

VHF / UHF Transistor

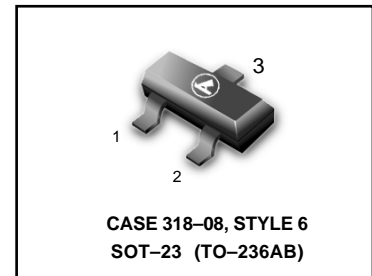
NPN Silicon

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

LMBT918LT1G
S-LMBT918LT1G

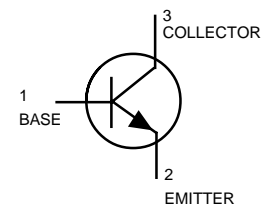
Ordering Information

Device	Marking	Shipping
LMBT918LT1G S-LMBT918LT1G	M3B	3000/Tape&Reel
LMBT918LT3G S-LMBT918LT3G	M3B	10000/Tape&Reel



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	15	Vdc
Collector-Base Voltage	V_{CBO}	30	Vdc
Emitter-Base Voltage	V_{EBO}	3.0	Vdc
Collector Current — Continuous	I_C	50	mAdc



THERMAL CHARACTERISTICS

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

DEVICE MARKING

LMBT918LT1G = M3B

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 ($I_C = 3.0 \text{ mAdc}, I_E = 0$)	$V_{(BR)CEO}$	15	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 1.0 \mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	30	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10 \mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	3.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 15 \text{ Vdc}, I_E = 0$)	I_{CBO}	—	50	nAdc

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.

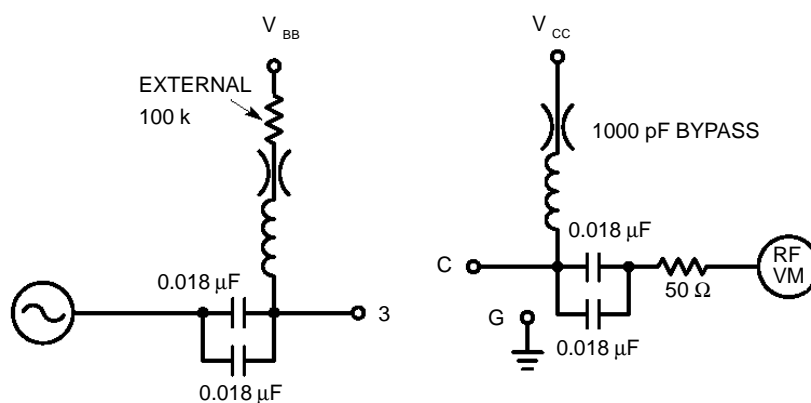
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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Gain ($I_C = 3.0 \text{ mA}$, $V_{CE} = 1.0 \text{ Vdc}$)	h_{FE}	20	—	—
Collector–Emitter Saturation Voltage ($I_C = 10 \text{ mA}$, $I_B = 1.0 \text{ mA}$)	$V_{CE(sat)}$	—	0.4	Vdc
Base–Emitter Saturation Voltage ($I_C = 10 \text{ mA}$, $I_B = 1.0 \text{ mA}$)	$V_{BE(sat)}$	—	1.0	Vdc

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = 4.0 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$, $f = 100 \text{ MHz}$)	f_T	600	—	MHz
Output Capacitance ($V_{CB} = 0 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$) ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$)	C_{obo}	—	3.0 1.7	pF
Input Capacitance ($V_{EB} = 0.5 \text{ Vdc}$, $I_C = 0$, $f = 1.0 \text{ MHz}$)	C_{ibo}	—	2.0	pF
Noise Figure ($I_C = 1.0 \text{ mA}$, $V_{CE} = 6.0 \text{ Vdc}$, $R_S = 50 \Omega$, $f = 60 \text{ MHz}$) (Figure 1)	NF	—	6.0	dB
Power Output ($I_C = 8.0 \text{ mA}$, $V_{CB} = 15 \text{ Vdc}$, $f = 500 \text{ MHz}$)	P_{out}	30	—	mW
Common–Emitter Amplifier Power Gain ($I_C = 6.0 \text{ mA}$, $V_{CB} = 12 \text{ Vdc}$, $f = 200 \text{ MHz}$)	G_{pe}	11	—	dB



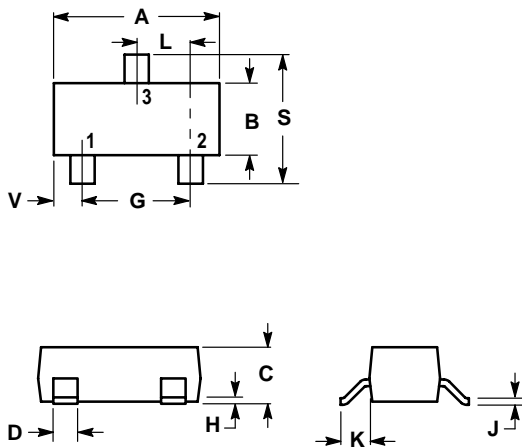
NF TEST CONDITIONS

$I_C = 1.0 \text{ mA}$
 $V_{CE} = 6.0 \text{ VOLTS}$
 $R_S = 50 \Omega$
 $f = 60 \text{ MHz}$

G_{pe} TEST CONDITIONS

$I_C = 6.0 \text{ mA}$
 $V_{CE} = 12 \text{ VOLTS}$
 $f = 200 \text{ MHz}$

Figure 1. NF, G_{pe} Measurement Circuit 20–200

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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

