

The RF Line

NPN Silicon

High-Frequency Transistor

Designed for thick and thin-film circuits using surface mount components and requiring low-noise, high-gain signal amplification at frequencies to 1.0 GHz.

- High Gain — $G_{pe} = 15 \text{ dB Typ @ } f = 500 \text{ MHz}$
- Low Noise — $NF = 2.4 \text{ dB Typ @ } f = 500 \text{ MHz}$
- Available in tape and reel packaging options:
T1 suffix = 3,000 units per reel

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	15	Vdc
Collector-Base Voltage	V_{CBO}	20	Vdc
Emitter-Base Voltage	V_{EBO}	3.0	Vdc
Collector Current — Continuous	I_C	35	mA dc
Maximum Junction Temperature	T_{Jmax}	150	°C
Power Dissipation, $T_C = 75^\circ\text{C}$ (1) Derate linearly above 75°C @	$P_{D(max)}$	0.268 3.57	W mW/°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Storage Temperature	T_{stg}	-55 to +150	°C
Thermal Resistance Junction to Case	$R_{\theta JC}$	280	°C/W

DEVICE MARKING

MMBR920LT1 = 7B

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

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 1.0 \text{ mA dc}$, $I_E = 0$)	$V_{(BR)CEO}$	15	—	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 0.1 \text{ mA dc}$, $I_E = 0$)	$V_{(BR)CBO}$	20	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 0.1 \text{ mA dc}$, $I_C = 0$)	$V_{(BR)EBO}$	2.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$)	I_{CBO}	—	—	50	nA dc

ON CHARACTERISTICS

DC Current Gain ($I_C = 14 \text{ mA dc}$, $V_{CE} = 10 \text{ Vdc}$)	h_{FE}	25	—	250	—
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SMALL-SIGNAL CHARACTERISTICS

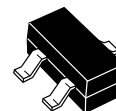
Current-Gain — Bandwidth Product ($I_C = 14 \text{ mA dc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 0.5 \text{ GHz}$)	f_T	—	4.5	—	GHz
Collector-Base Capacitance ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$)	C_{cb}	—	—	1.0	pF
Noise Figure ($I_C = 2.0 \text{ mA dc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 0.5 \text{ GHz}$) ($I_C = 2.0 \text{ mA dc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ GHz}$)	NF	— —	2.4 3.0	— —	dB
Common-Emitter Amplifier Power Gain ($I_C = 2.0 \text{ mA dc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 0.5 \text{ GHz}$) ($I_C = 2.0 \text{ mA dc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ GHz}$)	G_{pe}	— —	15 10	— —	dB

NOTE:

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

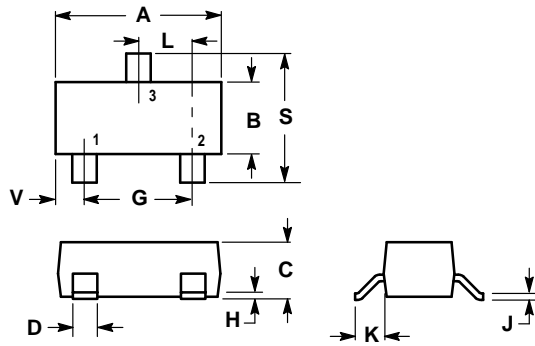
MMBR920LT1

RF AMPLIFIER
TRANSISTOR
NPN SILICON



CASE 318-08, STYLE 6
SOT-23
LOW PROFILE

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
- EMITTER
- COLLECTOR

**CASE 318-08
ISSUE AE**

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MMBR920LT1/D

