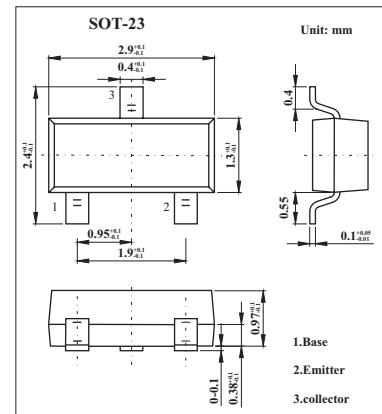


High Voltage Transistors

MMBTA93

■ Features

- PNP Silicon

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

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V_{CEO}	-200	V
Collector-base voltage	V_{CBO}	-200	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current-continuous	I_C	-500	mA
Total device dissipation FR-5 board *1	P_D	225	mW
@ $T_A = 25^\circ\text{C}$			
Derate above 25°C		1.8	mW/ $^\circ\text{C}$
Thermal resistance, junction-to-ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total device dissipation alumina substrate *2	P_D	300	mW
@ $T_A = 25^\circ\text{C}$			
derate above 25°C		2.4	mW/ $^\circ\text{C}$
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	$^\circ\text{C}$

* 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.

MMBTA93

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter breakdown voltage *	V _{(BR)CEO}	I _C = -1.0 mA, I _B = 0	-200			V
Collector-base breakdown voltage	V _{(BR)CBO}	I _C = -100 μA, I _E = 0	-200			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E = -100 μA, I _C = 0	-5			V
Collector cutoff current	I _{CBO}	V _{CB} = -160 V, I _E = 0			-0.25	μA
Emitter cutoff current	I _{EBO}	V _{EB} = -3.0 V, I _C = 0			-0.1	μA
DC current gain *	h _{FE}	I _C = -1.0 mA, V _{CE} = -10 V	25			
		I _C = -10 mA, V _{CE} = -10 V	40			
		I _C = -30 mA, V _{CE} = -10 V	25			
Collector-emitter saturation voltage *	V _{CE(sat)}	I _C = -20 mA, I _B = -2.0 mA			-0.5	V
Base-emitter saturation voltage *	V _{BE(sat)}	I _C = -20 mA, I _B = -2.0 mA			-0.9	V
Current-gain - bandwidth product	f _T	I _C = -10 mA, V _{CE} = -20 V, f = 100 MHz	50			MHz
Collector-base capacitance	C _{cb}	V _{CB} = -20 V, I _E = 0, f = 1.0 MHz			8	pF

* Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

■ Marking

Marking	2E
---------	----