



THE DATASHEET OF MMBT5401

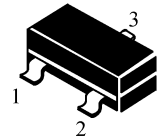


FEATURES

PNP High Voltage Transistor

SOT-23

- 1. BASE
- 2. EMITTER
- 3. COLLECTOR



MAXIMUM RATINGS

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	-150	Vdc
Collector-Base Voltage	V_{CBO}	-160	Vdc
Emitter-Base Voltage	V_{EBO}	-6.0	Vdc
Collector Current—Continuous	I_c	-500	mAdc

THERMAL CHARACTERISTICS

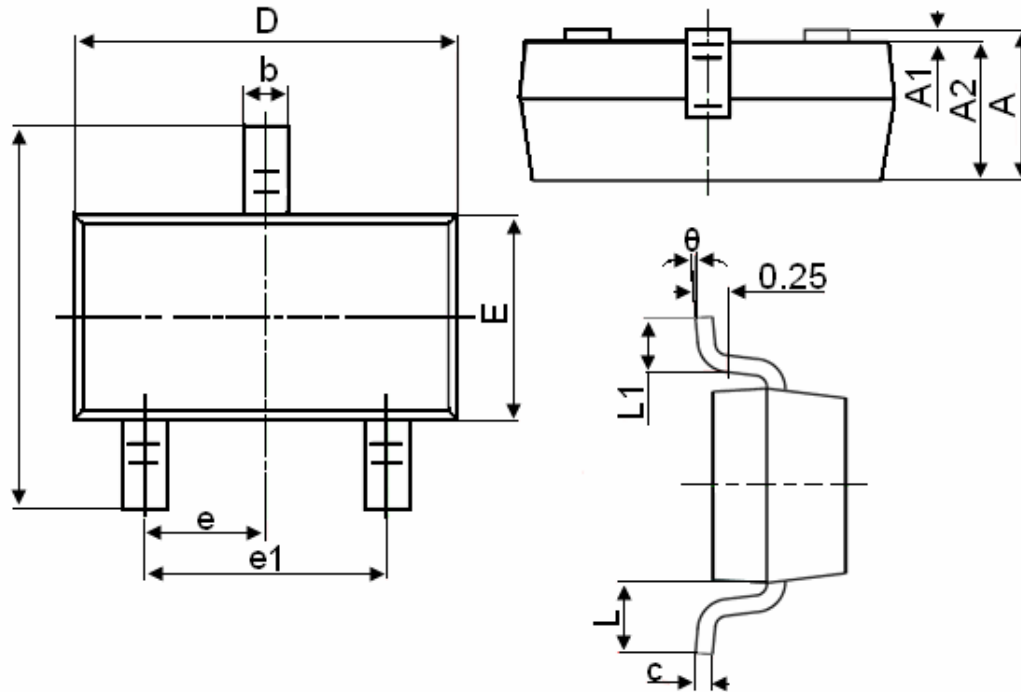
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board(1) $T_A=25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate (2) $T_A=25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{stg}	150 $^\circ\text{C}$, -55to+150 $^\circ\text{C}$	

ELECTRICAL CHARACTERISTICS
(TA=25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage(3) (Ic=-1.0mA, IB=0)	V(BR)CEO	-150	—	Vdc
Collector-Base Breakdown Voltage (Ic=-100 μA, IE=0)	V(BR)CBO	-160	—	Vdc
Emitter-Base Breakdown Voltage (IE=-10 μA, Ic=0)	V(BR)EBO	-6.0	—	Vdc
Emitter Cutoff Current (VEB=-3.0Vdc, Ic=0)	IEBO	—	-50	nAdc
Collector Cutoff Current (VCB=-120Vdc, IE=0)	ICBO	—	-50	nAdc
DC Current Gain	HFE			—
(Ic=-1.0mA, VCE=-5.0Vdc)		50	—	
(Ic=-10mA, VCE=-5.0Vdc)		60	240	
(Ic=-50mA, VCE=-5.0Vdc)		30	—	
Collector-Emitter Saturation Voltage (Ic=-10mA, IB=-1.0mA) (Ic=-50mA, IB=-10mA)	VCE(sat)	— —	-0.2 -0.5	Vdc
Base-Emitter Saturation Voltage (Ic=-10mA, IB=-1.0mA) (Ic=-50mA, IB=-5.0mA)	VBE(sat)	— —	-1.0 -1.0	Vdc
Current-Gain-Bandwidth Product (Ic=-10mA, VCE=-10Vdc, f=100MHz)	fT	100	300	MHz
Output Capacitance (VCB=-10.0Vdc, IE=0, f=1.0MHz)	Cobo	—	6.0	pF
Small-Signal Current Gain (VCE=-10Vdc, IC=-1.0mA, f=1.0KHz)	hfe	40	200	—
Noise Figure (VCE=-5.0Vdc, IC=-200 μA, RS=1.0kΩ, f=1.0KHz)	NF	—	8.0	dB

- 1 . FR-5=1.0×0.75×0.062in.
- 2 . Alumina=0.4×0.3×0.024in.99.5%alumina.
- 3 . Pulse Width≤300us;Duty Cycle≤2.0%.

SOT-23 Package Information



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

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