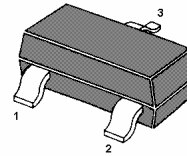


# MMBT4403

## PNP Silicon General Purpose Transistor

As complementary types the NPN transistor MMBT4401 is recommended.



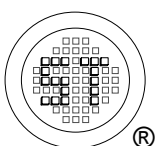
1. Base 2. Emitter 3. Collector

SOT-23 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	40	V
Collector Emitter Voltage	$-V_{CEO}$	40	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current Continuous	$-I_C$	600	mA
Total Device Dissipation FR-5 Board <sup>1)</sup> Derate above 25 °C	$P_{tot}$	200 1.8	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature Range	$T_J, T_s$	-55 to +150	°C

<sup>1)</sup> FR-5 = 1 × 0.75 × 0.062 in.



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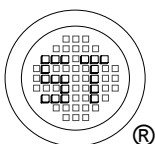


Dated : 23/12/2005

# MMBT4403

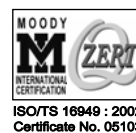
## Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit	
DC Current Gain					
at $-V_{CE} = 1\text{ V}$ , $-I_C = 0.1\text{ mA}$	$h_{FE}$	30	-	-	
at $-V_{CE} = 1\text{ V}$ , $-I_C = 1\text{ mA}$	$h_{FE}$	60	-	-	
at $-V_{CE} = 1\text{ V}$ , $-I_C = 10\text{ mA}$	$h_{FE}$	100	-	-	
at $-V_{CE} = 2\text{ V}$ , $-I_C = 150\text{ mA}$	$h_{FE}$	100	300	-	
at $-V_{CE} = 2\text{ V}$ , $-I_C = 500\text{ mA}$	$h_{FE}$	20	-	-	
Collector Emitter Saturation Voltage					
at $-I_C = 150\text{ mA}$ , $-I_B = 15\text{ mA}$	$-V_{CEsat}$	-	0.4	V	
at $-I_C = 500\text{ mA}$ , $-I_B = 50\text{ mA}$	$-V_{CEsat}$	-	0.75	V	
Base Emitter Saturation Voltage					
at $-I_C = 150\text{ mA}$ , $-I_B = 15\text{ mA}$	$-V_{BEsat}$	0.75	0.95	V	
at $-I_C = 500\text{ mA}$ , $-I_B = 50\text{ mA}$	$-V_{BEsat}$	-	1.3	V	
Collector Cutoff Current					
at $-V_{CB} = 35\text{ V}$	$-I_{CBO}$	-	0.1	$\mu\text{A}$	
Base Cutoff Current					
at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	0.1	$\mu\text{A}$	
Collector Base Breakdown Voltage					
at $-I_C = 0.1\text{ mA}$	$-V_{(BR)CBO}$	40	-	V	
Collector Emitter Breakdown Voltage					
at $-I_C = 1\text{ mA}$	$-V_{(BR)CEO}$	40	-	V	
Emitter Base Breakdown Voltage					
at $-I_E = 0.1\text{ mA}$	$-V_{(BR)EBO}$	5	-	V	
Current Gain Bandwidth Product					
at $-V_{CE} = 10\text{ V}$ , $-I_C = 20\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	200	-	MHz	
Collector Base Capacitance					
at $-V_{CB} = 10\text{ V}$ , $-I_E = 0$ , $f = 1\text{ MHz}$	$C_{cb}$	-	8.5	pF	
Emitter Base Capacitance					
at $-V_{EB} = 0.5\text{ V}$ , $-I_C = 0$ , $f = 1\text{ MHz}$	$C_{eb}$	-	30	pF	
Input Impedance					
at $-I_C = 1\text{ mA}$ , $-V_{CE} = 10\text{ V}$ , $f = 1\text{ KHz}$	$h_{ie}$	1.5	1.5	K $\Omega$	
Voltage Feedback Ratio					
at $-I_C = 1\text{ mA}$ , $-V_{CE} = 10\text{ V}$ , $f = 1\text{ KHz}$	$h_{re}$	0.1	8	$\times 10^{-4}$	
Small Signal Current Gain					
at $-I_C = 1\text{ mA}$ , $-V_{CE} = 10\text{ V}$ , $f = 1\text{ KHz}$	$h_{fe}$	60	500	-	
Output Admittance					
at $-I_C = 1\text{ mA}$ , $-V_{CE} = 10\text{ V}$ , $f = 1\text{ KHz}$	$h_{oe}$	1	100	$\mu\text{mhos}$	
Delay Time	$-V_{CC} = 30\text{ V}$ , $-V_{EB} = 2\text{ V}$ , $-I_C = 150\text{ mA}$ , $-I_{B1} = 15\text{ mA}$	$t_d$	-	15	ns
Rise Time		$t_r$	-	20	ns
Storage Time		$t_s$	-	225	ns
Fall Time		$t_f$	-	30	ns



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