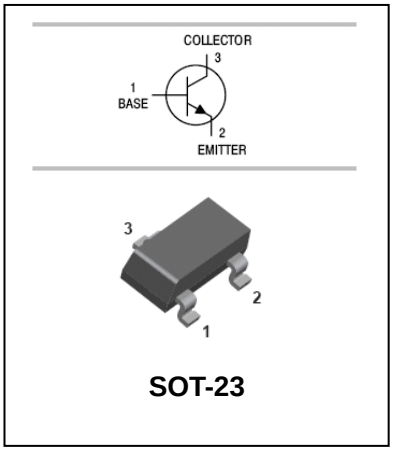
NPN Silicon Epitaxial Planar Transistor **MMBT4401**

FEATURES

Lead-free

- Epitaxial planar die construction.
- Complementary PNP type available: MMBT4403.
- Ideal for medium power amplification and switching.



SOT-23

APPLICATIONS

- General purpose application, switching application.

ORDERING INFORMATION

Type No.	Marking	Package Code
MMBT4401	2X	SOT-23

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	**Parameter**	**Value**	**Units**
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	600	mA
P_C	Collector Power Dissipation	350	mW
T_j,T_{stg}	Junction and Storage Temperature	-55~150	℃

NPN Silicon Epitaxial Planar Transistor **MMBT4401**

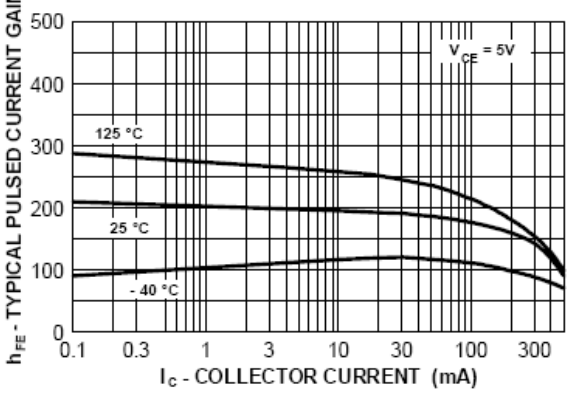
ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
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_{CEX}	V_{CE}=35V,V_{EB}=0.4V			0.1	μA
Base cut-off current	I_{BL}	V_{CE}=35V,V_{EB}=0.4V			0.1	μA
DC current gain	h_{FE}	V_{CE}=1V,I_C=0.1mA V_{CE}=1V,I_C=1.0mA V_{CE}=1V,I_C=10mA V_{CE}=1V,I_C=150mA V_{CE}=2V,I_C=500mA	20 40 80 100 40		 300 	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=150mA, I_B=15mA I_C=500mA, I_B=50mA			0.4 0.75	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=150mA, I_B=15mA I_C=500mA, I_B=50mA		0.75	0.95 1.2	V
Transition frequency	f_T	V_{CE}=10V, I_C= 20mA f=100MHz	250			MHz
Collector output capacitance	C_{ob}	V_{CB}=5V,I_E=0,f=1MHz			6.5	pF

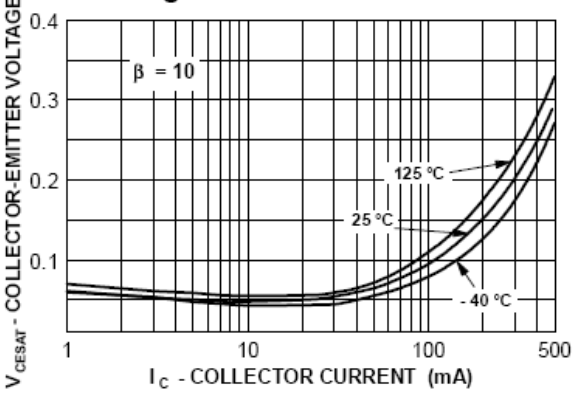
NPN Silicon Epitaxial Planar Transistor **MMBT4401**

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

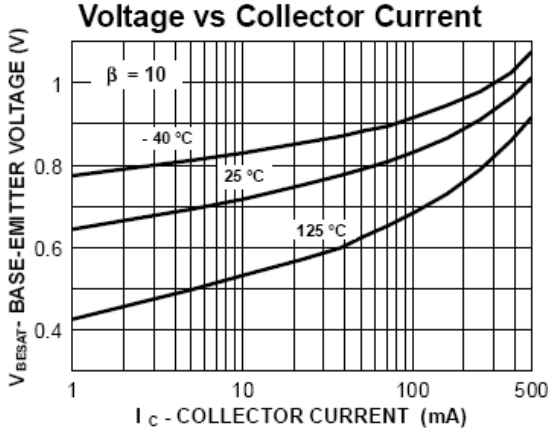
Typical Pulsed Current Gain vs Collector Current



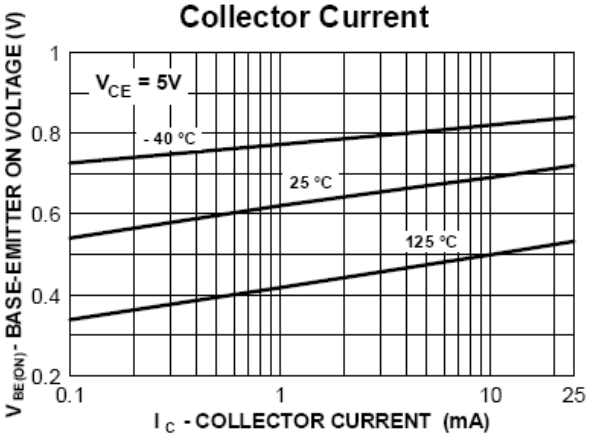
Collector-Emitter Saturation Voltage vs Collector Current



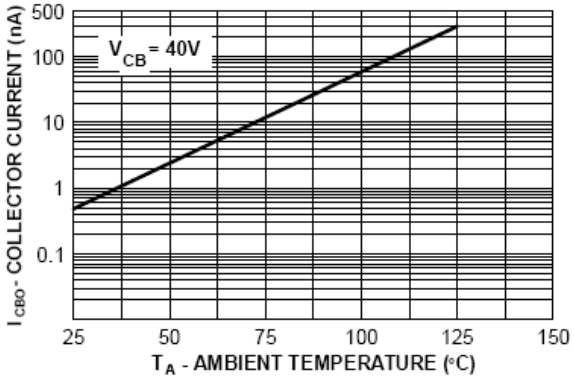
Base-Emitter Saturation Voltage vs Collector Current



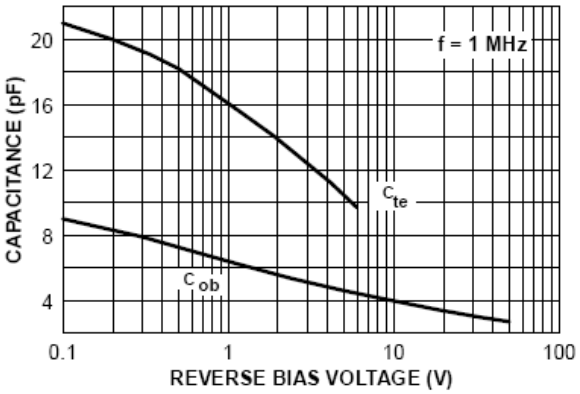
Base-Emitter ON Voltage vs Collector Current



Collector-Cutoff Current vs Ambient Temperature



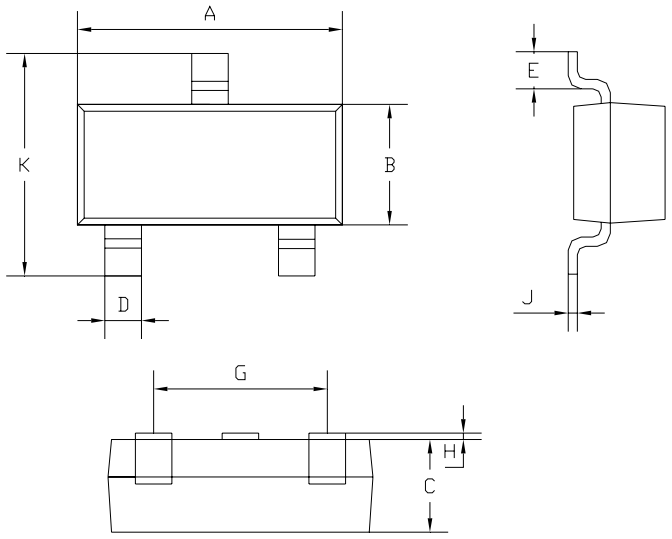
Emitter Transition and Output Capacitance vs Reverse Bias Voltage



NPN Silicon Epitaxial Planar Transistor **MMBT4401**

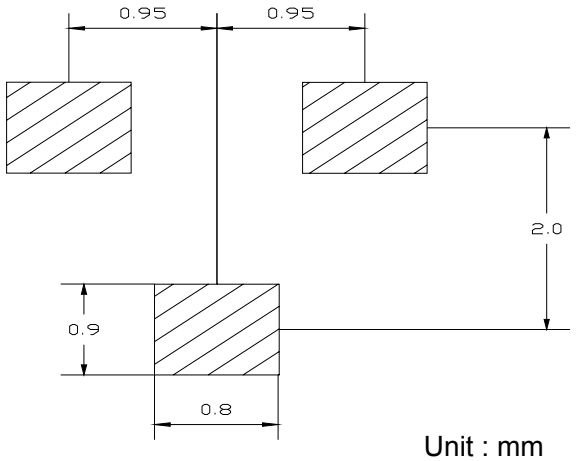
PACKAGE OUTLINE

Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.85	2.95
B	1.25	1.35
C	1.0Typical	
D	0.37	0.43
E	0.35	0.48
G	1.85	1.95
H	0.02	0.1
J	0.1Typical	
K	2.35	2.45
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
MMBT4401	SOT-23	3000/Tape&Reel