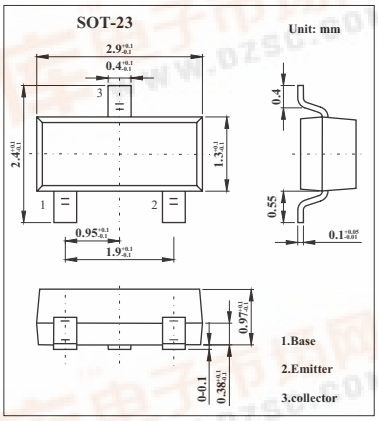
High Voltage Transistors

MMBTA93



■ Features

- PNP Silicon

■ Absolute Maximum Ratings Ta = 25℃

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			
@TA = 25℃	P_D	225	mW
Derate above 25℃		1.8	mW/℃
Thermal resistance, junction-to-ambient	$R_{\theta JA}$	556	℃/W
Total device dissipation alumina substrate *2			
@TA = 25℃	P_D	300	mW
derate above 25℃		2.4	mW/℃
Thermal resistance, junction-to-ambient	$R_{\theta JA}$	417	℃/W
Junction and storage temperature	T_J, T_{stg}	-55 to +150	℃

* 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℃

Parameter	Symbol	Testconditons	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