



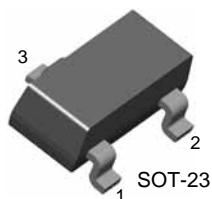
**THE DATASHEET OF
MMBT2222AK**



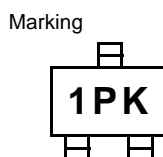
MMBT2222AK

NPN Epitaxial Silicon Transistor

General Purpose Transistor



1. Base 2. Emitter 3. Collector



Absolute Maximum Ratings T_a = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CB0}	Collector-Base Voltage	75	V
V _{CEO}	Collector-Emitter Voltage	40	V
V _{EBO}	Emitter-Base Voltage	6	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 _{CB0}	Collector-Base Breakdown Voltage	I _C = 10μA, I _E = 0	75		V
BV _{CEO}	Collector-Emitter Breakdown Voltage	I _C = 10mA, I _B = 0	40		V
BV _{EBO}	Emitter-Base Breakdown Voltage	I _E = 10μA, I _C = 0	6		V
I _{CB0}	Collector Cut-off Current	V _{CB} = 60V, I _E = 0		0.01	μA
h _{FE}	DC Current Gain *	V _{CE} = 10V, I _C = 0.1mA V _{CE} = 10V, I _C = 1mA V _{CE} = 10V, I _C = 10mA V _{CE} = 10V, I _C = 150mA V _{CE} = 10V, I _C = 500mA	35 50 75 100 40	300	
V _{CE} (sat)	Collector-Emitter Saturation Voltage *	I _C = 150mA, I _B = 15mA I _C = 500mA, I _B = 50mA		0.3 1.0	V V
V _{BE} (sat)	Base-Emitter Saturation Voltage *	I _C = 150mA, I _B = 15mA I _C = 500mA, I _B = 50mA	0.6	1.2 2.0	V V
f _T	Current Gain Bandwidth Product	I _C = 20mA, V _{CE} = 20V, f = 100MHz	300		MHz
C _{ob}	Output Capacitance	V _{CB} = 10V, I _E = 0, f = 1MHz		8	pF
NF	Noise Figure	I _C = 100μA, V _{CE} = 10V R _S = 1KΩ, f = 1MHz		4	dB
t _{ON}	Turn On Time	V _{CC} = 30V, I _C = 150mA V _{BE} = 0.5V, I _{B1} = 15mA		35	ns
t _{OFF}	Turn Off Time	V _{CC} = 30V, I _C = 150mA, I _{B1} = I _{B2} = 15mA		285	ns

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

Typical Performance Characteristics

Figure 1. DC Current Gain

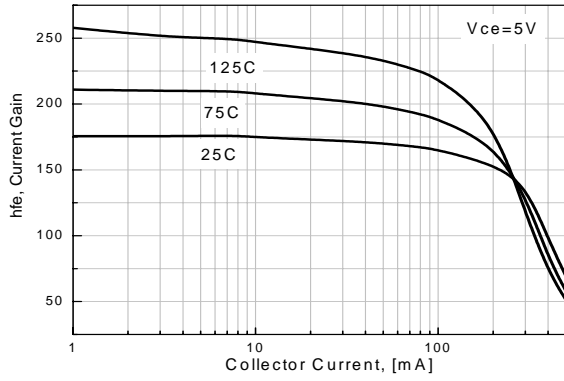


Figure 2. Collector-Emitter Saturation Voltage

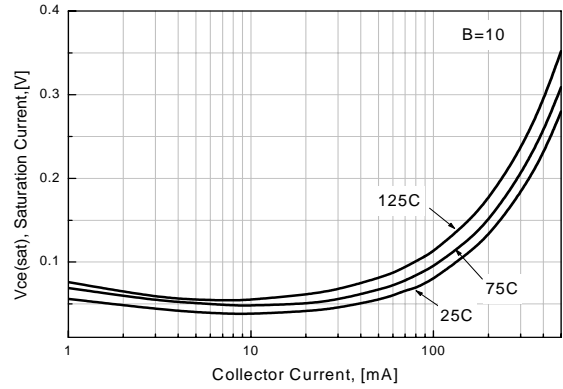


Figure 3. Base-Emitter Saturation Voltage

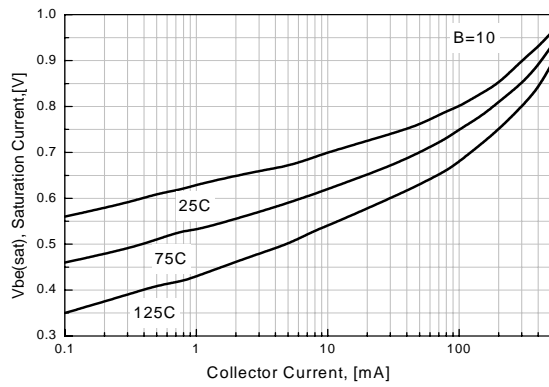


Figure 4. Collector - Base Leakage Current

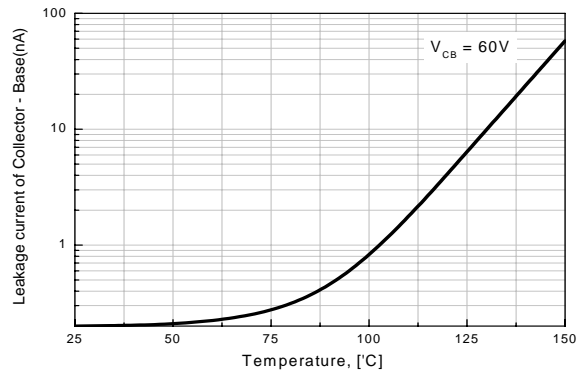


Figure 5. Output Capacitance

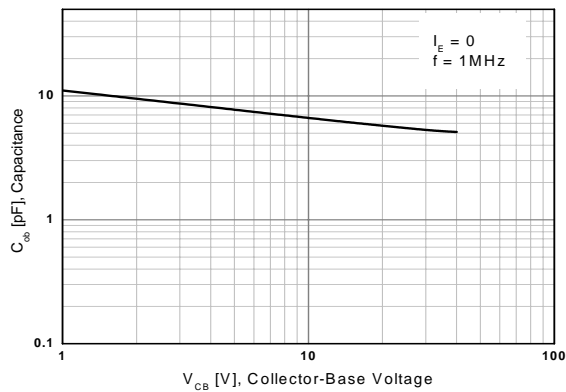
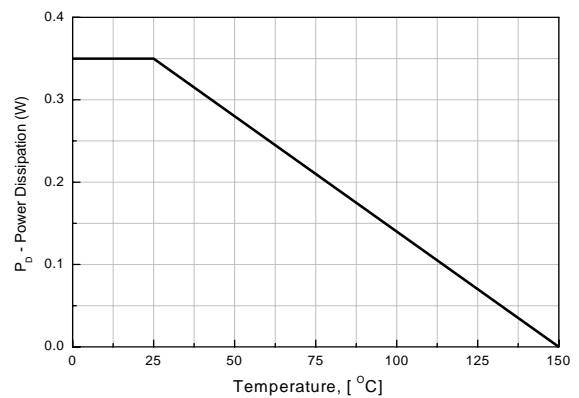
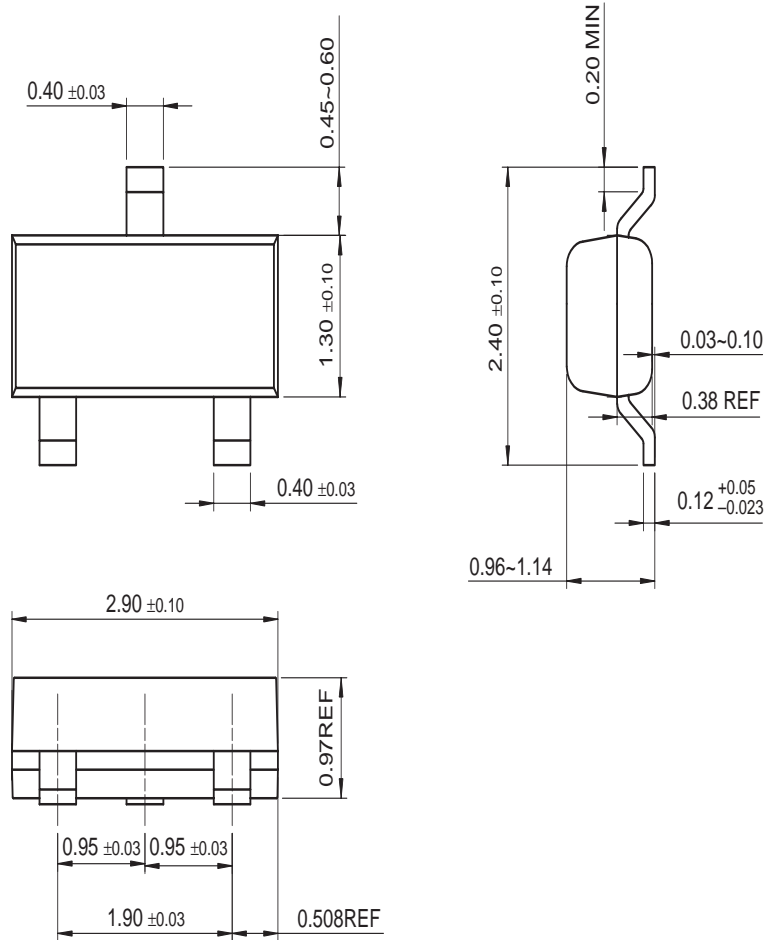


Figure 6. Power Dissipation vs Ambient Temperature



Mechanical Dimensions

SOT-23



Dimensions in Millimeters

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