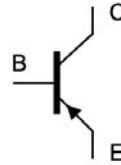


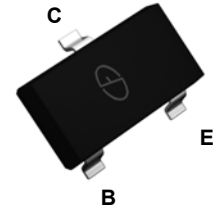
MMBT4403 PNP Transistor

Features

- Collector currents up to 500mA
- SOT-23 plastic package
- RoHS compliant



Schematic Diagram



SOT-23

Applications

- Switching application
- General purpose amplifier

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Max.	Unit
Collector-Base Voltage	V _{CB0}	-40	V
Collector-Emitter Voltage	V _{CE0}	-40	V
Emitter-Base Voltage	V _{EB0}	-5	V
Collector Current-Continuous	I _C	-600	mA
Collector Power Dissipation	P _C	300	mW
Typical Thermal Resistance from Junction to Ambient	R _{θJA}	417	°C/W
Operating Junction Temperature Range	T _J	-55 To +150	°C
Storage Temperature Range	T _{STG}	-55 To +150	°C

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-100\mu\text{A}$, $I_E=0$	-40	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}$, $I_B=0$	-40	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-100\mu\text{A}$, $I_C=0$	-5	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB}=-35\text{V}$, $I_E=0$	-	-100	nA
Collector Cut-off Current	I_{CEX}	$V_{CE}=-35\text{V}$, $V_{EB(off)}=-0.4\text{V}$	-	-100	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=-4\text{V}$, $I_C=0$	-	-100	nA
DC Current Gain	h_{FE}	$V_{CE}=-1\text{V}$, $I_C=-0.1\text{mA}$	30	-	-
		$V_{CE}=-1\text{V}$, $I_C=-1\text{mA}$	60	-	-
		$V_{CE}=-1\text{V}$, $I_C=-10\text{mA}$	100	-	-
		$V_{CE}=-2\text{V}$, $I_C=-150\text{mA}$	100	300	-
		$V_{CE}=-2\text{V}$, $I_C=-500\text{mA}$	20	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-150\text{mA}$, $I_B=-15\text{mA}$	-	-0.4	V
		$I_C=-500\text{mA}$, $I_B=-50\text{mA}$	-	-0.75	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-150\text{mA}$, $I_B=-15\text{mA}$	-0.75	-0.95	V
		$I_C=-500\text{mA}$, $I_B=-50\text{mA}$	-	-1.3	V
Transition Frequency	f_T	$V_{CE}=-10\text{V}$, $I_C=-20\text{mA}$, $F=100\text{MHz}$	200	-	MHz
Delay Time	t_d	$V_{CC}=-30\text{V}$, $I_C=-150\text{mA}$, $I_{B1}=-15\text{mA}$	-	15	nS
Rise Time	t_r		-	20	nS
Storage Time	t_s	$V_{CC}=-30\text{V}$, $I_C=-150\text{mA}$, $I_{B1}=I_{B2}=-15\text{mA}$	-	225	nS
Fall Time	t_f		-	30	nS

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise specified)

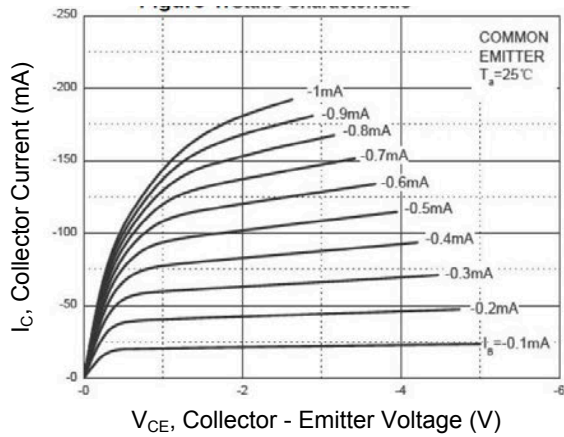


Figure 1. Static Characteristics

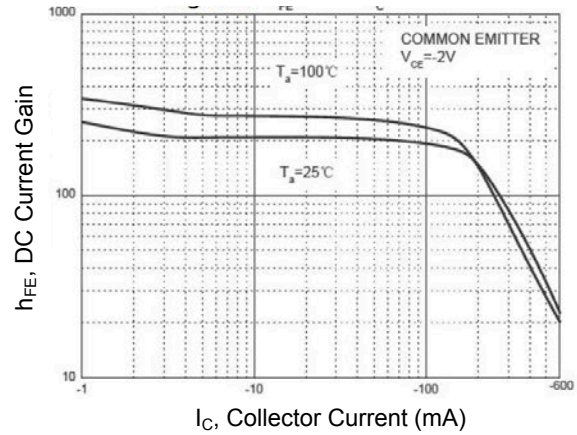


Figure 2. DC Current Gain vs. Collector Current

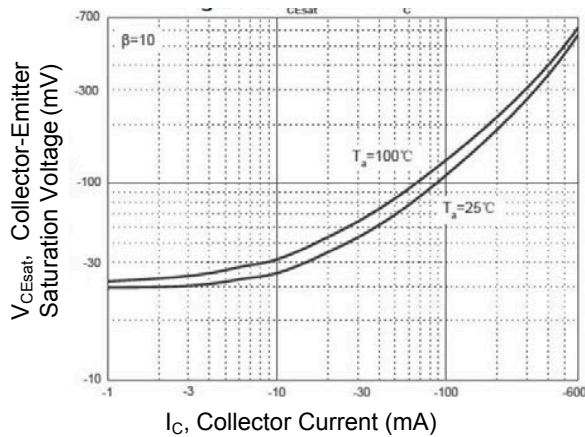


Figure 3. Collector - Emitter Saturation Voltage vs. Collector Current

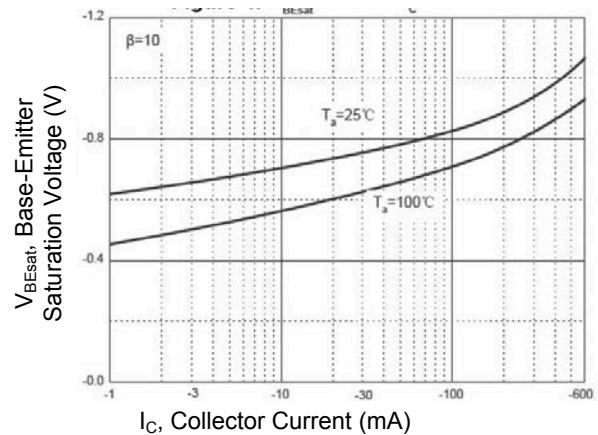


Figure 4. Base - Emitter Saturation Voltage vs. Collector Current

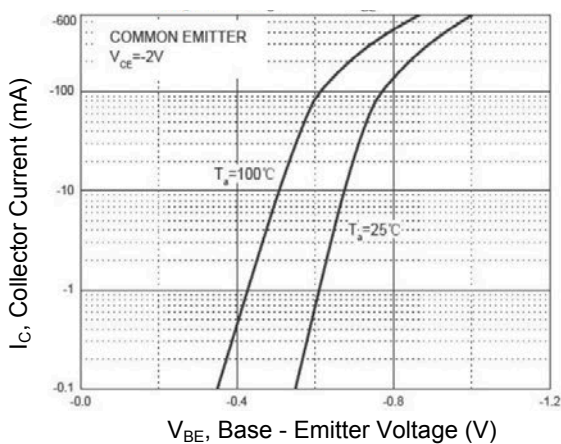


Figure 5. Collector Current vs. Base - Emitter Voltage

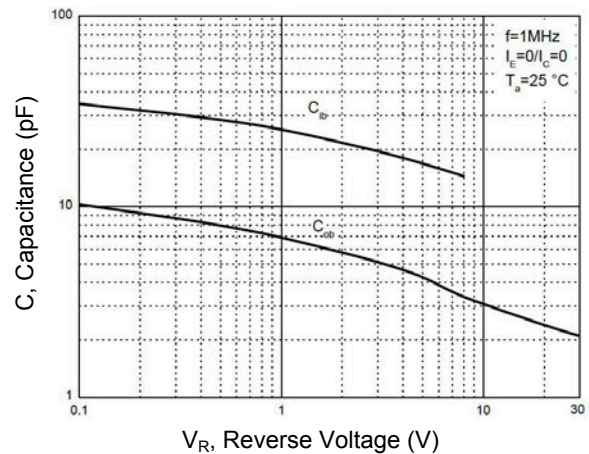


Figure 6. Capacitance Characteristics

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise specified)

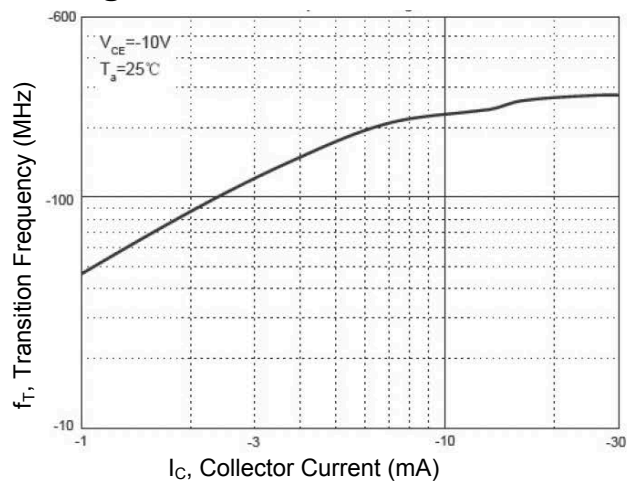


Figure 7. Transition Frequency vs. Collector Current

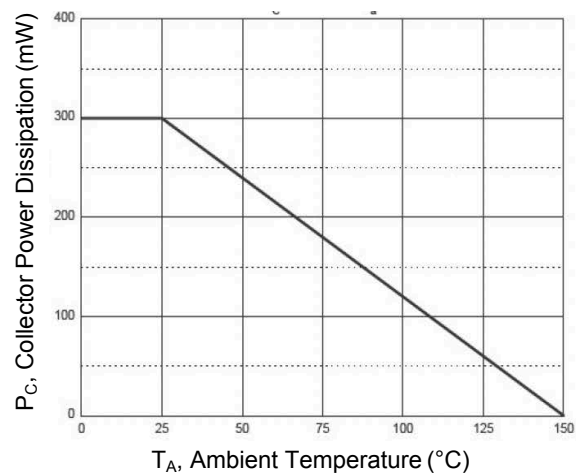
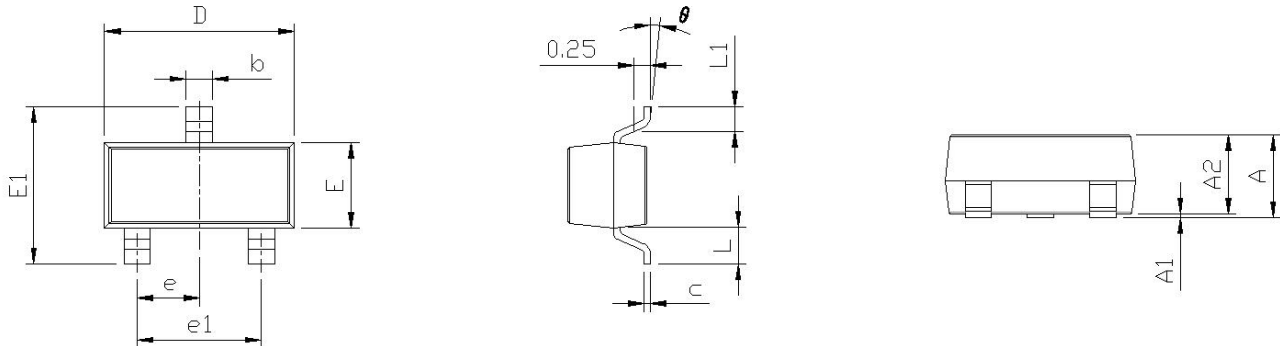


Figure 8. Power Dissipation vs Ambient Temperature

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Ordering Information

Device	Package	Marking	Quantity	HSF Status
MMBT4403	SOT-23	2T	3,000pcs / Reel	RoHS Compliant