

High Voltage Transistor

PNP Silicon

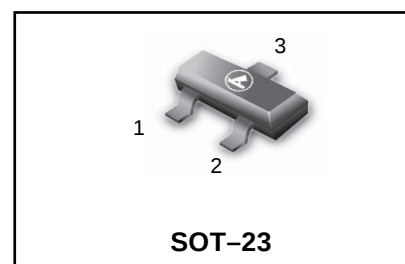
FEATURE

- High voltage.
- For Telephony or Professional communication equipment applications.
- 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.

LMBTA92LT1G
LMBTA93LT1G
S-LMBTA92LT1G
S-LMBTA93LT1G

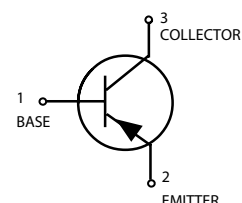
DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
(S-)LMBTA92LT1G	2D	3000/Tape&Reel
(S-)LMBTA92LT3G	2D	10000/Tape&Reel
(S-)LMBTA93LT1G	2E	3000/Tape&Reel
(S-)LMBTA93LT3G	2E	10000/Tape&Reel



MAXIMUM RATINGS

Rating	Symbol	Value		Unit
		LMBTA92	LMBTA93	
Collector-Emitter Voltage	V_{CEO}	-300	-200	Vdc
Collector-Base Voltage	V_{CBO}	-300	-200	Vdc
Emitter-Base Voltage	V_{EBO}	-5.0		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	225	mW
Derate above 25°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°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	$^\circ\text{C}$

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 $\leq 2.0\%$.

LMBTA92LT1G LMBTA93LT1G
S-LMBTA92LT1G S-LMBTA93LT1G

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

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage(3) ($I_C = -1.0\text{ mA}$, $I_B = 0$)	LMBTA92	-300	—	Vdc
	LMBTA93	-200	—	
Collector–Emitter Breakdown Voltage ($I_C = -100\text{ }\mu\text{A}$, $I_E = 0$)	LMBTA92	-300	—	Vdc
	LMBTA93	-200	—	
Emitter–Base Breakdown Voltage ($I_E = -100\text{ }\mu\text{A}$, $I_C = 0$)		-5.0	—	Vdc
Collector Cutoff Current ($V_{CB} = -200\text{ Vdc}$, $I_E = 0$)		—	-0.1	μA
($V_{CB} = -300\text{ Vdc}$, $I_E = 0$)		—	-100	
Collector Cutoff Current ($V_{EB} = -6.0\text{ Vdc}$, $I_C = 0$)		—	-0.05	μA
($V_{EB} = -5.0\text{ Vdc}$, $I_C = 0$)		—	-100	μA

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

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

ON CHARACTERISTICS (3)

DC Current Gain ($I_C = -1.0\text{ mA}$, $V_{CE} = -10\text{ Vdc}$)	Both Types	25	—	—
($I_C = -10\text{ mA}$, $V_{CE} = -10\text{ Vdc}$)	Both Types	40	—	
($I_C = -30\text{ mA}$, $V_{CE} = -10\text{ Vdc}$)	LMBTA92	25	—	
	LMBTA93	25	—	
Collector–Emitter Saturation Voltage ($I_C = -20\text{ mA}$, $I_B = -2.0\text{ mA}$)	LMBTA92	—	-0.5	Vdc
	LMBTA93	—	-0.5	
Base–Emitter Saturation Voltage ($I_C = -20\text{ mA}$, $I_B = -2.0\text{ mA}$)		—	-0.9	Vdc

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product(3),(4) ($I_C = -10\text{ mA}$, $V_{CE} = -20\text{ Vdc}$, $f = 100\text{ MHz}$)		f_T	50	—	MHz
Collector – Base Capacitance ($V_{CB} = -20\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	LMBTA92		—	6.0	pF
	LMBTA93		—	8.0	

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

LMBTA92LT1G LMBTA93LT1G
S-LMBTA92LT1G S-LMBTA93LT1G

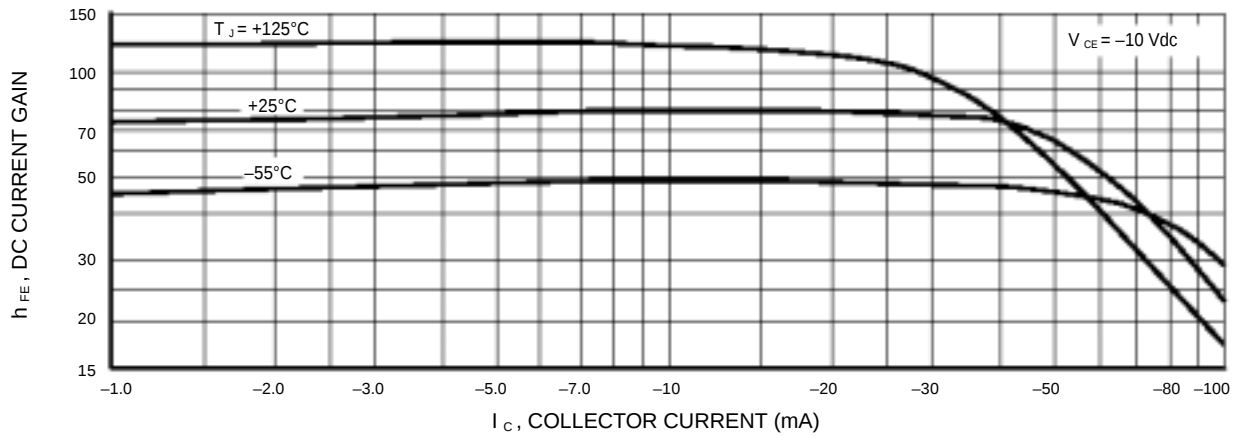


Figure 1. DC Current Gain

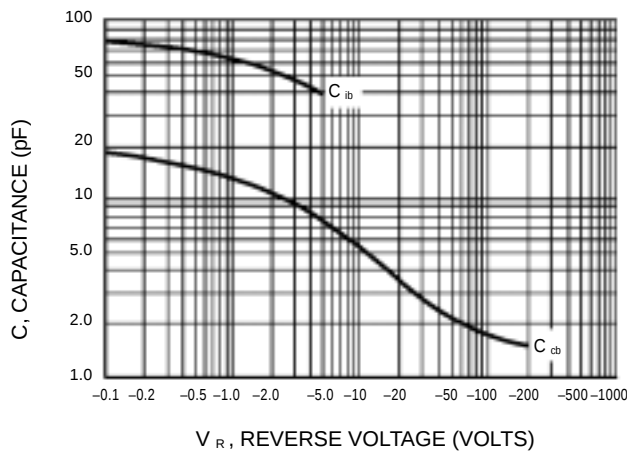


Figure 2. Capacitances

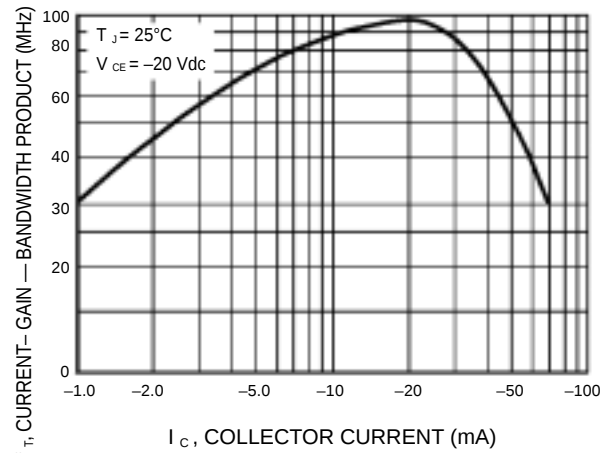


Figure 3. Current-Gain — Bandwidth Product

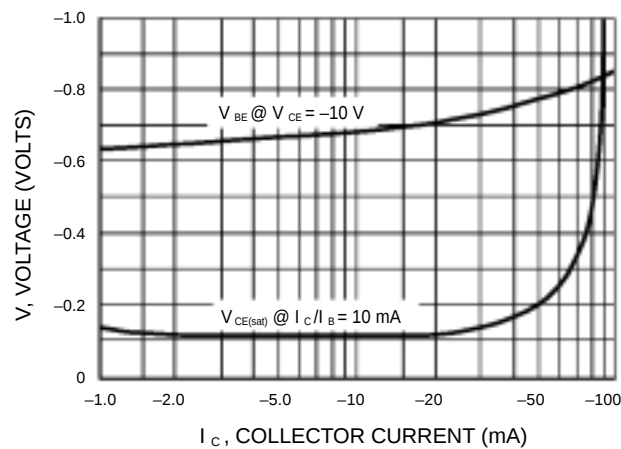
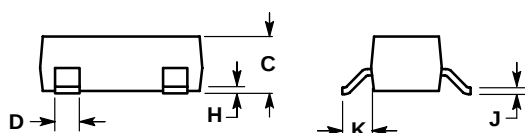
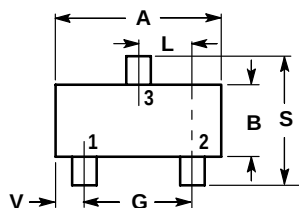


Figure 4. "On" Voltages

LMBTA92LT1G LMBTA93LT1G
S-LMBTA92LT1G S-LMBTA93LT1G

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

