

MMBR5031

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_{CEO}	10	Vdc
Collector-Base Voltage	V_{CBO}	15	Vdc
Emitter-Base Voltage	V_{EBO}	3.0	Vdc
Collector Current — Continuous	I_C	20	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
*Total Device Dissipation, $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	350 2.8	mW mW/ $^\circ\text{C}$
Storage Temperature	T_{stg}	150	$^\circ\text{C}$
*Thermal Resistance Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$

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

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

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

OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 1.0$ mAdc, $I_B = 0$)	$V_{(BR)CEO}$	10	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 0.01$ mAdc, $I_E = 0$)	$V_{(BR)CBO}$	15	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 0.01$ mAdc, $I_C = 0$)	$V_{(BR)EBO}$	3.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 6.0$ Vdc, $I_E = 0$)	I_{CBO}	—	10	nAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = 1.0$ mAdc, $V_{CE} = 6.0$ Vdc)	h_{FE}	25	300	—
--	----------	----	-----	---

SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product ($I_C = 5.0$ mAdc, $V_{CE} = 6.0$ Vdc, $f = 100$ MHz)	f_T	1,000	—	MHz
Collector-Base Capacitance ($V_{CE} = 6.0$ Vdc, $I_E = 0$, $f = 0.1$ MHz)	C_{cb}	—	1.5	pF
Noise Figure ($I_C = 1.0$ mAdc, $V_{CE} = 6.0$ Vdc, $f = 450$ MHz)	NF(1)	—	2.5	dB
Common-Emitter Amplifier Power Gain ($I_C = 1.0$ mAdc, $V_{CE} = 6.0$ Vdc, $f = 450$ MHz)	$G_{pe}(1)$	14	25	dB

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