

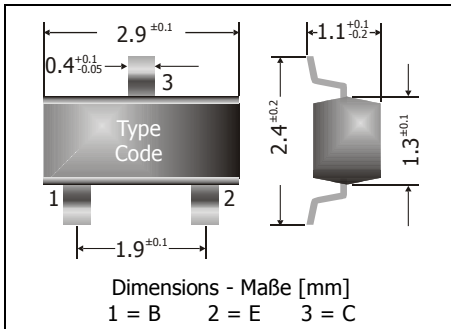
MMBT4403

PNP

Surface Mount General Purpose Si-Epi-Planar Transistors
Si-Epi-Planar Universaltransistoren für die Oberflächenmontage

PNP

Version 2015-05-12



Power dissipation – Verlustleistung

250 mW

Plastic case
 Kunststoffgehäuse

SOT-23
 (TO-236)

Weight approx. – Gewicht ca.

0.01 g

Plastic material has UL classification 94V-0
 Gehäusematerial UL94V-0 klassifiziert

Standard packaging taped and reeled
 Standard Lieferform gegurtet auf Rolle

Maximum ratings (T_A = 25°C)Grenzwerte (T_A = 25°C)

			MMBT4403
Collector-Emitter-volt. – Kollektor-Emitter-Spannung	B open	- V _{CEO}	40 V
Collector-Base-voltage – Kollektor-Basis-Spannung	E open	- V _{CBO}	40 V
Emitter-Base-voltage – Emitter-Basis-Spannung	C open	- V _{EB0}	5 V
Power dissipation – Verlustleistung		P _{tot}	250 mW ¹⁾
Collector current – Kollektorstrom (dc)		- I _C	600 mA
Junction temperature – Sperrschichttemperatur		T _j	-55...+150°C
Storage temperature – Lagerungstemperatur		T _S	-55...+150°C

Characteristics (T_j = 25°C)Kennwerte (T_j = 25°C)

		Min.	Typ.	Max.
DC current gain – Kollektor-Basis-Stromverhältnis ²⁾				
- I _C = 0.1 mA, - V _{CE} = 1 V	h _{FE}	30	–	–
- I _C = 1 mA, - V _{CE} = 1 V	h _{FE}	60	–	–
- I _C = 10 mA, - V _{CE} = 1 V	h _{FE}	100	–	–
- I _C = 150 mA, - V _{CE} = 2 V	h _{FE}	100	–	300
- I _C = 500 mA, - V _{CE} = 2 V	h _{FE}	20	–	–
h-Parameters at/bei - V _{CE} = 10 V, - I _C = 1 mA, f = 1 kHz				
Small signal current gain – Kleinsignal-Stromverstärkung	h _{fe}	60	–	500
Input impedance – Eingangs-Impedanz	h _{ie}	1.5 kΩ	–	15 kΩ
Output admittance – Ausgangs-Leitwert	h _{oe}	1 μS	–	30 μS
Reverse voltage transfer ratio – Spannungsrückwirkung	h _{re}	0.1*10 ⁻⁴	–	8*10 ⁻⁴
Collector-Emitter saturation voltage – Kollektor-Emitter-Sättigungsspg. ²⁾				
- I _C = 150 mA, - I _B = 15 mA	- V _{CEsat}	–	–	0.40 V
- I _C = 500 mA, - I _B = 50 mA	- V _{CEsat}	–	–	0.75 V

1 Mounted on P.C. board with 3 mm² copper pad at each terminal
 Montage auf Leiterplatte mit 3 mm² Kupferbelag (Löt-pad) an jedem Anschluss

2 Tested with pulses t_p = 300 μs, duty cycle ≤ 2% – Gemessen mit Impulsen t_p = 300 μs, Schaltverhältnis ≤ 2%

Characteristics (T_j = 25°C)
Kennwerte (T_j = 25°C)

		Min.	Typ.	Max.
Base-Emitter saturation voltage – Basis-Emitter-Sättigungsspannung ²⁾				
- I _C = 150 mA, - I _B = 15 mA	- V _{BEsat}	0.75 V	–	0.95 V
- I _C = 500 mA, - I _B = 50 mA	- V _{BEsat}	–	–	1.3 V
Collector-Emitter cutoff current – Kollektor-Emitter-Reststrom				
- V _{CE} = 35 V, - V _{EB} = 0,4 V	- I _{CEX}	–	–	100 nA
Emitter-Base cutoff current – Emitter-Basis-Reststrom				
- V _{CE} = 35 V, - V _{EB} = 0,4 V	- I _{EBV}	–	–	100 nA
Gain-Bandwidth Product – Transitfrequenz				
- I _C = 20 mA, - V _{CE} = 10 V, f = 100 MHz	f _T	200 MHz	–	–
Collector-Base Capacitance – Kollektor-Basis-Kapazität				
- V _{CB} = 5 V, I _E = i _e = 0, f = 1 MHz	C _{CBO}	–	–	8.5 pF
Emitter-Base Capacitance – Emitter-Basis-Kapazität				
- V _{EB} = 0.5 V, I _C = i _c = 0, f = 1 MHz	C _{EBO}	–	–	30 pf
Switching times – Schaltzeiten (between 10% and 90% levels)				
delay time	t _d	–	–	15 ns
rise time	t _r	–	–	20 ns
storage time	t _s	–	–	225 ns
fall time	t _f	–	–	30 ns
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft		R _{thA}	< 420 K/W ¹⁾	
Recommended complementary NPN transistors Empfohlene komplementäre NPN-Transistoren		MMBT4401		
Marking - Stempelung		MMBT4403 = 2T		

2 Tested with pulses t_p = 300 μs, duty cycle ≤ 2% – Gemessen mit Impulsen t_p = 300 μs, Schaltverhältnis ≤ 2%

1 Mounted on P.C. board with 3 mm² copper pad at each terminal
Montage auf Leiterplatte mit 3 mm² Kupferbelag (Lötpad) an jedem Anschluss