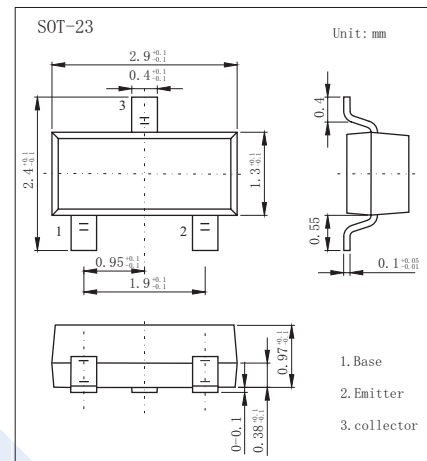


PNP Transistors

MMBT4403 (KMBT4403)

■ Features

- Ideal for Medium Power Amplification and Switching
- Complementary NPN Type Available (MMBT4401)

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	-40	V
Collector - Emitter Voltage	V_{CE0}	-40	
Emitter - Base Voltage	V_{EB0}	-5	
Collector Current	I_C	-600	mA
Total Device Dissipation Alumina Substrate	P_D	300	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature range	T_{stg}	-55 to +150	

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CB0}	$I_C = -100 \mu\text{A}, I_E = 0$	-40			V
Collector- emitter breakdown voltage	V_{CE0}	$I_C = -1.0 \text{ mA}, I_B = 0$	-40			
Emitter - base breakdown voltage	V_{EB0}	$I_E = -100 \mu\text{A}, I_C = 0$	-5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = -35\text{V}, I_E = 0$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -4\text{V}, I_C = 0$			-0.1	
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = -150 \text{ mA}, I_B = -15 \text{ mA}$			-0.4	V
		$I_C = -500 \text{ mA}, I_B = -50 \text{ mA}$			-0.75	
Base - emitter voltage *	$V_{BE(sat)}$	$I_C = -150 \text{ mA}, I_B = -15 \text{ mA}$	-0.75		-0.95	
		$I_C = -500 \text{ mA}, I_B = -50 \text{ mA}$			-1.3	
DC current gain *	h_{FE}	$I_C = -0.1 \text{ mA}, V_{CE} = -1.0 \text{ V}$	30			
		$I_C = -1.0 \text{ mA}, V_{CE} = -1.0 \text{ V}$	60			
		$I_C = -10 \text{ mA}, V_{CE} = -1.0 \text{ V}$	100			
		$I_C = -150 \text{ mA}, V_{CE} = -2.0 \text{ V}$	100		300	
		$I_C = -500 \text{ mA}, V_{CE} = -2.0 \text{ V}$	20			
Transition frequency	f_T	$I_C = -20 \text{ mA}, V_{CE} = -10\text{V}, f = 100\text{MHz}$	200			MHz
Delay time	t_d	$V_{CC} = -30 \text{ V}, V_{EB} = -2.0 \text{ V},$			15	ns
Rise time	t_r	$I_C = -150 \text{ mA}, I_{B1} = -15 \text{ mA}$			20	
Storage time	t_s	$V_{CC} = -30 \text{ V}, I_C = -150 \text{ mA},$			225	
Fall time	t_f	$I_{B1} = I_{B2} = -15 \text{ mA}$			30	

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

■ Marking

Marking	2T
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■ Typical Characteristics

