

**isc Silicon NPN Power Transistor**

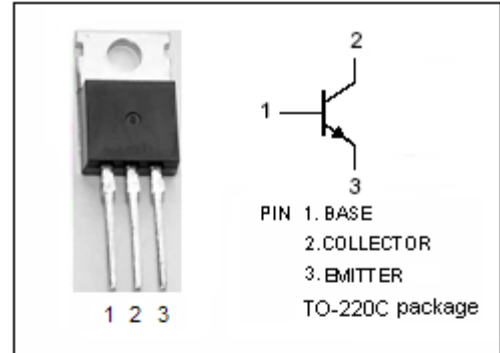
**2SD1117**

**DESCRIPTION**

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 40V(\text{Min})$
- Low Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 1.2V(\text{Max}) @ I_C = 5A$
- Wide Area of Safe Operation
- Complement to Type 2SB850

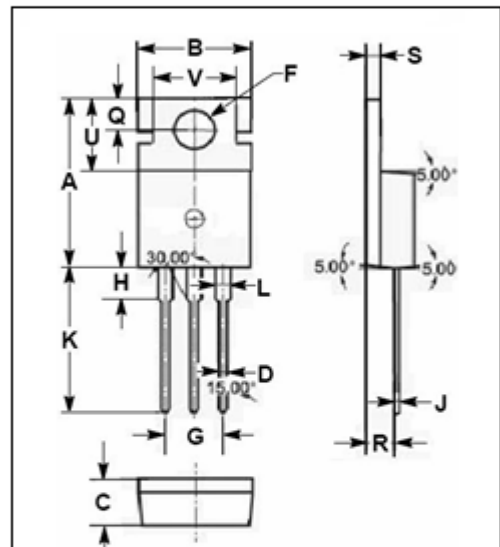
**APPLICATIONS**

- Designed for audio amplifier, series regulators and general purpose power amplifiers.



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

| SYMBOL    | PARAMETER  | VALUE   | UNIT        |
|-----------|--|---------|-------------|
| $V_{CBO}$ | Collector-Base Voltage                             | 40      | V           |
| $V_{CEO}$ | Collector-Emitter Voltage                          | 40      | V           |
| $V_{EBO}$ | Emitter-Base Voltage                               | 7       | V           |
| $I_C$     | Collector Current-Continuous                       | 10      | A           |
| $I_B$     | Base Current-Continuous                            | 2       | A           |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^{\circ}C$ | 50      | W           |
| $T_J$     | Junction Temperature                               | 150     | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature Range                          | -55~150 | $^{\circ}C$ |



| DIM | mm    |       |
|-----|-------|-------|
|     | MIN   | MAX   |
| A   | 15.70 | 15.90 |
| B   | 9.90  | 10.10 |
| C   | 4.20  | 4.40  |
| D   | 0.70  | 0.90  |
| F   | 3.40  | 3.60  |
| G   | 4.98  | 5.18  |
| H   | 2.70  | 2.90  |
| J   | 0.44  | 0.46  |
| K   | 13.20 | 13.40 |
| L   | 1.10  | 1.30  |
| Q   | 2.70  | 2.90  |
| R   | 2.50  | 2.70  |
| S   | 1.29  | 1.31  |
| U   | 6.45  | 6.65  |
| V   | 8.66  | 8.86  |

**THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER                            | MAX | UNIT          |
|---------------|--------------------------------------|-----|---------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 2.5 | $^{\circ}C/W$ |

**isc Silicon NPN Power Transistor****2SD1117****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  | $I_C=10\text{mA}; I_B=0$          | 40  |      |     | V             |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage     | $I_C=0.1\text{mA}; I_E=0$         | 40  |      |     | V             |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage       | $I_E=0.1\text{mA}; I_C=0$         | 7   |      |     | V             |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=5\text{A}; I_B=0.5\text{A}$  |     |      | 1.2 | V             |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage      | $I_C=5\text{A}; I_B=0.5\text{A}$  |     |      | 2.0 | V             |
| $I_{CBO}$     | Collector Cutoff Current             | $V_{CB}=40\text{V}; I_E=0$        |     |      | 10  | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter Cutoff Current               | $V_{EB}=7\text{V}; I_C=0$         |     |      | 10  | $\mu\text{A}$ |
| $h_{FE}$      | DC Current Gain                      | $I_C=2\text{A}; V_{CE}=5\text{V}$ | 60  |      | 240 |               |