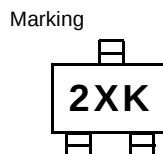
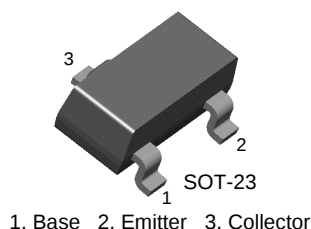


MMBT4401K

NPN Epitaxial Silicon Transistor

Switching Transistor



Absolute Maximum Ratings $T_a = 25^\circ\text{C}$ unless otherwise noted

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	600	mA
P_C	Collector Dissipation	350	mW
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 ~ 150	$^\circ\text{C}$

Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	60		V
BV_{CEO}	Collector-Emitter Breakdown Voltage *	$I_C = 1.0\text{mA}, I_B = 0$	40		V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}, I_C = 0$	6		V
I_{BEV}	Base Cut-off Current	$V_{CE} = 35\text{V}, V_{EB} = 0.4\text{V}$		100	nA
I_{CEX}	Collector Cut-off Current	$V_{CE} = 35\text{V}, V_{EB} = 0.4\text{V}$		100	nA
h_{FE}	DC Current Gain *	$V_{CE} = 1\text{V}, I_C = 0.1\text{mA}$ $V_{CE} = 1\text{V}, I_C = 1\text{mA}$ $V_{CE} = 1\text{V}, I_C = 10\text{mA}$ $V_{CE} = 1\text{V}, I_C = 150\text{mA}$ $V_{CE} = 2\text{V}, I_C = 500\text{mA}$	20 40 80 100 40	300	
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage *	$I_C = 150\text{mA}, I_B = 15\text{mA}$ $I_C = 500\text{mA}, I_B = 50\text{mA}$		0.4 0.75	V V
$V_{BE}(\text{sat})$	Base-Emitter Saturation Voltage *	$I_C = 150\text{mA}, I_B = 15\text{mA}$ $I_C = 500\text{mA}, I_B = 50\text{mA}$	0.75	0.95 1.2	V V
f_T	Current Gain Bandwidth Product	$I_C = 20\text{mA}, V_{CE} = 10\text{V}, f = 100\text{MHz}$	250		MHz
C_{ob}	Output Capacitance	$V_{CB} = 5\text{V}, I_E = 0, f = 100\text{KHz}$		6.5	pF
t_{ON}	Turn On Time	$V_{CC} = 30\text{V}, V_{BE} = 2\text{V}$ $I_C = 150\text{mA}, I_{B1} = 15\text{mA}$		35	ns
t_{OFF}	Turn Off Time	$V_{CC} = 30\text{V}, I_C = 150\text{mA}$ $I_{B1} = I_{B2} = 15\text{mA}$		255	ns

* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

Typical Performance Characteristics

Figure 1. DC current Gain

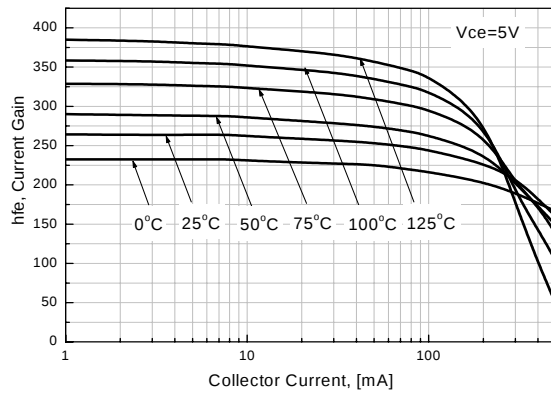


Figure 2. Collector-Emitter Saturation Voltage

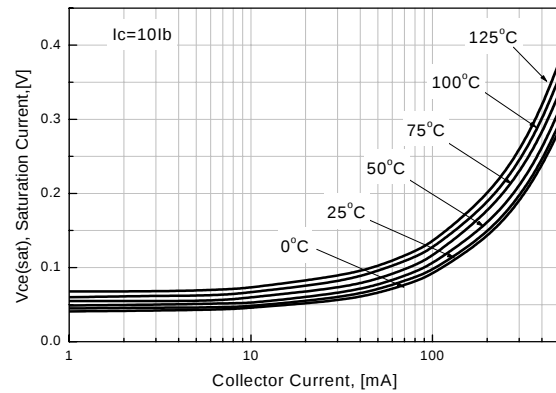


Figure 3. Base-Emitter Saturation Voltage

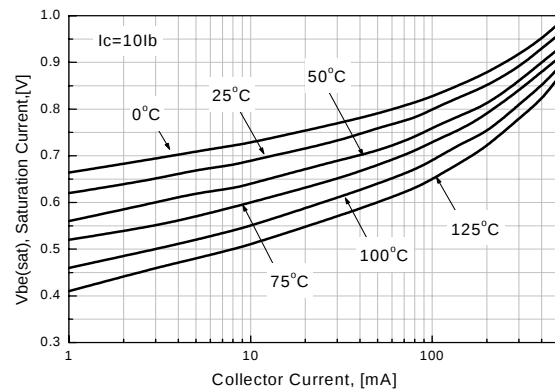


Figure 4. Collector - Base Leakage Current

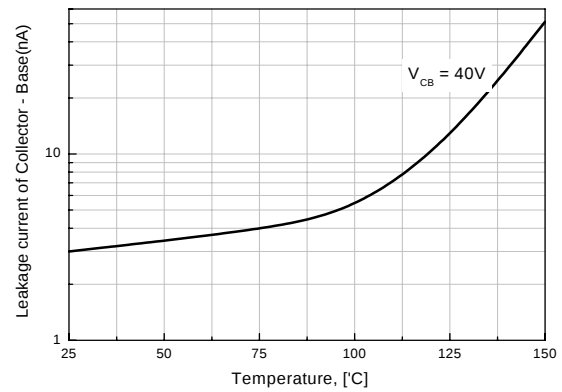


Figure 5. Collector-Base Capacitance

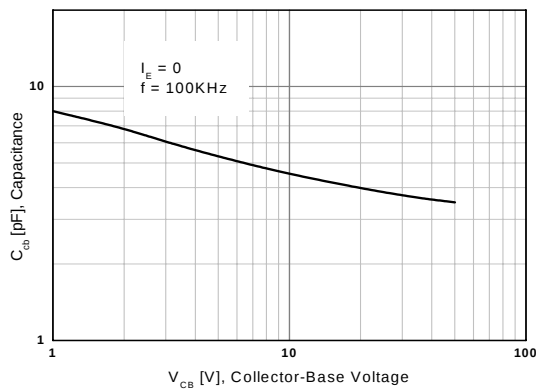
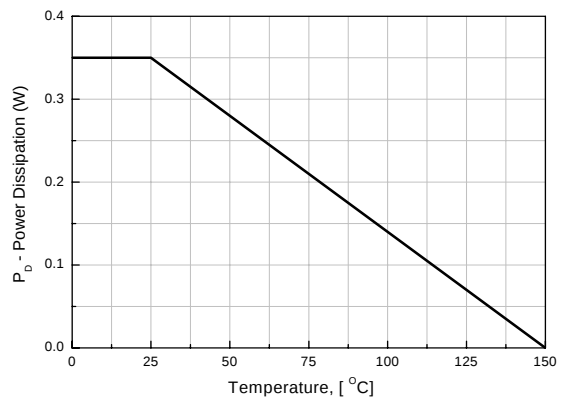
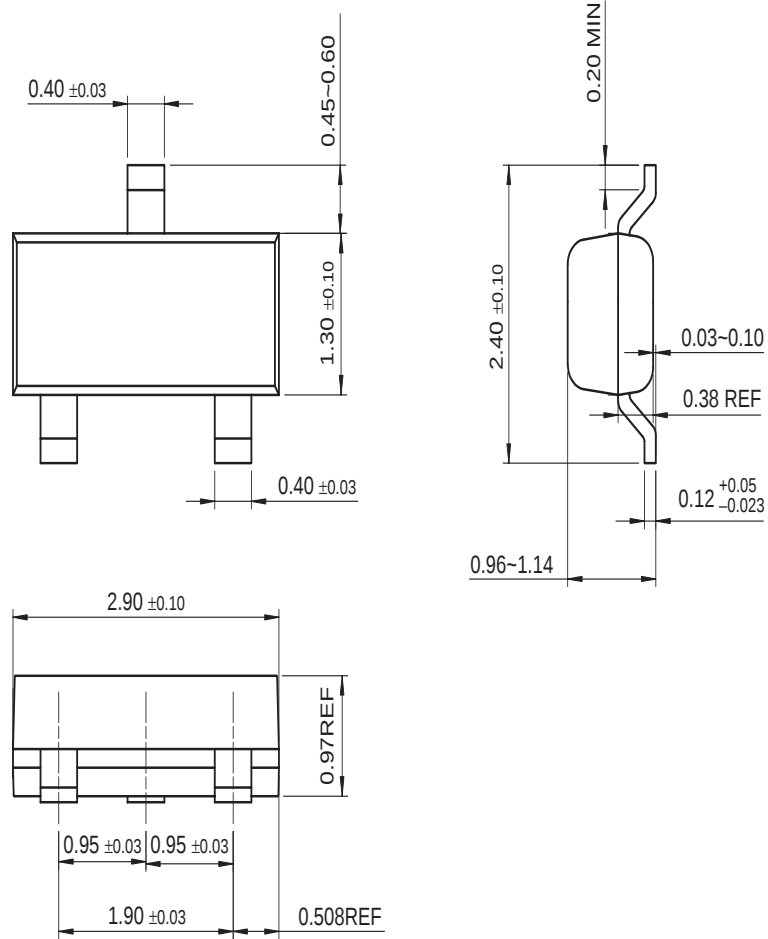


Figure 6. Power Dissipation vs Ambient Temperature



Mechanical Dimensions

SOT-23



Dimensions in Millimeters

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Rev. I20