

High Voltage Transistor

MMBT6520

■ Features

- PNP Silicon
- High Voltage Transistor

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

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V_{CE0}	-350	V
Collector-base voltage	V_{CBO}	-350	V
Emitter-base voltage	V_{EBO}	-5	V
Base current	I_B	-250	
Collector current-continuous	I_C	-500	mA
Total device dissipation FR-5 board *1 @ $T_A = 25^\circ\text{C}$ derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal resistance, junction-to-ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total device dissipation alumina substrate *2 @ $T_A = 25^\circ\text{C}$ derate above 25°C	P_D	300 2.4	mW 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.

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter breakdown voltage	$V_{(BR)CE0}$	$I_C = -1\text{ mA}, I_B = 0$	-350			V
Collector-base breakdown voltage	$V_{(BR)CB0}$	$I_C = -100\text{ }\mu\text{A}, I_E = 0$	-350			
Emitter-base breakdown voltage	$V_{(BR)EB0}$	$I_E = -10\text{ }\mu\text{A}, I_C = 0$	-5			
Collector cutoff current	I_{CEO}	$V_{CB} = -250\text{ V}, I_B = 0$			-50	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = -4\text{ V}, I_C$			-50	nA
DC current gain	hFE	$I_C = -1.0\text{ mA}, V_{CE} = -10\text{ V}$	20			
		$I_C = -10\text{ mA}, V_{CE} = -10\text{ V}$	30			
		$I_C = -30\text{ mA}, V_{CE} = -10\text{ V}$	30		200	
		$I_C = -50\text{ mA}, V_{CE} = -10\text{ V}$	20		200	
		$I_C = -100\text{ mA}, V_{CE} = -10\text{ V}$	15			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{ mA}, I_B = -1\text{ mA}$			-0.3	V
		$I_C = -20\text{ mA}, I_B = -2\text{ mA}$			-0.35	V
		$I_C = -30\text{ mA}, I_B = -3\text{ mA}$			-0.5	V
		$I_C = -50\text{ mA}, I_B = -5\text{ mA}$			-1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -10\text{ mA}, I_B = -1\text{ mA}$			-0.75	V
		$I_C = -20\text{ mA}, I_B = -2\text{ mA}$			-0.85	V
		$I_C = -30\text{ mA}, I_B = -3\text{ mA}$			-0.9	V
Base-emitter on voltage	$V_{BE(on)}$	$I_C = -100\text{ mA}, V_{CE} = -10\text{ V}$			-2	V
Transition frequency	f_T	$I_C = -10\text{ mA}, V_{CE} = -20\text{ V}, f = 20\text{ MHz}$	40		200	MHz
Collector-base capacitance	C_{cb}	$V_{CB} = -20\text{ V}, f = 1\text{ MHz}$			6	pF
Emitter-base capacitance	C_{eb}	$V_{EB} = -0.5\text{ V}, f = 1\text{ MHz}$			100	pF

■ Marking

Marking	2Z
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