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MRF555

RF & MICROWAVE DISCRETE LOW POWER TRANSISTORS

Features

- Specified @ 12.5 V, 470 MHz Characteristics
- Output Power = 1.5 W
- Minimum Gain = 11 dB
- Efficiency 60% (Typ)
- Cost Effective PowerMacro Package
- Electroless Tin Plated Leads for Improved Solderability



Power Macro

DESCRIPTION: Designed primarily for wideband large signal stages in the UHF frequency range.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

| Symbol | Parameter | Value | Unit |
|------------------|---------------------------|-------|------|
| V _{CEO} | Collector-Emitter Voltage | 16 | Vdc |
| V _{CBO} | Collector-Base Voltage | 30 | Vdc |
| V _{EB0} | Emitter-Base Voltage | 3.0 | Vdc |
| I _C | Collector Current | 500 | mA |

Thermal Data

| | | | |
|----------------|---|-----------|----------------|
| P _D | Total Device Dissipation @ TC = 75°C Derate above 75°C | 3.0 40 | Watts mW/°C |
|----------------|---|-----------|----------------|

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Quality Semi-Conductors

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)
STATIC

| Symbol | Test Conditions | Value | | | Unit |
|------------|--|-------|------|------|------|
| | | Min. | Typ. | Max. | |
| BV_{CEO} | Collector-Emitter Breakdown Voltage ($I_C = 5 \text{ mAdc}$, $I_B = 0$) | 16 | - | - | Vdc |
| BV_{CES} | Collector-Emitter Sustaining Voltage ($I_C = 5.0 \text{ mAdc}$, $I_B = 0$) | 30 | - | - | Vdc |
| BV_{EBO} | Emitter-Base Breakdown Voltage ($I_E = 0.1 \text{ mAdc}$, $I_C = 0$) | 3.0 | - | - | Vdc |
| I_{CES} | Collector Cutoff Current ($V_{CE} = 15 \text{ Vdc}$, $V_{BE} = 0 \text{ Vdc}$) | - | - | 5 | mA |
| HFE | DC Current Gain ($I_C = 100 \text{ mA}$, $V_{CE} = 5.0 \text{ Vdc}$) Both | 50 | - | 200 | - |

DYNAMIC

| Symbol | Test Conditions | Value | | | Unit |
|----------|---|-------|------|------|------|
| | | Min. | Typ. | Max. | |
| C_{OB} | Output Capacitance ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$) | - | --- | 5.5 | pF |

FUNCTIONAL

| Symbol | Test Conditions | | Value | | | Unit |
|----------|--|---|--------------------------------|------|------|------|
| | | | Min. | Typ. | Max. | |
| G_{PE} | Power Gain | Test Circuit-Figure 1 $P_{out} = 1.5 \text{ W}$, $V_{CE} = 12.5 \text{ Vdc}$ $f = 470 \text{ MHz}$ | 11 | 12.5 | - | dB |
| η | Collector Efficiency | Test Circuit-Figure 1 $P_{out} = 1.5 \text{ W}$, $V_{CE} = 12.5 \text{ Vdc}$ $f = 175 \text{ MHz}$ | 50 | 60 | - | % |
| ψ | Load Mismatch $VSWR \geq 10:1$ All Phase Angles | Test Circuit-Figure 1 $P_{out} = 1.5 \text{ W}$, $V_{CE} = 12.5 \text{ Vdc}$ $f = 175 \text{ MHz}$ | No Degradation in Output Power | | | - |