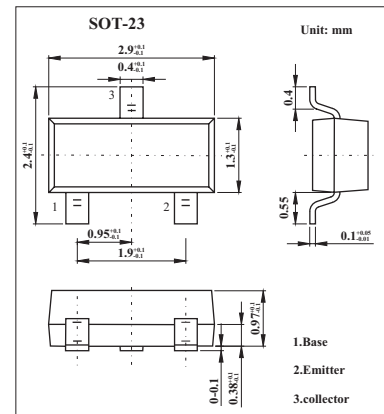


## High Voltage Transistors

## MMBTA42

## ■ Features

- NPN Silicon



## ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V <sub>CEO</sub>	300	V
Collector-base voltage	V <sub>CB0</sub>	300	V
Emitter-base voltage	V <sub>EB0</sub>	6	V
Collector current-continuous	I <sub>C</sub>	500	mA
Total device dissipation FR-5 board *1			
@TA = 25°C	P <sub>D</sub>	225	mW
Derate above 25°C		1.8	mW/°C
Thermal resistance, junction-to-ambient	R <sub>θJA</sub>	556	°C/W
Total device dissipation alumina substrate *2			
@TA = 25°C	P <sub>D</sub>	300	mW
derate above 25°C		2.4	mW/°C
Thermal resistance, junction-to-ambient	R <sub>θJA</sub>	417	°C/W
Junction and storage temperature	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C

\* 1. FR-5 = 1.0 X 0.75 X 0.062 in.

\* 2. Alumina = 0.4 X 0.3 X 0.024 in. 99.5% alumina.

## MMBTA42

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

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter breakdown voltage*	$V_{(BR)CEO}$	$I_C = 1.0\text{ mA}, I_B = 0$	300			V
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100\ \mu\text{A}, I_E = 0$	300			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 100\ \mu\text{A}, I_C = 0$	6			V
Collector cutoff current	$I_{CBO}$	$V_{CB} = 200\text{ V}, I_E = 0$			0.1	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 6.0\text{ V}, I_C = 0$			0.1	$\mu\text{A}$
DC current gain *	$h_{FE}$	$I_C = 1.0\text{ mA}, V_{CE} = 10\text{ V}$	25			
		$I_C = 10\text{ mA}, V_{CE} = 10\text{ V}$	40			
		$I_C = 30\text{ mA}, V_{CE} = 10\text{ V}$	40			
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 20\text{ mA}, I_B = 2.0\text{ mA}$			0.5	V
Base-emitter saturation voltage *	$V_{BE(sat)}$	$I_C = 20\text{ mA}, I_B = 2.0\text{ mA}$			0.9	V
Current-gain - bandwidth product	$f_T$	$I_C = 10\text{ mA}, V_{CE} = 20\text{ V}, f = 100\text{ MHz}$	50			MHz
Collector-base capacitance	$C_{cb}$	$V_{CB} = 20\text{ V}, I_E = 0, f = 1.0\text{ MHz}$			3	pF

\* Pulse Test: Pulse Width  $\leq 300\ \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

## ■ Marking

Marking	1D
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