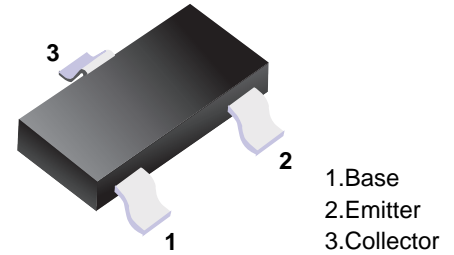


# MMBT4403

## PNP Transistors

### Features

- Ideal for Medium Power Amplification and Switching
- Complementary NPN Type Available (MMBT4401)



■ Simplified outline(SOT-23)

### Marking

Marking	2T
---------	----

### Absolute Maximum Ratings Ta = 25°C

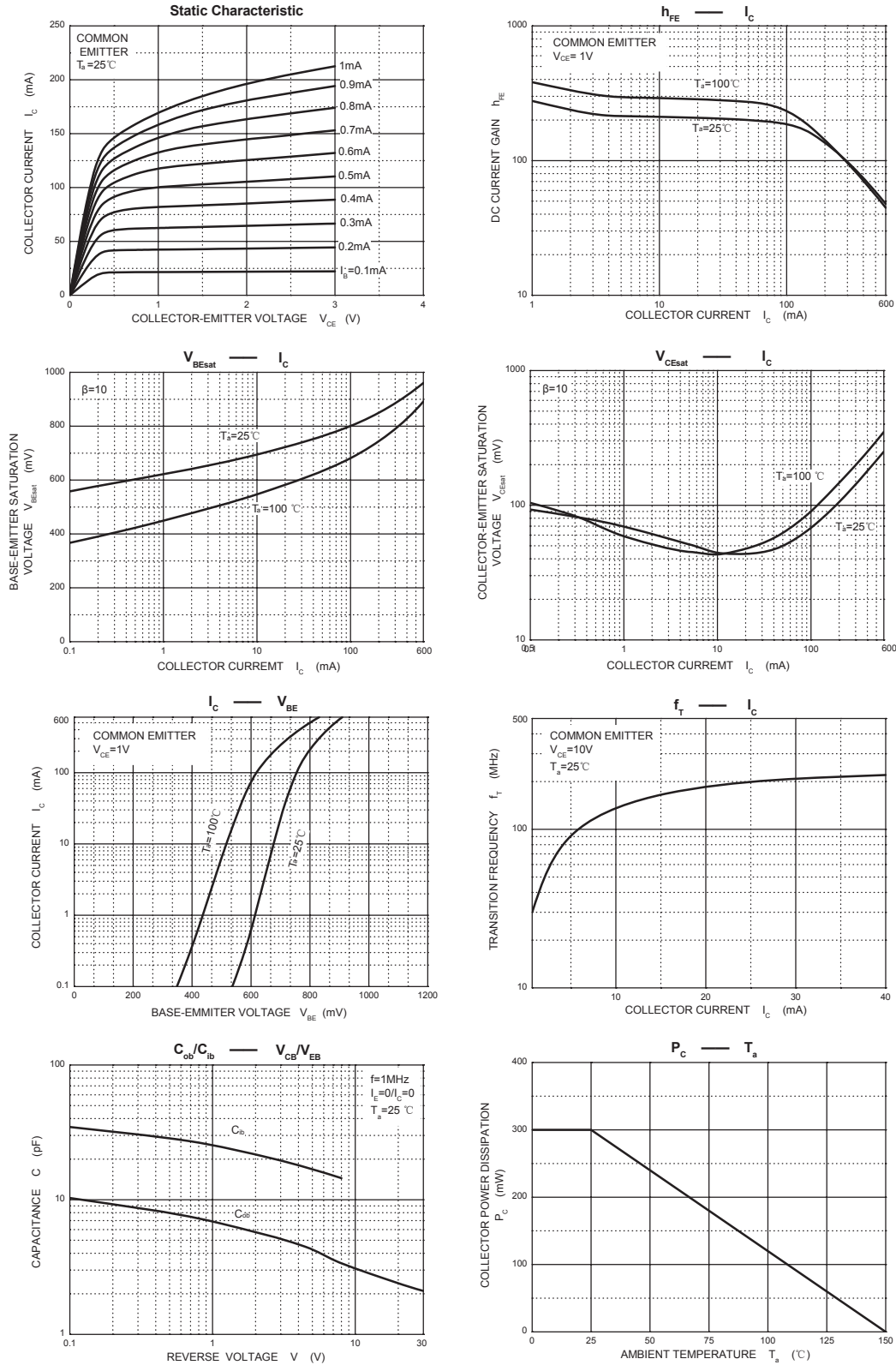
Parameter	Symbol	Rating	Unit
Collector-base voltage	V <sub>CB0</sub>	-40	V
Collector-emitter voltage	V <sub>CEO</sub>	-40	V
Emitter-base voltage	V <sub>EBO</sub>	-5	V
Collector current	I <sub>C</sub>	-600	mA
Total Device Dissipation Alumina Substrate	P <sub>D</sub>	300	mW
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	417	°C/W
Junction and Storage Temperature	T <sub>J</sub> , T <sub>stg</sub>	-55 to150	°C

### Electrical Characteristics Ta = 25°C

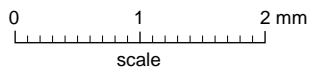
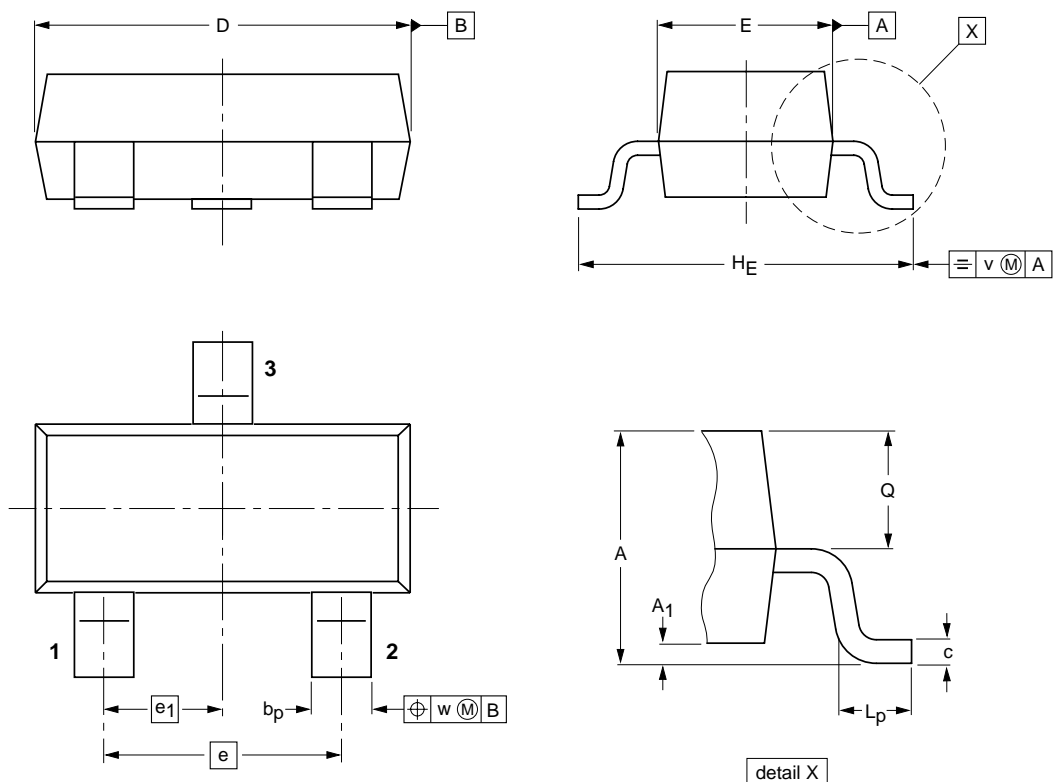
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 100μA, I <sub>E</sub> = 0	-40			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 1.0 mA, I <sub>B</sub> = 0	-40			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 100μA, I <sub>C</sub> = 0	-5			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = -35 V, I <sub>E</sub> = 0			-0.1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = -4V, I <sub>C</sub> = 0			-0.1	μA
DC current gain *	h <sub>FE</sub>	I <sub>C</sub> = -0.1 mA, V <sub>CE</sub> = -1.0 V I <sub>C</sub> = -1.0 mA, V <sub>CE</sub> = -1.0 V I <sub>C</sub> = -10 mA, V <sub>CE</sub> = -1.0 V I <sub>C</sub> = -150 mA, V <sub>CE</sub> = -2.0 V I <sub>C</sub> = -500 mA, V <sub>CE</sub> = -2.0 V	30 60 100 100 20		300	
Collector-emitter saturation voltage *	V <sub>CE(sat)</sub>	I <sub>C</sub> = -150 mA, I <sub>B</sub> = -15 mA I <sub>C</sub> = -500 mA, I <sub>B</sub> = -50 mA			-0.4 -0.75	V
Base-emitter saturation voltage *	V <sub>BE(sat)</sub>	I <sub>C</sub> = 150 mA, I <sub>B</sub> = 15 mA I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50 mA	-0.75		-0.95 -1.3	V
Transition frequency	f <sub>T</sub>	I <sub>C</sub> = 20 mA, V <sub>CE</sub> = 10 V, f = 100 MHz	200			MHz
Delay time	t <sub>d</sub>	V <sub>CC</sub> = 30 V, V <sub>EB</sub> = 2.0 V,			15	ns
Rise time	t <sub>r</sub>	I <sub>C</sub> = 150 mA, I <sub>B1</sub> = 15 mA			20	ns
Storage time	t <sub>s</sub>	V <sub>CC</sub> = 30 V, I <sub>C</sub> = 150 mA,			225	ns
Fall time	t <sub>f</sub>	I <sub>B1</sub> = I <sub>B2</sub> = 15 mA			30	ns

\* Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2.0%.

■ Typical Characteristics



■ SOT-23



**DIMENSIONS (mm are the original dimensions)**

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1