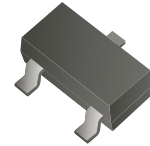


AMMBT5401-L/H-HF (PNP)

RoHS Device
Halogen Free



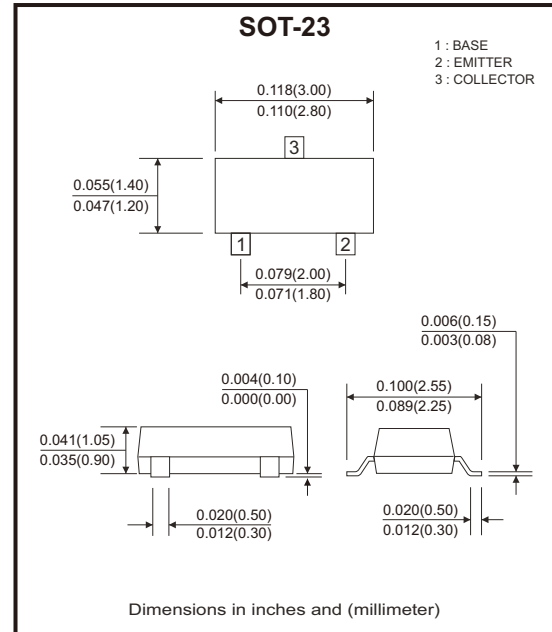
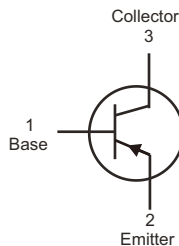
Features

- Ideal for medium power amplification and switching.
- AEC-Q101 Qualified.

Mechanical Data

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

Circuit Diagram



Maximum Ratings (at $T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	-160	V
Collector-emitter voltage	V_{CEO}	-150	V
Emitter-base voltage	V_{EBO}	-5	V
Collector continuous current (Note 1)	I_C	-0.6	A
Collector power dissipation (Note 1)	P_C	0.3	W
Thermal resistance, junction to ambient (Note 2)	$R_{\theta JA}$	416	$^{\circ}\text{C/W}$
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$

Notes: 1. Maximum allowed temperature $T_J = 25^{\circ}\text{C}$.

2. Measured with the device mounted on 1 inch² FR-4 board with 1oz. copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

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

Parameter	Conditions	Symbol	Min	Max	Unit
Collector-base breakdown voltage	$I_C = -100\mu\text{A}$, $I_E = 0$	$V_{(BR)CBO}$	-160		V
Collector-emitter breakdown voltage (Note 1)	$I_C = -1\text{mA}$, $I_B = 0$	$V_{(BR)CEO}$	-150		V
Emitter-base breakdown voltage	$I_E = -10\mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	-5		V
Collector-emitter cut-off current	$V_{CE} = -120\text{V}$, $I_E = 0$	I_{CEX}		-100	nA
Emitter-base cut-off current	$V_{EB} = -4\text{V}$, $I_C = 0$	I_{EBO}		-100	nA
DC current gain (Note 1)	$V_{CE} = -5\text{V}$, $I_C = -1\text{mA}$	$h_{FE(1)}$	80		
	$V_{CE} = -5\text{V}$, $I_C = -10\text{mA}$	$h_{FE(2)}$	100	300	
	$V_{CE} = -5\text{V}$, $I_C = -50\text{mA}$	$h_{FE(3)}$	50		
Collector-emitter saturation voltage (Note 1)	$I_C = -10\text{mA}$, $I_B = -1\text{mA}$ $I_C = -50\text{mA}$, $I_B = -5\text{mA}$	$V_{CE(sat)}$		-0.2 -0.5	V
Base-emitter saturation voltage (Note 1)	$I_C = -10\text{mA}$, $I_B = -1\text{mA}$ $I_C = -50\text{mA}$, $I_B = -5\text{mA}$	$V_{BE(sat)}$		-1 -1	V
Transition frequency	$V_{CE} = -5\text{V}$, $I_C = -10\text{mA}$, $f = 30\text{MHz}$	f_T	100		MHz

Notes: 1. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

Classification of $h_{FE(2)}$

Rank	AMMBT5401-L-HF	AMMBT5401-H-HF
Range	100-200	200-300

Typical Rating and Characteristic Curves (AMMBT5401-HF Series)

Fig.1 - Static Characteristic

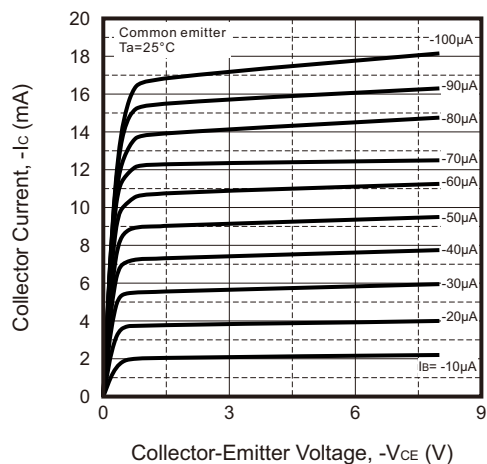
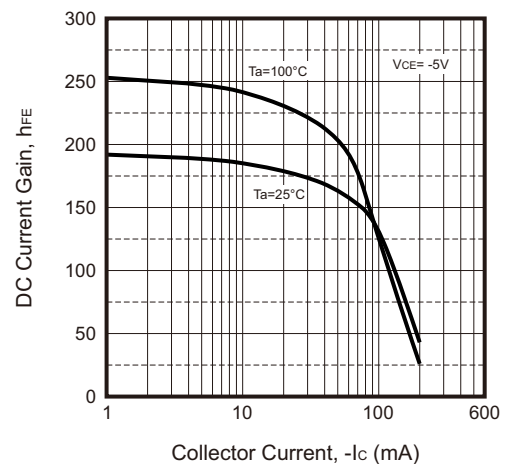


Fig.2 - $h_{FE} - I_C$



Typical Rating and Characteristic Curves (AMMBT5401-HF Series)

Fig.3 - $V_{BE(sat)}$ — I_c

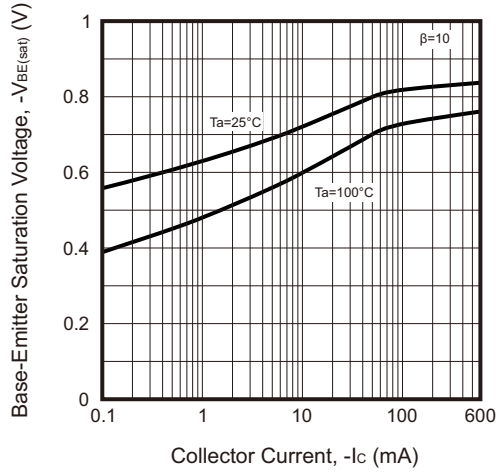


Fig.4 - $V_{CE(sat)}$ — I_c

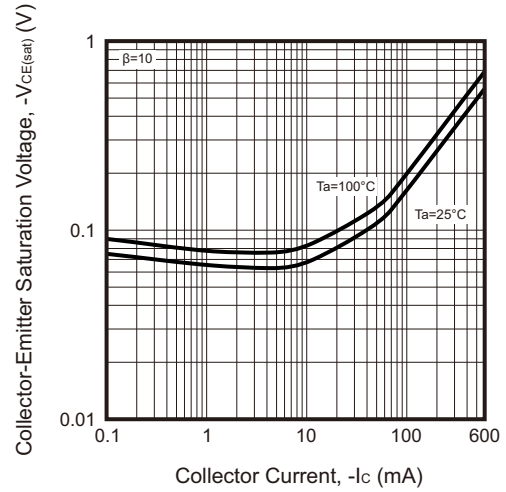


Fig.5 - I_c — V_{BE}

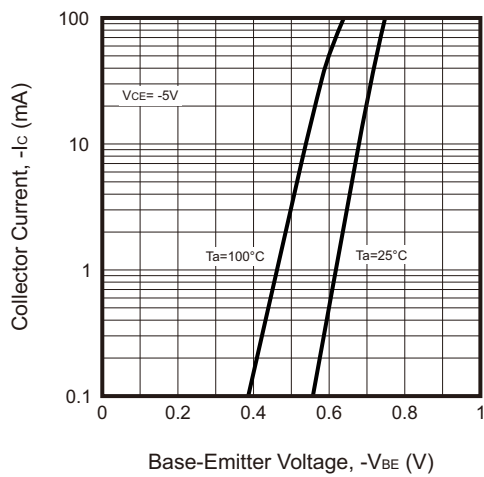


Fig.6 - C_{ob}/C_{ib} — V_{CB}/V_{EB}

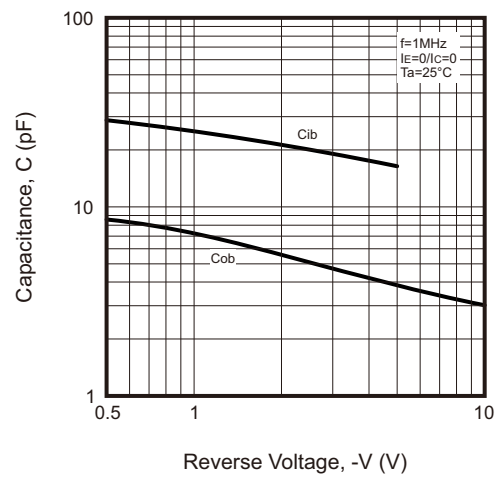


Fig.7 - f_T — I_c

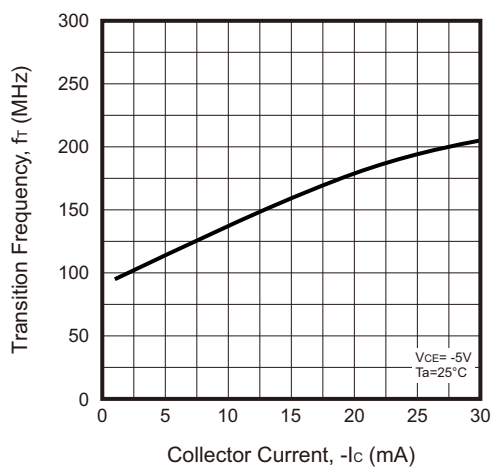
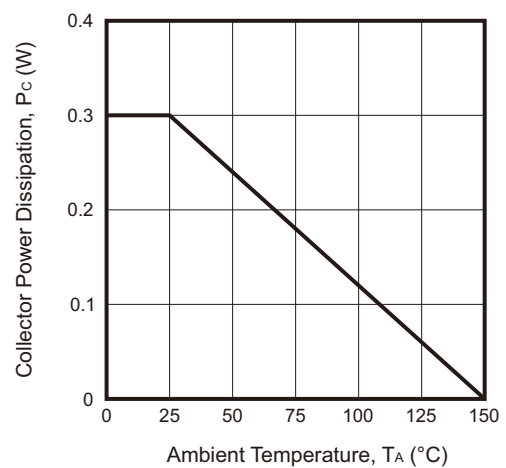
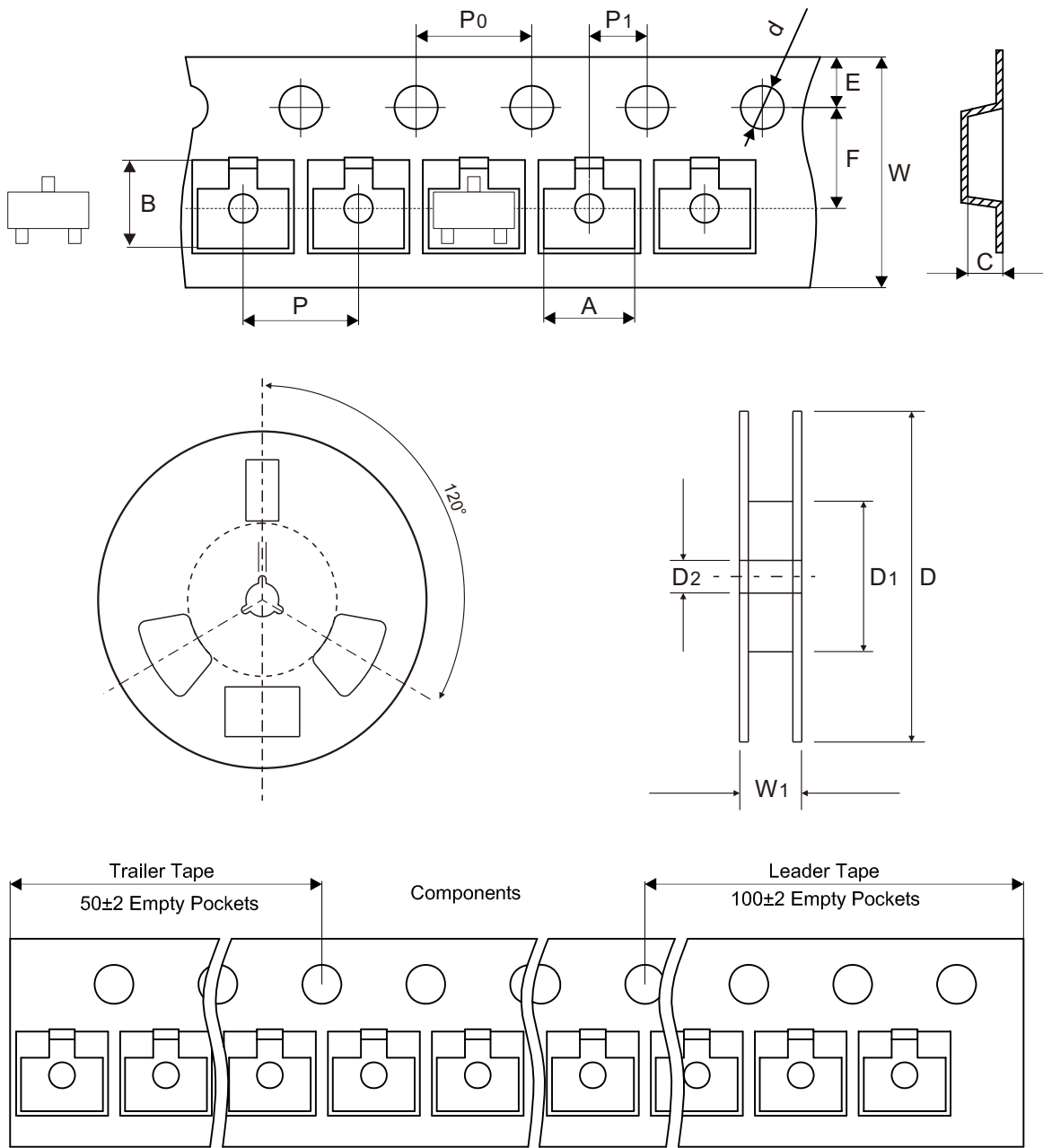


Fig.8 - P_C — T_A



Reel Taping Specification

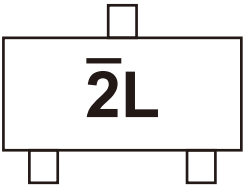


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 1.00	54.40 ± 0.40	13.00 ± 0.20
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.142 ± 0.016	0.512 ± 0.008

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	12.10 ± 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	0.476 ± 0.039

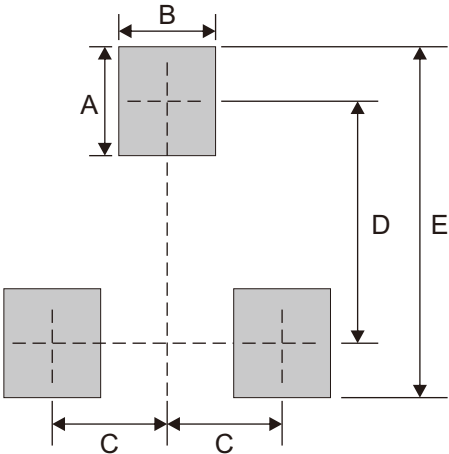
Marking Code

Part Number	Marking Code
AMMBT5401-L-HF	2L
AMMBT5401-H-HF	



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