

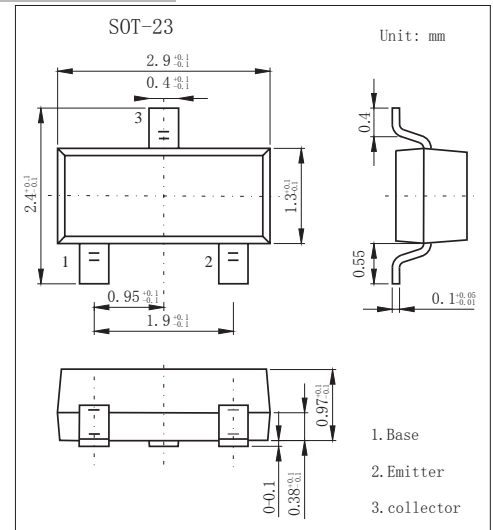
SOT-23 Plastic-Encapsulate Transistors

Features

- Ideal for Medium Power Amplification and Switching
- Complementary PNP Type Available (MMBT4403)
- NPN Transistors

MECHANICAL DATA

- Case style: SOT-23 molded plastic
- Mounting position: any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	60	V
Collector-emitter voltage	V_{CE0}	40	V
Emitter-base voltage	V_{EB0}	6.0	V
Collector current	I_C	600	mA
Total Device Dissipation Alumina Substrate	P_d	300	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J, T_{stg}	-55 to 150	°C

PACKAGE INFORMATION

Device	Package	Shipping
MMBT4401	SOT-23	3000/Tape&Reel

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100\mu A, I_E = 0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1.0 mA, I_B = 0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 100\mu A, I_C = 0$	6.0			V
Collector cut-off current	I_{CBO}	$V_{CB} = 50 V, I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5 V, I_C = 0$			0.1	μA
DC current gain *	h_{FE}	$I_C = 0.1 mA, V_{CE} = 1.0 V$ $I_C = 1.0 mA, V_{CE} = 1.0 V$ $I_C = 10 mA, V_{CE} = 1.0 V$ $I_C = 150 mA, V_{CE} = 1.0 V$ $I_C = 500 mA, V_{CE} = 2.0 V$	20 40 80 100 40		300	
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 150 mA, I_B = 15 mA$ $I_C = 500 mA, I_B = 50 mA$			0.4 0.75	V
Base-emitter saturation voltage *	$V_{BE(sat)}$	$I_C = 150 mA, I_B = 15 mA$ $I_C = 500 mA, I_B = 50 mA$	0.75		0.95 1.2	V
Transition frequency	f_T	$I_C = 20 mA, V_{CE} = 10 V, f = 100 MHz$	250			MHz
Delay time	t_d	$V_{CC} = 30 V, V_{EB} = 2.0 V,$			15	ns
Rise time	t_r	$I_C = 150 mA, I_{B1} = 15 mA$			20	ns
Storage time	t_s	$V_{CC} = 30 V, I_C = 150 mA,$			225	ns
Fall time	t_f	$I_{B1} = I_{B2} = 15 mA$			30	ns

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

Marking

Marking	2X



RATINGS AND CHARACTERISTIC CURVES

■ Typical Characteristics

