

MMBT4401

MMBT4401 SOT-23 Plastic-Encapsulate Switching Transistors (NPN)

General description

SOT-23 Plastic-Encapsulate Switching Transistors (NPN)

FEATURES

- Power Dissipation of 300mW
- High Stability and High Reliability
- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0



DEVICE MARKING CODE:

Device Type	Device Marking
MMBT4401	2X

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

Parameters	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	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

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

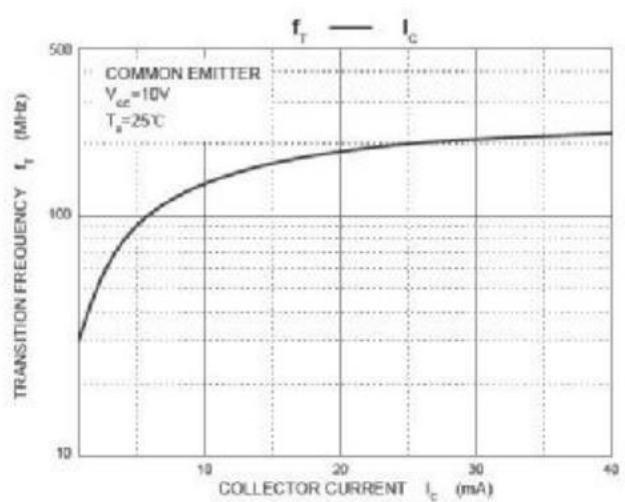
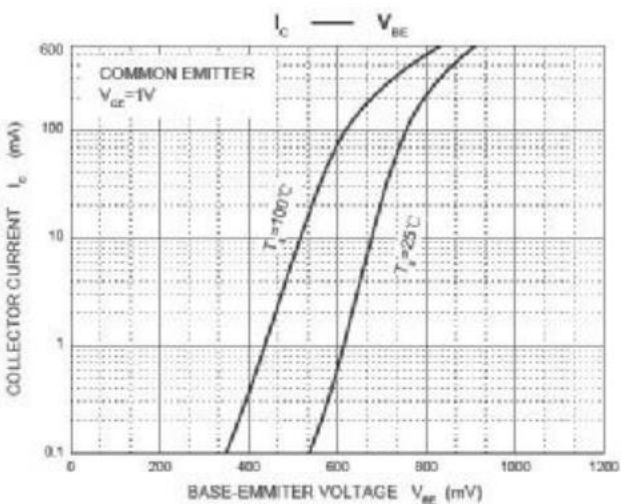
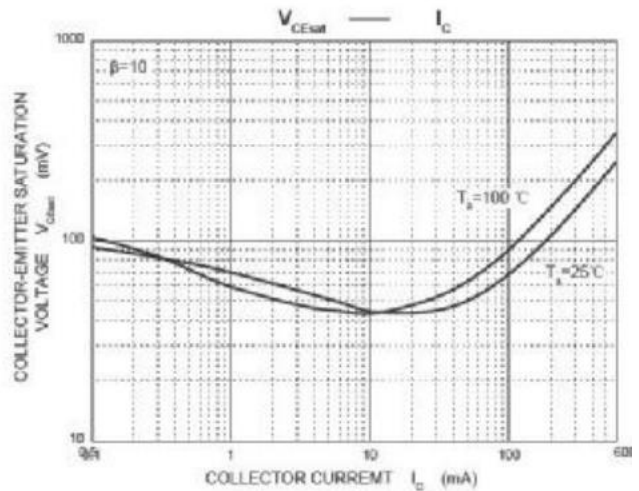
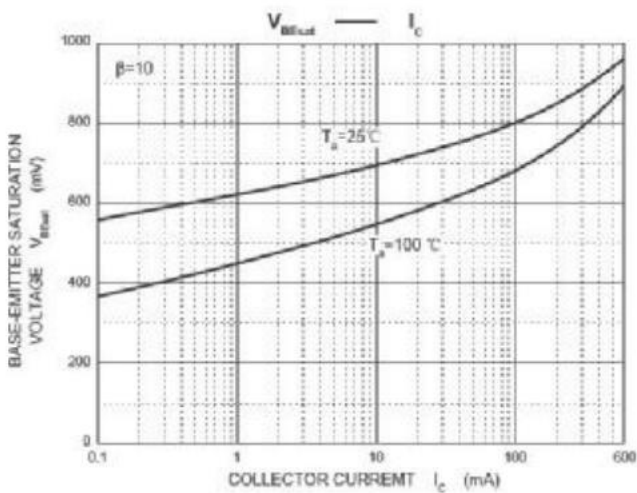
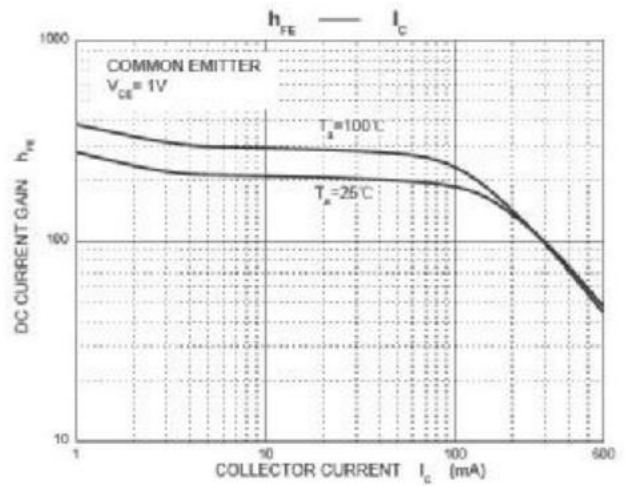
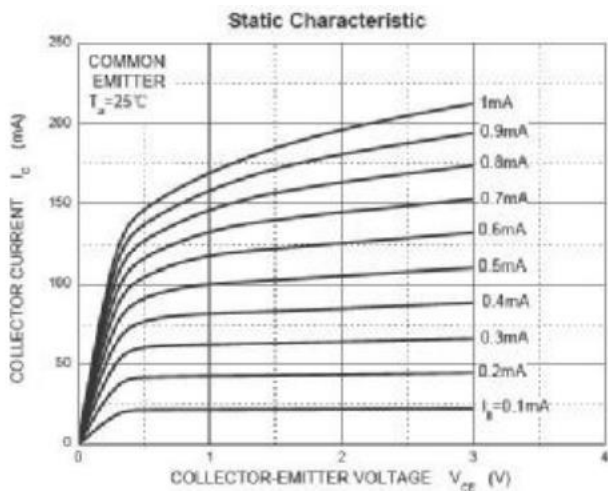
Parameter	Symbols	Test Condition	Limits		Unit
			Min	Max	
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =100uA, I _E =0	60		V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =1mA, I _B =0	40		V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =100uA, I _C =0	6		V
Collector cut-off current	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	h _{FE(1)}	V _{CE} =1V, I _C =0.1mA	20		
	h _{FE(2)}	V _{CE} =1V, I _C =1mA	40		
	h _{FE(3)}	V _{CE} =1V, I _C =10mA	80		
	h _{FE(4)}	V _{CE} =1V, I _C =150mA	100	300	
	h _{FE(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			15	nS



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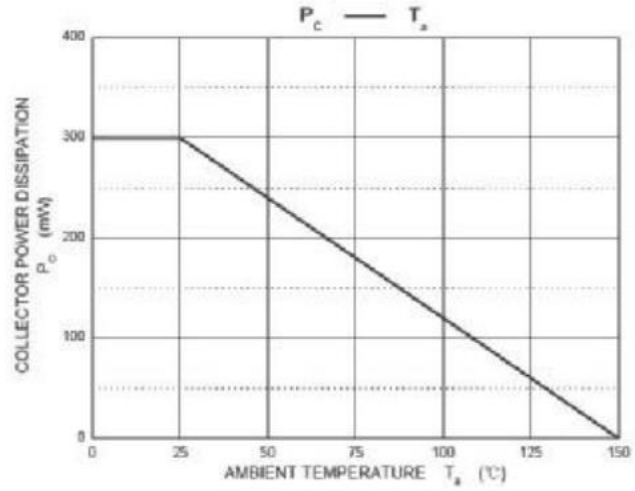
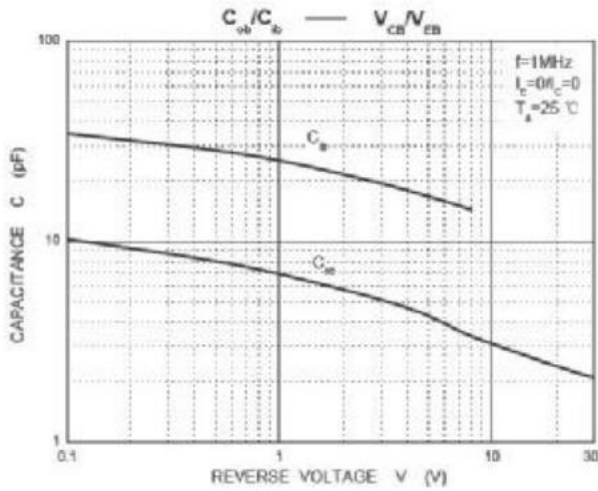
Rise time	t_r	$V_{CC}=30V, V_{BE(off)}=-2V, I_C=150mA, I_{B1}=15mA$	20	nS
Storage time	t_s	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$	225	nS
Fall time	t_f		60	nS

RATING AND CHARACTERISTIC CURVES

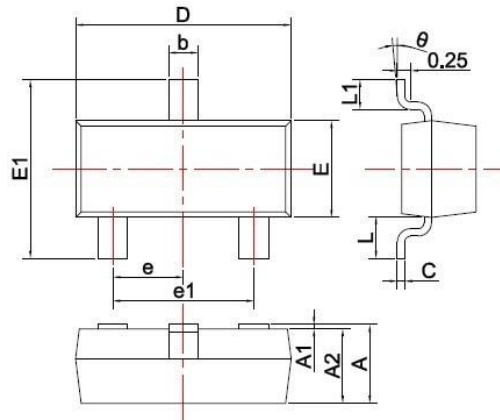




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SOT-23 PACKAGE OUTLINE Plastic surface mounted package

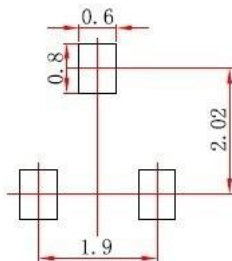


SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0 $^\circ$	8 $^\circ$

Unit: mm

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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