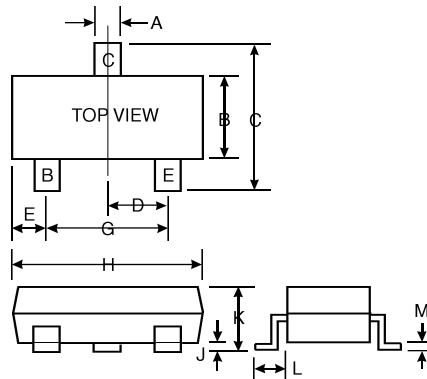


Features

Epitaxial Planar Die Construction
Complementary NPN Type Available
(MMBT4401)
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: K2T, R2T
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	MMBT4403	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5.0	V
Collector Current - Continuous (Note 1)	I_C	-600	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

Note: 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 °C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)					
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-40		V	I _C = -100 A, I _E = 0
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	-40		V	I _C = -1.0mA, I _B = 0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-5.0		V	I _E = -100 A, I _C = 0
Collector Cutoff Current	I _{CEX}		-100	nA	V _{CE} = -35V, V _{EB(OFF)} = -0.4V
Base Cutoff Current	I _{BL}		-100	nA	V _{CE} = -35V, V _{EB(OFF)} = -0.4V
ON CHARACTERISTICS (Note 2)					
DC Current Gain	h _{FE}	30 60 100 100 20	300		I _C = -100μA, V _{CE} = -1.0V I _C = -1.0mA, V _{CE} = -1.0V I _C = -10mA, V _{CE} = -1.0V I _C = -150mA, V _{CE} = -2.0V I _C = -500mA, V _{CE} = -2.0V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}		-0.40 -0.75	V	I _C = -150mA, I _B = -15mA I _C = -500mA, I _B = -50mA
Base- Emitter Saturation Voltage	V _{BE(SAT)}	-0.75	-0.95 -1.30	V	I _C = -150mA, I _B = -15mA I _C = -500mA, I _B = -50mA
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C _{cb}		8.5	pF	V _{CB} = -10V, f = 1.0MHz, I _E = 0
Input Capacitance	C _{eb}		30	pF	V _{EB} = -0.5V, f = 1.0MHz, I _C = 0
Input Impedance	h _{ie}	1.5	15	k	V _{CE} = -10V, I _C = -1.0mA, f = 1.0kHz
Voltage Feedback Ratio	h _{re}	0.1	8.0	x 10 ⁻⁴	
Small Signal Current Gain	h _{fe}	60	500		
Output Admittance	h _{oe}	1.0	100	S	
Current Gain-Bandwidth Product	f _T	200		MHz	V _{CE} = -10V, I _C = -20mA, f = 100MHz
SWITCHING CHARACTERISTICS					
Delay Time	t _d		15	ns	V _{CC} = -30V, I _C = -150mA, V _{BE(off)} = -2.0V, I _{B1} = -15mA
Rise Time	t _r		20	ns	
Storage Time	t _s		225	ns	V _{CC} = -30V, I _C = -150mA, I _{B1} = I _{B2} = -15mA
Fall Time	t _f		30	ns	

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