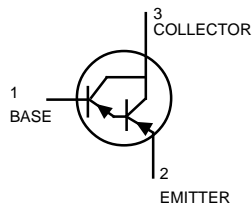


Darlington Transistors

PNP Silicon

MMBTA63LT1
MMBTA64LT1



CASE 318-08, STYLE 6
SOT-23 (TO-236AB)

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 FR-5 Board, (1) $T_A = 25^\circ\text{C}$	P_D	225	mW
Derate above 25°C		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (2) $T_A = 25^\circ\text{C}$	P_D	300	mW
Derate above 25°C		2.4	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	$^\circ\text{C}$

DEVICE MARKING

MMBTA63LT1 = 2U MMBTA64LT1 = 2V

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 ($I_C = -100 \mu\text{Adc}$)	$V_{(BR)CEO}$	-30	—	Vdc
Collector Cutoff Current ($V_{CB} = -30\text{Vdc}$)	I_{CBO}	—	-100	nAdc
Emitter Cutoff Current ($V_{EB} = -10\text{Vdc}$)	I_{EBO}	—	-100	nAdc

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.

MMBTA63LT1 MMBTA64LT1

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Gain(3)	h_{FE}			—
(I _C = -10 mA, V _{CE} = -5.0 Vdc)	MMBTA63	5,000	—	
(I _C = -10 mA, V _{CE} = -5.0 Vdc)	MMBTA64	10,000	—	
(I _C = -100 mA, V _{CE} = -5.0 Vdc)	MMBTA63	10,000	—	
(I _C = -100 mA, V _{CE} = -5.0 Vdc)	MMBTA64	20,000	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	-1.5	Vdc
(I _C = -100 mA, I _B = -0.1 mA)				
Base-Emitter On Voltage	$V_{BE(on)}$	—	-2.0	Vdc
(I _C = -100 mA, V _{CE} = -5.0 Vdc)				
SMALL-SIGNAL CHARACTERISTICS				
Current - Gain-Bandwidth Product(4)	f_T	125	—	MHz
(V _{CE} = -5.0 Vdc, I _C = -10 mA, f = 100 MHz)				

3. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

MMBTA63LT1 MMBTA64LT1

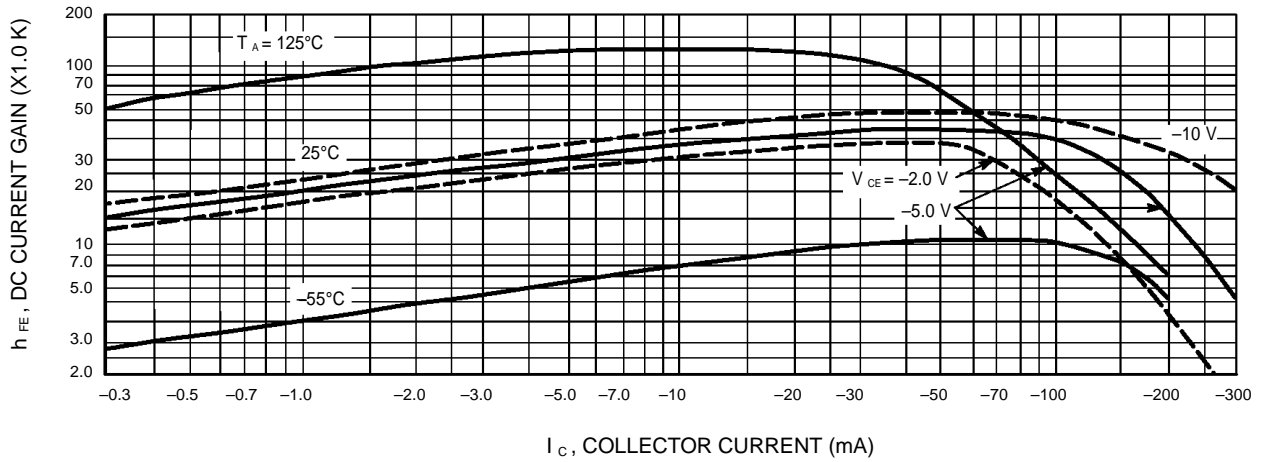


Figure 1. DC Current Gain

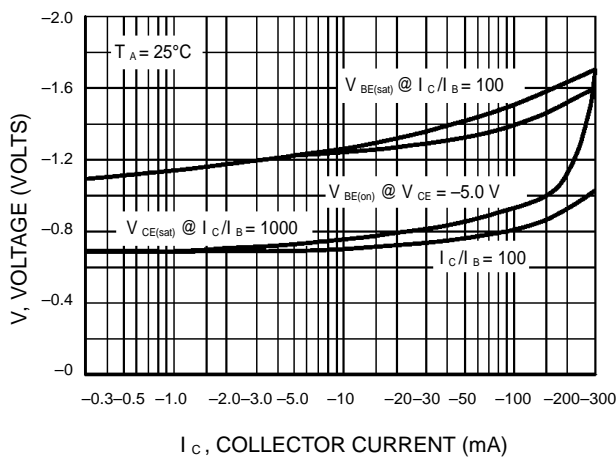


Figure 2. "On" Voltage

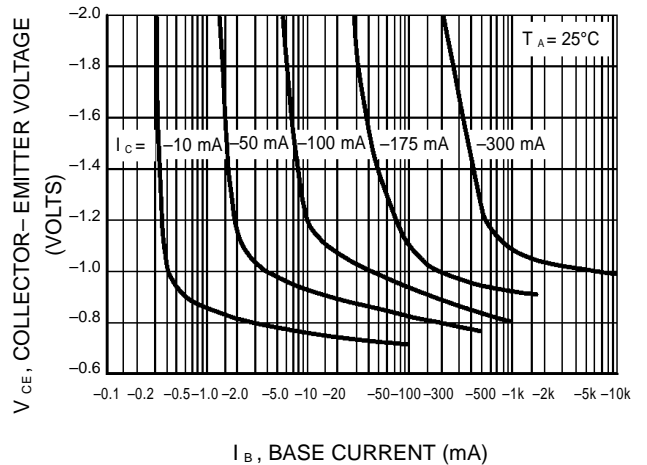


Figure 3. Collector Saturation Region

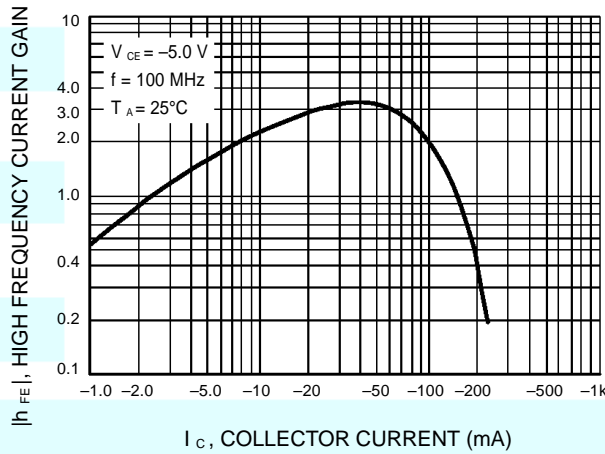


Figure 4. High Frequency Current Gain