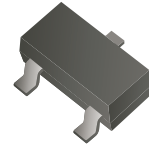


AFMMT720-HF (PNP)

RoHS Device
Halogen Free



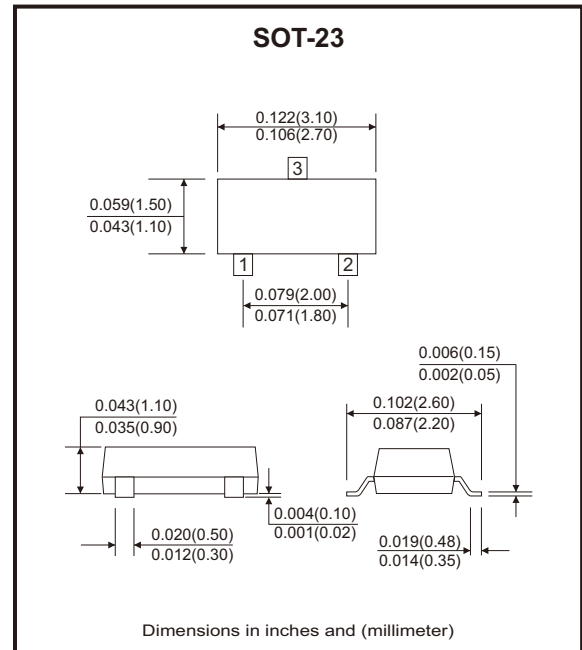
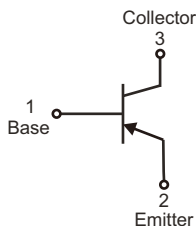
Features

- Low collector-emitter saturation voltage.
- High collector current capability.
- AEC-Q101 Qualified.

Mechanical data

- Case: SOT-23, molded plastic.
- Molding compound: UL flammability classification rating 94V-0.
- Terminals: Tin-plated; solderability per MIL-STD-202, method 208.

Circuit Diagram



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

Parameter	Symbol	Value	Unit
Collector-base breakdown voltage	V_{CBO}	-40	V
Collector-emitter breakdown voltage	V_{CEO}	-40	V
Emitter-base breakdown voltage	V_{EBO}	-5	V
Collector current-continuous	I_C	-2	A
Collector current-peak	I_C	-4	A
Base current	I_B	-0.5	A
Power dissipation	P_D	0.35	W
Thermal resistance from junction to air	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Thermal resistance from junction to case	$R_{\theta JC}$	215	$^\circ\text{C/W}$
Junction temperature range	T_J	-55 to +150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

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

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-base breakdown voltage	$I_C = -100\mu\text{A}$, $I_E = 0$	$V_{(BR)CBO}$	-40	-95		V
Collector-emitter breakdown voltage	$I_C = -10\text{mA}$, $I_B = 0$	$V_{(BR)CEO}$	-40	-85		V
Emitter-base breakdown voltage	$I_E = -100\mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	-5	-8.8		V
Collector cut-off current	$V_{CB} = -35\text{V}$, $I_E = 0$	I_{CBO}			-0.1	μA
Emitter cut-off current	$V_{EB} = -4\text{V}$, $I_C = 0$	I_{EBO}			-0.1	μA
DC current gain (Note 1)	$V_{CE} = -2\text{V}$, $I_C = -10\text{mA}$	$h_{FE(1)}$	300	480		
	$V_{CE} = -2\text{V}$, $I_C = -100\text{mA}$	$h_{FE(2)}$	300	450		
	$V_{CE} = -2\text{V}$, $I_C = -1\text{A}$	$h_{FE(3)}$	180	290		
	$V_{CE} = -2\text{V}$, $I_C = -1.5\text{A}$	$h_{FE(4)}$	60	130		
	$V_{CE} = -2\text{V}$, $I_C = -3\text{A}$	$h_{FE(5)}$	12	22		
Collector-emitter saturation voltage	$I_C = -0.1\text{A}$, $I_B = -10\text{mA}$	$V_{CE(sat)}$		0.025	0.040	V
	$I_C = -1\text{A}$, $I_B = -50\text{mA}$	$V_{CE(sat)}$		0.150	0.220	
	$I_C = -1.5\text{A}$, $I_B = -100\text{mA}$	$V_{CE(sat)}$		0.245	0.330	
Base-emitter saturation voltage	$I_C = -1.5\text{A}$, $I_B = -75\text{mA}$	$V_{BE(sat)}$		-0.8	-1.0	V
Base-emitter voltage	$I_C = -1.5\text{A}$, $V_{CE} = -2\text{V}$	$V_{BE(on)}$			-1.2	V
Transition frequency	$V_{CE} = -10\text{V}$, $I_C = -50\text{mA}$, $f = 100\text{MHz}$	f_T	150	190		MHz
Output capacitance	$V_{CB} = -10\text{V}$, $f = 1\text{MHz}$	C_{ob}		19	25	pF
Turn-on time	$V_{CC} = -15\text{V}$, $I_C = -0.75\text{A}$, $I_{B1} = I_{B2} = -15\text{mA}$	$t_{(on)}$		40		
Turn-off time		$t_{(off)}$		435		

Rating and Characteristic Curves (AFMMT720-HF)

Fig.1 - $V_{CE(sat)}$ — I_c

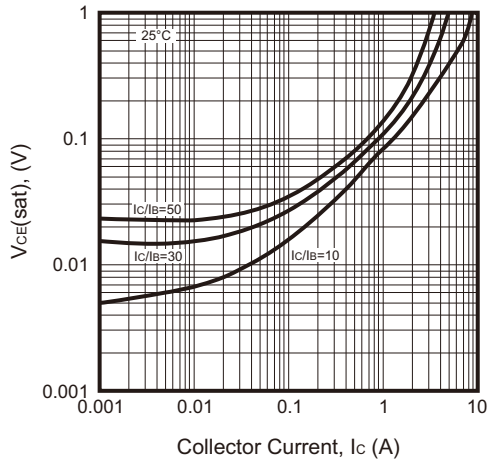


Fig.2 - V_{CE} — I_c

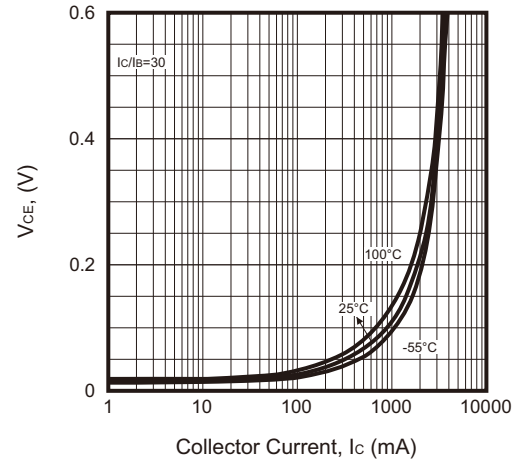


Fig.3 - V_{BE} — I_c

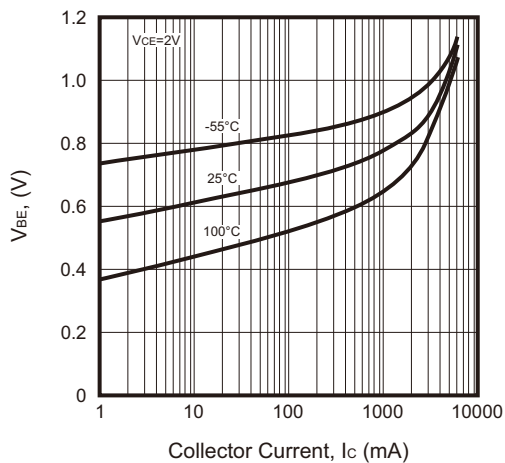


Fig.4 - I_c — V_{CE}

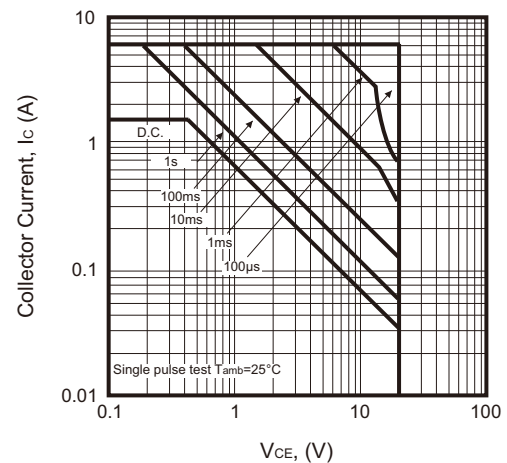


Fig.5 - V_{BE} — I_c

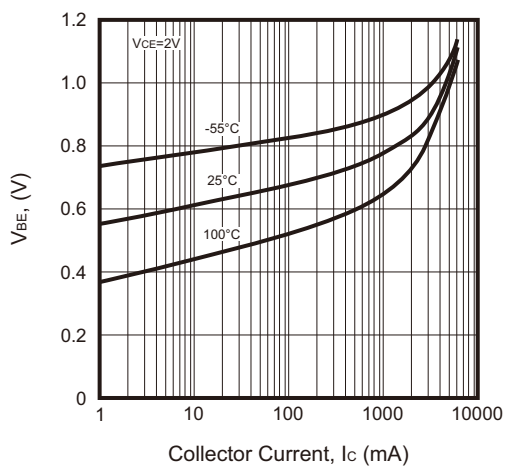
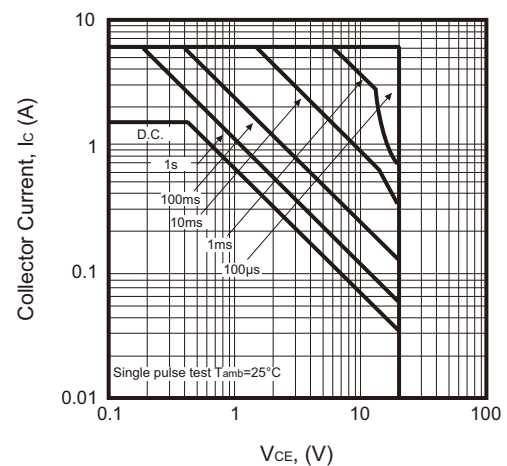


Fig.6 - I_c — V_{CE}



Rating and Characteristic Curves (AFMMT720-HF)

Fig.7 - h_{FE} — I_c

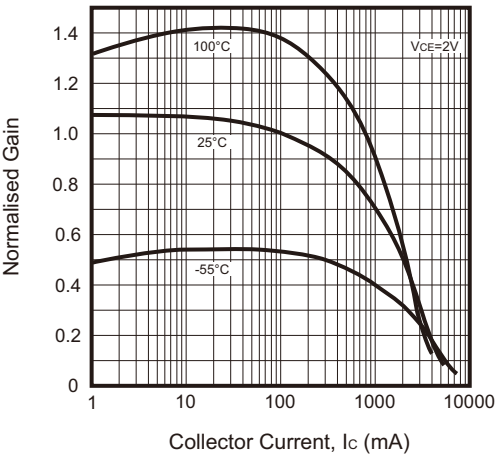
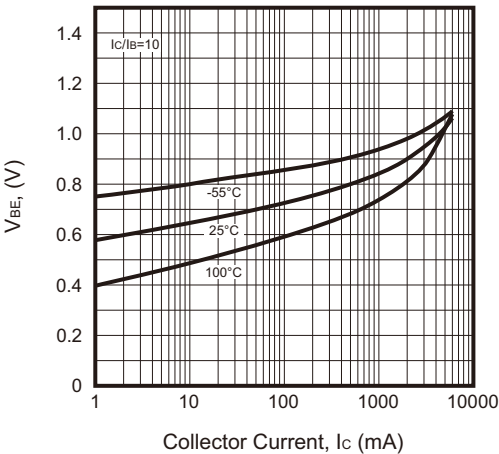
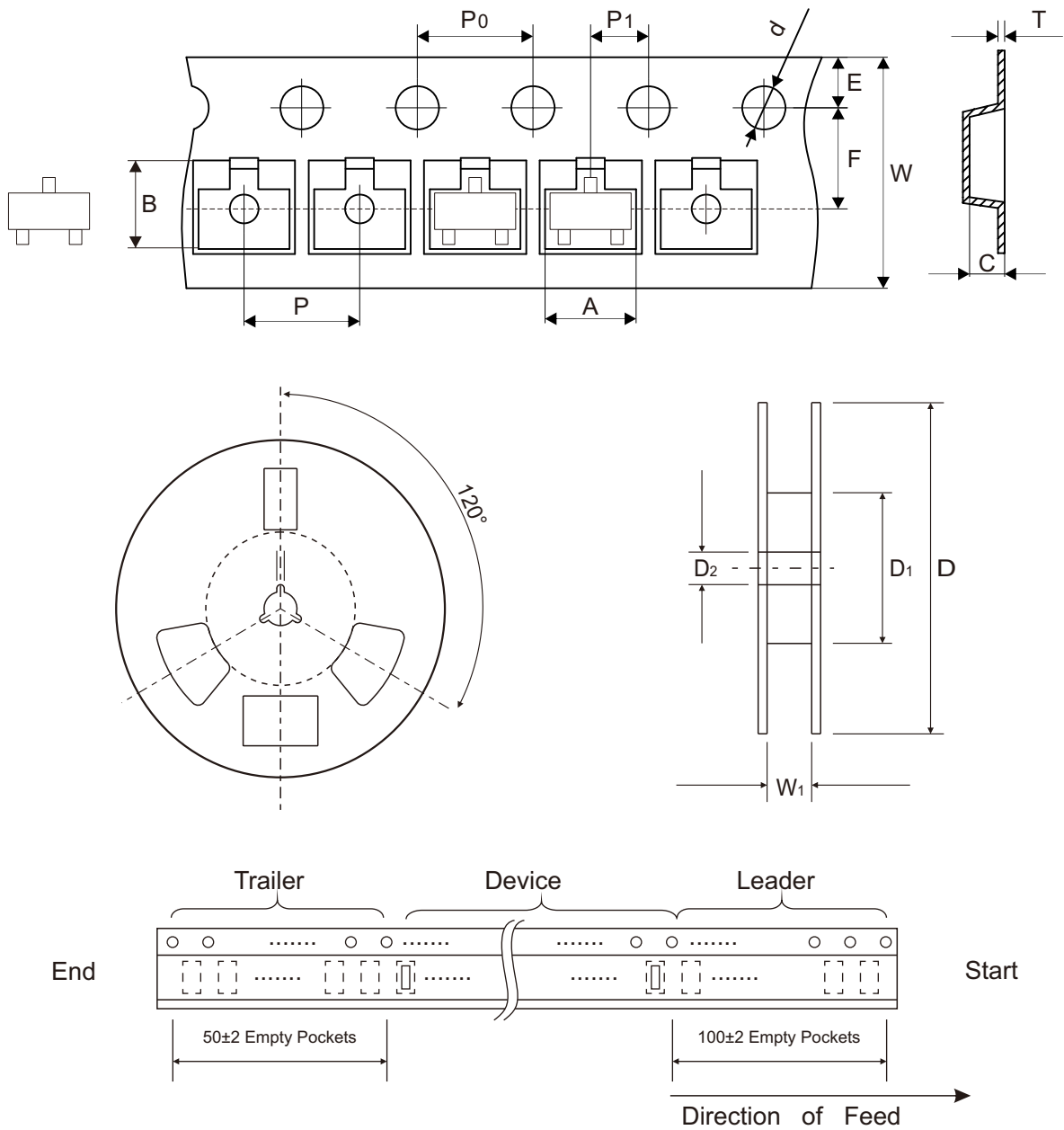


Fig.8 - V_{BE} — I_c



Reel Taping Specification

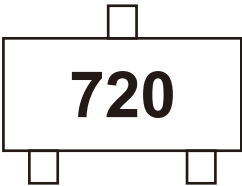


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 1.00	54.00 ± 0.50	13.00 ± 0.50
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.126 ± 0.020	0.512 ± 0.020

SOT-23	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.02	8.00 ± 0.30	9.50 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	0.315 ± 0.012	0.374 ± 0.039

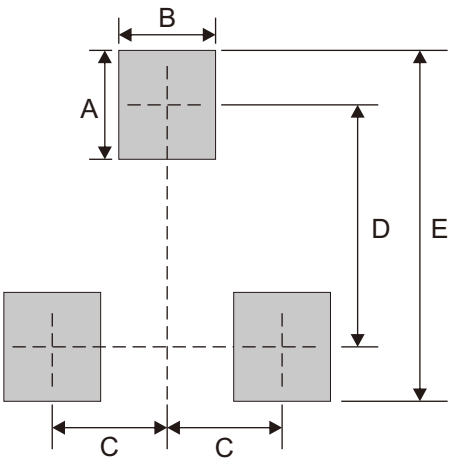
Marking Code

Part Number	Marking Code
AFMMT720-HF	720



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