

The RF Line

NPN Silicon

High-Frequency Transistor

... designed primarily for use in low-power amplifiers to 1.0 GHz. Ideal for pagers and other battery operated systems where power consumption is critical.

- Available in tape and reel packaging options by adding suffix:
T1 suffix = 3,000 units per reel
T3 suffix = 10,000 units per reel

MMBR931LT1, T3

**RF AMPLIFIER
TRANSISTOR
NPN SILICON**

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	5.0	Vdc
Collector-Base Voltage	V_{CBO}	10	Vdc
Emitter-Base Voltage	V_{EBO}	2.0	Vdc
Collector Current — Continuous	I_C	5.0	mA _{dc}
Maximum Junction Temperature	T_{Jmax}	150	°C
Power Dissipation, $T_{case} = 75^{\circ}C^*$ Derate linearly above $75^{\circ}C$ @	$P_{D(max)}$	0.150 2.00	W mW/°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Storage Temperature	T_{stg}	-55 to +150	°C
Thermal Resistance Junction to Case*	$R_{\theta JC}$	500	°C/W

* Package mounted on 99.5% alumina 10 x 8 x 0.6 mm.

DEVICE MARKING

MMBR931LT1, T3 = 7D



**CASE 318-07, STYLE 6
SOT-23
LOW PROFILE
(TO-236AA/AB)**

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

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 0.1$ mA _{dc} , $I_B = 0$)	$V_{(BR)CEO}$	15	—	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 0.01$ mA _{dc} , $I_E = 0$)	$V_{(BR)CBO}$	20	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 0.1$ mA _{dc} , $I_C = 0$)	$V_{(BR)EBO}$	3.5	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 5.0$ Vdc, $I_E = 0$)	I_{CBO}	—	—	50	nA _{dc}

ON CHARACTERISTICS

DC Current Gain ($I_C = 0.25$ mA _{dc} , $V_{CE} = 1.0$ Vdc)	h_{FE}	50	—	150	—
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SMALL-SIGNAL CHARACTERISTICS

Collector-Base Capacitance ($V_{CB} = 1.0$ Vdc, $I_E = 0$, $f = 1.0$ MHz)	C_{cb}	—	—	0.5	pF
Noise Figure ($I_E = 0.25$ mA _{dc} , $V_{CE} = 1.0$ Vdc, $f = 1.0$ GHz)	NF	—	4.3	—	dB
Power Gain at Optimum Noise Figure ($I_E = 0.25$ mA _{dc} , $V_{CE} = 1.0$ Vdc, $f = 1.0$ GHz)	GNF	—	10	—	—

REV 6