

Driver Transistors

PNP Silicon

We declare that the material of product compliance with RoHS requirements.

S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

LMBTA55WT1G
LMBTA56WT1G
S-LMBTA55WT1G
S-LMBTA56WT1G

MAXIMUM RATINGS

Rating	Symbol	Value		Unit
		LMBTA55	LMBTA56	
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

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (1) $T_A = 25^\circ\text{C}$	P_D	150	mW
Derate above 25°C		1.2	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate, (2) $T_A = 25^\circ\text{C}$	P_D	200	mW
Derate above 25°C		1.6	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

DEVICE MARKING

(S-)LMBTA55WT1G = 2H; (S-)LMBTA56WT1G = 2GM

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

Characteristic	Symbol	Min	Max	Unit
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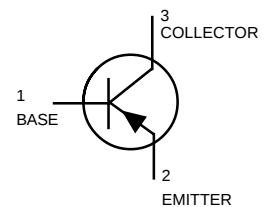
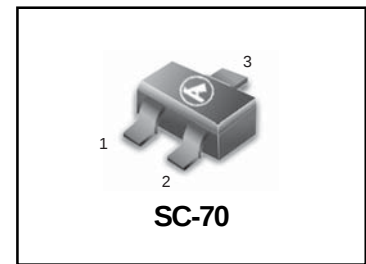
OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (3) ($I_C = -1.0 \text{ mAdc}, I_E = 0$)	$V_{(BR)CEO}$			Vdc
	LMBTA55	-60	—	
	LMBTA56	-80	—	
Emitter-Base Breakdown Voltage ($I_E = -100 \mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	-4.0	—	Vdc
Collector Cutoff Current ($V_{CE} = -60\text{Vdc}, I_E = 0$)	I_{CES}	—	-0.1	μAdc
Collector Cutoff Current ($V_{CB} = -60\text{Vdc}, I_E = 0$)	I_{CBO}	—	-0.1	μAdc
	LMBTA55	—	-0.1	
	LMBTA56	—	-0.1	

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

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

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



LMBTA55WT1G LMBTA56WT1G
S-LMBTA55WT1G S-LMBTA56WT1G

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

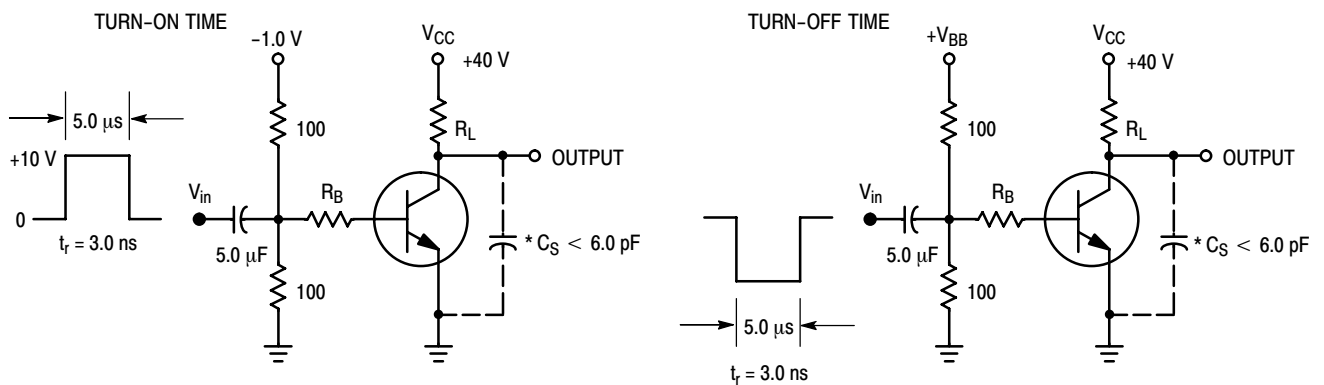
SMALL-SIGNAL CHARACTERISTICS

Current -Gain-Bandwidth Product(4) ($V_{CE} = -1.0\text{ Vdc}$, $I_C = -100\text{ mAdc}$, $f = 100\text{ MHz}$)	f_T	50	—	MHz
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4. f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

ORDERING INFORMATION

Device	Marking	Shipping
(S-)LMBTA55WT1G	2H	3000/Tape & Reel
(S-)LMBTA56WT1G	2GM	3000/Tape & Reel
(S-)LMBTA55WT3G	2H	10000/Tape & Reel
(S-)LMBTA56WT3G	2GM	10000/Tape & Reel

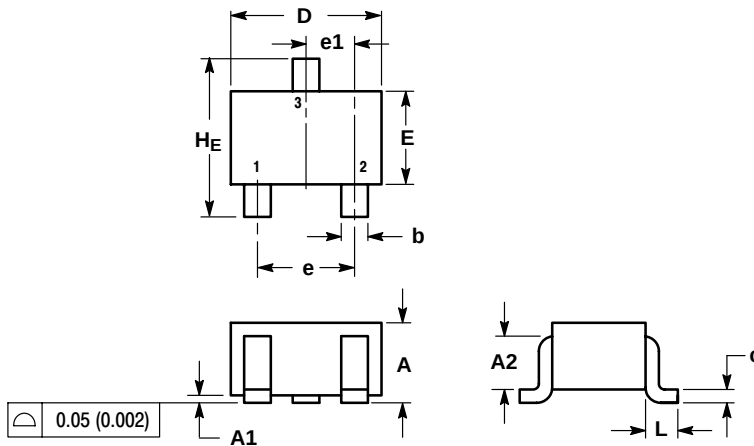


*Total Shunt Capacitance of Test Jig and Connectors For PNP Test Circuits, Reverse All Voltage Polarities

Figure 1. Switching Time Test Circuits

LMBTA55WT1G LMBTA56WT1G
S-LMBTA55WT1G S-LMBTA56WT1G

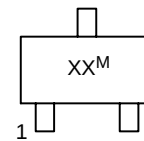
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NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.7 REF			0.028 REF		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1	0.65 BSC			0.026 BSC		
L	0.425 REF			0.017 REF		
H	2.00	2.10	2.40	0.079	0.083	0.095

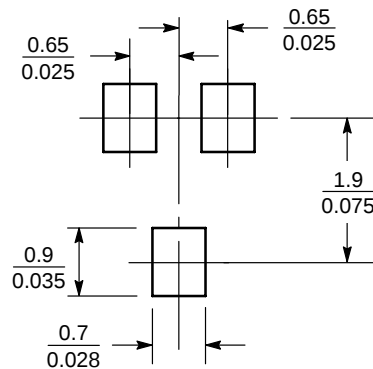
**GENERIC
MARKING DIAGRAM**



XX = Specific Device Code
 M = Date Code
 ■ = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "■", may or may not be present.

SOLDERING FOOTPRINT*



SCALE 10:1 (mm/inches)