

## The RF Line NPN Silicon RF Power Transistors

... designed for 24 volt UHF large-signal, common-emitter amplifier applications in industrial and commercial FM equipment operating in the range of 800–960 MHz.

- Specified 24 Volt, 900 MHz Characteristics  
Output Power = 5.0 Watts  
Power Gain = 9.0 dB Min  
Efficiency = 50% Min
- Series Equivalent Large-Signal Characterization
- Capable of Withstanding 20:1 VSWR Load Mismatch at Rated Output Power and Supply Voltage
- Gold Metallized, Emitter Ballasted for Long Life and Resistance to Metal Migration
- Silicon Nitride Passivated

### MAXIMUM RATINGS

| Rating   | Symbol    | Value       | Unit                         |
|--|-----------|-------------|------------------------------|
| Collector–Emitter Voltage  | $V_{CEO}$ | 30          | Vdc                          |
| Collector–Emitter Voltage  | $V_{CES}$ | 55          | Vdc                          |
| Emitter–Base Voltage   | $V_{EBO}$ | 4.0         | Vdc                          |
| Collector Current — Continuous   | $I_C$     | 0.6         | Adc                          |
| Total Device Dissipation @ $T_A = 50^\circ\text{C}$ (1)<br>Derate above $50^\circ\text{C}$ | $P_D$     | 18<br>0.143 | Watts<br>W/ $^\circ\text{C}$ |
| Storage Temperature Range  | $T_{stg}$ | –65 to +150 | $^\circ\text{C}$             |

### THERMAL CHARACTERISTICS

| Characteristic                           | Symbol          | Max | Unit               |
|--|-----------------|-----|--------------------|
| Thermal Resistance, Junction to Case (2) | $R_{\theta JC}$ | 7.0 | $^\circ\text{C/W}$ |

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

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

### OFF CHARACTERISTICS

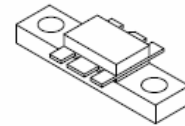
|  |               |     |   |     |      |
|--|---------------|-----|---|-----|------|
| Collector–Emitter Breakdown Voltage<br>( $I_C = 20\text{ mAdc}$ , $I_B = 0$ )                      | $V_{(BR)CEO}$ | 30  | — | —   | Vdc  |
| Collector–Emitter Breakdown Voltage<br>( $I_C = 20\text{ mAdc}$ , $V_{BE} = 0$ )                   | $V_{(BR)CES}$ | 55  | — | —   | Vdc  |
| Emitter–Base Breakdown Voltage<br>( $I_E = 0.5\text{ mAdc}$ , $I_C = 0$ )                          | $V_{(BR)EBO}$ | 4.0 | — | —   | Vdc  |
| Collector Cutoff Current<br>( $V_{CE} = 30\text{ Vdc}$ , $V_{BE} = 0$ , $T_C = 25^\circ\text{C}$ ) | $I_{CES}$     | —   | — | 1.0 | mAdc |

### ON CHARACTERISTICS

|  |          |    |   |     |   |
|--|----------|----|---|-----|---|
| DC Current Gain<br>( $I_C = 200\text{ mAdc}$ , $V_{CE} = 5.0\text{ Vdc}$ ) | $h_{FE}$ | 30 | — | 150 | — |
|--|----------|----|---|-----|---|

**MRF891**  
**MRF891S**

5.0 W, 900 MHz  
RF POWER  
TRANSISTORS  
NPN SILICON



CASE 319–07, STYLE 2  
MRF891



CASE 319A–02, STYLE 2  
MRF891S