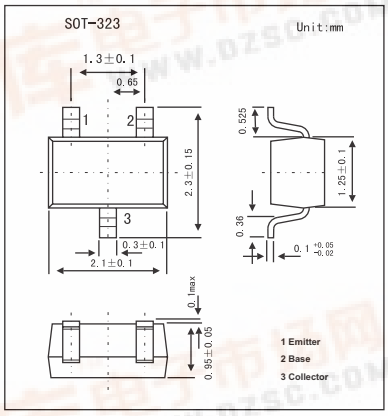
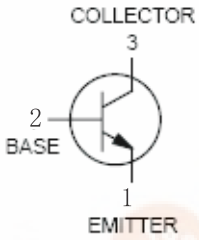
Switching Transistor

MMBT4403W



Features

- Switching transistor.
- PNP Silicon.



Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V_{CEO}	-40	V
Collector-base voltage	V_{CBO}	-40	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-600	mA
Total Device Dissipation FR-5 Board	P_D	150	mW
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	833	℃/W
Junction temperature	T_j	150	℃
Storage temperature	T_{stg}	-55 to +150	℃

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector-emitter breakdown voltage *	$V_{(BR)CEO}$	I_C = -1.0 mA, I_B = 0	-40			V
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C = -0.1 mA, I_E = 0	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E = -0.1 mA, I_C = 0	-5			V
Base cutoff current	I_{BEV}	V_{CE} = -35 V, V_{EB} = -0.4 V			-0.1	μA
Collector cutoff current	I_{CEX}	V_{CE} = -35 V, V_{EB} = -0.4 V			-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} = -2.0 V * I_C = -500 mA, V_{CE} = -2.0 V *	30 60 100 100 20		300	
Collector-emitter saturation voltage *	$V_{CE(sat)}$	I_C = -150 mA, I_B = -15 mA			-0.4	V
		I_C = -500 mA, I_B = -50 mA			-0.75	
Base-emitter saturation voltage *	$V_{BE(sat)}$	I_C = -150 mA, I_B = -15 mA	-0.75		-0.95	
		I_C = -500 mA, I_B = -50 mA			-1.3	
Current-gain-bandwidth product	f_T	I_C = -20 mA, V_{CE} = -10 V, f = 100 MHz	200			MHz
Collector-base capacitance	C_{Cb}	V_{CB} = -10 V, I_E = 0, f = 1.0 MHz			8.5	pF
Emitter-base capacitance	C_{eb}	V_{BE} = -0.5 V, I_C = 0, f = 1.0 MHz			30	pF
Input impedance	h_{ie}	I_C = -1.0 mA, V_{CE} = -10 V, f = 1.0 kHz	1.5		15	kΩ
Voltage feedback ratio	h_{re}	I_C = -1.0 mA, V_{CE} = -10 V, f = 1.0 kHz	0.1		8.0	X 10^{-4}
Small-signal current gain	h_{fe}	I_C = -1.0 mA, V_{CE} = -10 V, f = 1.0 kHz	60		500	
Output admittance	h_{oe}	I_C = -1.0 mA, V_{CE} = -10 V, f = 1.0 kHz	1.0		100	μmhos
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 ⩽ 300 μs, duty cycle ⩽ 2.0%.

■ Marking

Marking	2T