

SOT-523 Plastic-Encapsulate Transistors

MMBT5401T TRANSISTOR (PNP)

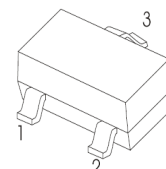
FEATURES

- Complementary to MMBT5551T
- Small Surface Mount Package
- Ideal for Medium Power Amplification and Switching

MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

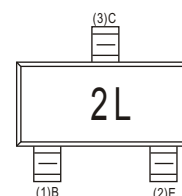
Symbol	Parameter	Value	Unit
V_{CB0}	Collector-Base Voltage	-160	V
V_{CE0}	Collector-Emitter Voltage	-150	V
V_{EB0}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-0.6	A
P_C	Collector Power Dissipation	0.15	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	833	$^{\circ}\text{C/W}$
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

SOT-523



1. BASE
2. EMITTER
3. COLLECTOR

MARKING:2L

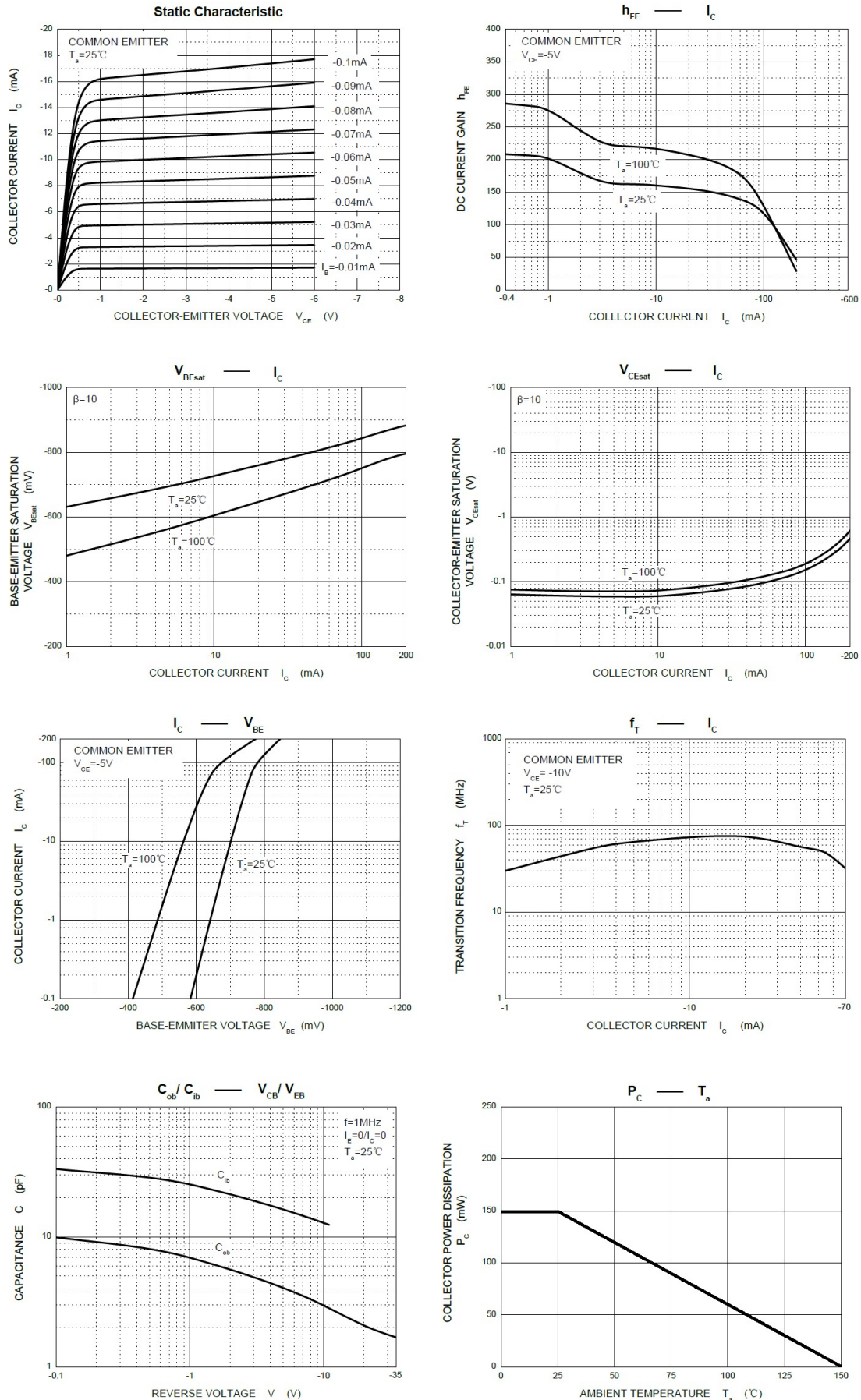


ELECTRICAL CHARACTERISTICS ($T_a = 25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-100\mu\text{A}$, $I_E=0$	-160			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C=-1\text{mA}$, $I_B=0$	-150			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}$, $I_C=0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB}=-120\text{V}$, $I_E=0$			50	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=-3\text{V}$, $I_C=0$			50	nA
DC current gain	$h_{FE(1)}^*$	$V_{CE}=-5\text{V}$, $I_C=-1\text{mA}$	50			
	$h_{FE(2)}^*$	$V_{CE}=-5\text{V}$, $I_C=-10\text{mA}$	100		200	
	$h_{FE(3)}^*$	$V_{CE}=-5\text{V}$, $I_C=-50\text{mA}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)1}^*$	$I_C=-10\text{mA}$, $I_B=-1\text{mA}$			-0.2	V
	$V_{CE(sat)2}^*$	$I_C=-50\text{mA}$, $I_B=-5\text{mA}$			-0.5	V
Base-emitter saturation voltage	$V_{BE(sat)1}^*$	$I_C=-10\text{mA}$, $I_B=-1\text{mA}$			-1	V
	$V_{BE(sat)2}^*$	$I_C=-50\text{mA}$, $I_B=-5\text{mA}$			-1	V
Transition frequency	f_T	$V_{CE}=-10\text{V}$, $I_C=-10\text{mA}$, $f=100\text{MHz}$	100			MHz
Collector output capacitance	C_{ob}	$V_{CB}=-10\text{V}$, $I_E=0$, $f=1\text{MHz}$			6	pF

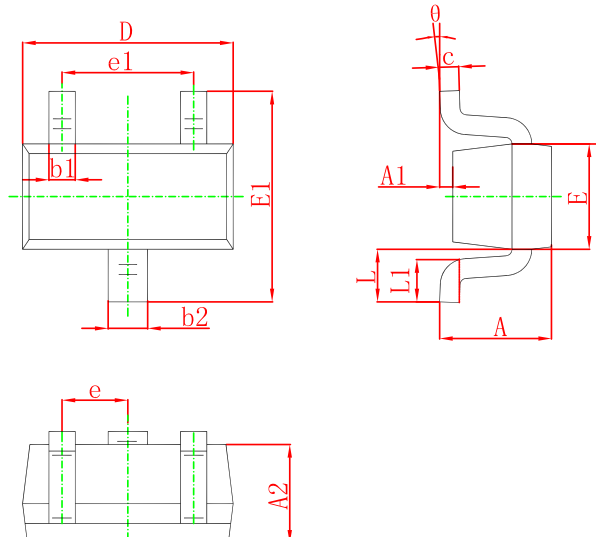
*Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$.

Typical Characteristics



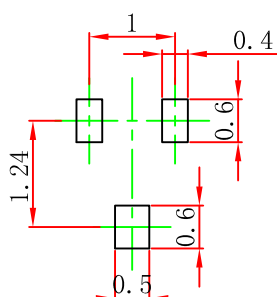
Outlitne Drawing

SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:

1. Controlling dimension: In millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.