

# Driver Transistors

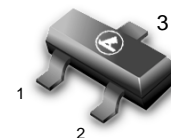
**LMBTA05LT1**  
**LMBTA06LT1**

## FEATURES

- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish

## MAXIMUM RATINGS

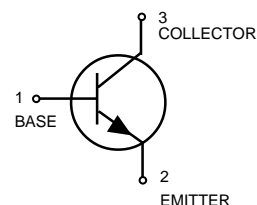
Rating	Symbol	Value		Unit
		LMBTA05	LMBTA06	
Collector-Emitter Voltage	$V_{CEO}$	60	80	Vdc
Collector-Base Voltage	$V_{CBO}$	60	80	Vdc
Emitter-Base Voltage	$V_{EBO}$	4.0		Vdc
Collector Current — Continuous	$I_C$	500		mAdc



**SOT-23**

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



## DEVICE MARKING

LMBTA05LT1 = 1H, LMBTA06LT1 = 1GM

## 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(3) ( $I_C = 1.0 \text{ mAdc}$ , $I_B = 0$ )	$V_{(BR)CEO}$	60	—	Vdc
	LMBTA05	60	—	
	LMBTA06	80	—	
Emitter-Base Breakdown Voltage ( $I_E = 100 \mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	4.0	—	Vdc
Collector Cutoff Current ( $V_{CE} = 60 \text{ Vdc}$ , $I_B = 0$ )	$I_{CES}$	—	0.1	$\mu\text{Adc}$
Emitter Cutoff Current ( $V_{CB} = 60 \text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	—	0.1	$\mu\text{Adc}$
	LMBTA05	—	0.1	
	LMBTA06	—	0.1	

1. FR-5 =  $1.0 \times 0.75 \times 0.062 \text{ in.}$

2. Alumina =  $0.4 \times 0.3 \times 0.024 \text{ in.}$  99.5% alumina.

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

## LMBTA05LT1 LMBTA06LT1

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

Characteristic	Symbol	Min	Max	Unit
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#### ON CHARACTERISTICS

DC Current Gain ( $I_C = 10\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ ) ( $I_C = 100\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$h_{FE}$	100 100	— —	—
Collector-Emitter Saturation Voltage ( $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$ )	$V_{CE(sat)}$	—	0.25	Vdc
Base-Emitter On Voltage ( $I_C = 100\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$V_{BE(sat)}$	—	1.2	Vdc

#### SMALL-SIGNAL CHARACTERISTICS

Current –Gain – Bandwidth Product(4) ( $V_{CE} = 2.0\text{ V}$ , $I_C = 10\text{ mA}$ , $f = 100\text{ MHz}$ )	$f_T$	100	—	MHz
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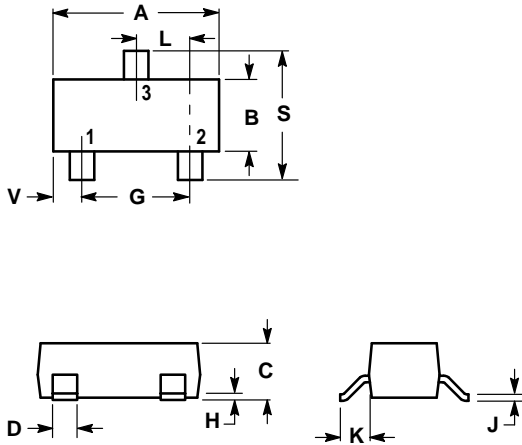
4.  $f_T$  is defined as the frequency at which  $|h_{fe}|$  extrapolates to unity.

#### ORDERING INFORMATION

Device	Package	Shipping
LMBTA05LT1	SOT-23	3000/Tape & Reel
LMBTA05LT1G	SOT-23	3000/Tape & Reel
LMBTA06LT1	SOT-23	3000/Tape & Reel
LMBTA06LT1G	SOT-23	3000/Tape & Reel

LMBTA05LT1 LMBTA06LT1

SOT-23



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

- PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

