

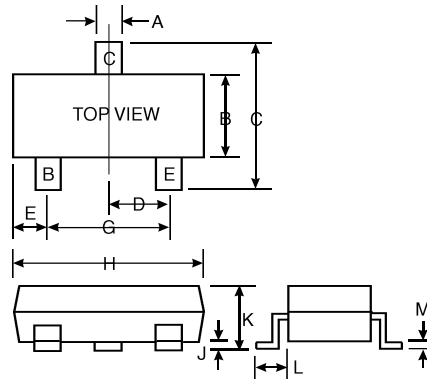


Features

Epitaxial Planar Die Construction
Complementary PNP Type Available
(MMBT5401)
Ideal for Medium Power Amplification and
Switching

Mechanical Data

Case: SOT-23, Molded Plastic
Terminals: Solderable per MIL-STD-202,
Method 208
Terminal Connections: See Diagram
Marking: K4N, 3S, 1F
Weight: 0.008 grams (approx.)



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.19	1.40
C	2.10	2.50
D	0.89	1.05
E	0.45	0.61
G	1.78	2.05
H	2.65	3.05
J	0.013	0.15
K	0.89	1.10
L	0.45	0.61
M	0.076	0.178
All Dimensions in mm		

Maximum Ratings

@ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	MMBT5551	Unit
Collector-Base Voltage	V_{CB0}	180	V
Collector-Emitter Voltage	V_{CE0}	160	V
Emitter-Base Voltage	V_{EB0}	6.0	V
Collector Current - Continuous (Note 1)	I_C	200	mA
Power Dissipation (Note 1)	P_d	350	mW
Thermal Resistance, Junction to Ambient (Note 1)	R_{JA}	357	K/W
Operating and Storage and Temperature Range	T_J, T_{STG}	-55 to +150	C

Notes: 1. Valid provided that terminals are kept at ambient temperature.
2. Pulse test: Pulse width 300 μ s, duty cycle 2%.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	180		V	$I_C = 100\text{ A}$, $I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	160		V	$I_C = 1.0\text{mA}$, $I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6.0		V	$I_E = 10\text{ A}$, $I_C = 0$
Collector Cutoff Current	I_{CBO}		50	nA A	$V_{CB} = 120\text{V}$, $I_E = 0$ $V_{CB} = 120\text{V}$, $I_E = 0$, $T_A = 100^\circ\text{C}$
Emitter Cutoff Current	I_{EBO}		50	nA	$V_{EB} = 4.0\text{V}$, $I_C = 0$
ON CHARACTERISTICS (Note 2)					
DC Current Gain	h_{FE}	80 80 30	250		$I_C = 1.0\text{mA}$, $V_{CE} = 5.0\text{V}$ $I_C = 10\text{mA}$, $V_{CE} = 5.0\text{V}$ $I_C = 50\text{mA}$, $V_{CE} = 5.0\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		0.15 0.20	V	$I_C = 10\text{mA}$, $I_B = 1.0\text{mA}$ $I_C = 50\text{mA}$, $I_B = 5.0\text{mA}$
Base- Emitter Saturation Voltage	$V_{BE(SAT)}$		1.0	V	$I_C = 10\text{mA}$, $I_B = 1.0\text{mA}$ $I_C = 50\text{mA}$, $I_B = 5.0\text{mA}$
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}		6.0	pF	$V_{CB} = 10\text{V}$, $f = 1.0\text{MHz}$, $I_E = 0$
Small Signal Current Gain	h_{fe}	50	250		$V_{CE} = 10\text{V}$, $I_C = 1.0\text{mA}$, $f = 1.0\text{kHz}$
Current Gain-Bandwidth Product	f_T	100	300	MHz	$V_{CE} = 10\text{V}$, $I_C = 10\text{mA}$, $f = 100\text{MHz}$
Noise Figure	NF		8.0	dB	$V_{CE} = 5.0\text{V}$, $I_C = 200\text{ A}$, $R_S = 1.0\text{k}$ $f = 1.0\text{kHz}$

Notes: 1. Valid provided that terminals are kept at ambient temperature.
2. Pulse test: Pulse width 300 s, duty cycle 2%.