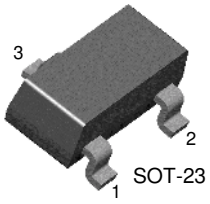
FAIRCHILD SEMICONDUCTOR®

November 2006

MMBT4403K

PNP Epitaxial Silicon Transistor

Switching Transistor



1. Base 2. Emitter 3. Collector

Marking

Absolute Maximum Ratings T_a = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	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	°C

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -0.1mA, I_E = 0	-40		V
BV_{CEO}	Collector-Emitter Breakdown Voltage *	I_C = -1.0mA, I_B = 0	-40		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -0.1mA, I_C = 0	-5		V
I_{BL}	Base Cut-off Current	V_{CE} = -35V, V_{EB} = -0.4V		-0.1	μA
I_{CEX}	Collector Cut-off Current	V_{CE} = -35V, V_{EB} = -0.4V		-0.1	μA
h_{FE}	DC Current Gain	V_{CE} = -1V, I_C = -0.1mA V_{CE} = -1V, I_C = -1.0mA V_{CE} = -1V, I_C = -10mA V_{CE} = -2V, I_C = -150mA * V_{CE} = -2V, I_C = -500mA *	30 60 100 100 20	 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
$V_{BE\ (sat)}$	Base-Emitter Saturation Voltage *	I_C = -150mA, I_B = -15mA I_C = -500mA, I_B = -50mA	-0.75	-0.95 -1.3	V V
f_T	Current Gain Bandwidth Product	I_C = -20mA, V_{CE} = -10V, f = 100MHz	200		MHz
C_{ob}	Output Capacitance	V_{CB} = -10V, I_E = 0, f = 140KHz		8.5	pF
t_{ON}	Turn On Time	V_{CC} = -30V, V_{BE} = -2V I_C = -150mA, I_{B1} = -15mA		35	ns
t_{OFF}	Turn Off Time	V_{CC} = -30V, I_C = -150mA I_{B1} = I_{B2}= -15mA		255	ns

* Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

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Typical Performance Characteristics

Figure 1. DC current Gain

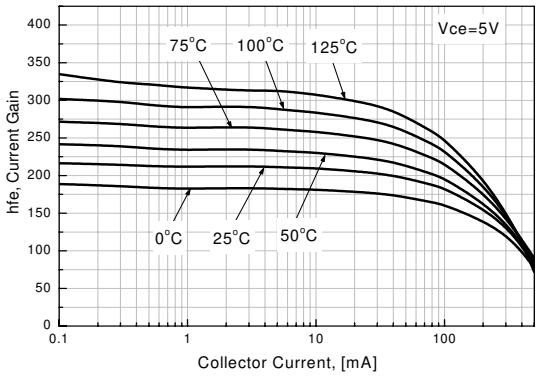


Figure 2. Collector-Emitter Saturation Voltage

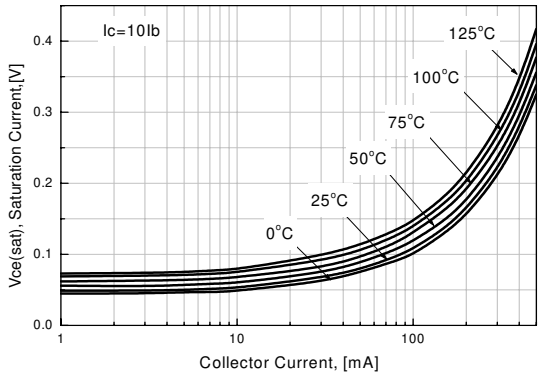


Figure 3. Base-Emitter Saturation Voltage

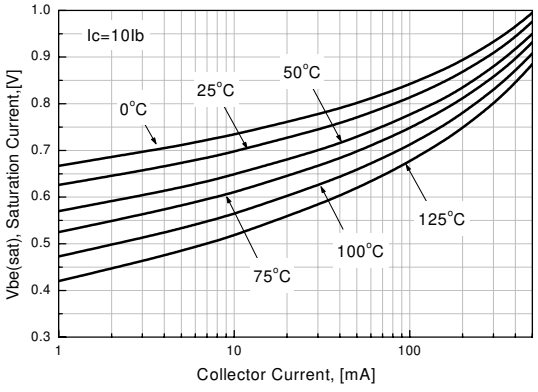


Figure 4. Collector - Base Leakage Current

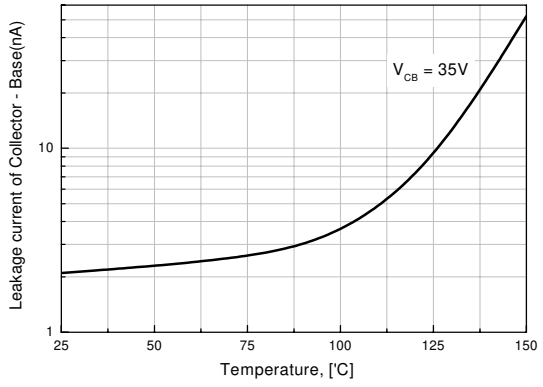


Figure 5. Collector-Base Capacitance

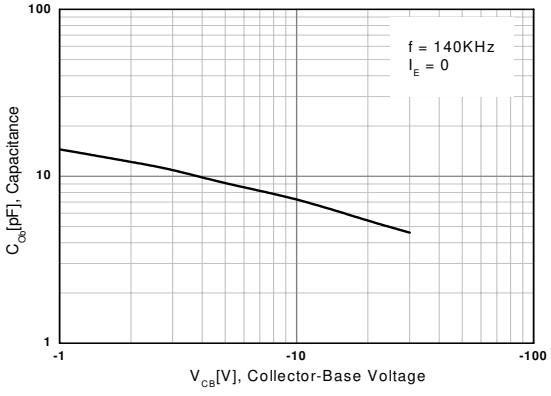
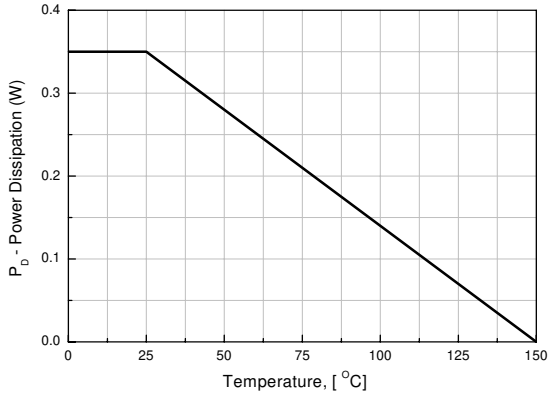
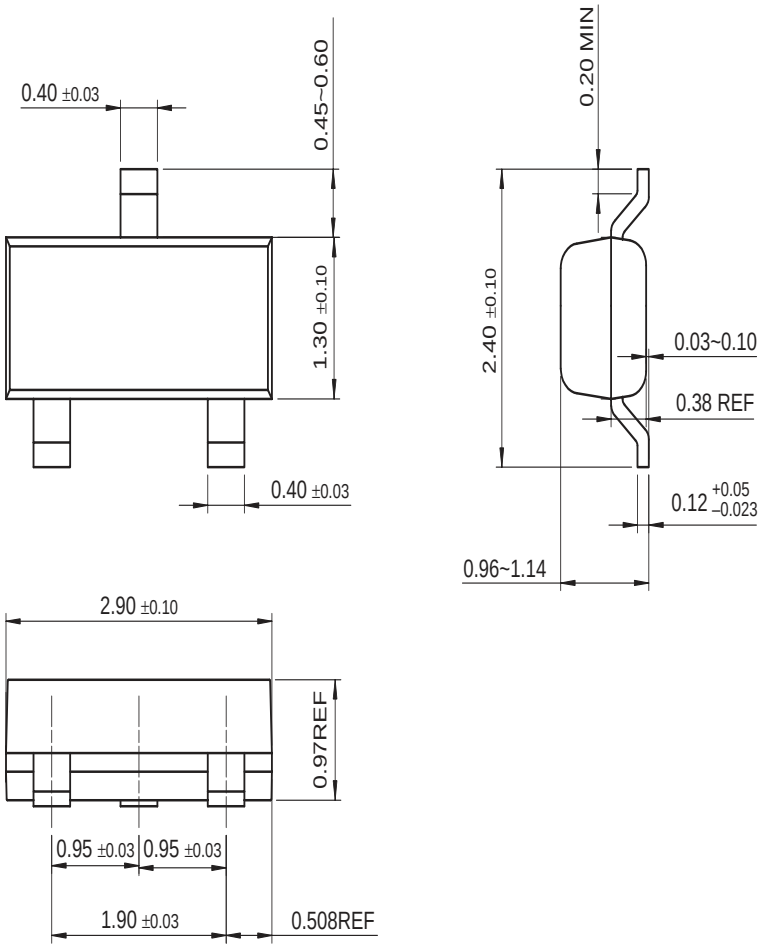


Figure 6. Power Dissipation vs Ambient Temperature



Mechanical Dimensions

SOT-23



Dimensions in Millimeters

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