

# New Jersey Semi-Conductor Products, Inc.

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## The RF Line

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### NPN SILICON HIGH FREQUENCY TRANSISTORS

... designed for low-noise, wide dynamic range front end amplifiers, low-noise VCO's, and microwave power multipliers.

- Low Noise
- High Gain
- Available in Low Cost Plastic, High Reliability Ceramic or Die
- State-of-the-Art Technology
  - Fine Line Geometry
  - Ion Implanted Arsenic Emitters
  - Gold Top Metallization and Wires
  - Silicon Nitride Passivation
- Fully Characterized

### MRF571 MRF572 MRFC572

$f_T = 8.0 \text{ GHz} @ 50 \text{ mA}$   
 $\text{NF} = 1.0 \text{ dB} @ 500 \text{ MHz}$   
 $\text{NF} = 1.5 \text{ dB} @ 1.0 \text{ GHz}$   
 $\text{NF} = 2.5 \text{ dB} @ 2.0 \text{ GHz}$

### HIGH FREQUENCY TRANSISTORS

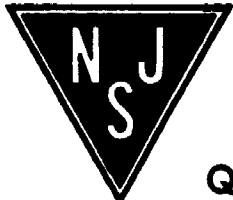
NPN SILICON

		MRF572	MRF571	MRF572	
MAXIMUM RATINGS		Chip	Macro-X Case 317-01 Style 2	Case 303-01 Style 1	
Ratings	Symbol	Values			Unit
Collector-Emitter Voltage	$V_{CEO}$	10	10	10	Vdc
Collector-Base Voltage	$V_{CBO}$	20	20	20	Vdc
Emitter-Base Voltage	$V_{EBO}$	3.0	3.0	3.0	Vdc
Collector Current — Continuous	$I_C$	70	70	70	mAdc
Total Device Dissipation @ $T_C = 50^\circ\text{C}$ <sup>(1)</sup> Derate above $T_C = 50^\circ\text{C}$	$P_D$	0.75 $T_J = 200^\circ\text{C}$ max	1.0 10	0.75 5.0	Watts mW/ $^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 to +200	-65 to +150	-65 to +200	$^\circ\text{C}$

NOTE 1. Case temperature measured on collector lead immediately adjacent to body of package.

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Emitter Breakdown Voltage ( $I_C = 1.0 \text{ mA}, I_E = 0$ )	$V_{(BR)CEO}$	10	12	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 0.1 \text{ mA}, I_B = 0$ )	$V_{(BR)CBO}$	20	—	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 50 \mu\text{A}, I_C = 0$ )	$V_{(BR)EBO}$	2.5	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 8.0 \text{ Vdc}, I_E = 0$ )	$I_{CBO}$	—	—	10	mAdc
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 30 \text{ mA}, V_{CE} = 5.0 \text{ Vdc}$ )	$h_{FE}$	50	—	300	—
<b>DYNAMIC CHARACTERISTICS</b>					
Collector-Base Capacitance ( $V_{CB} = 6.0 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$ )	$C_{cb}$	—	0.7	1.0	pF
Current Gain — Bandwidth Product ( $V_{CE} = 8.0 \text{ Vdc}, I_C = 50 \text{ mA}, f = 1.0 \text{ GHz}$ )	$f_T$	—	8.0	—	GHz
<b>FUNCTIONAL TESTS</b>					
Gain @ Noise Figure ( $I_C = 5.0 \text{ mA}, V_{CE} = 6.0 \text{ Vdc}$ )	$f = 0.5 \text{ GHz}$ $f = 1.0 \text{ GHz}$	GNF	— 10	16.5 12	—
Noise Figure ( $I_C = 5.0 \text{ mA}, V_{CE} = 6.0 \text{ Vdc}$ )	$f = 0.5 \text{ GHz}$ $f = 1.0 \text{ GHz}$ $f = 2.0 \text{ GHz}$ $f = 2.0 \text{ GHz}$	NF	— — — —	1.0 1.5 2.8 2.5	dB — 2.0 — —



Quality Semi-Conductors