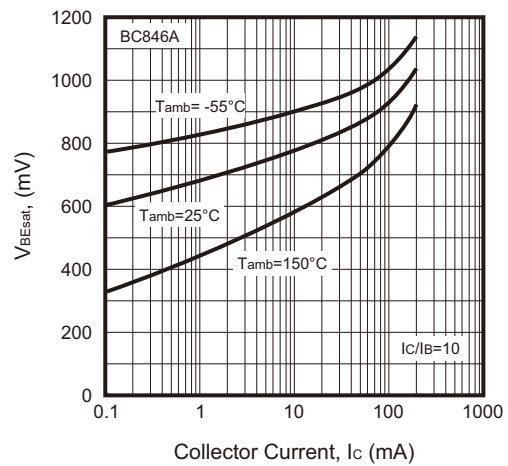


Fig.5 - DC Current Gain as a Function of Collector Current; Typical Voltage

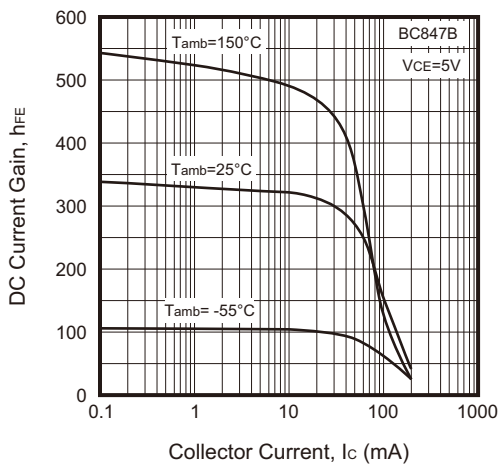
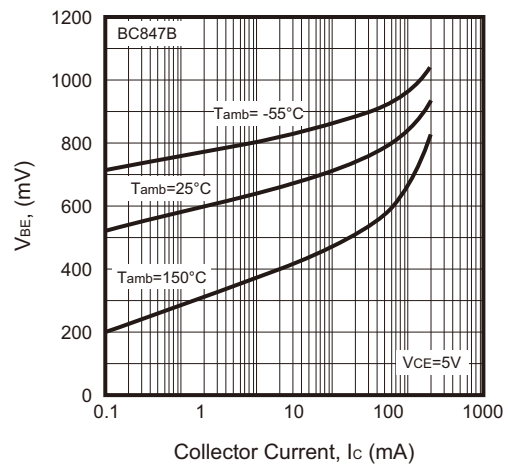


Fig.6 - Base-Emitter Voltage as a Function of Collector Current; Typical Voltage



Rating and Characteristic Curves (BC846A-HF Thru. BC848C-HF)

Fig.7 - Collector-Emitter Saturation Voltage as a Function of Collector Current; Typical Voltage

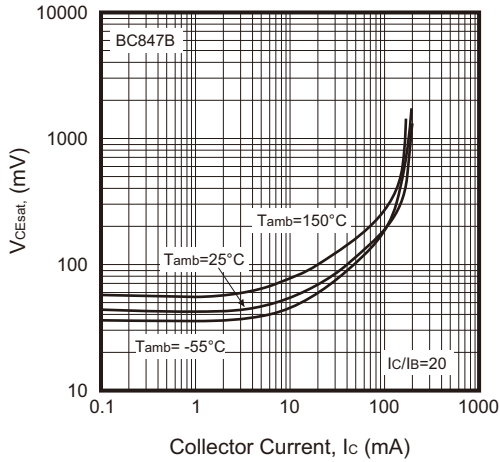


Fig.8 - Base-Emitter Saturation Voltage as a Function of Collector Current; Typical Voltage

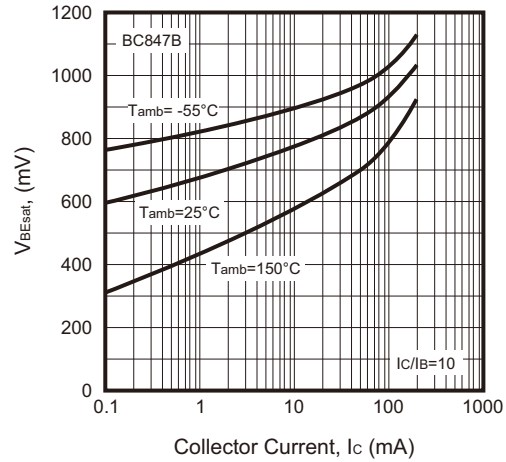


Fig.9 - DC Current Gain as a Function of Collector Current; Typical Voltage

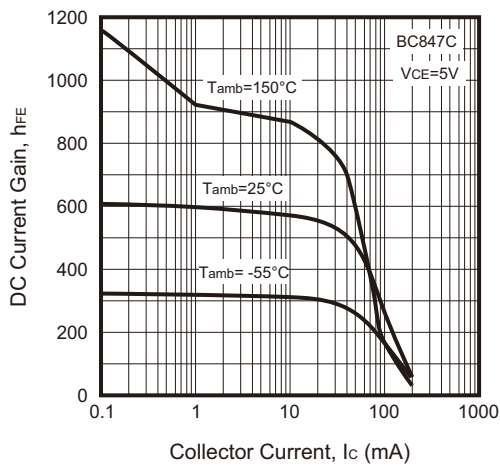


Fig.10 - Base-Emitter Voltage as a Function of Collector Current; Typical Voltage

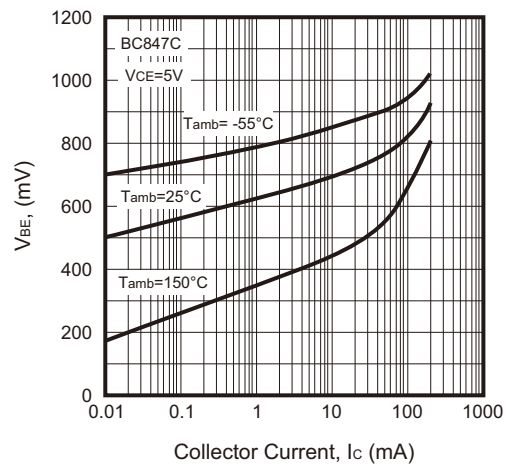


Fig.11 - Collector-Emitter Saturation Voltage as a Function of Collector Current; Typical Voltage

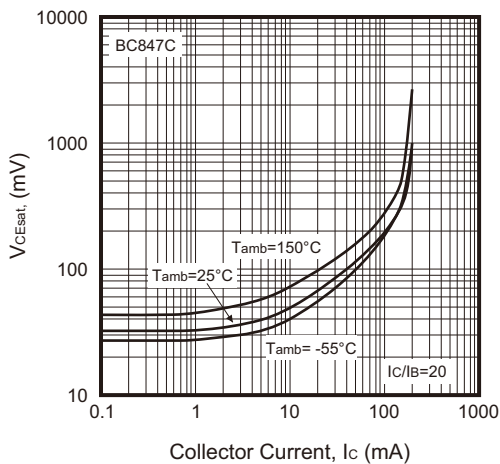
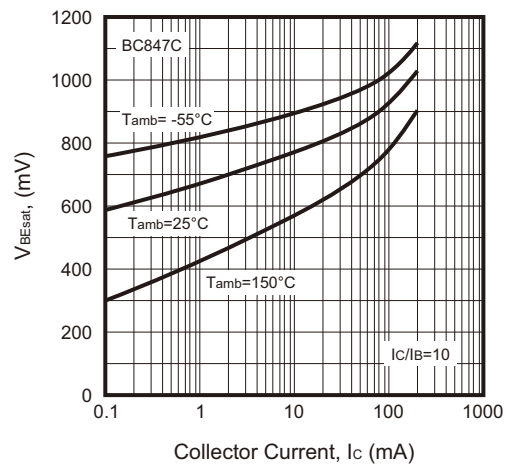
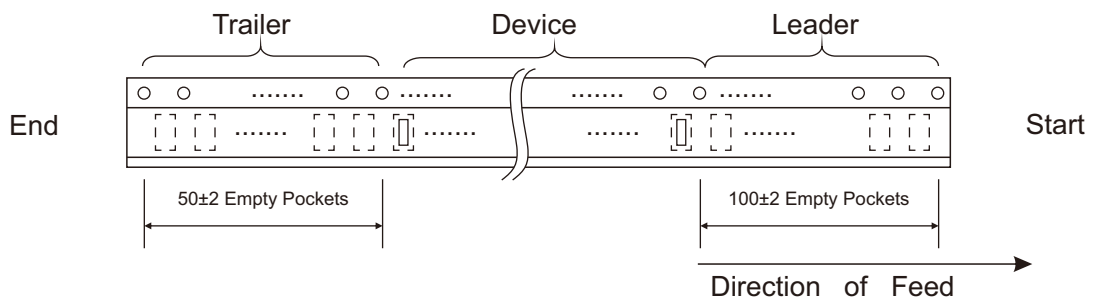
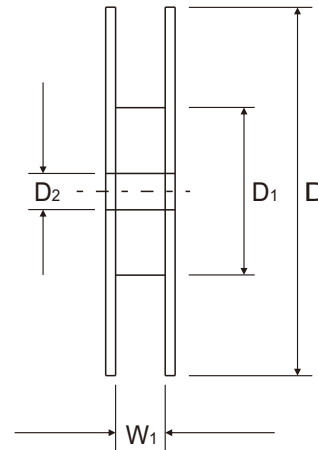
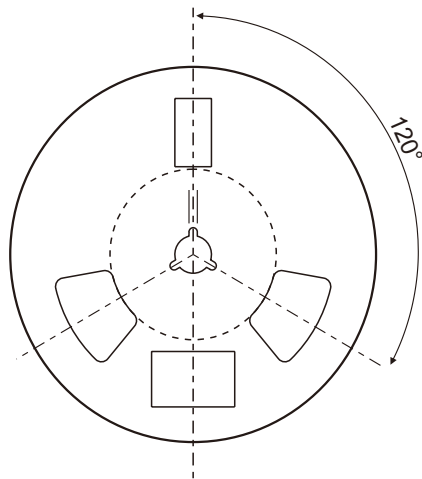
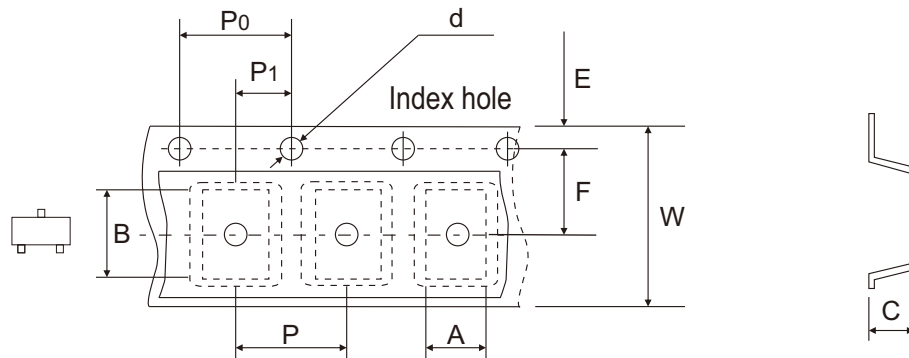


Fig.12 - Base-Emitter Saturation Voltage as a Function of Collector Current; Typical Voltage



Reel Taping Specification

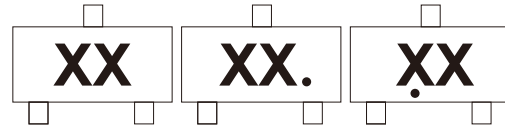


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 1.00	54.00 ± 0.50	13.00 ± 0.50
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.126 ± 0.020	0.512 ± 0.020

SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 - 0.10	9.50 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 - 0.004	0.374 ± 0.039

Marking Code

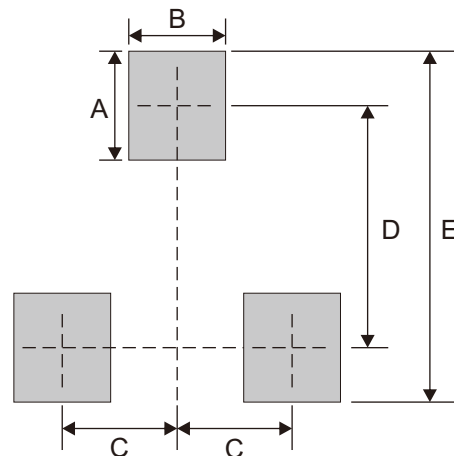
Part Number	Marking Code
BC846A-HF	1A
BC847A-HF	1E
BC848A-HF	1J
BC846B-HF	1B
BC847B-HF	1F
BC848B-HF	1K
BC847C-HF	1G
BC848C-HF	1L



Solid dot = Control code
 xx = Product type marking code

Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079
E	2.90	0.114



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7