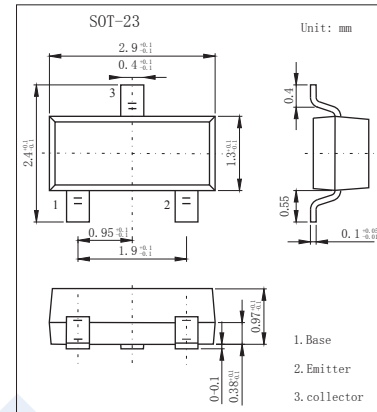


## PNP Transistors

## 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	$V_{CEO}$	-40	V
Emitter-base voltage	$V_{EBO}$	-5	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	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$

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

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

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

## ■ Marking

Marking	2T
---------	----

# PNP Transistors

## MMBT4403 (KMBT4403)

### Typical Characteristics

