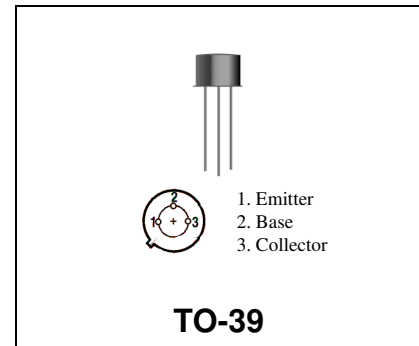


**RF & MICROWAVE DISCRETE
LOW POWER TRANSISTORS**
Features

- Silicon NPN, high Frequency, high breakdown Transistor
- Maximum Unilateral Gain = 13.5 dB (typ) @ f = 200 MHz
- High Collector Base Breakdown Voltage - BV_{CB0} = 100 V (min)
- High F_T - 1400 MHz


DESCRIPTION:

Designed primarily for use in high frequency and medium and high resolution color video display monitors as well as other applications requiring high breakdown characteristics.

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

| Symbol | Parameter | Value | Unit |
|------------------|---------------------------|-------|------|
| V _{CEO} | Collector-Emitter Voltage | 70 | Vdc |
| V _{CBO} | Collector-Base Voltage | 100 | Vdc |
| V _{EBO} | Emitter-Base Voltage | 3.0 | Vdc |
| I _c | Collector Current | 400 | mA |

Thermal Data

| | | | |
|----------------|---|-----------|-----------------|
| P _D | Total Device Dissipation @ T _A = 25°C Derate above 25°C | 3.5 20 | Watts mW/ °C |
|----------------|---|-----------|-----------------|

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)
**STATIC
(off)**

| Symbol | Test Conditions | Value | | | Unit |
|--------|--|-------|------|------|-----------------|
| | | Min. | Typ. | Max. | |
| BVCEO | Collector-Emitter Breakdown Voltage (I _C = 1.0 mA _{dc} , I _B = 0) | 70 | - | - | V _{dc} |
| BVCBO | Collector-Base Breakdown Voltage (I _C = 100 μA _{dc} , I _E = 0) | 100 | - | - | V _{dc} |
| BVEBO | Emitter-Base Breakdown Voltage (I _E = 100 μA _{dc} , I _C = 0) | 3.0 | - | - | V _{dc} |
| ICBO | Collector Cutoff Current (V _{CE} = 80 V _{dc} , I _E = 0 V _{dc}) | - | - | 20 | μA |
| ICES | Collector Cutoff Current (V _{CE} = 80 V _{dc} , I _E = 0 V _{dc}) | - | 1.0 | 100 | μA |

(on)

| | | | | | |
|-----|--|----|---|---|---|
| HFE | DC Current Gain (I _C = 50 mA _{dc} , V _{CE} = 6.0 V _{dc}) | 15 | - | - | - |
|-----|--|----|---|---|---|

DYNAMIC

| Symbol | Test Conditions | Value | | | Unit |
|----------------|---|-------|------|------|------|
| | | Min. | Typ. | Max. | |
| COB | Output Capacitance (V _{CB} = 10V _{dc} , I _E = 0, f = 1 MHz) | - | 2.5 | - | pF |
| CIB | Input Capacitance (V _{EB} = 3V _{dc} , I _E = 0, f = 1 MHz) | - | 6.1 | - | pF |
| f _T | Current-Gain - Bandwidth Product (I _C = 50 mA _{dc} , V _{CE} = 10 V _{dc} , f = 250 MHz) | 1000 | 1500 | - | MHz |

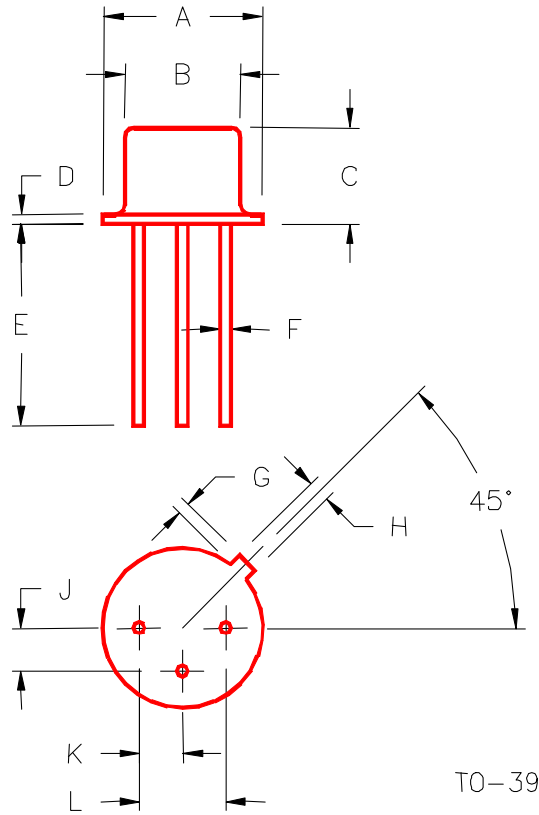
FUNCTIONAL

| Symbol | Test Conditions | | Value | | | Unit |
|--------------|-------------------------|---|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| $G_{U\max}$ | Maximum Unilateral Gain | IC = 50 mAdc, VCE = 25Vdc, f = 200 MHz | - | 13.5 | - | dB |
| MAG | Maximum Available Gain | IC = 50 mAdc, VCE = 25Vdc, f = 200 MHz | - | 13.5 | - | dB |
| $ S_{21} ^2$ | Insertion Gain | IC = 50 mAdc, VCE = 25Vdc, f = 200 MHz | 11.7 | 12.7 | - | dB |

Table 1. Common Emitter S-Parameters, @ VCE = 25 V, IC = 50 mA

| f (MHz) | S11 | | S21 | | S12 | | S22 | |
|------------|-------|---------------|------|---------------|-------|---------------|-------|---------------|
| | S11 | $\angle \phi$ | S21 | $\angle \phi$ | S12 | $\angle \phi$ | S22 | $\angle \phi$ |
| 100 | 0.221 | -143 | 8.54 | 97 | 0.047 | 82 | 0.508 | 14 |
| 200 | 0.219 | -108 | 4.36 | 87 | 0.091 | 87 | 0.413 | 49 |
| 300 | 0.250 | -72 | 2.98 | 79 | 0.141 | 87 | 0.406 | 82 |
| 400 | 0.329 | -34 | 2.39 | 72 | 0.178 | 84 | 0.445 | 108 |
| 500 | 0.338 | 9 | 2.11 | 70 | 0.237 | 87 | 0.409 | 140 |
| 600 | 0.348 | 51 | 1.83 | 65 | 0.292 | 86 | 0.412 | 176 |
| 700 | 0.371 | 94 | 1.61 | 61 | 0.35 | 86 | 0.411 | -147 |
| 800 | 0.374 | 140 | 1.44 | 59 | 0.383 | 85 | 0.413 | -112 |
| 900 | 0.402 | -170 | 1.45 | 63 | 0.428 | 88 | 0.386 | -78 |
| 1000 | 0.438 | -126 | 1.56 | 64 | 0.503 | 86 | 0.405 | -42 |

PACKAGE STYLE M246



| | MINIMUM INCHES/MM | MAXIMUM INCHES/MM | | MINIMUM INCHES/MM | MAXIMUM INCHES/MM |
|---|----------------------|----------------------|---|----------------------|----------------------|
| A | .350/8,89 | .370/9,40 | J | .095/2,41 | .105/2,67 |
| B | .315/8,00 | .335/8,51 | K | .095/2,41 | .105/2,67 |
| C | .240/6,10 | .260/6,60 | L | .190/4,83 | .210/5,33 |
| D | .015/0,38 | .045/1,14 | | | |
| E | .500/12,70 | | | | |
| F | .016/0,41 | .019/0,48 | | | |
| G | .029/0,74 | .040/1,02 | | | |
| H | .028/0,71 | .034/0,86 | | | |