The RF Line
NPN Silicon High-Frequency Transistor

MMBR920LT1, T3

. . . designed for thick and thin-film circuits using surface mount components and requiring low-noise, high-gain signal amplification at frequencies to 1.0 GHz.

- High Gain — G_{pe} = 15 dB Typ @ f = 500 MHz
- Low Noise — NF = 2.4 dB Typ @ f = 500 MHz
- Available in tape and reel packaging options by adding suffix:
  T1 suffix = 3,000 units per reel
  T3 suffix = 10,000 units per reel

RF AMPLIFIER TRANSISTOR NPN SILICON

CASE 318-07, STYLE 6 SOT-23 LOW PROFILE

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
Collector Current — Continuous	I_C	35	mAdc
Maximum Junction Temperature	T_{Jmax}	150	°C
Power Dissipation, T_A = 75°C* Derate linearly above 75°C @	$P_{D(max)}$	0.268 3.57	W mW/°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Storage Temperature	T_{stg}	−55 to +150	°C
Thermal Resistance Junction to Case*	$R_{\theta JC}$	280	°C/W

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

DEVICE MARKING

MMBR920LT1, T3 = 7B

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I_C = 1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	15	—	—	Vdc
Collector-Base Breakdown Voltage (I_C = 0.1 mAdc, I_E = 0)	$V_{(BR)CBO}$	20	—	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 0.1 mAdc, I_C = 0)	$V_{(BR)EBO}$	2.0	—	—	Vdc
Collector Cutoff Current (V_{CB} = 10 Vdc, I_E = 0)	I_{CBO}	—	—	50	nAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 14 mAdc, V_{CE} = 10 Vdc)	h_{FE}	25	—	250	—
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I_C = 14 mAdc, V_{CE} = 10 Vdc, f = 0.5 GHz)	f_T	—	4.5	—	GHz
Collector-Base Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	C_{cb}	—	—	1.0	pF
Noise Figure (I_C = 2.0 mAdc, V_{CE} = 10 Vdc, f = 0.5 GHz) (I_C = 2.0 mAdc, V_{CE} = 10 Vdc, f = 1.0 GHz)	NF	 — —	 2.4 3.0	 — —	dB
Common-Emitter Amplifier Power Gain (I_C = 2.0 mAdc, V_{CE} = 10 Vdc, f = 0.5 GHz) (I_C = 2.0 mAdc, V_{CE} = 10 Vdc, f = 1.0 GHz)	G_{pe}	 — —	 15 10	 — —	dB

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