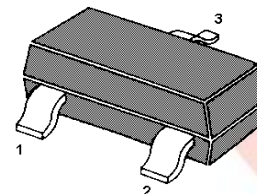


MMBT5401

Features

- ◆ For Switching and Amplifier Applications.
- ◆ Silicon Epitaxial Chip

SOT-23
(TO-236)



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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	160	V
Collector Emitter Voltage	$-V_{CEO}$	150	V
Emitter Base Voltage	$-V_{EBO}$	6	V
Collector Current	$-I_C$	600	mA
Power Dissipation	P_D	350	mW
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to 150	$^{\circ}\text{C}$

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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE} = 5\text{ V}$, $-I_C = 1\text{ mA}$ at $-V_{CE} = 5\text{ V}$, $-I_C = 10\text{ mA}$ at $-V_{CE}=5\text{ V}$, $-I_C=50\text{ mA}$	H_{FE}	50 60 50	- 240 -	- - -
Collector Base Cutoff Current at $-V_{CB} = 120\text{ V}$	$-I_{CBO}$	-	50	nA
Emitter Base Cutoff Current at $-V_{EB}=3\text{ V}$	$-I_{EBO}$	-	50	nA
Collector Base Breakdown Voltage at $-I_C = 100\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	160	-	V
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$	$-V_{(BR)CEO}$	150	-	V
Emitter Base Breakdown Voltage at $-I_E = 10\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 1\text{ mA}$ at $-I_C=50\text{ mA}$, $-I_B=5\text{ mA}$	$-V_{CE(sat)}$	- -	0.2 0.5	V
Base Emitter Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 1\text{ mA}$ at $-I_C=50\text{ mA}$, $-I_B=5\text{ mA}$	$-V_{BE(sat)}$	- -	1 1	V
Transition Frequency at $-V_{CE} = 5\text{ V}$, $-I_C = 1\text{ mA}$, $f=100\text{ MHz}$	F_T	100	300	MHz
Collector Base Capacitance at $-V_{CB}=10\text{ V}$, $f=1\text{ MHz}$	C_{OB}	-	6	pF

Typical Characteristics Curves

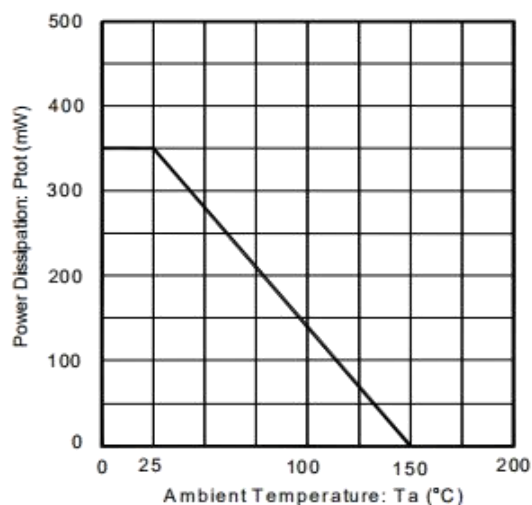


Fig. 1 Power Derating Curve

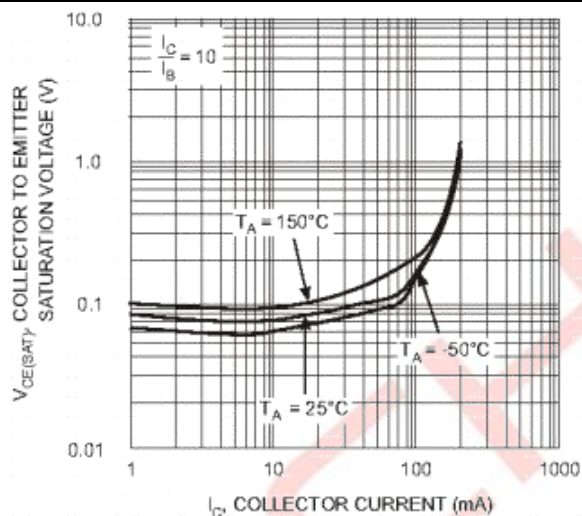


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

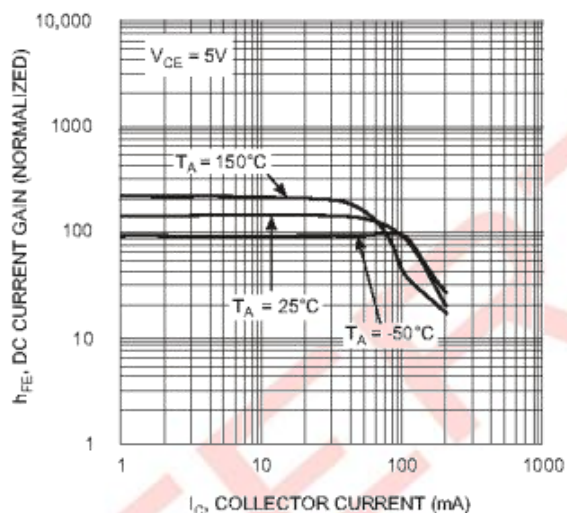


Fig. 3, DC Current Gain vs. Collector Current

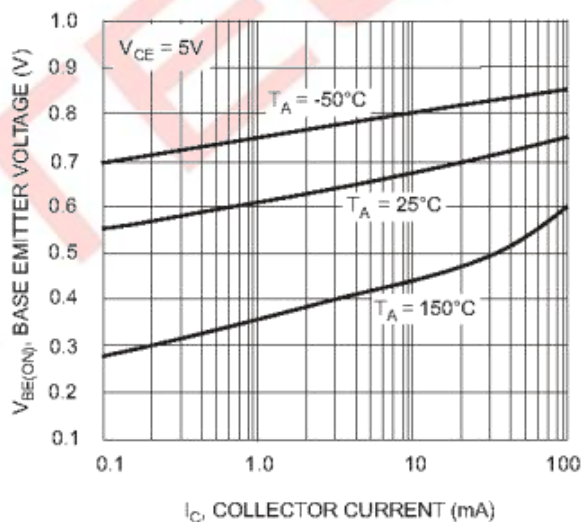


Fig. 4, Base Emitter Voltage vs. Collector Current

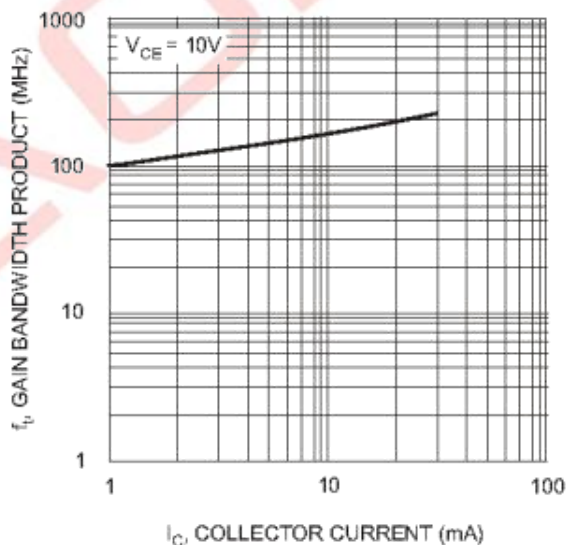
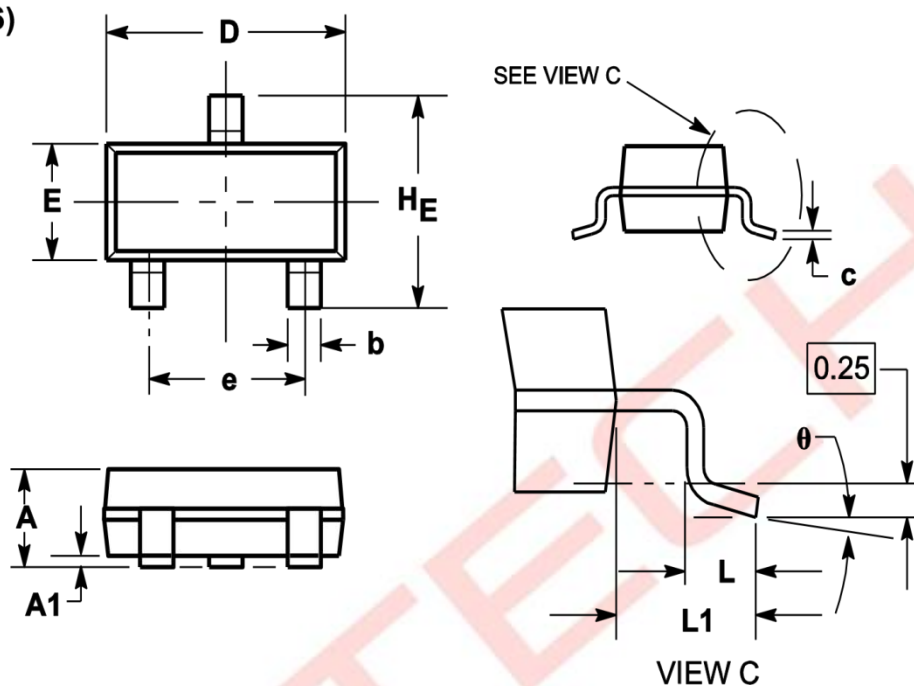


Fig. 5, Gain Bandwidth Product vs Collector Current

Package Outline

SOT-23 (TO-236)

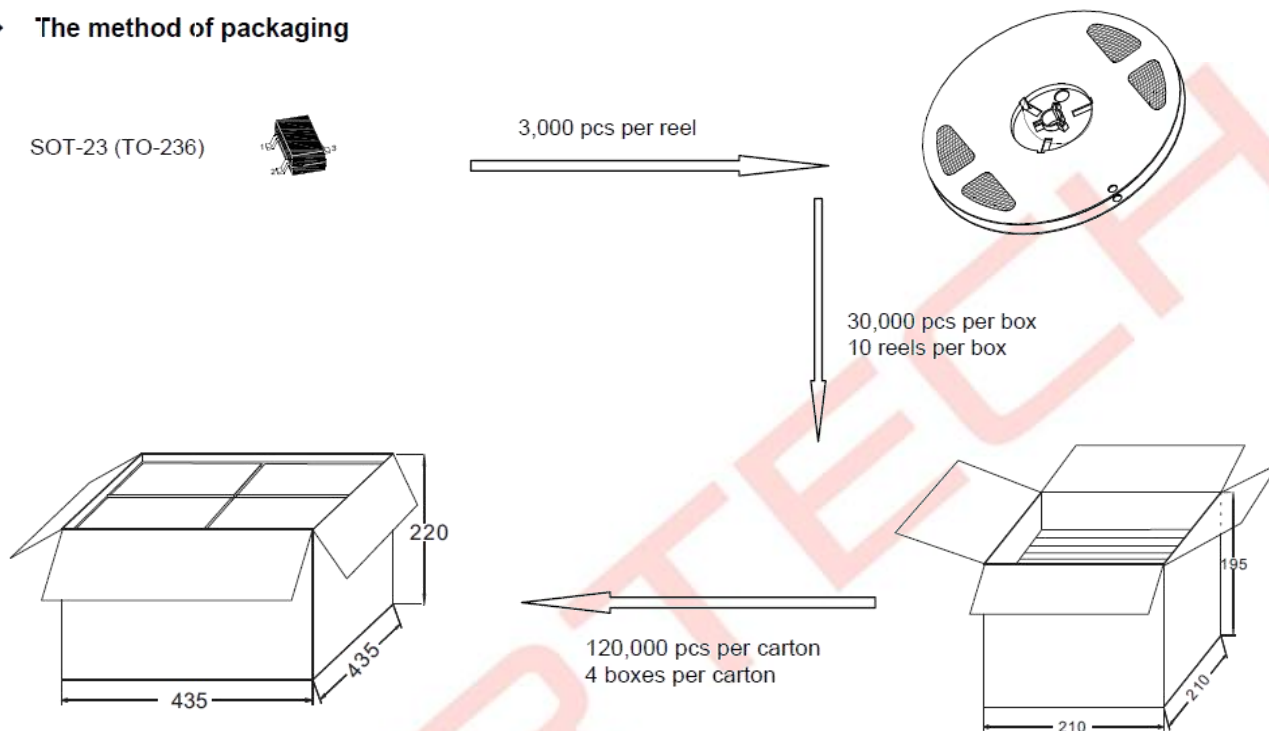


Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.900	1.025	1.150
A1	0.000	0.050	0.100
b	0.300	0.400	0.500
c	0.080	0.115	0.150
D	2.800	2.900	3.000
E	1.200	1.300	1.400
HE	2.250	2.400	2.550
e	1.800	1.900	2.000
L1	0.550REF		
L	0.300		0.500
θ	0°		8°

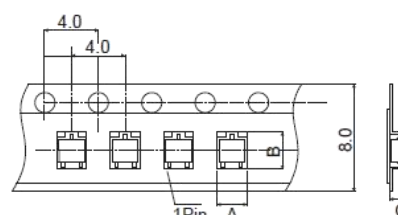
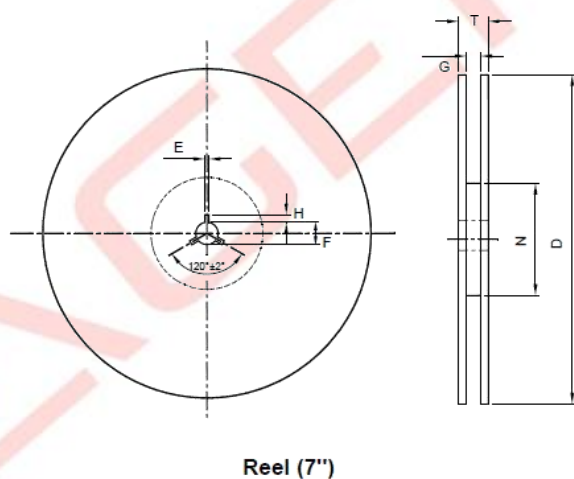
Device	Package	Reel Dimension (inch)	Shipping
MMBT5401	SOT-23	7	3,000

Package Specifications

◆ The method of packaging



◆ Embossed tape and reel data



Symbol	Value (unit: mm)
A	3.15 ± 0.1
B	2.7 ± 0.1
C	1.25 ± 0.1
E	2 ± 0.5
F	13 ± 0.5
D	178 ± 2.0
G	8.4 ± 1.5
H	4 ± 0.5
N	60
T	< 14.9