MMBT918LT1

VHF/UHF Transistor

NPN Silicon

Features

• Pb-Free Package is Available

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, (Note 1) T _A = 25°C Derate above 25°C	P _D	225 1.8	mW mW/°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, (Note 2) T _A = 25°C Derate above 25°C	P _D	300 2.4	mW mW/°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T _J , T _{stg}	-55 to +150	°C

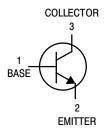
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

- 1. $FR-5 = 1.0 \times 0.75 \times 0.062$ in.
- 2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.



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SOT-23 (TO-236) CASE 318 STYLE 6

MARKING DIAGRAM



M3B = Device Code
M = Date Code*
= Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping [†]
MMBT918LT1	SOT-23	3000 / Tape & Reel
MMBT918LT1G	SOT-23 (Pb-Free)	3000 / 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.

MMBT918LT1

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

Characteristic	Symbol	Min	Max	Unit		
OFF CHARACTERISTICS						
Collector – Emitter Breakdown Voltage (I _C = 3.0 mAdc, I _B = 0)	V _{(BR)CEO}	15	_	Vdc		
Collector – Base Breakdown Voltage ($I_C = 1.0 \mu Adc, I_E = 0$)	V _(BR) CBO	30	-	Vdc		
Emitter – Base Breakdown Voltage ($I_E = 10 \mu Adc, I_C = 0$)	V _{(BR)EBO}	3.0	-	Vdc		
Collector Cutoff Current (V _{CB} = 15 Vdc, I _E = 0)	I _{CBO}	_	50	nAdc		
ON CHARACTERISTICS						
DC Current Gain ($I_C = 3.0 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$)	h _{FE}	20	_	-		
Collector – Emitter Saturation Voltage (I _C = 10 mAdc, I _B = 1.0 mAdc)	V _{CE(sat)}	_	0.4	Vdc		
Base – Emitter Saturation Voltage (I _C = 10 mAdc, I _B = 1.0 mAdc)	V _{BE(sat)}	-	1.0	Vdc		
SMALL-SIGNAL CHARACTERISTICS	SMALL-SIGNAL CHARACTERISTICS					
Current – Gain – Bandwidth Product ($I_C = 4.0 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 100 \text{ MHz}$)	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 Vdc, I _C = 0, f = 1.0 MHz)	C _{ibo}	-	2.0	pF		
Noise Figure (I _C = 1.0 mAdc, V_{CE} = 6.0 Vdc, R_S = 50 Ω , f = 60 MHz) (Figure 1)	NF	-	6.0	dB		
Power Output ($I_C = 8.0 \text{ mAdc}$, $V_{CB} = 15 \text{ Vdc}$, $f = 500 \text{ MHz}$)	P _{out}	30	-	mW		
Common–Emitter Amplifier Power Gain (I _C = 6.0 mAdc, V _{CB} = 12 Vdc, f = 200 MHz)	G _{pe}	11	_	dB		

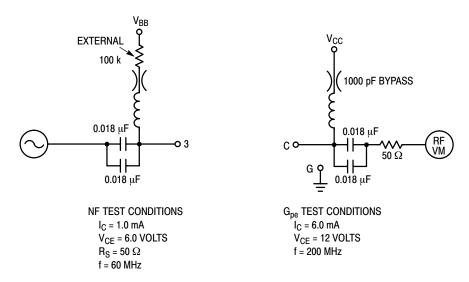
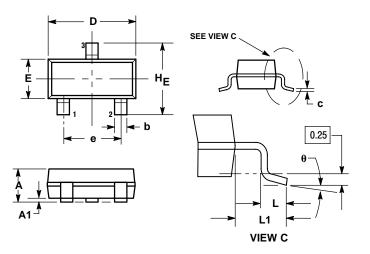


Figure 1. NF, G_{pe} Measurement Circuit 20–200

MMBT918LT1

PACKAGE DIMENSIONS

SOT-23 (TO-236) CASE 318-08 **ISSUE AN**



NOTES

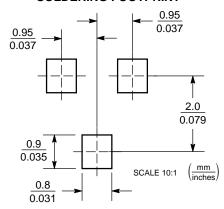
- DIMENSIONING AND TOLERANCING PER ANSI
- Y14.5M, 1982. CONTROLLING DIMENSION: INCH
- MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
- 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
С	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
е	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
ΗE	2.10	2.40	2.64	0.083	0.094	0.104

STYLE 6:

- PIN 1. BASE 2. EMITTER COLLECTOR

SOLDERING FOOTPRINT*



*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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