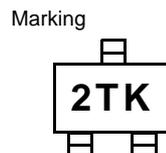
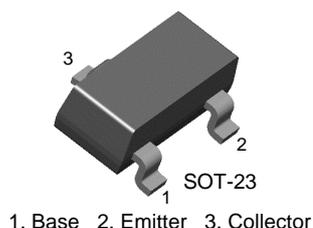


# MMBT4403K

## PNP Epitaxial Silicon Transistor

### Switching Transistor



### Absolute Maximum Ratings

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

Symbol	Parameter	Value	Units
$V_{CB0}$	Collector-Base Voltage	-40	V
$V_{CEO}$	Collector-Emitter Voltage	-40	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current	-600	mA
$P_C$	Collector Power 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
$BV_{CB0}$	Collector-Base Breakdown Voltage	$I_C = -0.1\text{mA}, I_E = 0$	-40		V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage *	$I_C = -1.0\text{mA}, I_B = 0$	-40		V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = -0.1\text{mA}, I_C = 0$	-5		V
$I_{BL}$	Base Cut-off Current	$V_{CE} = -35\text{V}, V_{EB} = -0.4\text{V}$		-0.1	$\mu\text{A}$
$I_{CEX}$	Collector Cut-off Current	$V_{CE} = -35\text{V}, V_{EB} = -0.4\text{V}$		-0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE} = -1\text{V}, I_C = -0.1\text{mA}$ $V_{CE} = -1\text{V}, I_C = -1.0\text{mA}$ $V_{CE} = -1\text{V}, I_C = -10\text{mA}$ $V_{CE} = -2\text{V}, I_C = -150\text{mA}^*$ $V_{CE} = -2\text{V}, I_C = -500\text{mA}^*$	30 60 100 100 20	300	
$V_{CE(sat)}$	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
$V_{BE(sat)}$	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 -1.3	V V
$f_T$	Current Gain Bandwidth Product	$I_C = -20\text{mA}, V_{CE} = -10\text{V}, f = 100\text{MHz}$	200		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = -10\text{V}, I_E = 0, f = 140\text{KHz}$		8.5	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

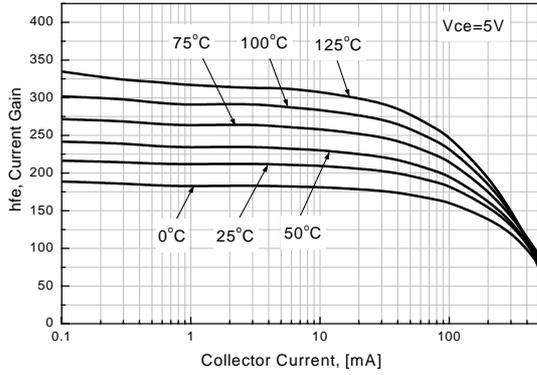


Figure 2. Collector-Emitter Saturation Voltage

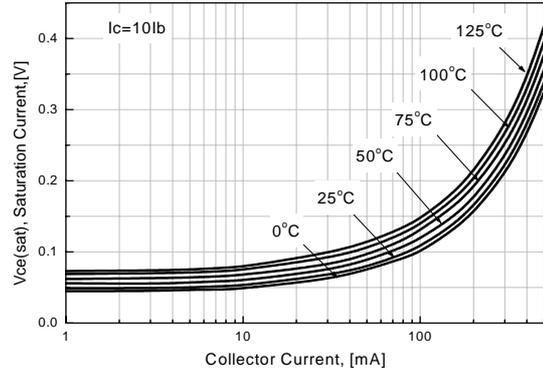


Figure 3. Base-Emitter Saturation Voltage

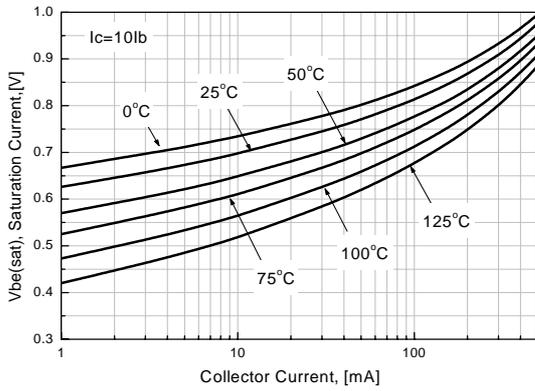


Figure 4. Collector - Base Leakage Current

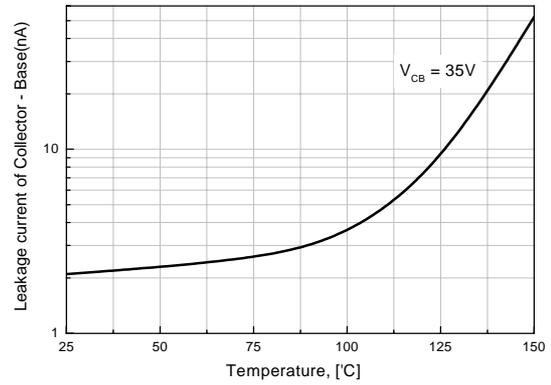


Figure 5. Collector-Base Capacitance

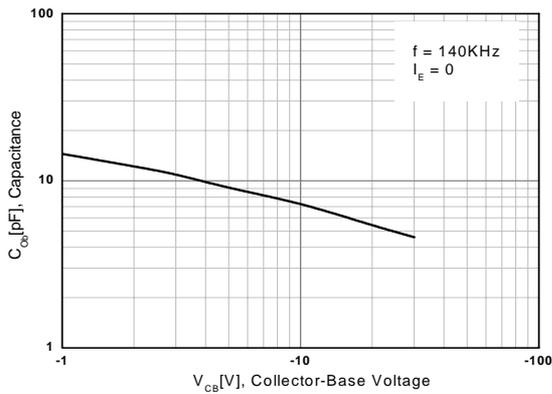
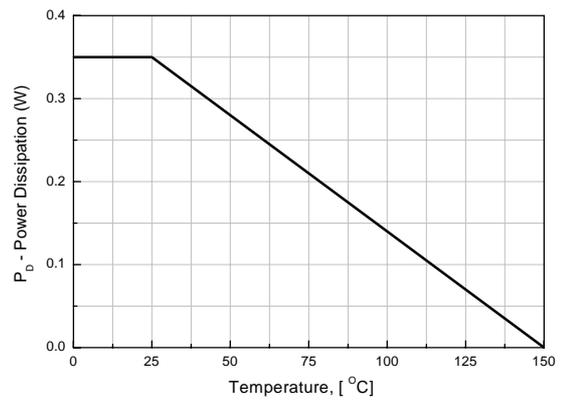
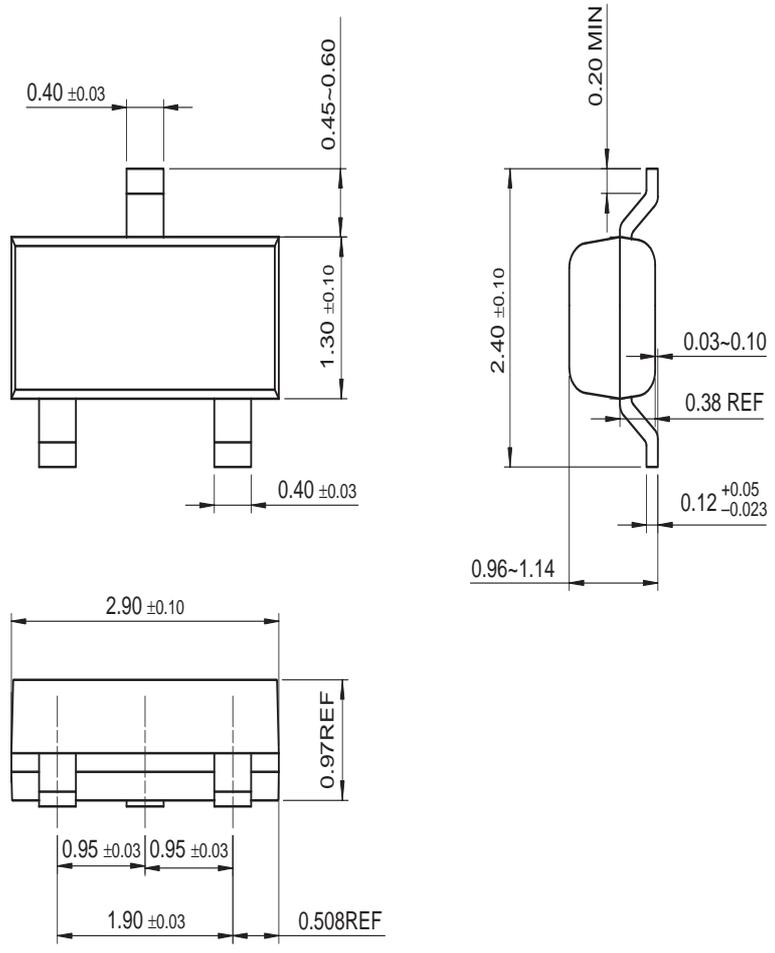


Figure 6. Power Dissipation vs Ambient Temperature



Mechanical Dimensions

SOT-23



Dimensions in Millimeters

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