

NPN Silicon Epitaxial Planar Transistor

MMBT4401

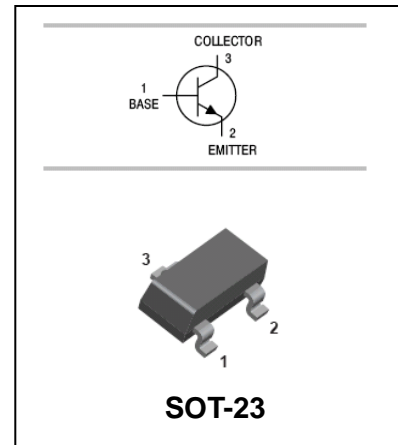
FEATURES

- Epitaxial planar die construction
- Complementary PNP product available - MMBT4403
- MSL Class 1 compatible

HF

APPLICATIONS

- General purpose in desktop & handheld systems
- Ideal for medium-power signal amplification and switching



ORDERING INFORMATION

Part Number	Marking	Package
MMBT4401	2X	SOT-23

MAXIMUM RATING (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	60	V
Collector-Emitter Voltage	V_{CE0}	40	V
Emitter-Base Voltage	V_{EB0}	6	V
Collector Current (Continuous)	I_C	600	mA
Power Dissipation (Collector)	P_C	350	mW
Thermal Resistance (Junction-to-Ambient)	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Thermal Resistance (Junction-to-Case)	$R_{\theta JC}$	250	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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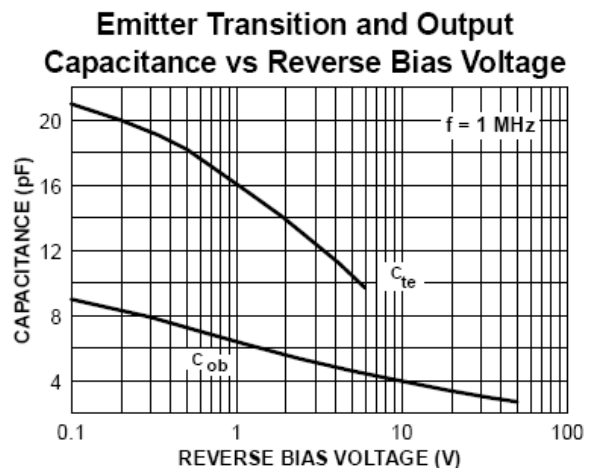
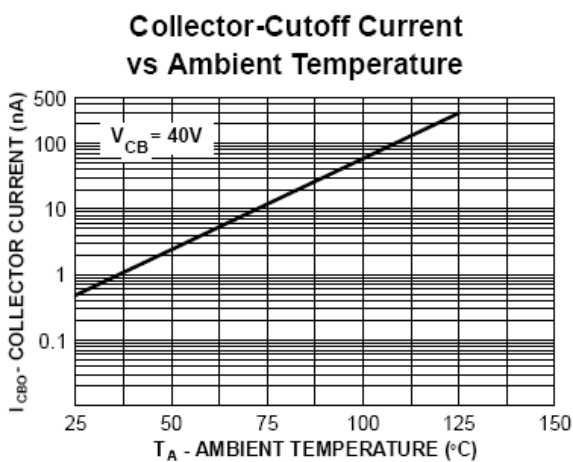
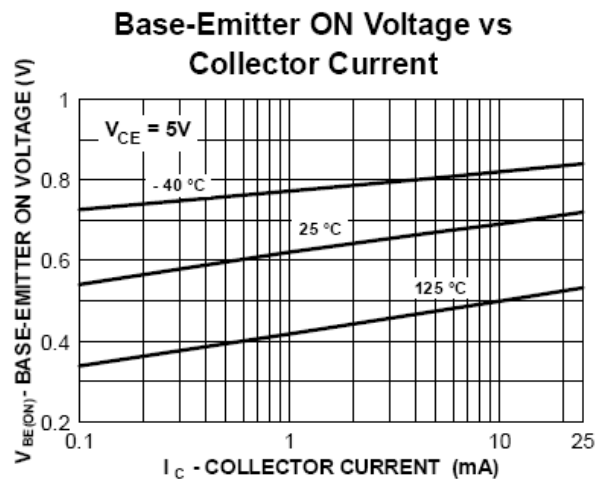
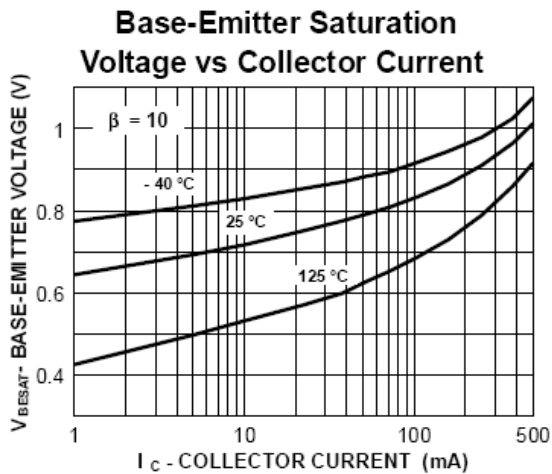
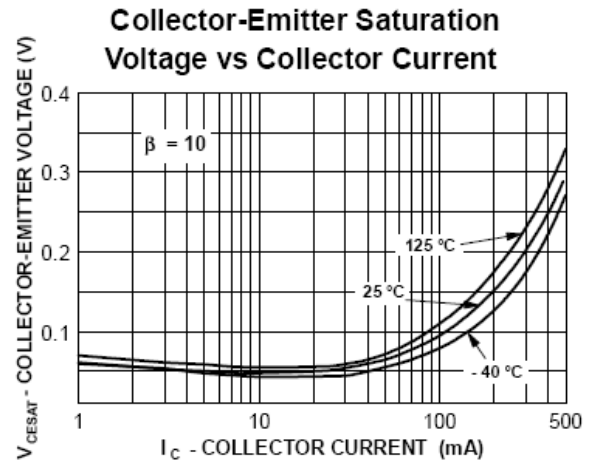
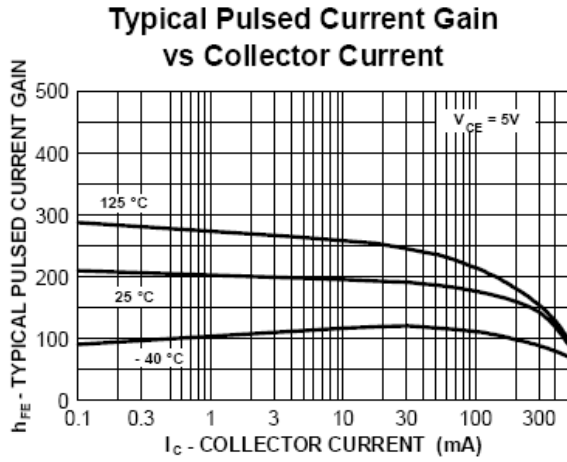
ELECTRICAL CHARACTERISTICS (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	60			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	40			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	6			V
Collector Cut-off Current	I_{CEX}	$V_{CE} = 35\text{V}, V_{BE} = -0.4\text{V}$			0.1	μA
Base Cut-off Current	I_{BL}	$V_{CE} = 35\text{V}, V_{BE} = 0.4\text{V}$			0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = 1\text{V}, I_C = 0.1\text{mA}$	20			
		$V_{CE} = 1\text{V}, I_C = 1.0\text{mA}$	40			
		$V_{CE} = 1\text{V}, I_C = 10\text{mA}$	80			
		$V_{CE} = 1\text{V}, I_C = 150\text{mA}$	100		300	
		$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	40			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$ $I_C = 500\text{mA}, I_B = 50\text{mA}$			0.4 0.75	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$ $I_C = 500\text{mA}, I_B = 50\text{mA}$	0.75		0.95 1.2	V
Transition Frequency	f_T	$V_{CE} = 10\text{V}, I_C = 20\text{mA}$ $f = 100\text{MHz}$	250			MHz
Collector-Base Capacitance	C_{CB}	$V_{CB} = 5\text{V}, I_E = 0, f = 1\text{MHz}$			6.5	pF

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TYPICAL CHARACTERISTICS (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

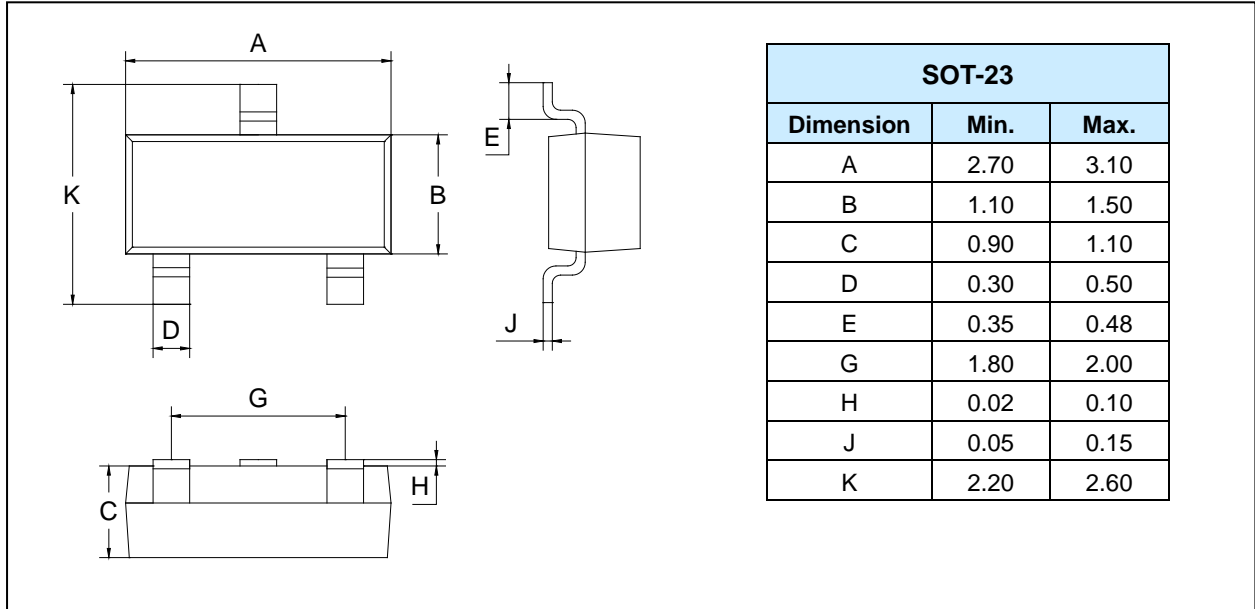


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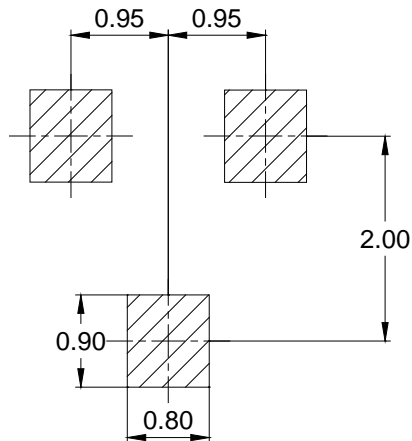
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PACKAGE OUTLINE (Unit: mm)

Plastic surface mounted package



MOUNTING PAD LAYOUT (Unit: mm)



PACKAGE INFORMATION

Part Number	Package	Shipping Quantity
MMBT4401	SOT-23	3000pcs / Tape & Reel

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