

**MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA**

**The RF Line
NPN Silicon
High Frequency Transistor**

... designed for thick and thin-film circuits using surface mount components and requiring low-noise, high-gain signal amplification at frequencies to 1 GHz.

- High Gain — $G_{pe} = 11 \text{ dB Typ @ } f = 500 \text{ MHz}$
- Low Noise — $NF = 1.9 \text{ dB Typ @ } f = 500 \text{ MHz}$

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	12	V _{dc}
Collector-Base Voltage	V _{CBO}	15	V _{dc}
Emitter-Base Voltage	V _{EBO}	3.0	V _{dc}
Collector Current — Continuous	I _C	35	mAdc
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
*Total Device Dissipation, T _A = 25°C Derate above 25°C	P _D	350 2.8	mW mW/°C
Storage Temperature	T _{stg}	150	°C
*Thermal Resistance Junction to Ambient	R _{θJA}	357	°C/W

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

DEVICE MARKING

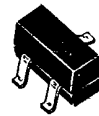
MMBR930 = 7C

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	12	—	—	V _{dc}
Collector-Base Breakdown Voltage (I _C = 0.1 mAdc, I _E = 0)	V(BR)CBO	15	—	—	V _{dc}
Emitter-Base Breakdown Voltage (I _E = 0.1 mAdc, I _C = 0)	V(BR)EBO	3.0	—	—	V _{dc}
Collector Cutoff Current (V _{CB} = 5.0 Vdc, I _E = 0)	I _{CBO}	—	—	50	nAdc
ON CHARACTERISTICS					
DC Current Gain (I _C = 30 mAdc, V _{CE} = 5.0 Vdc)	h _{FE}	25	—	250	—
SMALL-SIGNAL CHARACTERISTICS					
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} = 5.0 Vdc, f = 0.5 GHz) (I _C = 2.0 mAdc, V _{CE} = 5.0 Vdc, f = 1.0 GHz)	NF	—	1.9 2.5	—	dB
Common-Emitter Amplifier Power Gain (I _C = 2.0 mAdc, V _{CE} = 5.0 Vdc, f = 0.5 GHz) (I _C = 2.0 mAdc, V _{CE} = 5.0 Vdc, f = 0.5 GHz)	G _{pe}	—	11 8.0	—	dB

MMBR930

**AMPLIFIER TRANSISTOR
NPN SILICON**



**CASE 318-05, STYLE 6
SOT-23
(TO-236AA/AB)**