

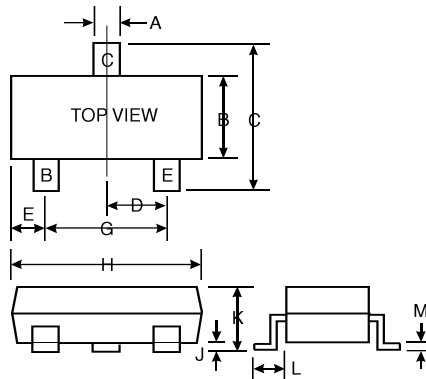


Features

Epitaxial Planar Die Construction
Complementary NPN Type Available
(MMST4401)
Ultra-Small Surface Mount Package

Mechanical Data

Case: SOT-323, Molded Plastic
Terminals: Solderable per MIL-STD-202,
Method 208
Terminal Connections: See Diagram
Marking: K3T
Weight: 0.006 grams (approx.)



SOT-323		
Dim	Min	Max
A	0.30	0.40
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
All Dimensions in mm		

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

Characteristic	Symbol	MMST4403	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	200	mW
Thermal Resistance, Junction to Ambient (Note 1)	R_{JA}	625	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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-40		V	$I_C = -100\text{ A}$, $I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-40		V	$I_C = -1.0\text{mA}$, $I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5.0		V	$I_E = -100\text{ A}$, $I_C = 0$
Collector Cutoff Current	I_{CEX}		-100	nA	$V_{CE} = -35\text{V}$, $V_{EB(OFF)} = -0.4\text{V}$
Base Cutoff Current	I_{BL}		-100	nA	$V_{CE} = -35\text{V}$, $V_{EB(OFF)} = -0.4\text{V}$
ON CHARACTERISTICS (Note 2)					
DC Current Gain	h_{FE}	30 60 100 100 20	300		$I_C = -100\mu\text{A}$, $V_{CE} = -1.0\text{V}$ $I_C = -1.0\text{mA}$, $V_{CE} = -1.0\text{V}$ $I_C = -10\text{mA}$, $V_{CE} = -1.0\text{V}$ $I_C = -150\text{mA}$, $V_{CE} = -2.0\text{V}$ $I_C = -500\text{mA}$, $V_{CE} = -2.0\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		-0.40 -0.75	V	$I_C = -150\text{mA}$, $I_B = -15\text{mA}$ $I_C = -500\text{mA}$, $I_B = -50\text{mA}$
Base- Emitter Saturation Voltage	$V_{BE(SAT)}$	-0.75	-0.95 -1.30	V	$I_C = -150\text{mA}$, $I_B = -15\text{mA}$ $I_C = -500\text{mA}$, $I_B = -50\text{mA}$
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{cb}		8.5	pF	$V_{CB} = -10\text{V}$, $f = 1.0\text{MHz}$, $I_E = 0$
Input Capacitance	C_{eb}		30	pF	$V_{EB} = -0.5\text{V}$, $f = 1.0\text{MHz}$, $I_C = 0$
Input Impedance	h_{ie}	1.5	15	k	$V_{CE} = -10\text{V}$, $I_C = -1.0\text{mA}$, $f = 1.0\text{kHz}$
Voltage Feedback Ratio	h_{re}	0.1	8.0	$\times 10^{-4}$	
Small Signal Current Gain	h_{fe}	60	500		
Output Admittance	h_{oe}	1.0	100	S	
Current Gain-Bandwidth Product	f_T	200		MHz	$V_{CE} = -10\text{V}$, $I_C = -20\text{mA}$, $f = 100\text{MHz}$
SWITCHING CHARACTERISTICS					
Delay Time	t_d		15	ns	$V_{CC} = -30\text{V}$, $I_C = -150\text{mA}$, $V_{BE(off)} = -2.0\text{V}$, $I_{B1} = -15\text{mA}$
Rise Time	t_r		20	ns	
Storage Time	t_s		225	ns	$V_{CC} = -30\text{V}$, $I_C = -150\text{mA}$, $I_{B1} = I_{B2} = -15\text{mA}$
Fall Time	t_f		30	ns	

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