ADVANCED POWER TECHNOLOGY RF®

# MMBR941/MRF9411

## NPN SILICON
### LOW NOISE, HIGH-FREQUENCY

## Features

- Specified @ 12.5V, 870 MHz characteristics
- Output Power = 750 mW
- Minimum Gain = 8.0dB
- Efficiency 60% Typical
- Cost Effective Macro-X package

## DESCRIPTION:

Designed primarily for wideband large signal stages in the 800 MHz and UHF frequency ranges.

## ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CEO}$ | Collector-Emitter Voltage | 16 | V |
| $V_{CBO}$ | Collector-Base Voltage | 30 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 3 | V |
| $I_C$ | Collector Current | 200 | mA |
| $P_D$ | Total Device Dissipation @ TC = 50ºC | 2.5 | W |
| $T_{STG}$ | Storage Junction Temperature Range | -65 to +150 | ºC |

## Thermal Data

| | | | |
|---|---|---|---|
| $R_{TH(J-C)}$ | Thermal Resistance Junction-Case | 40 | °C/W |

# ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

## STATIC

| Symbol | Test Conditions | Value | | | |
|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | Unit |
| $BV_{CEO}$ | $I_C$ = 5.0 mA, $I_B$ = 0 | 16 | - | - | V |
| $BV_{CES}$ | Ic = 5.0 mA, $V_{BE}$ = 0 | 30 | - | - | V |
| $BV_{EBO}$ | $I_E$ = 0.1 mA, $I_C$ = 0 | 3.0 | - | - | V |
| $I_{CES}$ | $V_{CE}$ = 15 V, $V_{BE}$ = 0 V | - | - | 0.1 | mA |
| HFE | $V_{CE}$ = 5.0 v, Ic = 50 mA | 30 | - | 200 | - |

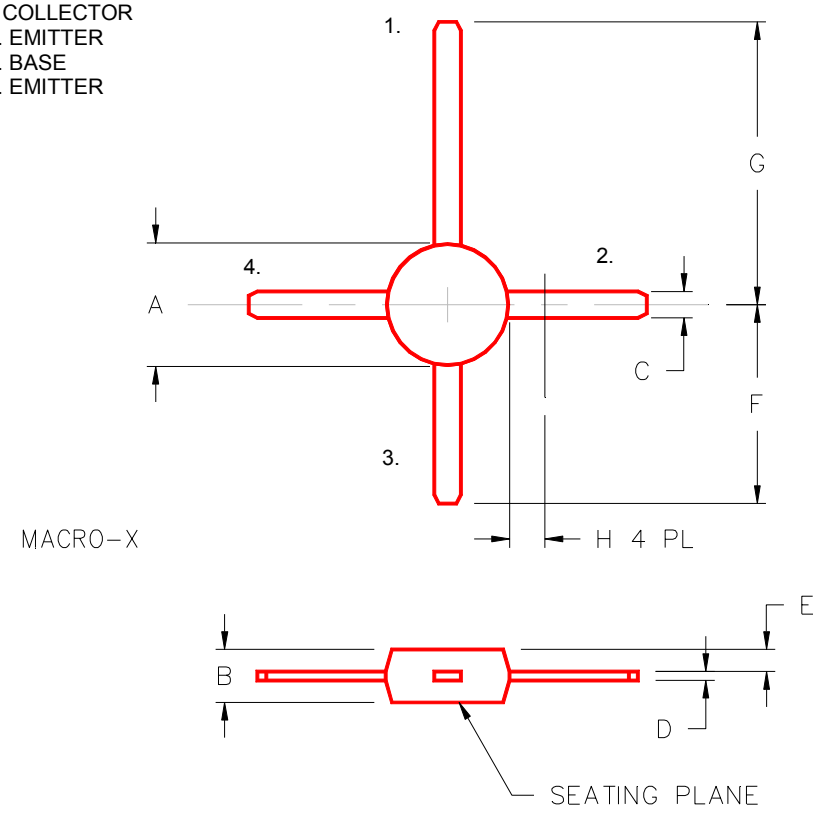
## FUNCTIONAL

| Symbol | Test Conditions | Value | | | |
|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | Unit |
| $G_{PE}$ | f = 870 MHz, $P_{OUT}$ = 0.75W, $V_{CE}$ = 12.5V | 8.0 | 9.5 | - | dB |
| $\eta_c$ | f = 870MHz, $P_{OUT}$ = 0.75W, $V_{CE}$ = 12.5V | 50 | 60 | - | % |
| $C_{OB}$ | $V_{CB}$ = 15 V, f = 1.0 MHz | - | - | 2.75 | pf |

# PACKAGE MECHANICAL DATA

PACKAGE STYLE M238

PIN 1. COLLECTOR
2. EMITTER
3. BASE
4. EMITTER




MACRO–X

| | MINIMUM INCHES/MM | MAXIMUM INCHES/MM | | MINIMUM INCHES/MM | MAXIMUM INCHES/MM |
|---|---|---|---|---|---|
| A | .175/4,45 | .205/5,21 | | | |
| B | .075/1,91 | .100/2,54 | | | |
| C | .033/0,84 | .039/0,99 | | | |
| D | .008/0,20 | .012/0,31 | | | |
| E | .030/0,76 | .045/1,14 | | | |
| F | .285/7,24 | .320/8,13 | | | |
| G | .415/10,54 | .450/11,43 | | | |
| H | .065/1,65 | | | | |