

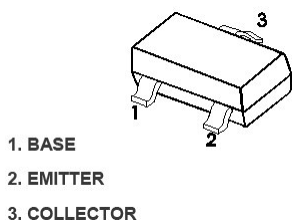
MMBT4401 TRANSISTOR(NPN)

Rev.1.0

SOT-23

SOT-23 贴片塑封开关三极管

SOT-23 Plastic-Encapsulate Switching Transistors



Marking: 2X

特征 Features

- I 最大功率耗散 300mW; Power Dissipation of 300mW
- I 高稳定性和可靠性。High Stability and High Reliability

机械数据 Mechanical Data

- I 封装: SOT-23 封装 SOT-23 Small Outline Plastic Package
- I 环氧树脂UL 易燃等级Epoxy UL: 94V-0
- I 安装位置: 任意 Mounting Position: Any

极限值和温度特性(TA = 25°C 除非另有规定)

Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

参数 Parameters	符号 Symbol	数值 Value	单位 Unit
Collector-Base Voltage	V _{CBO}	60	V
Collector-Emitter Voltage	V _{CEO}	40	V
Emitter -Base Voltage	V _{EBO}	6	V
Collector Current-Continuous	I _c	600	mA
Collector Power Dissipation	P _c	300	mW
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55-+150	°C
Thermal resistance From junction to ambient	R _{θJA}	417	°C/W

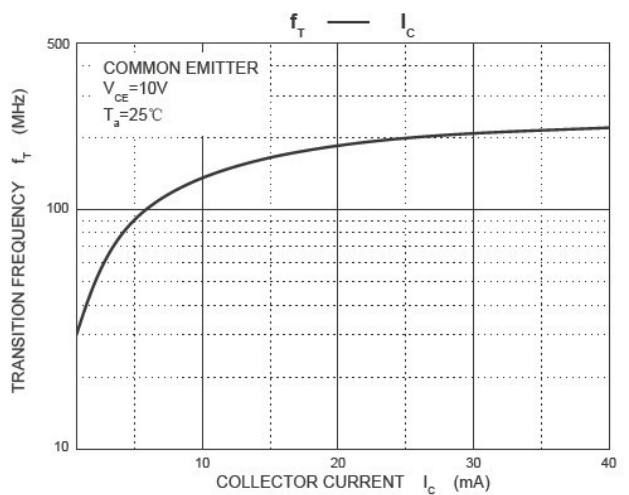
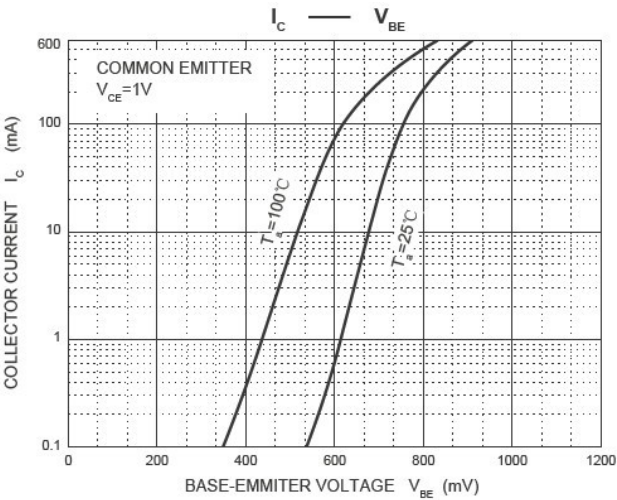
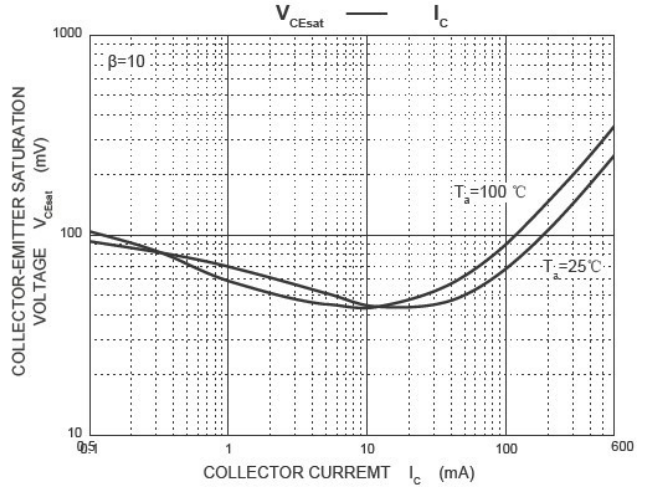
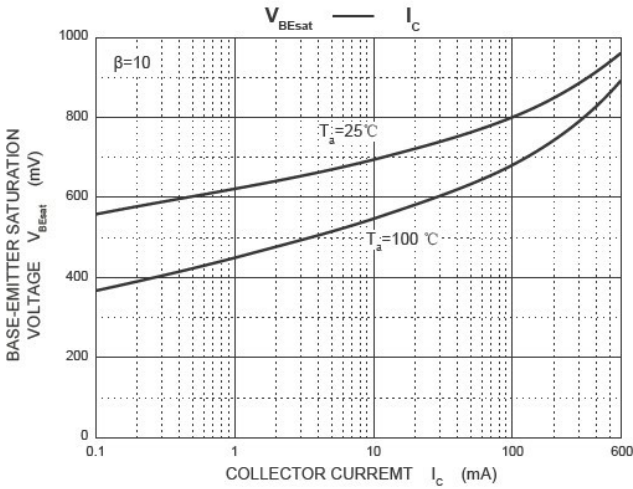
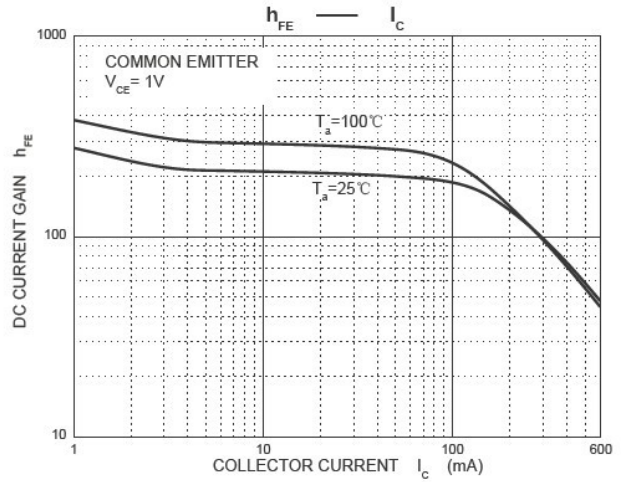
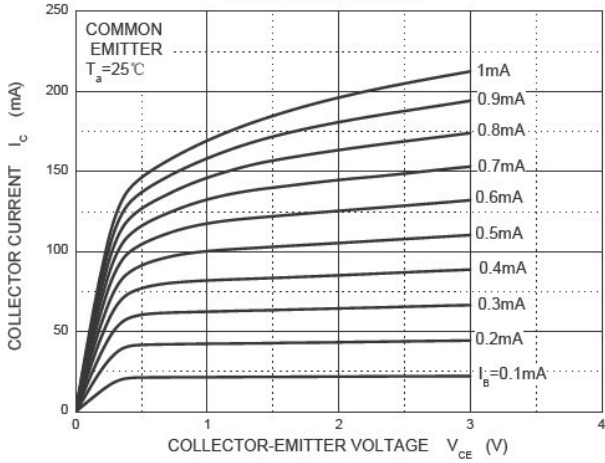
电特性 (TA = 25°C 除非另有规定)

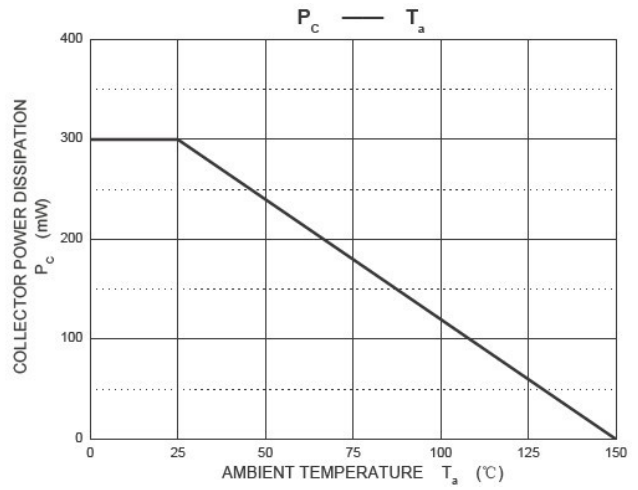
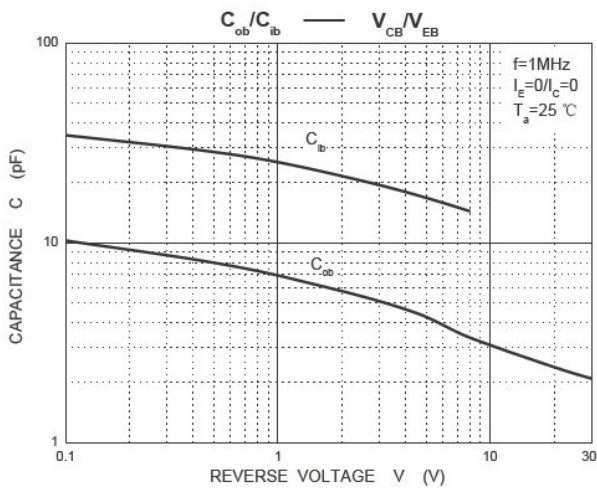
Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

参数 Parameter	符号 Symbols	测试条件 Test Condition	界限 Limits		单位 Unit
			Min	Max	
Collector-base breakdown voltage	V(BR)CBO	I _C =100μA, I _E =0	60		V
Collector-emitter breakdown voltage	V(BR)CEO	I _C =1mA, I _B =0	40		V
Emitter-base breakdown voltage	V(BR)EBO	I _E =100μA, I _C =0	6		V
Collector cut-off current	I _{CBO}	V _{CB} =50V, I _E =0		100	nA
Collector cut-off current	I _{CEX}	V _{CE} =35V, V _{EB(off)} =0.4V		100	nA
Emitter cut-off current	I _{EBO}	V _{EB} =5V, I _C =0		100	nA
DC current gain	hFE(1)	V _{CE} =1V, I _C =0.1mA	20		
	hFE(2)	V _{CE} =1V, I _C =1mA	40		
	hFE(3)	V _{CE} =1V, I _C =10mA	80		
	hFE(4)	V _{CE} =1V, I _C =150mA	100	300	
	hFE(5)	V _{CE} =1V, I _C =500mA	40		
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =150mA, I _B =15mA		0.40	V
		I _C =500mA, I _B =50mA		0.75	V
Base -emitter saturation voltage	V _{BE(sat)}	I _C =150mA, I _B =15mA		0.95	V
		I _C =500mA, I _B =50mA		1.20	V
Transition frequency	f _T	V _{CE} =10V, I _C =20mA, f=100MHz	250		MHz
Delay time	t _d	V _{CC} =30V, V _{BE(off)} =-2V, I _C =150mA, I _{B1} =15mA		15	nS
Rise time	t _r			20	nS
Storage time	t _s			225	nS
Fall time	t _f	V _{CC} =30V, I _C =150mA, I _{B1} =I _{B2} =15mA		60	nS

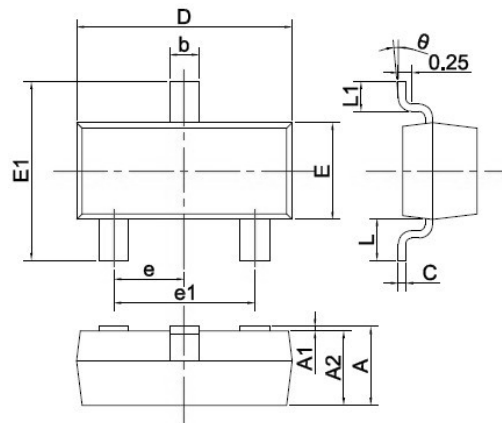
Typical characteristics

Static Characteristic





SOT-23 PACKAGE OUTLINE Plastic surface mounted package

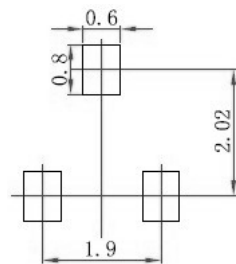


SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

焊盘设计参考 Precautions: PCB Design

Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs



Note:

1. Controlling dimension: In millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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