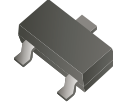


ABC846AT-HF Thru. ABC848CT-HF (NPN)

RoHS Device
Halogen Free



Features

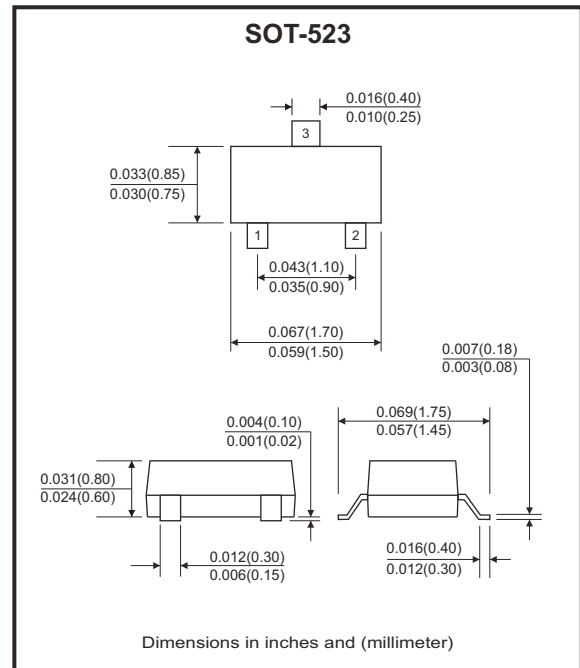
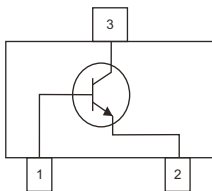
- High current gain.
- Excellent hFE linearity.
- Low noise between 30Hz and 15kHz.
- AEC-Q101 Qualified.

Mechanical data

- Case: SOT-523, molded plastic.
- Molding compound: UL flammability classification rating 94V-0.
- Terminals: Tin-plated, solderability per MIL-STD-202, method 208.

Circuit Diagram

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



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

Parameter	Symbol	Value	Units
Collector-base voltage	V _{CBO}	80	V
ABC846T-HF		50	
ABC847T-HF		30	
Collector-emitter voltage	V _{CEO}	65	V
ABC846T-HF		45	
ABC847T-HF		30	
Emitter-base voltage	V _{EBO}	6	V
ABC846T-HF / ABC847T-HF		5	
Collector current-continuous	I _c	100	mA
Power dissipation-collector @TA=25°C (Note 1)	P _D	265	mW
Thermal resistance junction to air (Note 1)	R _{θJA}	306	°C/W
Thermal resistance junction to case (Note 1)	R _{θJC}	152	°C/W
Thermal resistance junction to lead (Note 1)	R _{θJL}	61	°C/W
Operation junction temperature	T _J	-55 to +150	°C
Storage temperature range	T _{STG}	-55 to +150	°C

Note: 1. The data tested by surface mounted on a 15mm x 15mm x 1mm FR4-epoxy P.C.B.

Electrical Characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage ABC846T-HF ABC847T-HF ABC848T-HF	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	80 50 30			V
Collector-emitter breakdown voltage ABC846T-HF ABC847T-HF ABC848T-HF	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	65 45 30			V
Emitter-base breakdown voltage ABC846T-HF ABC847T-HF ABC848T-HF	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6 6 5			V
Collector cut-off current	I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0$			15	nA
		$V_{CB} = 30\text{V}, I_E = 0, T_J = 150^\circ\text{C}$			5	μA
Emitter-base cut-off current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$			100	nA
Collector-emitter cut-off current	I_{CEO}	$V_{CE} = 30\text{V}, I_B = 0$			1	mA
DC current gain ABC846AT-HF, 847AT-HF, 848AT-HF ABC846BT-HF, 847BT-HF, 848BT-HF ABC847CT-HF, 848CT-HF ABC846AT-HF, 847AT-HF, 848AT-HF ABC846BT-HF, 847BT-HF, 848BT-HF ABC847CT-HF, 848CT-HF	h_{FE}	$V_{CE} = 5\text{V}, I_C = 10\mu\text{A}$		110 250 480		
		$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	110 200 420		220 450 800	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$		0.09	0.25	V
		$I_C = 100\text{mA}, I_B = 5\text{mA}$		0.20	0.60	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$		0.70	0.90	V
		$I_C = 100\text{mA}, I_B = 5\text{mA}$		0.90	1.10	
Base-emitter voltage	$V_{BE(on)}$	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	0.58	0.66	0.70	V
		$V_{CE} = 5\text{V}, I_C = 10\text{mA}$			0.77	
Transition frequency	f_T	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$ $f = 100\text{MHz}$	100			MHz

Rating and Characteristic Curves (ABC84xAT-HF)

Fig.1 - $h_{FE} - I_C$

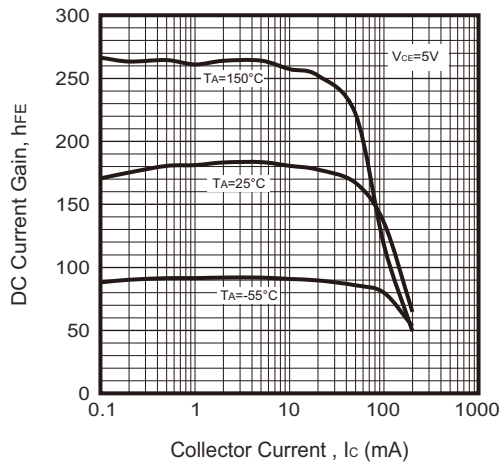


Fig.2 - $V_{CE(sat)} - I_C$

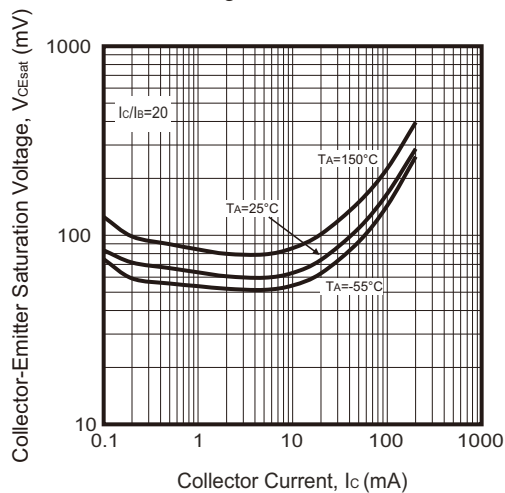


Fig.3 - $V_{BE(sat)} - I_C$

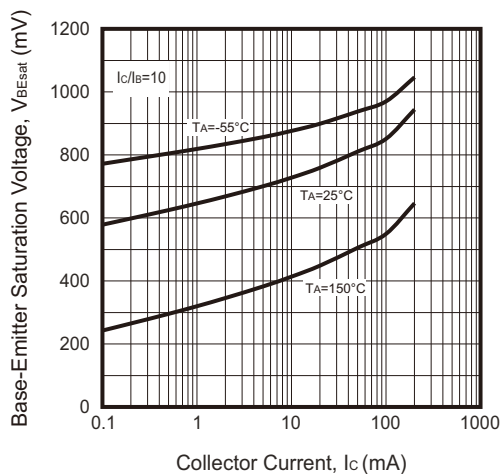
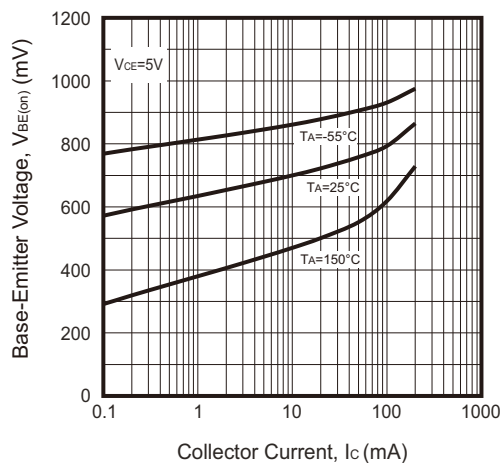


Fig.4 - $V_{BE(on)} - I_C$



Rating and Characteristic Curves (ABC84xBT-HF)

Fig.5 - $h_{FE} - I_c$

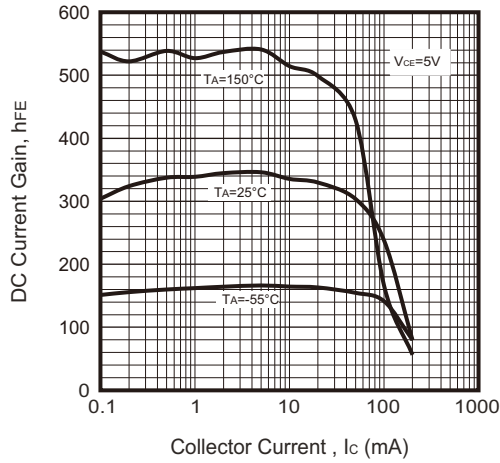


Fig.6 - $V_{CE(sat)} - I_c$

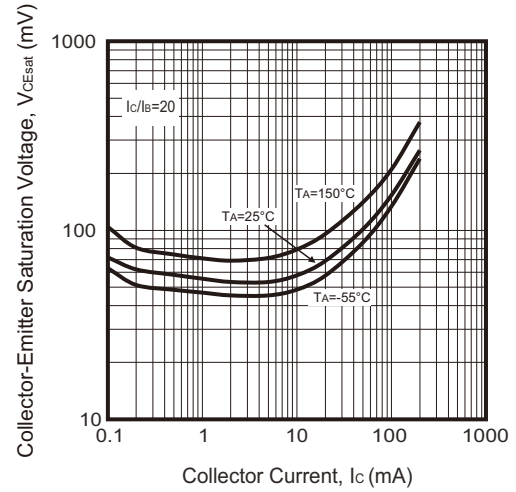


Fig.7 - $V_{BE(sat)} - I_c$

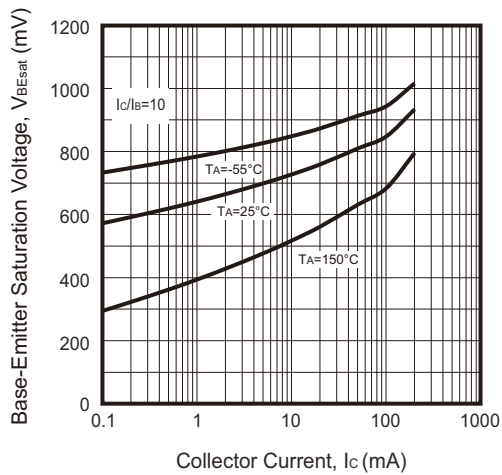
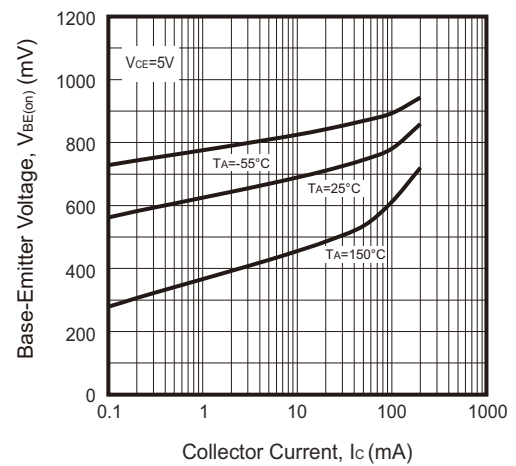


Fig.8 - $V_{BE(on)} - I_c$



Rating and Characteristic Curves (ABC84xCT-HF)

Fig.9 - $h_{FE} - I_C$

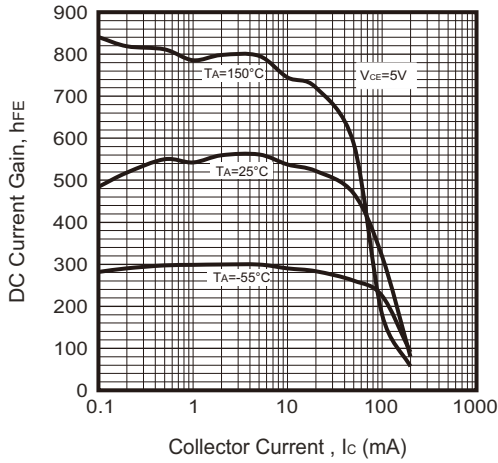


Fig.10 - $V_{CE(sat)} - I_C$

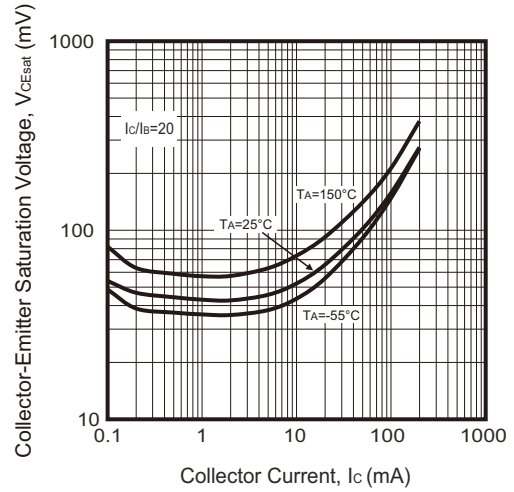


Fig.11 - $V_{BE(sat)} - I_C$

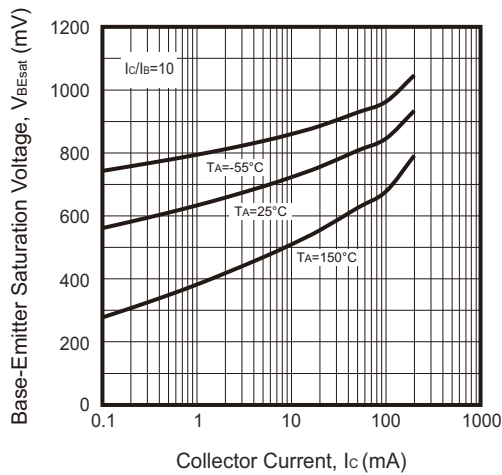
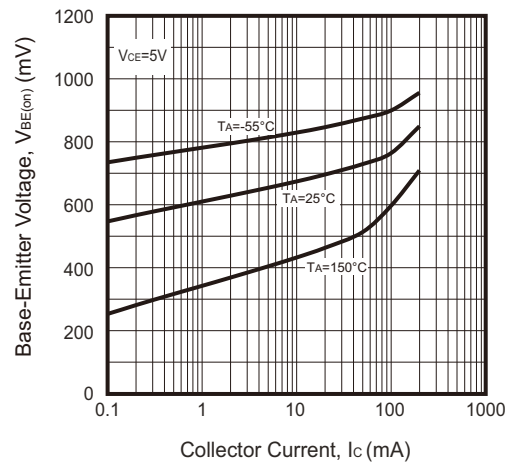
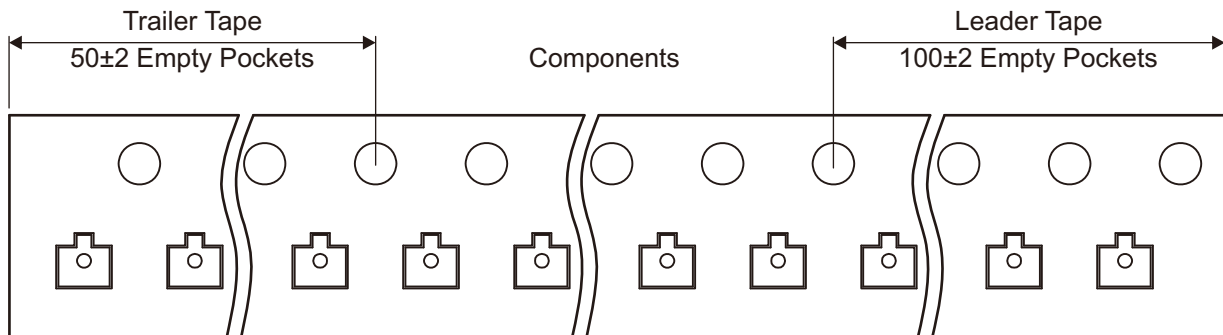
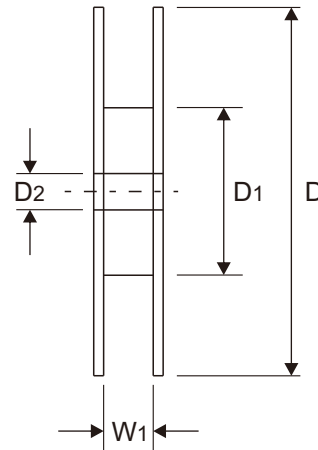
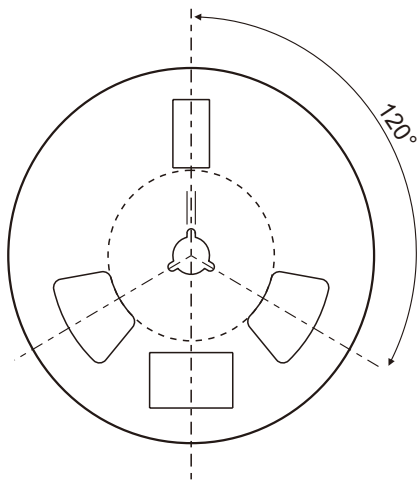
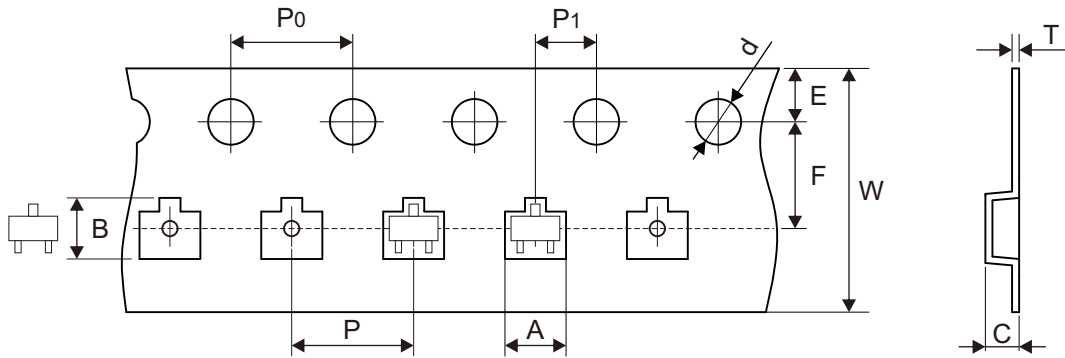


Fig.12 - $V_{BE(on)} - I_C$



Reel Taping Specification

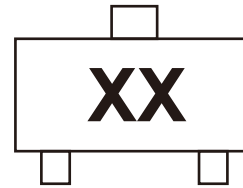


	SYMBOL	A	B	C	d	D	D1	D2
SOT-523	(mm)	1.85 ± 0.05	1.85 ± 0.05	0.875 ± 0.05	1.50 ± 0.10	178.00 ± 1.00	54.00 ± 0.50	13.00 ± 0.50
	(inch)	0.073 ± 0.002	0.073 ± 0.002	0.034 ± 0.002	0.059 ± 0.004	7.008 ± 0.039	2.126 ± 0.020	0.512 ± 0.020

	SYMBOL	E	F	P	P0	P1	T	W	W1
SOT-523	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.229 ± 0.02	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	0.009 ± 0.001	0.315 + 0.012 - 0.004	0.374 ± 0.039

Marking Code

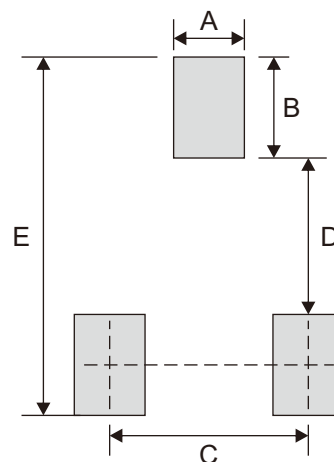
Part Number	Marking Code
ABC846AT-HF	1A
ABC847AT-HF	1E
ABC848AT-HF	1J
ABC846BT-HF	1B
ABC847BT-HF	1F
ABC848BT-HF	1K
ABC847CT-HF	1G
ABC848CT-HF	1L



xx = Product type marking code

Suggested P.C.B. PAD Layout

SIZE	SOT-523	
	(mm)	(inch)
A	0.356	0.014
B	0.508	0.020
C	1.00	0.039
D	0.787	0.031
E	1.803	0.071



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-523	3,000	7