

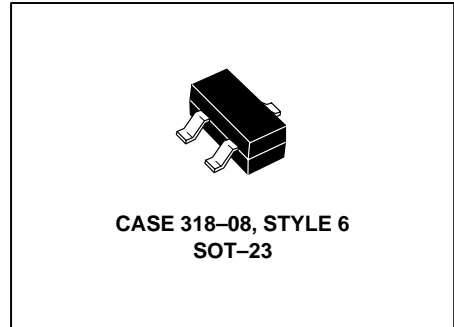
The RF Line
NPN Silicon
High-Frequency Transistor

MMBR901LT1, T3

Designed primarily for use in high-gain, low-noise small-signal amplifiers for operation up to 2.5 GHz. Also usable in applications requiring fast switching times.

I_C = 30 mA
SURFACE MOUNTED
HIGH-FREQUENCY
TRANSISTOR
NPN SILICON

- High Current-Gain — Bandwidth Product
- Low Noise Figure @ f = 1.0 GHz —
 NF(matched) = 1.9 dB (Typ)
- High Power Gain —
 G_{pe}(matched) = 12.0 dB (Typ) @ f = 1.0 GHz
- Surface Mounted SOT-23 Offers Improved RF Performance,
 Lower Package Parasitics and High Gain
- Available in tape and reel packaging options:
 T1 suffix = 3,000 units per reel
 T3 suffix = 10,000 units per reel



**NOT RECOMMENDED FOR NEW DESIGNS;
 PRODUCT TO BE PHASED OUT.**

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	15	Vdc
Collector-Base Voltage	V _{CB0}	25	Vdc
Emitter-Base Voltage	V _{EBO}	2.0	Vdc
Collector Current — Continuous	I _C	30	mAdc
Power Dissipation @ T _C = 75°C (1) Derate above 75°C	P _D (max)	0.300 4.0	Watt mW/°C
Storage Temperature Range	T _{stg}	-55 to +150	°C
Maximum Junction Temperature	T _J (max)	150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Storage Temperature	T _{stg}	150	°C
Thermal Resistance, Junction to Case	R _{θJC}	250	°C/W

DEVICE MARKING

MMBR901LT1, T3 = 7A

NOTE:

1. Case temperature measured on collector lead immediately adjacent to body of package.



Freescale Semiconductor, Inc. ARCHIVE INFORMATION

ARCHIVE INFORMATION

Freescale Semiconductor, Inc.

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

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

OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage (I _C = 1.0 mA, I _B = 0)	V _{(BR)CEO}	15	—	—	Vdc
Collector–Base Breakdown Voltage (I _C = 0.1 mA, I _E = 0)	V _{(BR)CBO}	25	—	—	Vdc
Emitter–Base Breakdown Voltage (I _E = 0.1 mA, I _C = 0)	V _{(BR)EBO}	2.0	—	—	Vdc
Collector Cutoff Current (V _{CB} = 15 Vdc, I _E = 0)	I _{CBO}	—	—	50	nAdc

ON CHARACTERISTICS

DC Current Gain (I _C = 5.0 mA, V _{CE} = 5.0 Vdc)	h _{FE}	50	—	200	—
---	-----------------	----	---	-----	---

FUNCTIONAL TESTS

Minimum Noise Figure (V _{CE} = 6.0 Vdc, I _C = 5.0 mA, f = 1.0 GHz) (V _{CE} = 10 Vdc, I _C = 5.0 mA, f = 1.0 GHz)	NF _{min}	—	1.9	—	dB
---	-------------------	---	-----	---	----

SMALL-SIGNAL CHARACTERISTICS

Output Capacitance (V _{CB} = 10 Vdc, I _C = 5.0 mA, f = 1.0 GHz)	C _{obo}	—	—	1.0	pF
Common–Emitter Amplifier Gain (V _{CC} = 6.0 Vdc, I _C = 5.0 mA, f = 1.0 GHz)	G _{pe}	—	12	—	dB

Freescale Semiconductor, Inc.

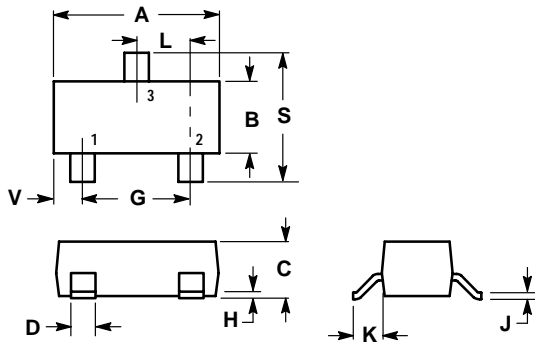
NOTES

Freescale Semiconductor, Inc.
ARCHIVE INFORMATION

ARCHIVE INFORMATION

Freescale Semiconductor, Inc.

PACKAGE DIMENSIONS




- 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.

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

**CASE 318-08
 ISSUE AF**

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and  are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Mfax is a trademark of Motorola, Inc.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
 P.O. Box 5405, Denver, Colorado 80217. 1-303-675-2140 or 1-800-441-2447

JAPAN: Motorola Japan Ltd.; SPD, Strategic Planning Office, 141,
 4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan. 81-3-5487-8488

Customer Focus Center: 1-800-521-6274

Mfax™: RMFAX0@email.sps.mot.com – TOUCHTONE 1-602-244-6609
 Motorola Fax Back System – US & Canada ONLY 1-800-774-1848
 –http://sps.motorola.com/mfax/

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

HOME PAGE: <http://motorola.com/sps/>



**For More Information On This Product,
 Go to: www.freescale.com**

MMBR901LT1/D

Freescale Semiconductor, Inc. ARCHIVE INFORMATION

ARCHIVE INFORMATION