

MMBTA92LT1

Preferred Device

High Voltage Transistor

PNP Silicon

Features

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

MAXIMUM RATINGS

Rating	Symbol	MMBTA92	Unit
Collector–Emitter Voltage	V_{CEO}	–300	Vdc
Collector–Base Voltage	V_{CBO}	–300	Vdc
Emitter–Base Voltage	V_{EBO}	–5.0	Vdc
Collector Current – Continuous	I_C	–500	mAdc

THERMAL CHARACTERISTICS

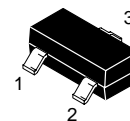
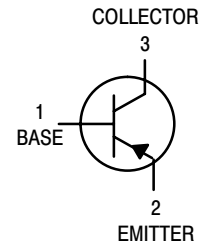
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR–5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{stg}	–55 to +150	$^\circ\text{C}$

- FR–5 = 1.0 x 0.75 x 0.062 in.
- Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.



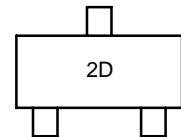
ON Semiconductor®

<http://onsemi.com>



SOT–23 (TO–236AF)
CASE 318
Style 6

MARKING DIAGRAM



2D = Specific Device Code

ORDERING INFORMATION

Device	Package	Shipping†
MMBTA92LT1	SOT–23	3000 / Tape & Reel
MMBTA92LT1G	SOT–23	3000 / Tape & Reel
MMBTA92LT3	SOT–23	10000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

Preferred devices are recommended choices for future use and best overall value.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector–Emitter Breakdown Voltage (Note 3) (I _C = -1.0 mA _{dc} , I _B = 0)	V _{(BR)CEO}	-300	-	V _{dc}
Collector–Base Breakdown Voltage (I _C = -100 μA _{dc} , I _E = 0)	V _{(BR)CBO}	-300	-	V _{dc}
Emitter–Base Breakdown Voltage (I _E = -100 μA _{dc} , I _C = 0)	V _{(BR)EBO}	-5.0	-	V _{dc}
Collector Cutoff Current (V _{CB} = -200 V _{dc} , I _E = 0)	I _{CBO}	-	-0.25	μA _{dc}
Emitter Cutoff Current (V _{EB} = -3.0 V _{dc} , I _C = 0)	I _{EBO}	-	-0.1	μA _{dc}
ON CHARACTERISTICS (Note 3)				
DC Current Gain (I _C = -1.0 mA _{dc} , V _{CE} = -10 V _{dc}) (I _C = -10 mA _{dc} , V _{CE} = -10 V _{dc}) (I _C = -30 mA _{dc} , V _{CE} = -10 V _{dc})	h _{FE}	25 40 25	- - -	-
Collector–Emitter Saturation Voltage (I _C = -20 mA _{dc} , I _B = -2.0 mA _{dc})	V _{CE(sat)}	-	-0.5	V _{dc}
Base–Emitter Saturation Voltage (I _C = -20 mA _{dc} , I _B = -2.0 mA _{dc})	V _{BE(sat)}	-	-0.9	V _{dc}
SMALL–SIGNAL CHARACTERISTICS				
Current–Gain – Bandwidth Product (I _C = -10 mA _{dc} , V _{CE} = -20 V _{dc} , f = 100 MHz)	f _T	50	-	MHz
Collector–Base Capacitance (V _{CB} = -20 V _{dc} , I _E = 0, f = 1.0 MHz)	C _{cb}	-	6.0	pF

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

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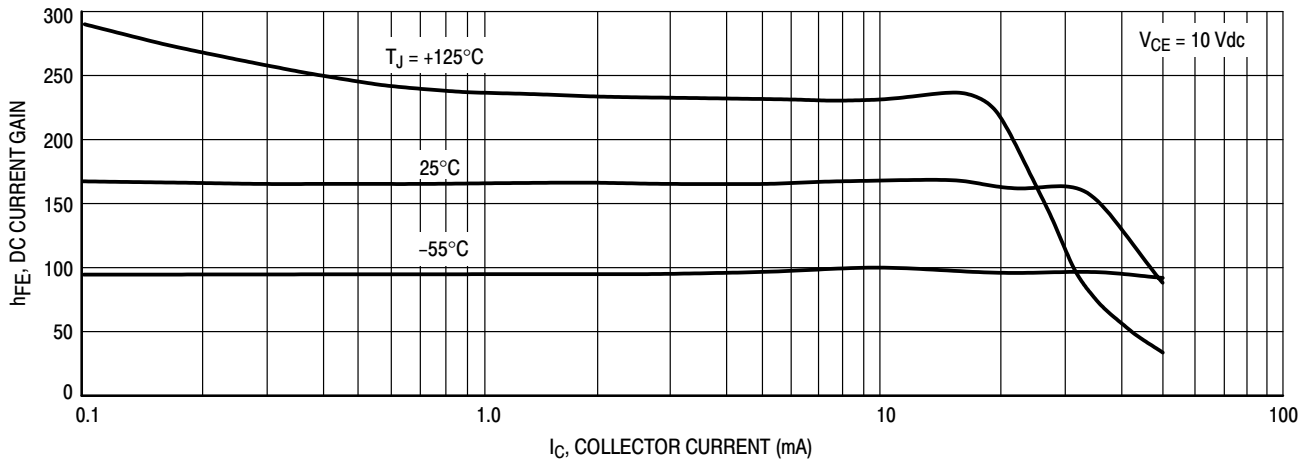


Figure 1. DC Current Gain

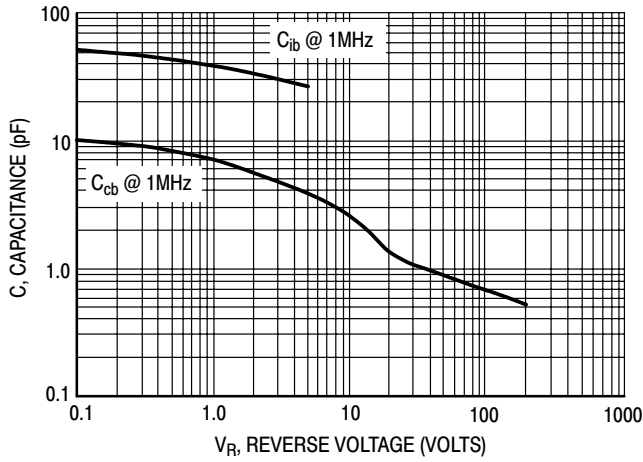


Figure 2. Capacitance

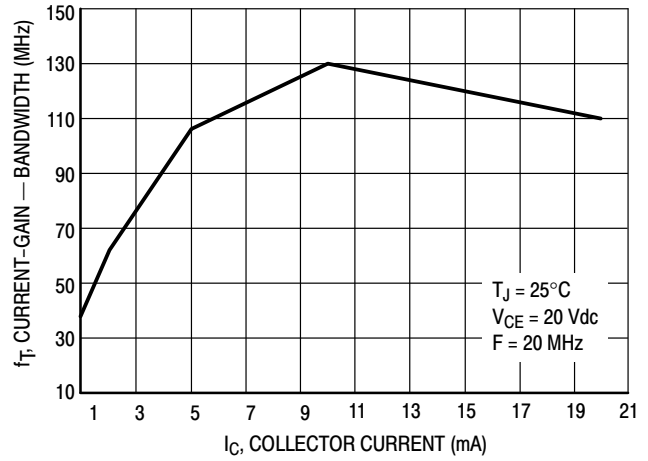


Figure 3. Current-Gain - Bandwidth

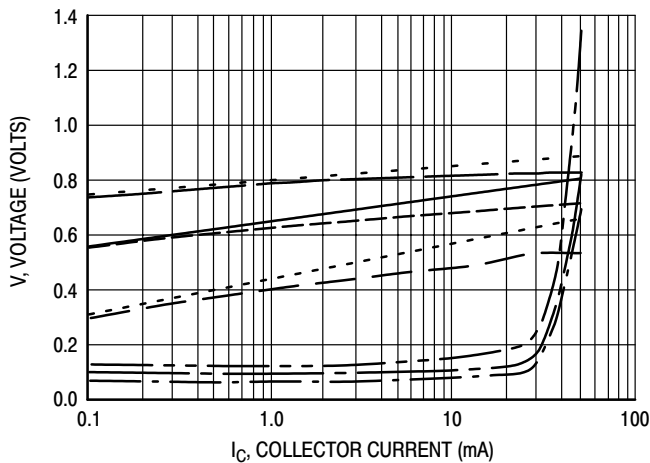


Figure 4. "ON" Voltages

- $V_{CE(sat)}$ @ 25°C, $I_C/I_B = 10$
- $V_{CE(sat)}$ @ 125°C, $I_C/I_B = 10$
- $V_{CE(sat)}$ @ -55°C, $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 25°C, $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 125°C, $I_C/I_B = 10$
- $V_{BE(sat)}$ @ -55°C, $I_C/I_B = 10$
- $V_{BE(on)}$ @ 25°C, $V_{CE} = 10$ V
- $V_{BE(on)}$ @ 125°C, $V_{CE} = 10$ V
- $V_{BE(on)}$ @ -55°C, $V_{CE} = 10$ V

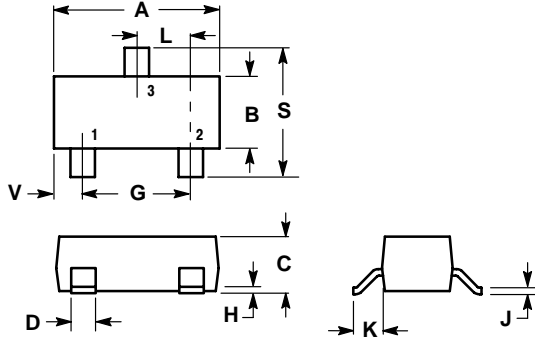
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PACKAGE DIMENSIONS

SOT-23 (TO-236)
CASE 318-08
ISSUE AH

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-03 AND -07 OBSOLETE, NEW STANDARD 318-08.



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

STYLE 6:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

SOLDERING FOOTPRINT*

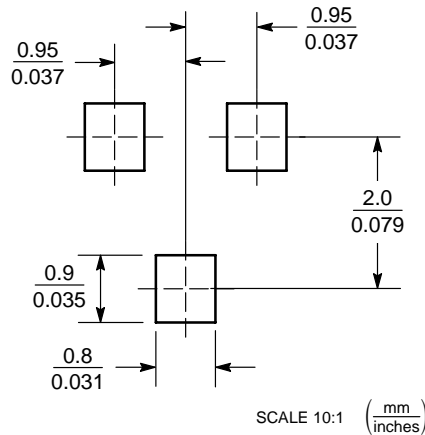


Figure 5. SOT-23

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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