

# Driver Transistors

## PNP Silicon

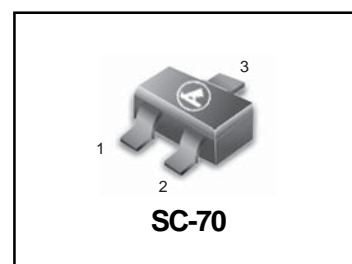
We declare that the material of product compliance with RoHS requirements.

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**

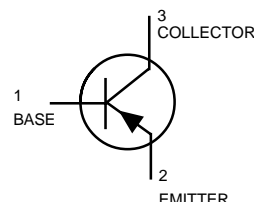
### MAXIMUM RATINGS

Rating	Symbol	Value		Unit
		LMBTA55	LMBTA56	
Collector–Emitter Voltage	$V_{CE0}$	-60	-80	Vdc
Collector–Base Voltage	$V_{CB0}$	-60	-80	Vdc
Emitter–Base Voltage	$V_{EB0}$	-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 $25^\circ\text{C}$		1.2	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (2) $T_A = 25^\circ\text{C}$	$P_D$	200	mW
Derate above $25^\circ\text{C}$		1.6	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
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) ( $I_C = -1.0 \text{ mAdc}, I_B = 0$ )	$V_{(BR)CE0}$			Vdc
	LMBTA55	-60	—	
	LMBTA56	-80	—	
Emitter–Base Breakdown Voltage ( $I_E = -100 \mu\text{Adc}, I_C = 0$ )	$V_{(BR)EB0}$	-4.0	—	Vdc
Collector Cutoff Current ( $V_{CE} = -60\text{Vdc}, I_B = 0$ )	$I_{CES}$	—	-0.1	$\mu\text{Adc}$
Collector Cutoff Current ( $V_{CB} = -60\text{Vdc}, I_E = 0$ )	$I_{CBO}$	—	-0.1	$\mu\text{Adc}$
	LMBTA55	—	-0.1	
	LMBTA56	—	-0.1	

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.

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	—	—
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

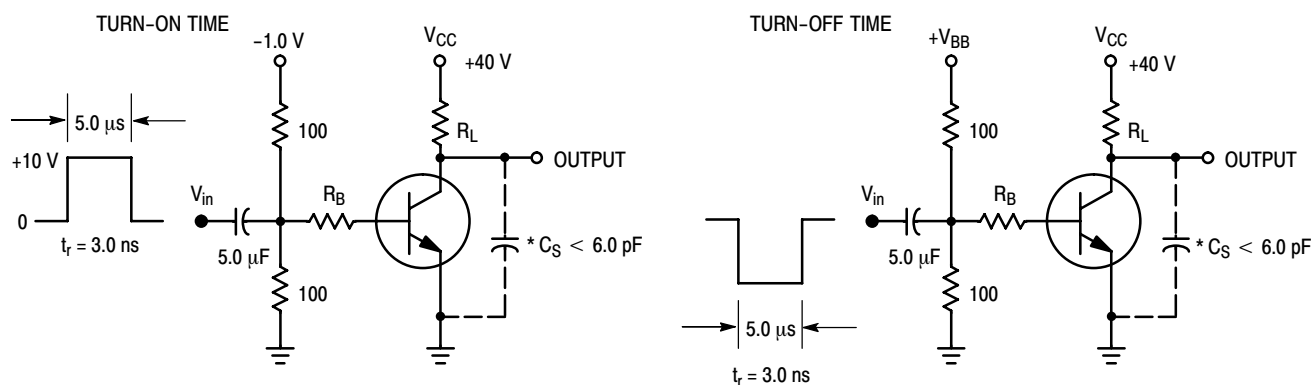
**SMALL-SIGNAL CHARACTERISTICS**

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

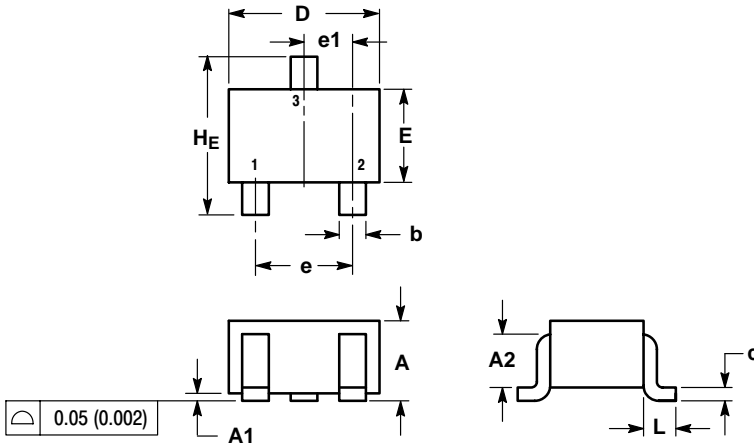


\*Total Shunt Capacitance of Test Jig and Connectors For PNP Test Circuits, Reverse All Voltage Polarities

**Figure 1. Switching Time Test Circuits**

**LMBTA55WT1G LMBTA56WT1G  
S-LMBTA55WT1G S-LMBTA56WT1G**

**SC-70**

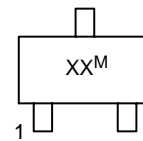


NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

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		
HE	2.00	2.10	2.40	0.079	0.083	0.095

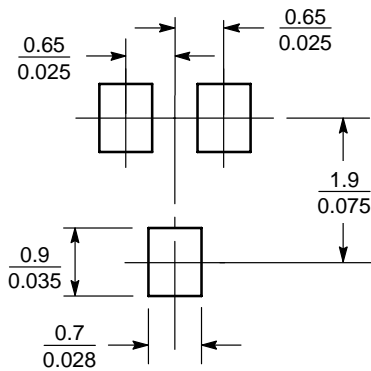
0.05 (0.002)

**GENERIC MARKING DIAGRAM**



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

**SOLDERING FOOTPRINT\***



SCALE 10:1 (mm/inches)

\*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.