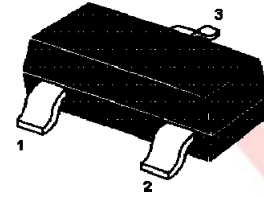


# MMBT5401

## Features

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

SOT-23  
(TO-236)



1 Base 2. Emitter 3. Collector

**Absolute Maximum Ratings** ( $T_A=25\text{ }^\circ\text{C}$ , 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** ( $T_A=25\text{ }^\circ\text{C}$ , 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

# MMBT5401

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

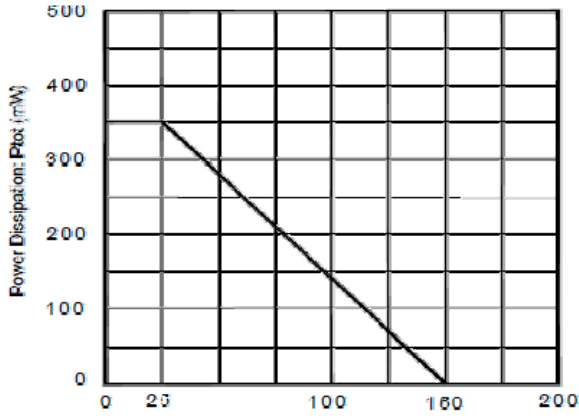


Fig. 1 Power Derating Curve

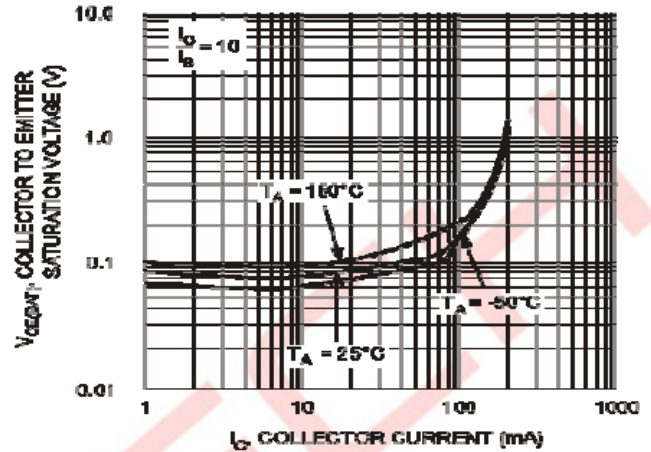


Fig. 2 Collector Emitter Saturation Voltage vs. Collector Current

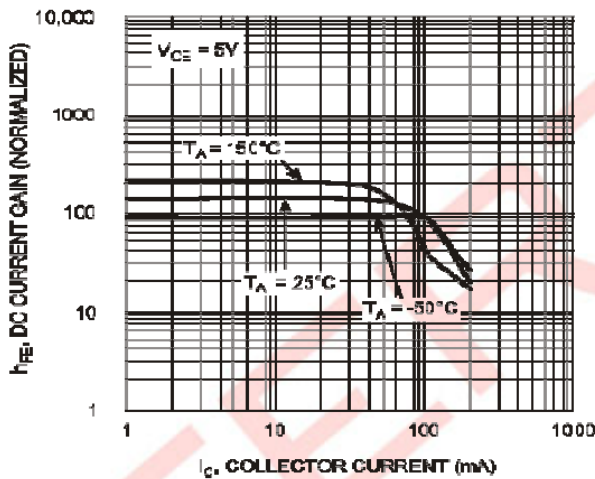


Fig. 3 DC Current Gain vs. Collector Current

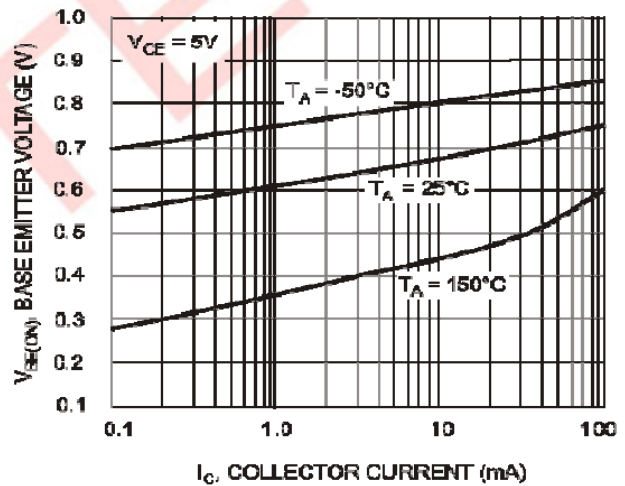


Fig. 4 Base Emitter Voltage vs. Collector Current

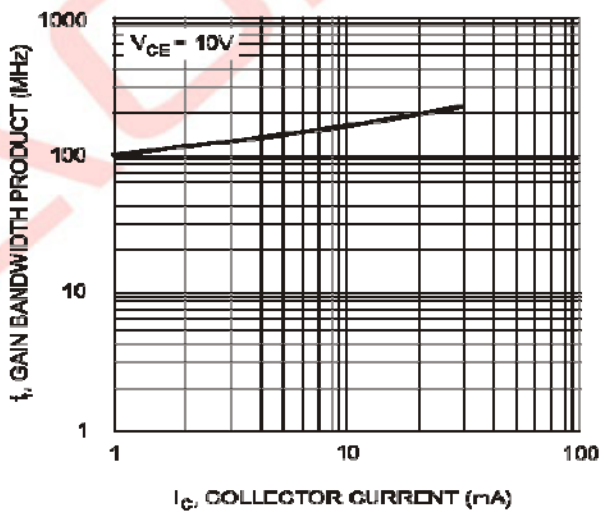


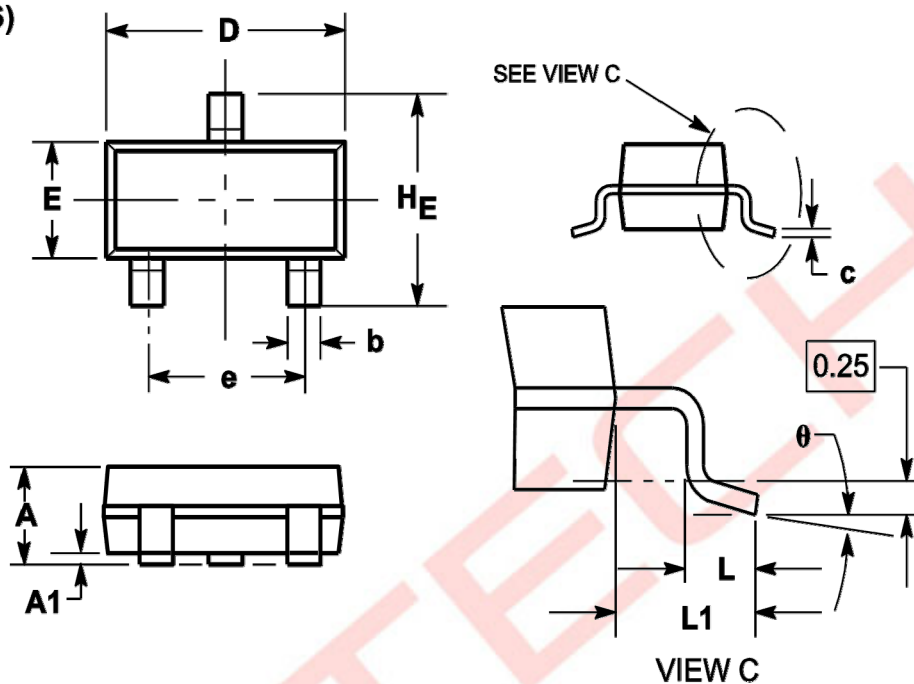
Fig. 5 Gain Bandwidth Product vs. Collector Current

## Curves

# MMBT5401

## Package Outline

SOT-23 (TO-236)



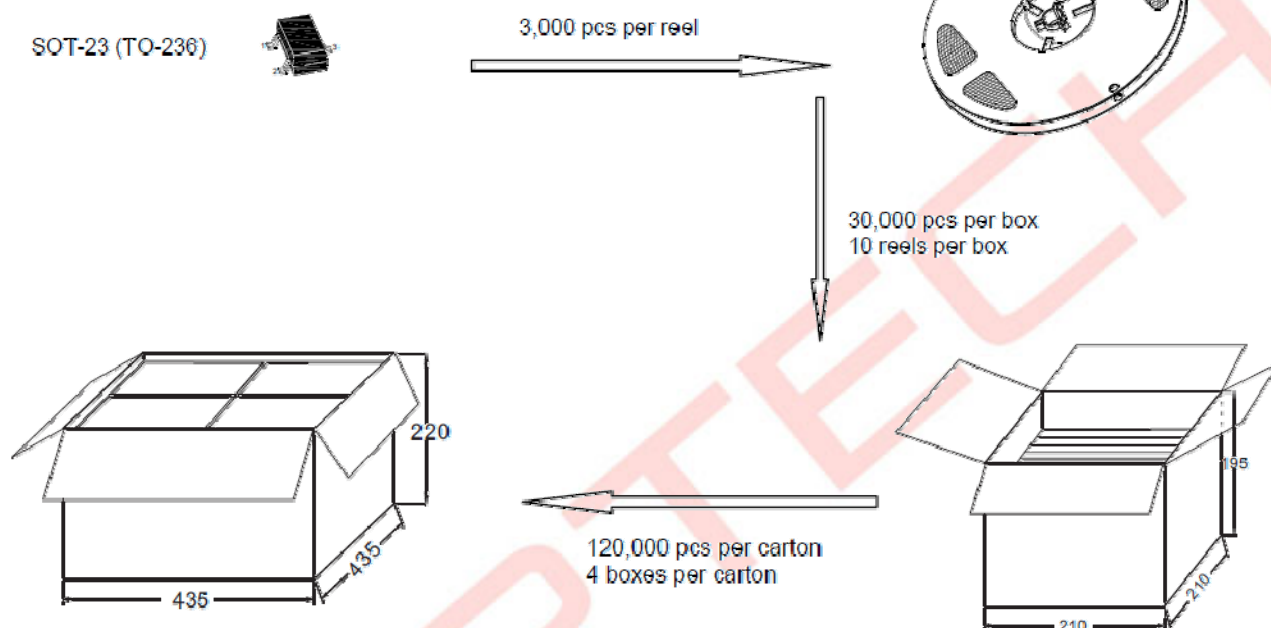
Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.900	1.025	1.150
A1	0.000	0.050	0.100
b	0.300	0.400	0.500
c	0.080	0.115	0.150
D	2.800	2.900	3.000
E	1.200	1.300	1.400
HE	2.250	2.400	2.550
e	1.800	1.900	2.000
L1	0.550REF		
L	0.300		0.500
$\theta$	0°		8°

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

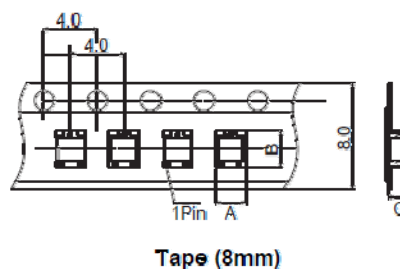
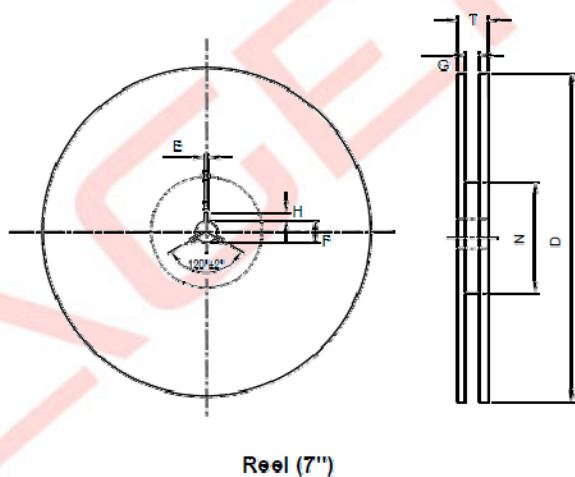
# MMBT5401

## 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