

**MMBR5179**

**CASE 318-02/03, STYLE 6  
SOT-23 (TO-236AA/AB)**

**RF AMPLIFIER TRANSISTOR**

NPN SILICON

**MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	12	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	20	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	2.5	Vdc
Collector Current — Continuous	I <sub>C</sub>	50	mAdc

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
*Total Device Dissipation, T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	350 2.8	mW mW/°C
Storage Temperature	T <sub>stg</sub>	150	°C
*Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	357	°C/W

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

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted.)**

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

**OFF CHARACTERISTICS**

Collector-Emitter Breakdown Voltage (I <sub>C</sub> = 3.0 mAdc, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	12	—	Vdc
Collector-Base Breakdown Voltage (I <sub>C</sub> = 0.01 mAdc, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	20	—	Vdc
Emitter-Base Breakdown Voltage (I <sub>E</sub> = 0.01 mAdc, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	2.5	—	Vdc
Collector Cutoff Current (V <sub>CB</sub> = 15 Vdc, I <sub>E</sub> = 0)	I <sub>CBO</sub>	—	0.02	μAdc

**ON CHARACTERISTICS**

DC Current Gain (I <sub>C</sub> = 3.0 mAdc, V <sub>CE</sub> = 1.0 Vdc)	h <sub>FE</sub>	25	—	—
Collector-Emitter Saturation Voltage (I <sub>C</sub> = 10 mAdc, I <sub>B</sub> = 1.0 mAdc)	V <sub>CE(sat)</sub>	—	0.4	Vdc
Base-Emitter Saturation Voltage (I <sub>C</sub> = 10 mAdc, I <sub>B</sub> = 1.0 mAdc)	V <sub>BE(sat)</sub>	—	1.0	Vdc

**SMALL SIGNAL CHARACTERISTICS**

Current-Gain — Bandwidth Product (I <sub>C</sub> = 5.0 mAdc, V <sub>CE</sub> = 6.0 Vdc, f = 100 MHz)	f <sub>T</sub>	900	—	MHz
Collector-Base Capacitance (V <sub>CB</sub> = 10 Vdc, I <sub>E</sub> = 0, f = 0.1 to 1.0 MHz)	C <sub>cb</sub>	—	1.0	pF
Small Signal Current Gain (I <sub>C</sub> = 2.0 mAdc, V <sub>CE</sub> = 6.0 Vdc, f = 1.0 kHz)	h <sub>fe</sub>	25	—	—
Noise Figure (I <sub>C</sub> = 1.5 mAdc, V <sub>CE</sub> = 6.0 Vdc, R <sub>S</sub> = 50 Ω, f = 200 Mhz)	NF(1)	—	4.5	dB
Common-Emitter Amplifier Power Gain (V <sub>CE</sub> = 6.0 Vdc, I <sub>C</sub> = 5.0 mAdc, f = 200 MHz)	G <sub>pe(1)</sub>	15	—	dB

(1) Noise figure and power gain measured on the Ailtech 7380 50 Ω system.