

isc Silicon NPN Power Transistor

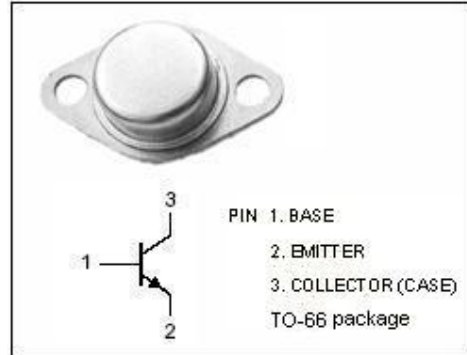
2SC2239

**DESCRIPTION**

- Collector-Emitter Breakdown Voltage  
:  $V_{(BR)CEO}=160V(\text{Min})$
- Good Linearity of  $h_{FE}$

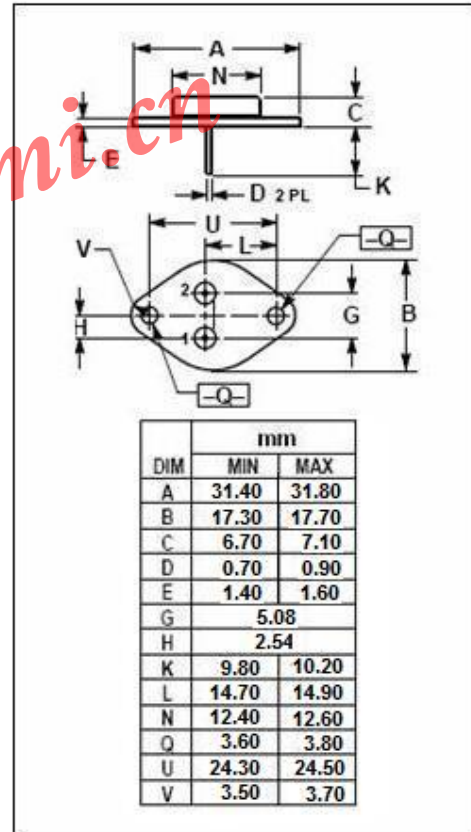
**APPLICATIONS**

- Power amplifier applications
- Driver stage amplifier applications



**ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )**

| SYMBOL    | PARAMETER   | VALUE   | UNIT             |
|-----------|---|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                              | 160     | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                           | 160     | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                | 5       | V                |
| $I_C$     | Collector Current-Continuous                        | 1.5     | A                |
| $I_E$     | Emitter Current- Continuous                         | -1.5    | A                |
| $P_C$     | Total Power Dissipation<br>@ $T_C=25^\circ\text{C}$ | 25      | W                |
| $T_J$     | Junction Temperature                                | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                           | -55~150 | $^\circ\text{C}$ |



**isc Silicon NPN Power Transistor****2SC2239****ELECTRICAL CHARACTERISTICS** $T_C=25^\circ\text{C}$  unless otherwise specified

| SYMBOL        | PARAMETER                            | CONDITIONS  | MIN | TYP. | MAX | UNIT          |
|---------------|--------------------------------------|---|-----|------|-----|---------------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage  | $I_C=10\text{mA}; I_B=0$                                | 160 |      |     | V             |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage       | $I_E=1\text{mA}; I_C=0$                                 | 5   |      |     | V             |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=0.5\text{A}; I_B=50\text{mA}$                      |     |      | 1.5 | V             |
| $V_{BE(on)}$  | Base-Emitter On Voltage              | $I_C=0.5\text{A}; V_{CE}=5\text{V}$                     |     |      | 1.0 | V             |
| $I_{CBO}$     | Collector Cutoff Current             | $V_{CB}=160\text{V}; I_E=0$                             |     |      | 1.0 | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter Cutoff Current               | $V_{EB}=5\text{V}; I_C=0$                               |     |      | 1.0 | $\mu\text{A}$ |
| $h_{FE}$      | DC Current Gain                      | $I_C=0.1\text{A}; V_{CE}=5\text{V}$                     | 70  |      | 240 |               |
| $C_{OB}$      | Output Capacitance                   | $I_E=0; V_{CB}=10\text{V}; f_{\text{test}}=1\text{MHz}$ |     | 25   |     | pF            |
| $f_T$         | Current-Gain—Bandwidth Product       | $I_C=0.1\text{A}; V_{CE}=10\text{V}$                    |     | 100  |     | MHz           |

◆  **$h_{FE}$  Classifications**

| O      | Y       |
|--------|---------|
| 70-140 | 120-240 |