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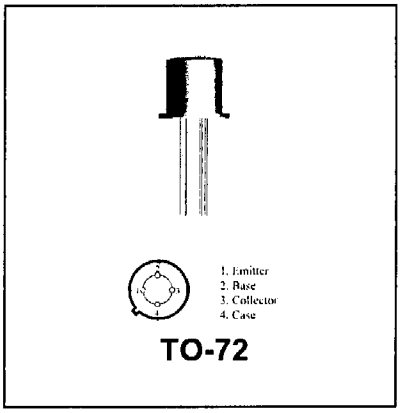
# 2N5031

## RF & MICROWAVE DISCRETE LOW POWER TRANSISTORS

### Features

- Silicon NPN, To-72 packaged VHF/UHF Transistor
- 1.2 GHz Current-Gain Bandwidth Product @ 5mA IC
- Maximum Unilateral Gain – 12 dB (typ) @ 400 MHz




TO-72

### DESCRIPTION:

General Purpose small-signal, pre-driver, and driver, applications targeted for military and industrial equipment.

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

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CEO}$ | Collector-Emitter Voltage | 10 | Vdc |
| $V_{CBO}$ | Collector-Base Voltage | 15 | Vdc |
| $V_{EBO}$ | Emitter-Base Voltage | 3.0 | Vdc |
| $I_C$ | Collector Current | 20 | mA |

### Thermal Data

| | | | |
|---|---|---|---|
| $P_D$ | Total Device Dissipation @ $T_A$ = 25°C<br>Derate above 25°C | 200<br>1.14 | mWatts<br>mW/ °C |

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

## STATIC

### (off)

| Symbol | Test Conditions | Value | | | |
|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | Unit |
| BVCEO | Collector-Emitter Breakdown Voltage (IC = 1.0 mAdc, IB = 0) | 10 | - | - | Vdc |
| BVCBO | Collector-Base Breakdown Voltage (IC= 0.01 mAdc, IE=0) | 15 | - | - | Vdc |
| BVEBO | Emitter-Base Breakdown Voltage (IE = 0.01mAdc, IC = 0) | 3.0 | - | - | Vdc |
| ICBO | Collector Cutoff Current (VCE = 6.0 Vdc, IE = 0 Vdc) | - | 1.0 | 10 | nA |

### (on)

| | | | | | |
|---|---|---|---|---|---|
| HFE | DC Current Gain (IC = 1.0 mAdc, VCE = 6.0 Vdc) | 25 | - | 300 | - |

## DYNAMIC

| Symbol | Test Conditions | Value | | | |
|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | Unit |
| $f_T$ | Current-Gain - Bandwidth Product (IC = 5.0 mAdc, VCE = 6 Vdc, f = 100 MHz) | 1200 | - | 2500 | MHz |
| CCB | Output Capacitance (IC = 1.0 mAdc, VCE = 6 Vdc, f = 450 MHz) | - | 2.5 | - | dB |

## FUNCTIONAL

| Symbol | Test Conditions | | Value | | | |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | Unit |
| $G_{U\ max}$ | Maximum Unilateral Gain (1) | IC = 1 mAdc, VCE = 6Vdc, f = 400 MHz | - | 12 | - | dB |
| MAG | Maximum Available Gain | IC = 1 mAdc, VCE = 6Vdc, f = 400 MHz | - | 12.4 | - | dB |