

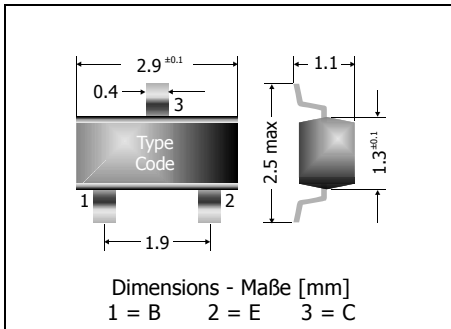
MMBT5550 / MMBT5551

NPN

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

NPN

Version 2006-05-09



Power dissipation – Verlustleistung

250 mW

Plastic case
KunststoffgehäuseSOT-23
(TO-236)

Weight approx. – Gewicht ca.

0.01 g

Plastic material has UL classification 94V-0
Gehäusematerial UL94V-0 klassifiziertStandard packaging taped and reeled
Standard Lieferform getupet auf RolleMaximum ratings ($T_A = 25^\circ\text{C}$)Grenzwerte ($T_A = 25^\circ\text{C}$)

			MMBT5550	MMBT5551
Collector-Emitter-volt. – Kollektor-Emitter-Spannung	B open	V_{CEO}	140 V	160 V
Collector-Base-voltage – Kollektor-Basis-Spannung	E open	V_{CBO}	160 V	180 V
Emitter-Base-voltage – Emitter-Basis-Spannung	C open	V_{EBO}	6 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 ($T_j = 25^\circ\text{C}$)Kennwerte ($T_j = 25^\circ\text{C}$)

			Min.	Typ.	Max.
DC current gain – Kollektor-Basis-Stromverhältnis ²⁾					
$I_C = 1\text{ mA}, V_{CE} = 5\text{ V}$	MMBT5550	h_{FE}	60	–	–
	MMBT5551	h_{FE}	80	–	–
$I_C = 10\text{ mA}, V_{CE} = 5\text{ V}$	MMBT5550	h_{FE}	60	–	250
	MMBT5551	h_{FE}	80	–	250
$I_C = 50\text{ mA}, V_{CE} = 5\text{ V}$	MMBT5550	h_{FE}	20	–	–
	MMBT5551	h_{FE}	30	–	–
Collector-Emitter saturation voltage – Kollektor-Emitter-Sättigungsspg. ²⁾					
$I_C = 10\text{ mA}, I_B = 1\text{ mA}$	MMBT5550	V_{CEsat}	–	–	0.15 V
	MMBT5551	V_{CEsat}	–	–	0.15 V
$I_C = 50\text{ mA}, I_B = 5\text{ mA}$	MMBT5550	V_{CEsat}	–	–	0.25 V
	MMBT5551	V_{CEsat}	–	–	0.20 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 $t_p = 300\ \mu\text{s}$, duty cycle $\leq 2\%$ – Gemessen mit Impulsen $t_p = 300\ \mu\text{s}$, Schaltverhältnis $\leq 2\%$

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

			Min.	Typ.	Max.
Base-Emitter saturation voltage – Basis-Emitter-Sättigungsspannung ²⁾					
I _C = 10 mA, I _B = 1 mA	MMBT5550	V _{BEsat}	–	–	1.0 V
	MMBT5551	V _{BEsat}	–	–	1.0 V
I _C = 50 mA, I _B = 5 mA	MMBT5550	V _{BEsat}	–	–	1.2 V
	MMBT5551	V _{BEsat}	–	–	1.0 V
Collector-Base cutoff current – Kollektor-Basis-Reststrom					
V _{CB} = 100 V, (E open)	MMBT5550	I _{CBO}	–	–	100 nA
	MMBT5551	I _{CBO}	–	–	50 nA
V _{CB} = 120 V, (E open)	MMBT5550	I _{CBO}	–	–	100 µA
	MMBT5551	I _{CBO}	–	–	50 µA
Emitter-Base cutoff current – Emitter-Basis-Reststrom					
V _{EB} = 4 V, (C open)		I _{EBO}	–	–	50 nA
Gain-Bandwidth Product – Transitfrequenz					
I _C = 10 mA, V _{CE} = 10 V, f = 100 MHz		f _T	100 MHz	–	300 MHz
Collector-Base Capacitance – Kollektor-Basis-Kapazität					
V _{CB} = 10 V, I _E = i _e = 0, f = 1 MHz		C _{CBO}	–	–	6 pF
Emitter-Base Capacitance – Emitter-Basis-Kapazität					
V _{EB} = 0.5 V, I _C = i _c = 0, f = 1 MHz		C _{EBO}	–	–	30 pF
Noise figure – Rauschzahl					
V _{CE} = 5 V, I _C = 200 µA, R _G = 2 kΩ, f = 30 Hz ... 15 kHz	MMBT5550	F	–	–	10 dB
	MMBT5551	F	–	–	8 dB
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft		R _{thA}	< 420 K/W ¹⁾		
Recommended complementary PNP transistors Empfohlene komplementäre PNP-Transistoren			MMBT5400 / MMBT5401		
Marking - Stempelung			MMBT5550 = 1F MMBT5551 = 3S		

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