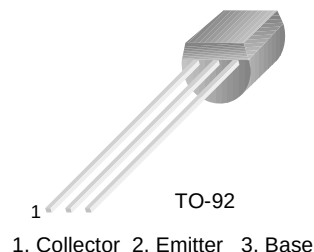


# BF240

## NPN RF Transistor



### Absolute Maximum Ratings\* $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter                                        | Value      | Units            |
|----------------|--------------------------------------------------|------------|------------------|
| $V_{CEO}$      | Collector-Emitter Voltage                        | 40         | V                |
| $V_{CBO}$      | Collector-Base Voltage                           | 40         | V                |
| $V_{EBO}$      | Emitter-Base Voltage                             | 4.0        | V                |
| $I_C$          | Collector Current - Continuous                   | 50         | mA               |
| $T_J, T_{STG}$ | Operating and Storage Junction Temperature Range | - 55 ~ 150 | $^\circ\text{C}$ |

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations

### Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol                              | Parameter                                  | Test Condition                                               | Min. | Max. | Units |
|-------------------------------------|--------------------------------------------|--------------------------------------------------------------|------|------|-------|
| <b>Off Characteristics</b>          |                                            |                                                              |      |      |       |
| $V_{(BR)CEO}$                       | Collector-Emitter Breakdown Voltage *      | $I_C = 1.0\text{mA}, I_B = 0$                                | 40   |      | V     |
| $V_{(BR)CBO}$                       | Collector-Base Breakdown Voltage           | $I_C = 100\mu\text{A}, I_E = 0$                              | 40   |      | V     |
| $V_{(BR)EBO}$                       | Emitter-Base Breakdown Voltage             | $I_E = 10\mu\text{A}, I_C = 0$                               | 4.0  |      | V     |
| $I_{CBO}$                           | Collector Cut-off Current                  | $V_{CB} = 20\text{V}, I_E = 0$                               |      | 100  | nA    |
| <b>On Characteristics</b>           |                                            |                                                              |      |      |       |
| $h_{FE}$                            | DC Current Gain                            | $I_C = 1\text{mA}, V_{CE} = 10\text{V}$                      | 65   | 225  |       |
| $V_{CE(sat)}$                       | Collector-Emitter Saturation Voltage       | $I_C = 1\text{mA}, I_B = 0.1\text{mA}$                       |      | 0.65 | V     |
| $V_{BE(sat)}$                       | Base-Emitter Saturation Voltage            | $I_C = 1\text{mA}, I_B = 0.1\text{mA}$                       |      | 0.74 | V     |
| <b>Small Signal Characteristics</b> |                                            |                                                              |      |      |       |
| $f_T$                               | Current gain Bandwidth Product             | $I_C = 7.0\text{mA}, V_{CE} = 10\text{V}, f = 100\text{MHz}$ |      | 1100 | MHz   |
| $C_{re}$                            | Common-Emitter Ruerse Transfer Capacitance | $V_{CB} = 10\text{V}, I_E = 0, f = 1.0\text{MHz}$            |      | 0.34 | pF    |

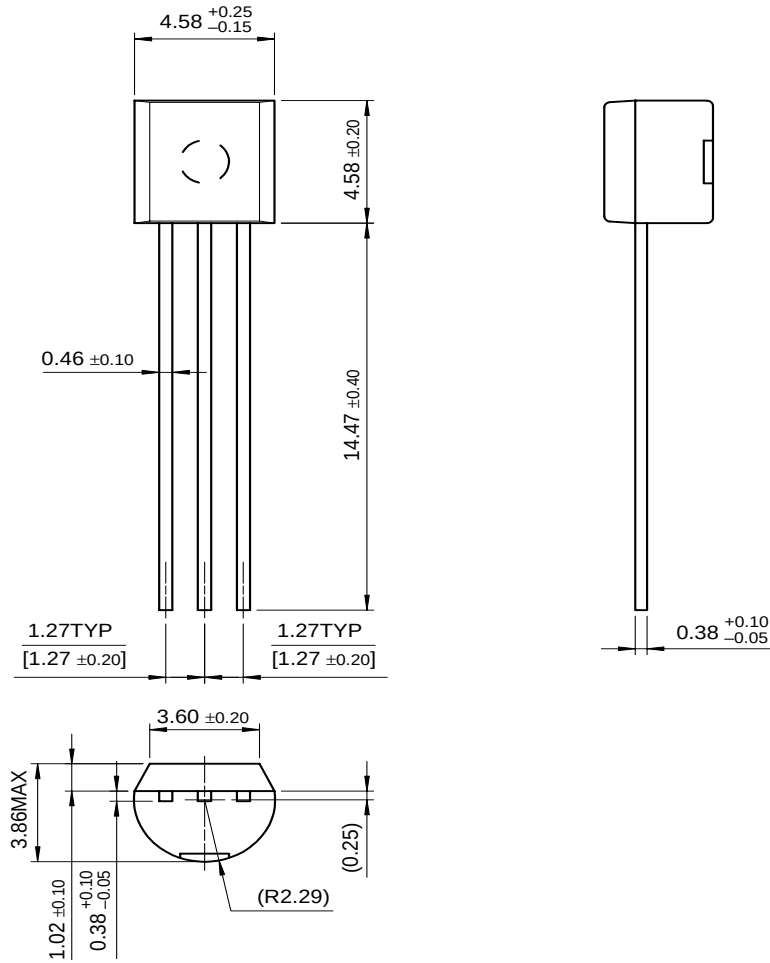
\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

### Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

| Symbol          | Parameter                               | Max. | Units                |
|-----------------|-----------------------------------------|------|----------------------|
| $P_D$           | Total Device Dissipation                | 350  | mW                   |
|                 | Derate above $25^\circ\text{C}$         | 2.8  | mW/ $^\circ\text{C}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case    | 125  | $^\circ\text{C/W}$   |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357  | $^\circ\text{C/W}$   |

# Package Dimensions

## TO-92



Dimensions in Millimeters

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### Definition of Terms

| Datasheet Identification | Product Status         | Definition                                                                                                                                                                                                            |
|--------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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