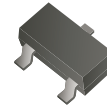


ABC846A-HF Thru. ABC848C-HF (NPN)

RoHS Device
Halogen Free


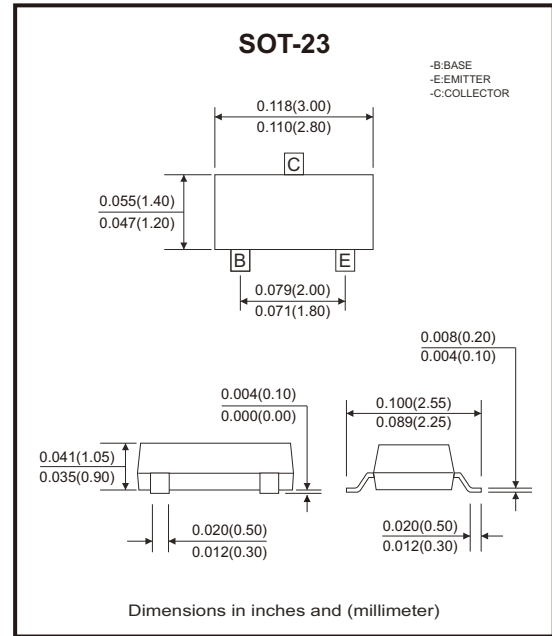
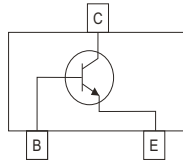
Features

- High current gain.
- General purpose switching and amplification.
- AEC-Q101 Qualified.

Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102.
- Mounting position: Any.

Circuit Diagram

 -B:BASE
 -E:EMITTER
 -C:COLLECTOR


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

Parameter	Symbol	Value	Unit
Collector-base voltage	ABC846 ABC847 ABC848 V_{CBO}	80 50 30	V
Collector-emitter voltage	ABC846 ABC847 ABC848 V_{CEO}	65 45 30	V
Emitter-base voltage	ABC846 ABC847 ABC848 V_{EBO}	6 6 6	V
Collector current-continuous	I_C	0.1	A
Total device dissipation (Note 1)	P_D	300	mW
Thermal resistance, junction to ambient (Note 1)	$R_{\theta JA}$	417	K/W
Operating junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Notes: 1. Device mounted on FR-4 PCB 1 x 1 x 0.06 inch.

Electrical Characteristics (at Ta= 25 °C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	ABC846	$I_C = 10\mu A, I_E = 0$	80			V
	ABC847		50			
	ABC848		30			
Collector-emitter breakdown voltage	ABC846	$I_C = 10mA, I_B = 0$	65			V
	ABC847		45			
	ABC848		30			
Emitter-base break voltage	ABC846	$I_E = 10\mu A, I_C = 0$	6			V
	ABC847		6			
	ABC848		6			
Collector-base cut-off current	ABC846	$V_{CB} = 70V, I_E = 0$			100	nA
	ABC847	$V_{CB} = 50V, I_E = 0$			100	
	ABC848	$V_{CB} = 30V, I_E = 0$			100	
Collector-emitter cut-off current	ABC846	$V_{CE} = 60V, I_B = 0$			100	nA
	ABC847	$V_{CE} = 45V, I_B = 0$			100	
	ABC848	$V_{CE} = 30V, I_B = 0$			100	
Emitter-base cut-off current		I_{EBO} $V_{EB} = 5V, I_C = 0$			100	nA
DC current gain	ABC846A,ABC847A,ABC848A	$V_{CE} = 5V, I_C = 2mA$	110		220	
	ABC846B,ABC847B,ABC848B		200		450	
	ABC847C,ABC848C		420		800	
Collector-emitter saturation voltage		$V_{CE(sat)}$ $I_C = 100mA, I_B = 5mA$			0.5	V
Base-emitter saturation voltage		$V_{BE(sat)}$ $I_C = 100mA, I_B = 5mA$			1.1	V
Transition frequency		f_T $V_{CE} = 5V, I_C = 10mA, f = 30MHz$	150			MHz
Collector output capacitance		C_{ob} $V_{CB} = 10V, f = 1MHz$			4.5	pF

Typical Rating and Characteristic Curves (ABC846A-HF Thru. ABC848C-HF)

Fig.1 - Static Characteristic

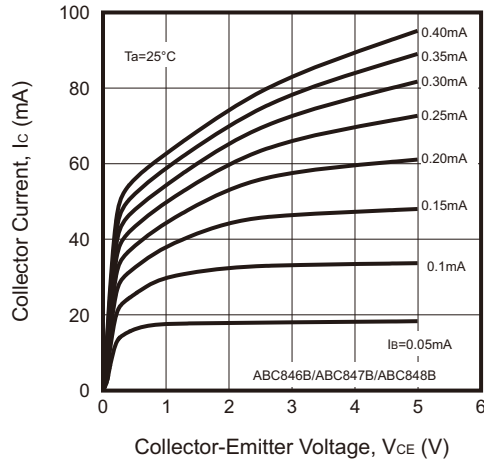


Fig.2 - DC Current Gain

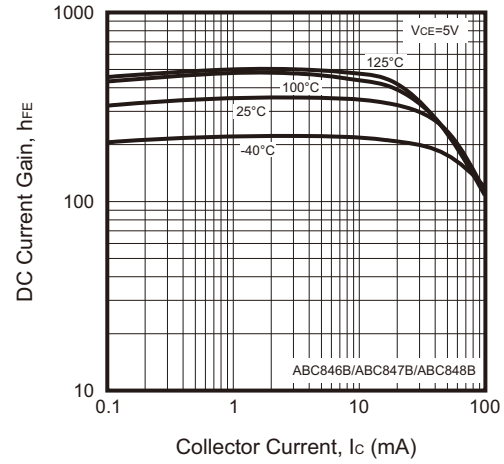


Fig.3 - Static Characteristic

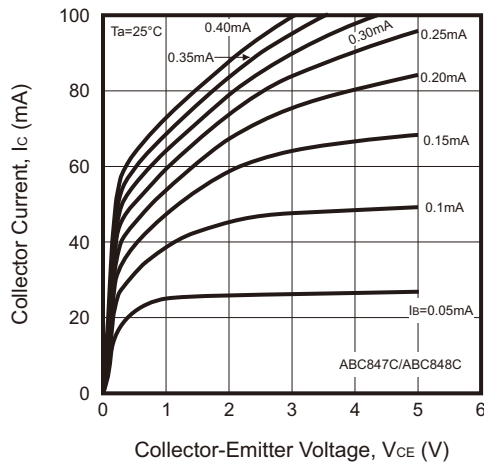


Fig.4 - DC Current Gain

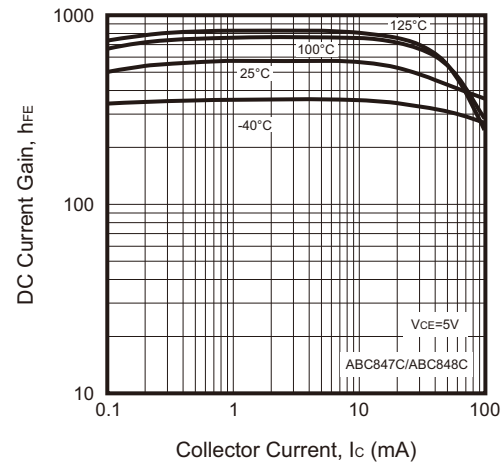


Fig.5 - Collector-Emitter Saturation Voltage

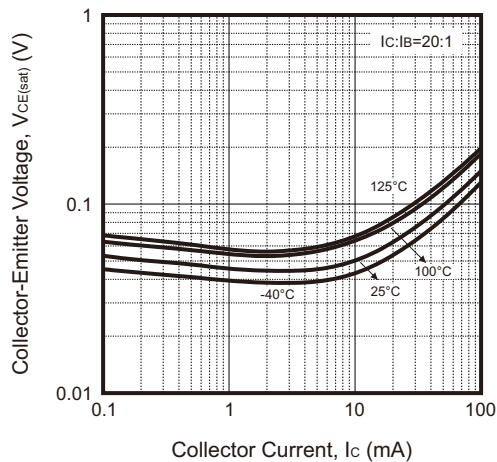
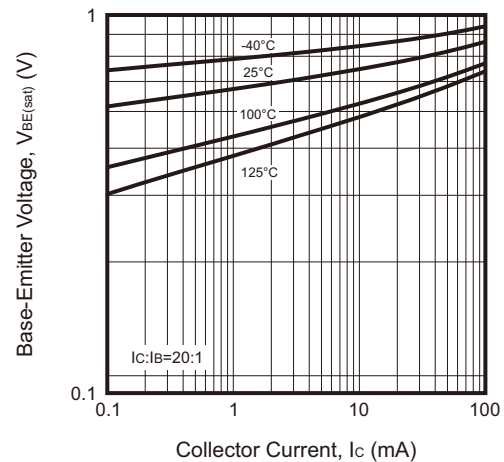


Fig.6 - Base-Emitter Voltage



Typical Rating and Characteristic Curves (ABC846A-HF Thru. ABC848C-HF)

Fig.7 - Base-Emitter on Voltage

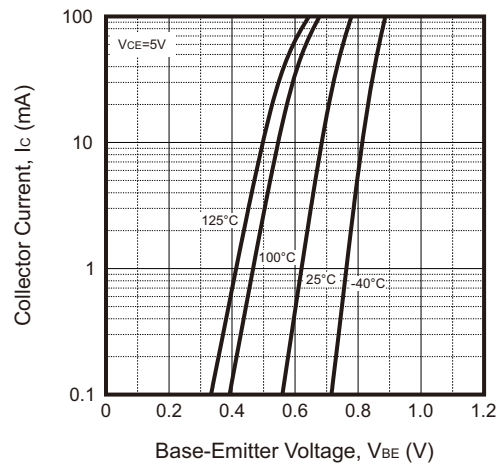
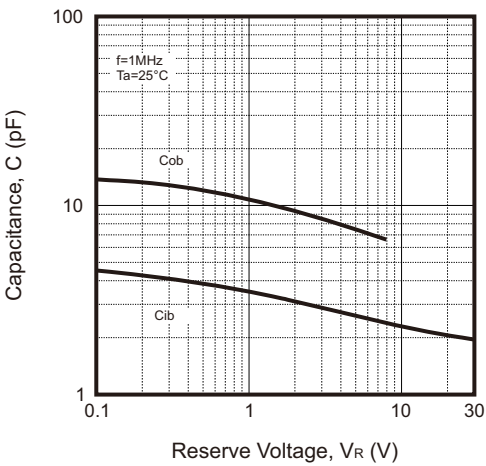
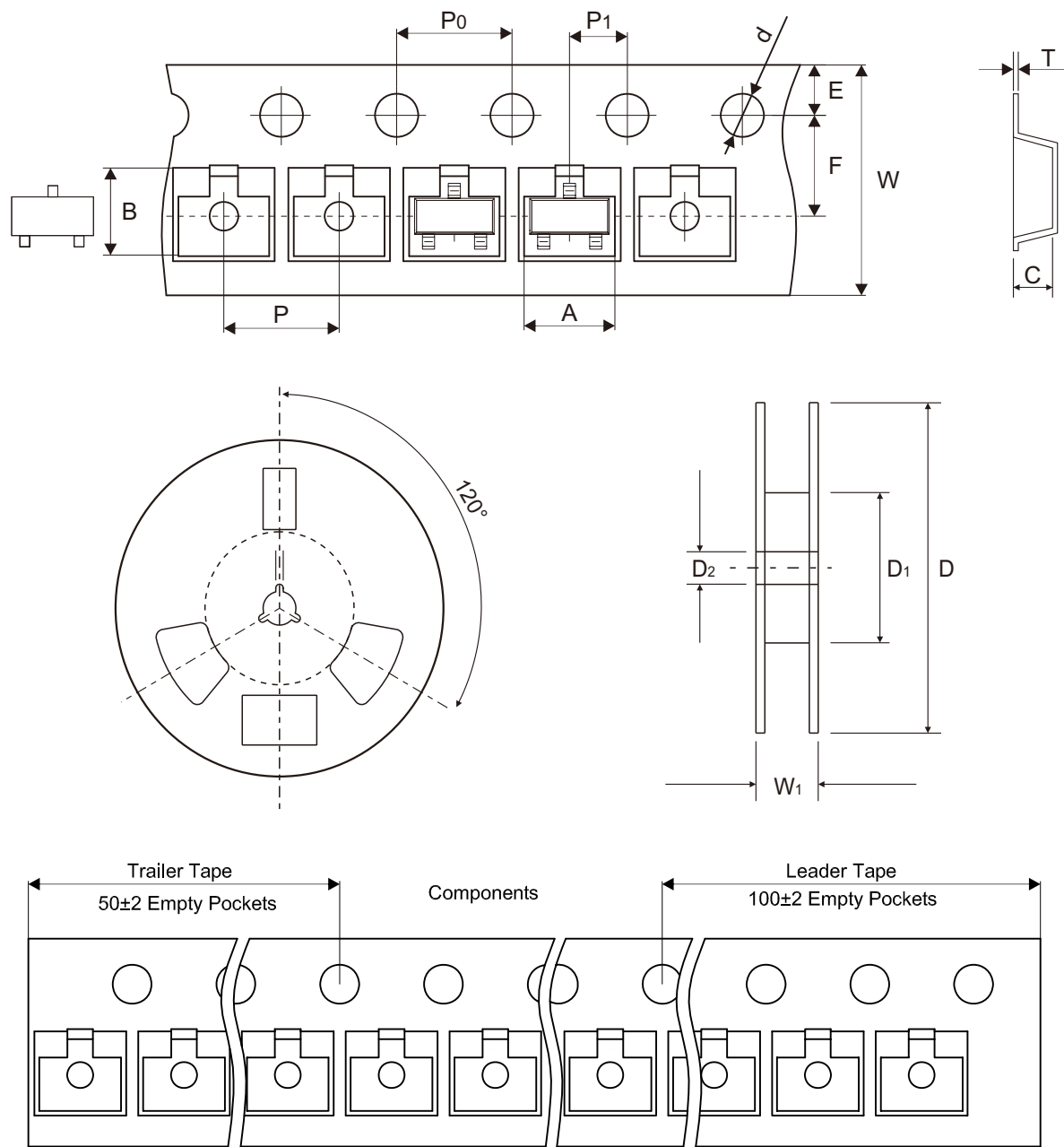


Fig.8 - C_{ob}/C_{ib} — V_{CB}/V_{EB}



Reel Taping Specification

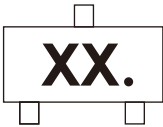


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 + 0.10 - 0.00	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 + 0.004 - 0.000	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

SOT-23	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.02	8.00 + 0.30 - 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	0.315 + 0.012 - 0.004	0.484 ± 0.039

Marking Code

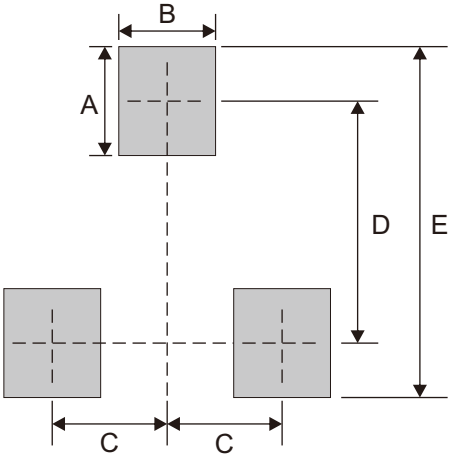
Part Number	Marking Code
ABC846A-HF	1A.
ABC847A-HF	1E.
ABC848A-HF	1J.
ABC846B-HF	1B.
ABC847B-HF	1F.
ABC848B-HF	1K.
ABC847C-HF	1G.
ABC848C-HF	1L.



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