

**MMBT5550**

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

**HIGH VOLTAGE TRANSISTOR**

**NPN SILICON**

Refer to 2N5550 for graphs.

**MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	140	Vdc
Collector-Base Voltage	$V_{CBO}$	160	Vdc
Emitter-Base Voltage	$V_{EBO}$	6.0	Vdc
Collector Current — Continuous	$I_C$	600	mAdc

**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
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage ( $I_C = 1.0 \text{ mAdc}$ , $I_B = 0$ )	$V_{(BR)CEO}$	140	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 10 \mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)CBO}$	160	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10 \mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	6.0	—	Vdc
Collector Cutoff Current ( $V_{CB} = 100 \text{ Vdc}$ , $I_E = 0$ ) ( $V_{CB} = 100 \text{ Vdc}$ , $I_E = 0$ , $T_A = 100^\circ\text{C}$ )	$I_{CBO}$	— —	100 100	nAdc $\mu\text{Adc}$
Emitter Cutoff Current ( $V_{EB} = 4.0 \text{ Vdc}$ , $I_C = 0$ )	$I_{EBO}$	—	50	nAdc
<b>ON CHARACTERISTICS</b>				
DC Current Gain ( $I_C = 1.0 \text{ mAdc}$ , $V_{CE} = 5.0 \text{ Vdc}$ ) ( $I_C = 10 \text{ mAdc}$ , $V_{CE} = 5.0 \text{ Vdc}$ ) ( $I_C = 50 \text{ mAdc}$ , $V_{CE} = 5.0 \text{ Vdc}$ )	$h_{FE}$	60 60 20	— 250 —	—
Collector-Emitter Saturation Voltage ( $I_C = 10 \text{ mAdc}$ , $I_B = 1.0 \text{ mAdc}$ ) ( $I_C = 50 \text{ mAdc}$ , $I_B = 5.0 \text{ mAdc}$ )	$V_{CE(sat)}$	— —	0.15 0.25	Vdc
Base-Emitter Saturation Voltage ( $I_C = 10 \text{ mAdc}$ , $I_B = 1.0 \text{ mAdc}$ ) ( $I_C = 50 \text{ mAdc}$ , $I_B = 5.0 \text{ mAdc}$ )	$V_{BE(sat)}$	— —	1.0 1.2	Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>				
Current-Gain — Bandwidth Product ( $I_C = 10 \text{ mAdc}$ , $V_{CE} = 10 \text{ Vdc}$ , $f = 100 \text{ MHz}$ )	$f_T$	100	300	MHz
Output Capacitance ( $V_{CB} = 10 \text{ Vdc}$ , $I_E = 0$ , $f = 1.0 \text{ MHz}$ )	$C_{obo}$	—	6.0	pF
Input Capacitance ( $V_{BE} = 0.5 \text{ Vdc}$ , $I_C = 0$ , $f = 1.0 \text{ MHz}$ )	$C_{ibo}$	—	30	pF