

# MMBT6520

CASE 318-02/03, STYLE 6  
SOT-23 (TO-236AA/AB)

HIGH VOLTAGE TRANSISTOR

PNP SILICON

Refer to 2N6520 for graphs.

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	350	Vdc
Collector-Base Voltage	$V_{CBO}$	350	Vdc
Emitter-Base Voltage	$V_{EBO}$	5.0	Vdc
Base Current	$I_B$	250	mA
Collector Current — Continuous	$I_C$	500	mA

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
*Total Device Dissipation, $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	350 2.8	mW mW/ $^\circ\text{C}$
Storage Temperature	$T_{stg}$	150	$^\circ\text{C}$
*Thermal Resistance Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$

\*Package mounted on 99.5% alumina 10 x 8 x 0.6 mm.

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
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### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ( $I_C = 1.0\text{ mA}$ )	$V_{(BR)CEO}$	350	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 100\ \mu\text{A}$ )	$V_{(BR)CBO}$	350	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10\ \mu\text{A}$ )	$V_{(BR)EBO}$	5.0	—	Vdc
Collector Cutoff Current ( $V_{CB} = 250\text{ V}$ )	$I_{CBO}$	—	50	nA
Emitter Cutoff Current ( $V_{EB} = 4.0\text{ V}$ )	$I_{EBO}$	—	50	nA

### ON CHARACTERISTICS

DC Current Gain ( $I_C = 1.0\text{ mA}$ , $V_{CE} = 10\text{ V}$ ) ( $I_C = 10\text{ mA}$ , $V_{CE} = 10\text{ V}$ ) ( $I_C = 30\text{ mA}$ , $V_{CE} = 10\text{ V}$ ) ( $I_C = 50\text{ mA}$ , $V_{CE} = 10\text{ V}$ ) ( $I_C = 100\text{ mA}$ , $V_{CE} = 10\text{ V}$ )	$h_{FE}$	20 30 30 20 15	— — 200 100 —	—
Collector-Emitter Saturation Voltage ( $I_C = 10\text{ mA}$ , $I_B = 1.0\text{ mA}$ ) ( $I_C = 20\text{ mA}$ , $I_B = 2.0\text{ mA}$ ) ( $I_C = 30\text{ mA}$ , $I_B = 3.0\text{ mA}$ ) ( $I_C = 50\text{ mA}$ , $I_B = 5.0\text{ mA}$ )	$V_{CE(sat)}$	— — — —	0.30 0.35 0.50 1.0	Vdc
Base-Emitter Saturation Voltage ( $I_C = 10\text{ mA}$ , $I_B = 1.0\text{ mA}$ ) ( $I_C = 20\text{ mA}$ , $I_B = 2.0\text{ mA}$ ) ( $I_C = 30\text{ mA}$ , $I_B = 3.0\text{ mA}$ )	$V_{BE(sat)}$	— — —	0.75 0.85 0.90	Vdc
Base-Emitter On Voltage ( $I_C = 100\text{ mA}$ , $V_{CE} = 10\text{ V}$ )	$V_{BE(on)}$			Vdc

### SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product ( $I_C = 10\text{ mA}$ , $V_{CE} = 20\text{ V}$ , $f = 20\text{ MHz}$ )	$f_T$	40	200	MHz
Collector-Base Capacitance ( $V_{CB} = 20\text{ V}$ , $f = 1.0\text{ MHz}$ )	$C_{cb}$	—	6.0	pF
Emitter-Base Capacitance ( $V_{EB} = 0.5\text{ V}$ , $f = 1.0\text{ MHz}$ )	$C_{eb}$	—	100	pF