

1.Features

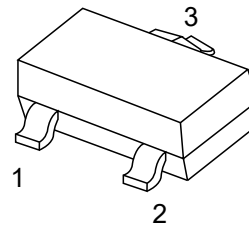
▪ Switching Transistor

▪ MMBT4401 TRANSISTOR (NPN)

2.Pinning Information

Pin	Symbol	Description
1	B	BASE
2	E	EMITTER
3	C	COLLECTOR

SOT-23



3.Absolute Maximum Ratings $T_A = 25^{\circ}\text{C}$

Parameter	Symbol	Value	Units
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	600	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	417	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}\text{C}$



4. Electrical Characteristics $T_A = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$, $I_E = 0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}$, $I_B = 0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}$, $I_C = 0$	6			V
Collector cut-off current	I_{CEO}	$V_{CE} = 30\text{V}$, $I_B = 0$			100	nA
Collector cut-off current	I_{CBO}	$V_{CB} = 50\text{V}$, $I_E = 0$			100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{V}$, $I_C = 0$			100	nA
DC current gain	h_{FE}	$V_{CE} = 1\text{V}$, $I_C = 150\text{mA}$	100		300	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 150\text{mA}$, $I_B = 15\text{mA}$			0.4	V
Collector-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 150\text{mA}$, $I_B = 15\text{mA}$			0.95	V
Transition frequency	f_T	$V_{CE} = 10\text{V}$, $I_C = 20\text{mA}$, $f = 100\text{MHz}$	250			MHz
Delay time	t_d	$V_{CC} = 30\text{V}$, $V_{BE(off)} = -2\text{V}$			15	ns
Rise time	t_r	$I_C = 150\text{mA}$, $I_{B1} = 15\text{mA}$			20	ns
Storage time	t_s	$V_{CC} = 30\text{V}$, $I_C = 150\text{mA}$			225	ns
Fall time	t_f	$I_{B1} = I_{B2} = 15\text{mA}$			30	ns



5.1 Typical Characteristics

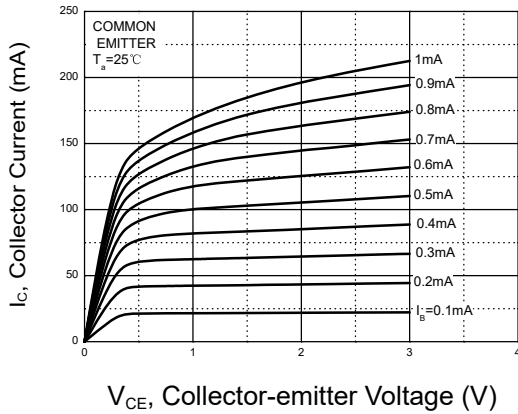
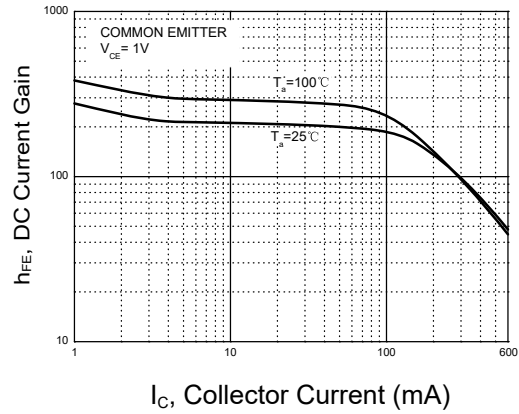
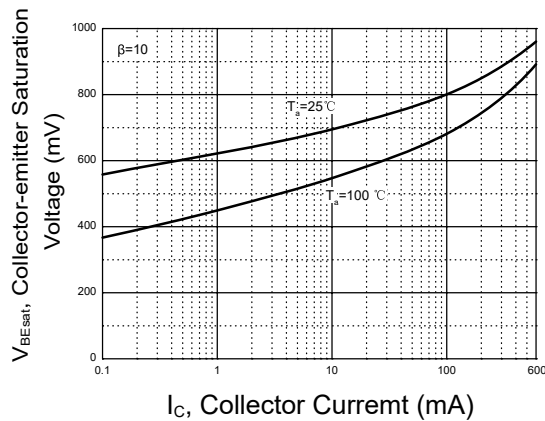
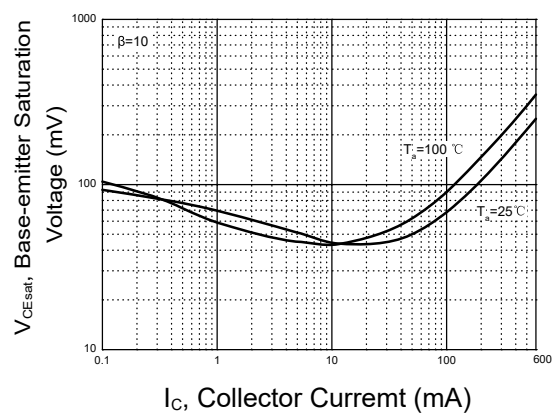
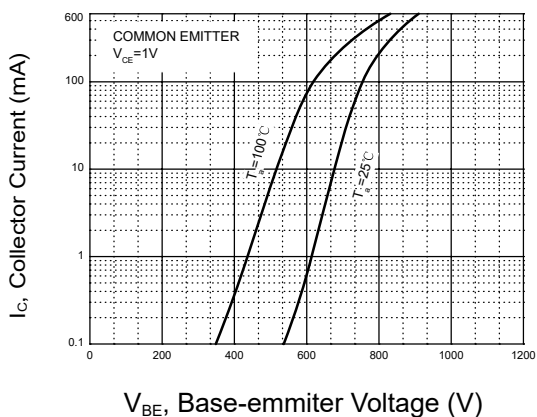
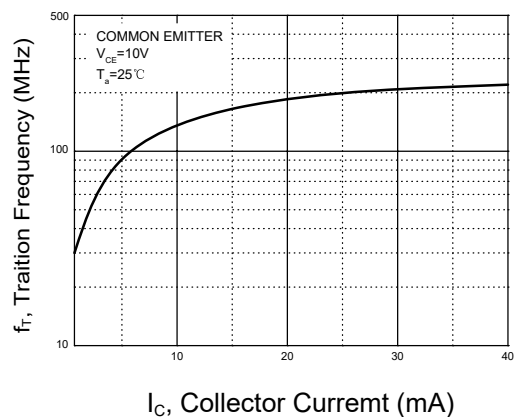
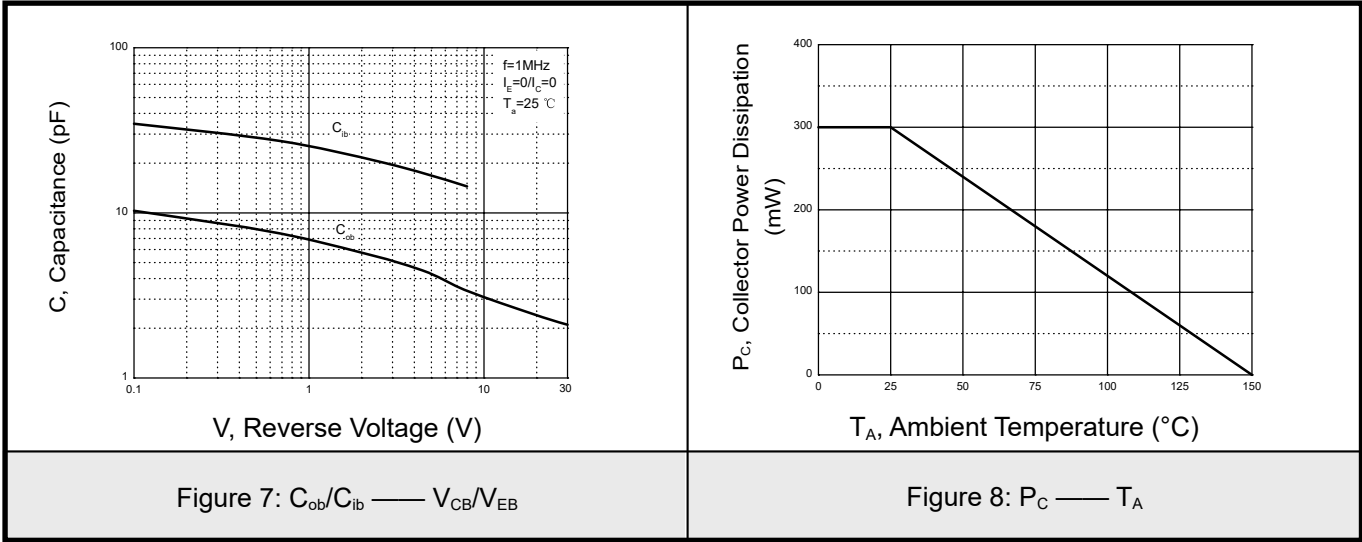


Figure 1: Static Characteristic

Figure 2: h_{FE} — I_C Figure 3: V_{BEsat} — I_C Figure 4: V_{CEsat} — I_C Figure 5: I_C — V_{BE} Figure 6: f_T — I_C

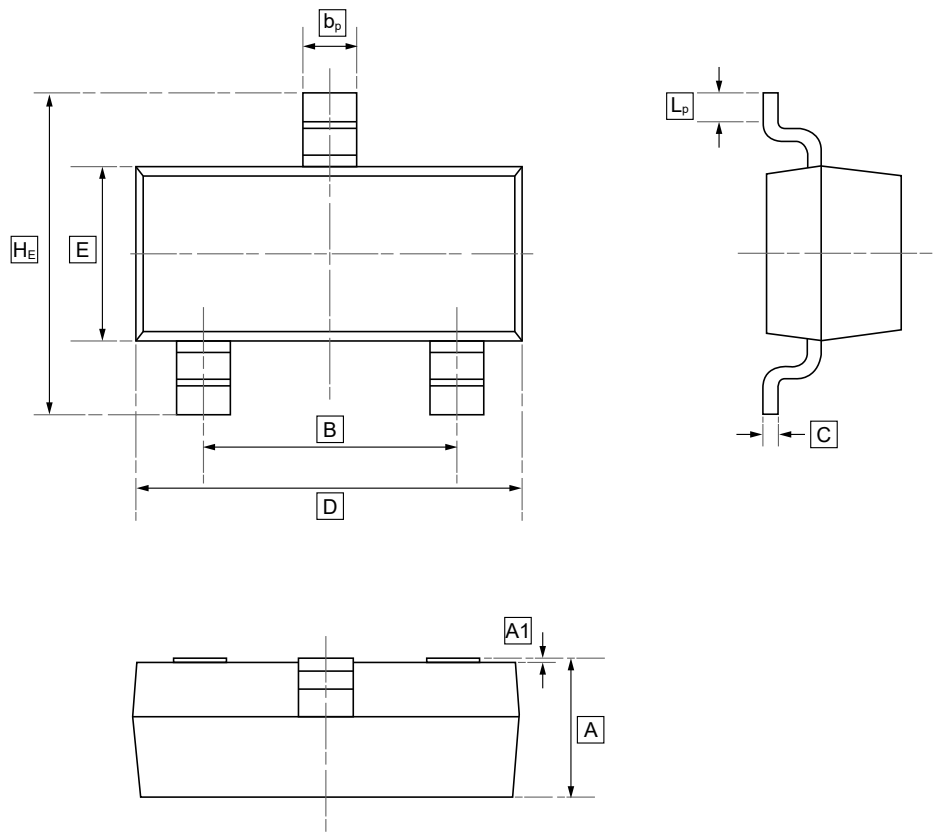


5.2Typical Characterisitics





6.SOT-23 Package Outline Dimensions

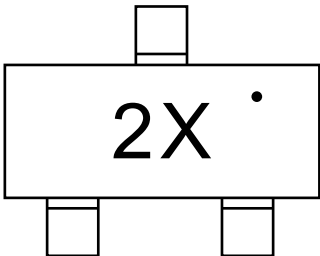


DIMENSIONS (mm are the original dimensions)

Symbol	A	B	b _p	C	D	E	H _E	A1	L _p
Min	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20
Max	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50



7.Ordering information



Order Code	Package	Base QTY	Delivery Mode
UMW MMBT4401	SOT-23	3000	Tape and reel



8.Disclaimer

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