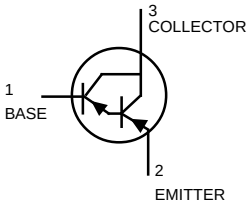
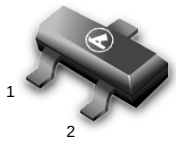
Darlington Transistors

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°C	P_D	225	mW
Derate above 25°C		1.8	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, (2) T_A = 25°C	P_D	300	mW
Derate above 25°C		2.4	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J , T_{stg}	–55 to +150	°C

DEVICE MARKING

MMBTA63LT1 = 2U MMBTA64LT1 = 2V

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector–Emitter Breakdown Voltage (I_C = –100 µAdc,)	$V_{(BR)CEO}$	–30	—	Vdc
Collector Cutoff Current (V_{CB} = –30Vdc)	I_{CBO}	—	–100	nAdc
Emitter Cutoff Current (V_{EB} = –10Vdc)	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 mAdc, V_{CE} = –5.0 Vdc)	MMBTA63		5,000	—	
(I_C = –10 mAdc, V_{CE} = –5.0 Vdc)	MMBTA64		10,000	—	
(I_C = –100mAdc, V_{CE} = –5.0Vdc)	MMBTA63		10,000	—	
(I_C = –100mAdc, V_{CE} = –5.0Vdc)	MMBTA64		20,000	—	
Collector–Emitter Saturation Voltage (I_C = –100 mAdc, I_B = –0.1 mAdc)		$V_{CE(sat)}$	—	–1.5	Vdc
Base–Emitter On Voltage (I_C = –100mAdc, V_{CE} = –5.0Vdc)		$V_{BE(on)}$	—	–2.0	Vdc
SMALL–SIGNAL CHARACTERISTICS					
Current – Gain–Bandwidth Product(4) (V_{CE} = –5.0 Vdc, I_C = –10mAdc, f = 100 MHz)		f_T	125	—	MHz

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

MMBTA63LT1 MMBTA64LT1

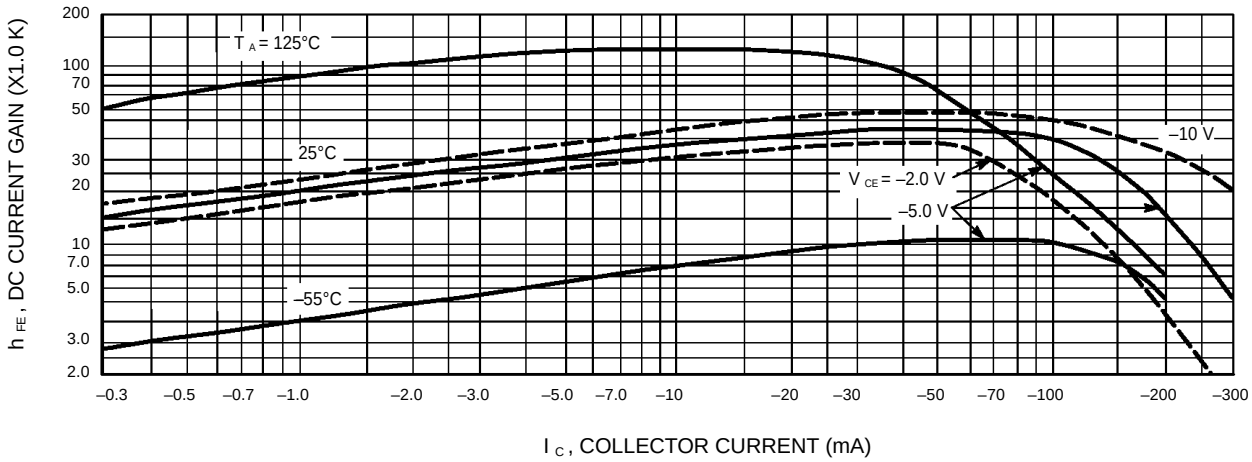


Figure 1. DC Current Gain

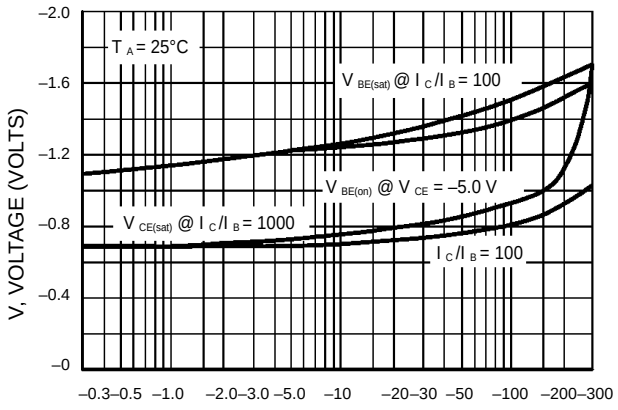


Figure 2. “On” Voltage

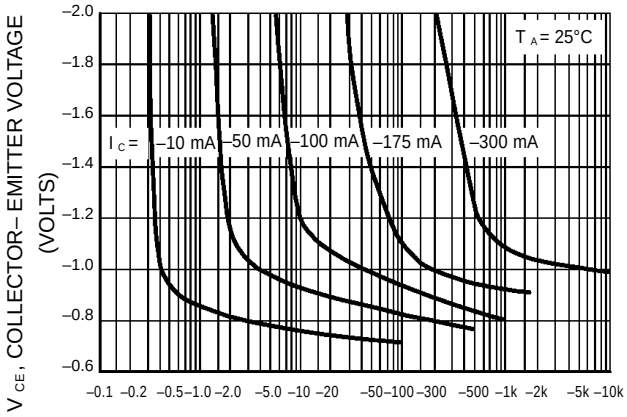


Figure 3. Collector Saturation Region

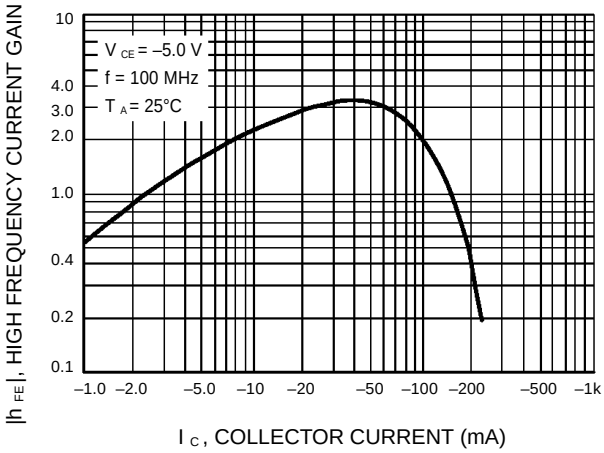


Figure 4. High Frequency Current Gain