

# The RF Line

## NPN Silicon

### High-Frequency Transistor

Designed for small-signal amplification at frequencies to 500 MHz. Specifically packaged for use in thick and thin-film circuits using surface mount components.

- High Gain —  $G_{pe} = 15$  dB Typ @  $f = 200$  MHz
- Low Noise —  $NF = 4.5$  dB Typ @  $f = 200$  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	$V_{CBO}$	30	Vdc
Emitter-Base Voltage	$V_{EBO}$	3.0	Vdc
Collector Current — Continuous	$I_C$	50	mAdc
Maximum Junction Temperature	$T_{Jmax}$	150	°C
Power Dissipation, $T_{case} = 75^\circ\text{C}$ (1) Derate linearly above $T_{case} = 75^\circ\text{C}$ @	$P_D(max)$	0.375 5.00	W mW/°C

#### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Storage Temperature	$T_{stg}$	-55 to +150	°C
Thermal Resistance Junction to Case	$R_{\theta JC}$	200	°C/W

#### DEVICE MARKING

MMBR5179LT1 = 7H

#### 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 ( $I_C = 3.0$ mAdc, $I_B = 0$ )	$V_{(BR)CEO}$	15	—	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 0.001$ mAdc, $I_E = 0$ )	$V_{(BR)CBO}$	30	—	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 0.01$ mAdc, $I_C = 0$ )	$V_{(BR)EBO}$	3.0	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 15$ Vdc, $I_E = 0$ )	$I_{CBO}$	—	—	0.02	$\mu\text{Adc}$

#### ON CHARACTERISTICS

DC Current Gain ( $I_C = 3.0$ mAdc, $V_{CE} = 1.0$ Vdc)	$h_{FE}$	30	—	250	—
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

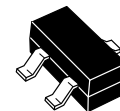
Current-Gain — Bandwidth Product ( $I_C = 5.0$ mAdc, $V_{CE} = 6.0$ Vdc, $f = 100$ MHz)	$f_T$	—	1,400	—	MHz
Collector-Base Capacitance ( $V_{CB} = 10$ Vdc, $I_E = 0$ , $f = 0.1$ to $1.0$ MHz)	$C_{cb}$	—	—	1.0	pF
50 ohm Noise Figure ( $I_C = 1.5$ mAdc, $V_{CE} = 6.0$ Vdc, $R_S = 50 \Omega$ , $f = 200$ MHz)	NF	—	4.5	—	dB
Common-Emitter Amplifier Power Gain ( $V_{CE} = 6.0$ Vdc, $I_C = 5.0$ mAdc, $f = 200$ MHz)	$G_{pe}$	—	15	—	dB

#### NOTE:

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

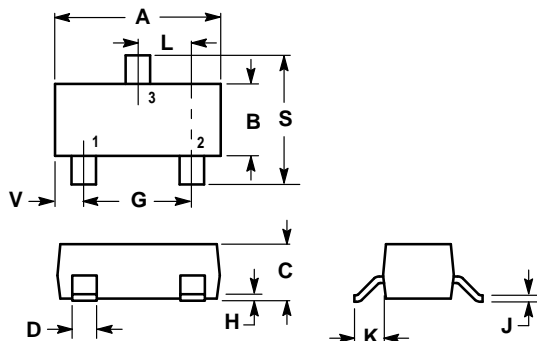
# MMBR5179LT1

RF AMPLIFIER  
TRANSISTOR  
NPN SILICON



CASE 318-08, STYLE 6  
SOT-23  
LOW PROFILE  
(TO-236AA/AB)

# 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

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