

AMMBT2222AM-HF (NPN)

RoHS Device
Halogen Free

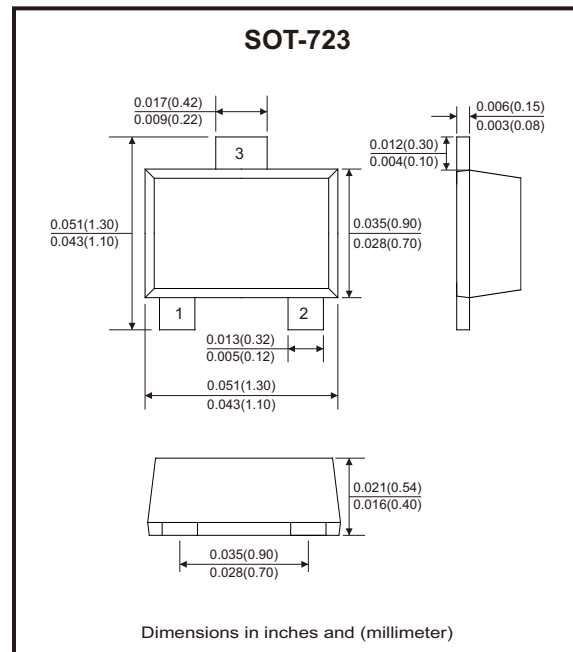


Features

- Ultra-small surface mount package.
- AEC-Q101 Qualified.

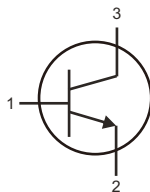
Mechanical data

- Case: SOT-723, molded plastic.
- Molding compound: UL flammability classification rating 94V-0.
- Terminals: Tin-plated, solderability per MIL-STD-202, method 208.
- 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	V_{CBO}	75	V
Collector-emitter voltage	V_{CEO}	40	V
Emitter-base voltage	V_{EBO}	6	V
Collector current-continuous	I_C	600	mA
Collector current-peak pulse width $\leq 40\mu s$, $\delta = 0.35$	I_{CM}	1.5	A
Power dissipation-collector (Note 1)	P_C	265	mW
Thermal resistance junction to ambient (Note 1)	$R_{\theta JA}$	470	°C/W
Operating junction temperature	T_J	150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Note: 1. FR-5 = 1.0 x 0.75 x 0.062 in.

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

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-base breakdown voltage	$I_C = 10\mu A, I_E = 0$	$V_{(BR)CBO}$	75			V
Collector-emitter breakdown voltage	$I_C = 10mA, I_B = 0$	$V_{(BR)CEO}$	40			V
Emitter-base breakdown voltage	$I_E = 10\mu A, I_C = 0$	$V_{(BR)EBO}$	6			V
Collector cut-off current	$V_{CB} = 60V, I_E = 0$	I_{CBO}			10	nA
Collector cut-off current	$V_{CE} = 60V, V_{BE} = 3V$	I_{CEX}			10	nA
Emitter cut-off current	$V_{EB} = 3V, I_C = 0$	I_{EBO}			10	nA
DC current gain	$V_{CE} = 10V, I_C = 0.1mA$	$h_{FE(1)}$	35			
	$V_{CE} = 10V, I_C = 1mA$	$h_{FE(2)}$	50			
	$V_{CE} = 10V, I_C = 10mA$	$h_{FE(3)}$	75			
	$V_{CE} = 10V, I_C = 150mA$	$h_{FE(4)}$	100		300	
	$V_{CE} = 10V, I_C = 500mA$	$h_{FE(5)}$	40			
Collector-emitter saturation voltage	$I_C = 500mA, I_B = 50mA$	$V_{CE(sat)}$			1	V
	$I_C = 150mA, I_B = 15mA$				0.3	
Base-emitter saturation voltage	$I_C = 500mA, I_B = 50mA$	$V_{BE(sat)}$			2	V
	$I_C = 150mA, I_B = 15mA$			0.6	1.2	
Transition frequency	$V_{CE} = 20V, I_C = 20mA, f = 100MHz$	f_T	300			MHz
Output capacitance	$V_{CB} = 10V, I_E = 0, f = 1MHz$	C_{OBo}			8	pF
Input capacitance	$V_{EB} = 0.5V, I_C = 0, f = 1MHz$	C_{iBo}			25	pF
Delay time	$V_{CC} = 30V, V_{BE(off)} = -0.5V$	t_d			10	ns
Rise time	$I_C = 150mA, I_{B1} = 15mA$		t_r			
Storage time	$V_{CC} = 30V, I_C = 150mA$	t_s			225	ns
Fall time	$I_{B1} = -I_{B2} = 15mA$	t_f			60	ns

Rating and Characteristic Curves (AMMBT2222AM-HF)

Fig.1 - h_{FE} vs. I_c

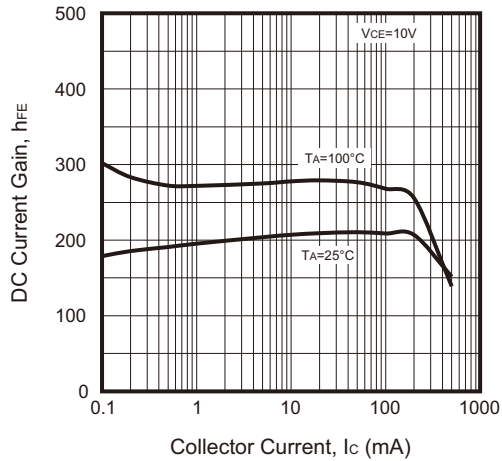


Fig.2 - $V_{CE(sat)}$ vs. I_c

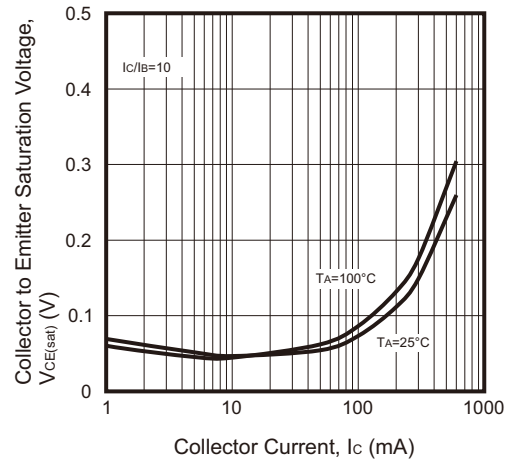


Fig.3 - $V_{BE(sat)}$ vs. I_c

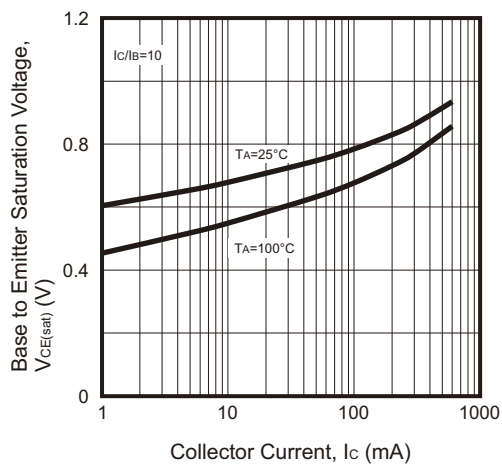
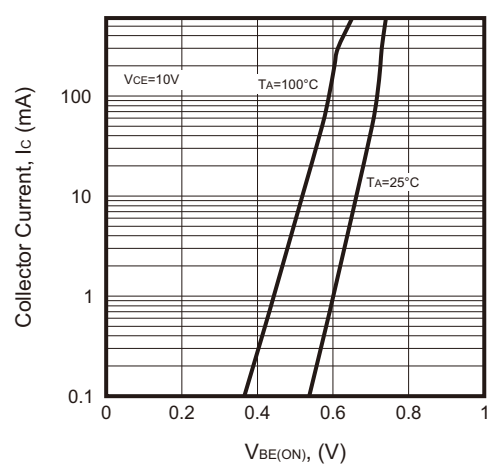
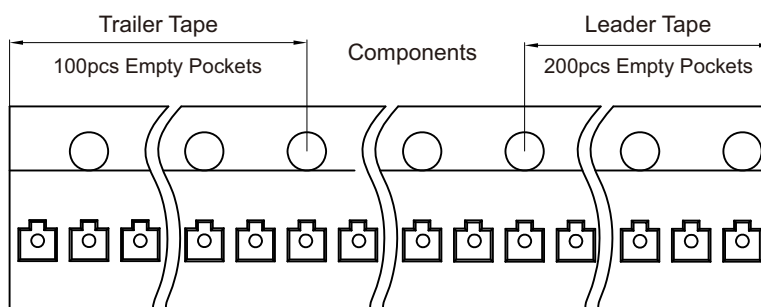
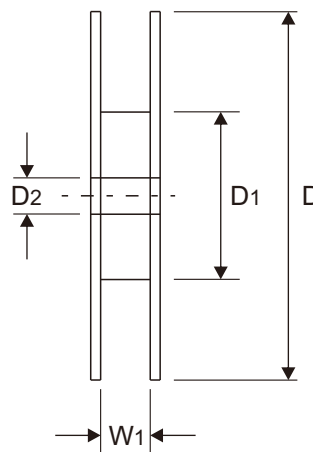
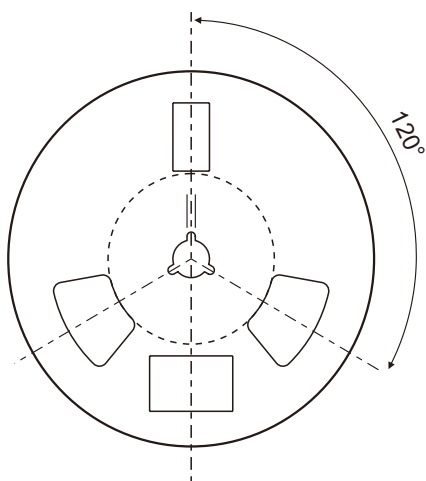
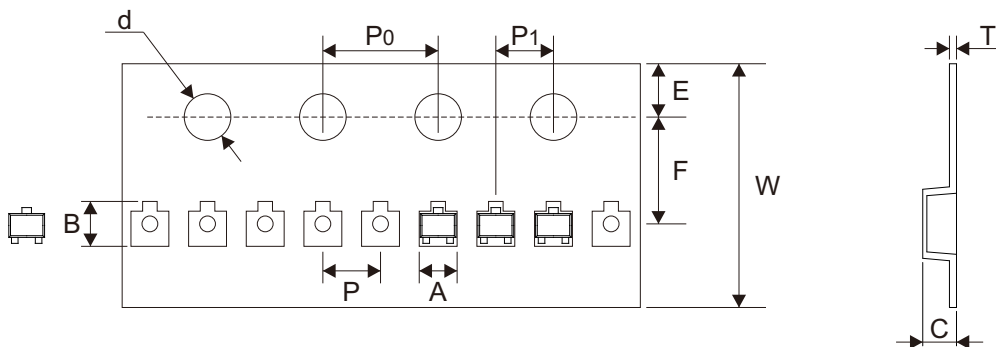


Fig.4 - $V_{BE(ON)}$ vs. I_c



Reel Taping Specification

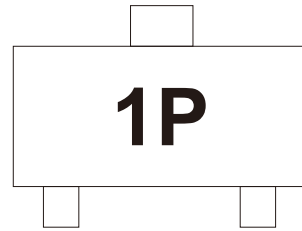


SOT-723	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	1.31 ± 0.05	1.45 ± 0.05	0.61 ± 0.05	1.50 ± 0.10	178.00 ± 1.00	54.00 ± 0.50	13.00 ± 0.50
	(inch)	0.052 ± 0.002	0.057 ± 0.002	0.024 ± 0.002	0.059 ± 0.004	7.008 ± 0.039	2.126 ± 0.020	0.512 ± 0.020

SOT-723	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	2.00 ± 0.05	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.02	8.00 + 0.30 - 0.10	9.50 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.079 ± 0.002	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	0.315 + 0.012 - 0.004	0.374 ± 0.039

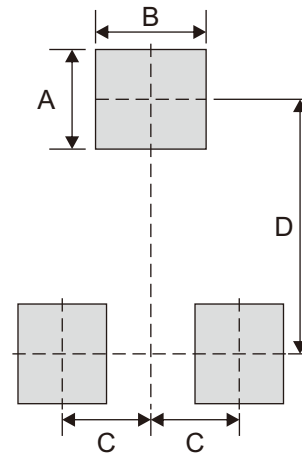
Marking Code

Part Number	Marking Code
AMMBT2222AM-HF	1P



Suggested P.C.B. PAD Layout

SIZE	SOT-723	
	(mm)	(inch)
A	0.45	0.018
B	0.50	0.020
C	0.40	0.016
D	1.15	0.045



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-723	10,000	7