

# MMBTA63 MMBTA64

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

DARLINGTON TRANSISTOR

PNP SILICON

Refer to MPSA75 for graphs.

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CES}$	30	Vdc
Collector-Base Voltage	$V_{CBO}$	30	Vdc
Emitter-Base Voltage	$V_{EBO}$	10	Vdc
Collector Current — Continuous	$I_C$	500	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/°C
Storage Temperature	$T_{stg}$	150	°C
*Thermal Resistance Junction to Ambient	$R_{\theta JA}$	357	°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 ( $I_C = 100 \mu\text{Adc}$ )	$V_{(BR)CES}$	30	—	Vdc
Collector Cutoff Current ( $V_{CB} = 30 \text{ Vdc}$ )	$I_{CBO}$	—	100	nAdc
Emitter Cutoff Current ( $V_{BE} = 10 \text{ Vdc}$ )	$I_{EBO}$	—	100	nAdc
<b>ON CHARACTERISTICS</b>				
DC Current Gain(1) ( $I_C = 10 \text{ mAdc}$ , $V_{CE} = 5.0 \text{ Vdc}$ ) ( $I_C = 10 \text{ mAdc}$ , $V_{CE} = 5.0 \text{ Vdc}$ ) ( $I_C = 100 \text{ mAdc}$ , $V_{CE} = 5.0 \text{ Vdc}$ ) ( $I_C = 1000 \text{ mAdc}$ , $V_{CE} = 5.0 \text{ Vdc}$ )	MMBTA63 MMBTA64 MMBTA63 MMBTA64	$h_{FE}$	5,000 10,000 10,000 20,000	— — — —
Collector-Emitter Saturation Voltage ( $I_C = 100 \text{ mAdc}$ , $I_B = 0.1 \text{ mAdc}$ )	$V_{CE(sat)}$	—	1.5	Vdc
Base-Emitter On Voltage ( $I_C = 100 \text{ mAdc}$ , $V_{CE} = 5.0 \text{ Vdc}$ )	$V_{BE(on)}$	—	2.0	Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>				
Current-Gain — Bandwidth Product ( $I_C = 10 \text{ mAdc}$ , $V_{CE} = 50 \text{ Vdc}$ , $f = 100 \text{ MHz}$ )	$f_T$	125	—	MHz

(1) Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .