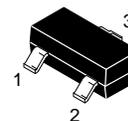
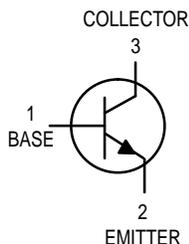


# UHF/VHF Amplifier

## NPN Silicon

**MMBTH17LT1**

Motorola Preferred Device



CASE 318-08, STYLE 6  
SOT-23 (TO-236AB)

### 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
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225 1.8	mW mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient (Printed Circuit Board Mounting)	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

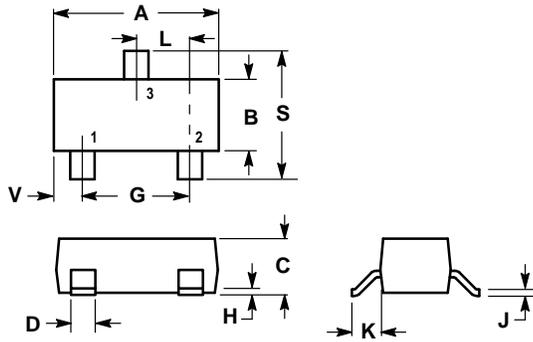
Collector–Emitter Breakdown Voltage ( $I_C = 1.0 \text{ mAdc}, I_B = 0$ )	$V_{(BR)CEO}$	15	—	—	Vdc
Collector–Base Breakdown Voltage ( $I_C = 100 \mu\text{Adc}, I_E = 0$ )	$V_{(BR)CBO}$	20	—	—	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 10 \mu\text{Adc}, I_C = 0$ )	$V_{(BR)EBO}$	3.0	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 15 \text{ Vdc}, I_E = 0$ )	$I_{CBO}$	—	—	100	nAdc

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

**MMBTH17LT1****ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 5.0 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ )	$h_{FE}$	25	—	250	—
Collector–Emitter Saturation Voltage ( $I_C = 10 \text{ mA}$ , $I_B = 1.0 \text{ mA}$ )	$V_{CE(sat)}$	—	—	0.5	—
<b>SMALL–SIGNAL CHARACTERISTICS</b>					
Current–Gain — Bandwidth Product ( $I_C = 5.0 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ , $f = 100 \text{ MHz}$ )	$f_T$	800	—	—	MHz
Collector–Base Capacitance ( $V_{CB} = 10 \text{ Vdc}$ , $f = 1.0 \text{ MHz}$ )	$C_{cb}$	0.3	—	0.9	pF
Small–Signal Current Gain ( $I_C = 5.0 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ , $f = 1.0 \text{ kHz}$ )	$h_{fe}$	30	—	—	—
Noise Figure ( $I_C = 5.0 \text{ mA}$ , $V_{CC} = 12 \text{ Vdc}$ , $R_S = 50 \text{ ohms}$ , $f = 200 \text{ MHz}$ )	NF	—	—	6.0	dB
<b>FUNCTIONAL TEST</b>					
Amplifier Power Gain ( $I_C = 5.0 \text{ mA}$ , $V_{CC} = 12 \text{ Vdc}$ , $R_S = 50 \text{ ohms}$ , $f = 200 \text{ MHz}$ )	$G_{pe}$	—	24	—	dB

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  
 SOT-23 (TO-236AB)**

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