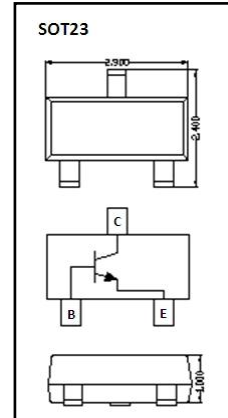


DATA SHEET

MMBT4401

- ◇ Capable of 300mWatts of Power Dissipation
- ◇ Operating and Storage Junction Temperatures: -55°C to 150°C
- ◇ Surface Mount SOT-23 Package
- ◇ RoHS compliant / Green EMC

Device Marking Code	
MMBT4401	2X



MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	60	V
V <sub>CEO</sub>	Collector-Emitter Voltage	40	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>c</sub>	Collector Current	600	mA
P <sub>c</sub>	Collector Power Dissipation	300	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	417	°C/W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

ELECTRICAL CHARACTERISTICS @ 25° C Unless Otherwise Specified

Symbol	Parameter	Test Conditions	Min	Max	Units
V <sub>CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>c</sub> =1.0mA, I <sub>B</sub> =0	40		V
V <sub>CBO</sub>	Collector-Base Breakdown Voltage	I <sub>c</sub> =100μA, I <sub>E</sub> =0	60		V
V <sub>EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> =100μA, I <sub>c</sub> =0	6.0		V
I <sub>CB0</sub>	Collector Cutoff Current	V <sub>CB</sub> =50V, I <sub>E</sub> =0		100	nA
I <sub>CEX</sub>	Collector Cutoff Current	V <sub>CE</sub> =35V, V <sub>BE</sub> =0.4V		100	nA

$I_{EBO}$	Emitter cut-off current	$V_{EB}=5V, I_C=0V$		100	nA
$h_{FE}$	DC Current Gain	$I_C=0.1mA, V_{CE}=1.0V$ $I_C=1.0mA, V_{CE}=1.0V$ $I_C=10mA, V_{CE}=1.0V$ $I_C=150mA, V_{CE}=1.0V$ $I_C=500mA, V_{CE}=2.0V$	 20 40 80 100 40	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=150mA, I_B=15mA$ $I_C=500mA, I_B=50mA$		0.4 0.75	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=150mA, I_B=15mA$ $I_C=500mA, I_B=50mA$	0.75	0.95 1.2	V
$f_T$	Current Gain-Bandwidth Product	$I_C=20mA,$ $V_{CE}=10V, f=100MHz$	250		MHZ
$C_{cb}$	Collector-Base Capacitance	$V_{CB}=5.0V, I_E=0, f=1.0MHz$		6.5	PF
$C_{eb}$	Emitter-Base Capacitance	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		30	PF

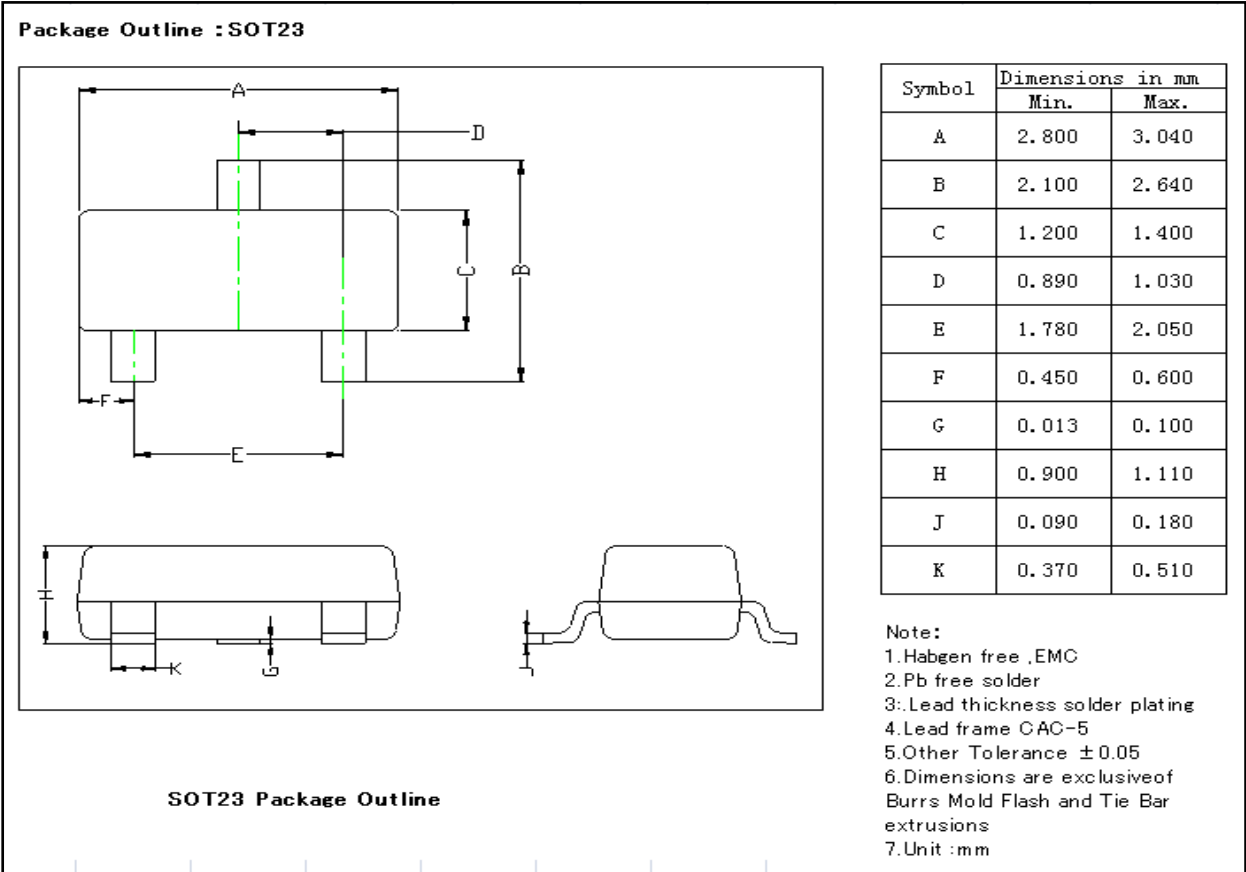
### SWITCHING CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min	Max	Units
$t_d$	Delay Time	$V_{CC}=30V, V_{BE}=0.2V$		15	ns
$t_r$	Rise Time	$I_C=150mA, I_{B1}=15mA$		20	ns
$t_s$	Storage Time	$V_{CC}=30V, I_C=150mA$		225	ns
$t_f$	Fall Time	$I_{B1}=I_{B2}=15mA$		30	ns

### ORDERING INFORMATION

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
MMBT4401	SOT23	Tape & Reel 3000pcs /7" Reel	8mm	4mm	Conductive	

PACKAGE DIMENSIONS



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