

isc Silicon PNP Power Transistor

TIP514

DESCRIPTION

- Continuous Collector Current- $I_C = -5A$
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = -150V(\text{Min.})$
- Collector Power Dissipation-  
:  $P_C = 20W @ T_C \leq 100^\circ C$

APPLICATIONS

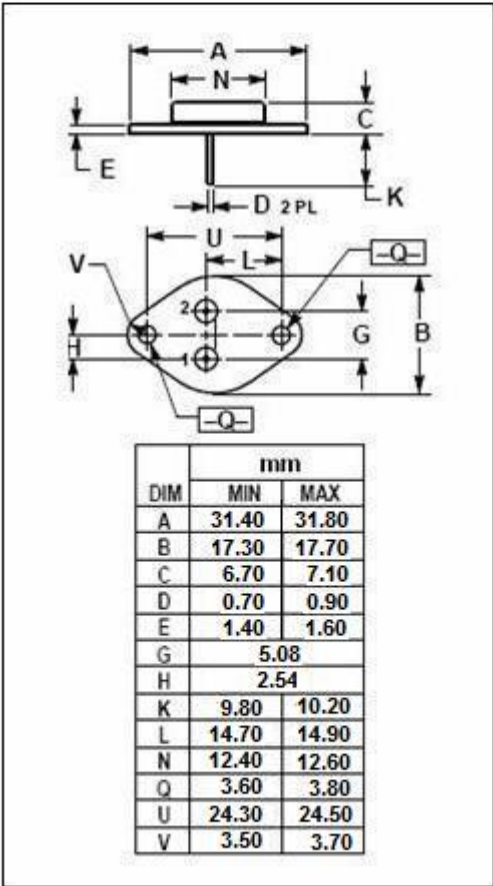
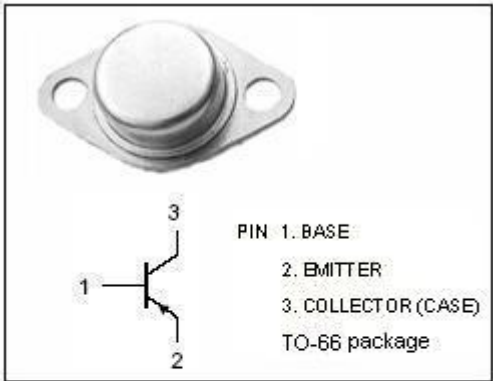
- Designed for power amplifier and high speed switching applications.

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

| SYMBOL    | PARAMETER                                               | VALUE   | UNIT       |
|-----------|---------------------------------------------------------|---------|------------|
| $V_{CBO}$ | Collector-Base Voltage                                  | -150    | V          |
| $V_{CEO}$ | Collector-Emitter Voltage                               | -150    | V          |
| $V_{EBO}$ | Emitter-Base Voltage                                    | -5      | V          |
| $I_C$     | Collector Current-Continuous                            | -5      | A          |
| $I_{CM}$  | Collector Current-Peak                                  | -7.5    | A          |
| $I_B$     | Base Current-Continuous                                 | -2      | A          |
| $P_C$     | Collector Power Dissipation<br>@ $T_a = 25^\circ C$     | 2       | W          |
|           | Collector Power Dissipation<br>@ $T_C \leq 100^\circ C$ | 20      |            |
| $T_J$     | Junction Temperature                                    | 200     | $^\circ C$ |
| $T_{stg}$ | Storage Temperature                                     | -65~200 | $^\circ C$ |

THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX | UNIT         |
|---------------|--------------------------------------|-----|--------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 5.0 | $^\circ C/W$ |



**ISC Silicon NPN Power Transistor****TIP514****ELECTRICAL CHARACTERISTICS** **$T_C=25^{\circ}\text{C}$  unless otherwise specified**

| SYMBOL          | PARAMETER                            | CONDITIONS                                                                                                    | MIN  | MAX          | UNIT |
|-----------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------|------|--------------|------|
| $V_{(BR)CEO}$   | Collector-Emitter Breakdown Voltage  | $I_C = -30\text{mA}$ ; $I_B = 0$                                                                              | -150 |              | V    |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C = -2.5\text{A}$ ; $I_B = -0.25\text{A}$                                                                  |      | -1.0         | V    |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C = -5\text{A}$ ; $I_B = -0.5\text{A}$                                                                     |      | -2.0         | V    |
| $V_{BE(on)}$    | Base-Emitter On Voltage              | $I_C = -5\text{A}$ ; $V_{CE} = -4\text{V}$                                                                    |      | -2.2         | V    |
| $I_{CEO}$       | Collector Cutoff Current             | $V_{CE} = -75\text{V}$ ; $I_B = 0$                                                                            |      | -0.3         | mA   |
| $I_{CES}$       | Collector Cutoff Current             | $V_{CE} = -150\text{V}$ ; $V_{BE} = 0$<br>$V_{CE} = -75\text{V}$ ; $V_{BE} = 0$ , $T_C = 150^{\circ}\text{C}$ |      | -1.0<br>-2.0 | mA   |
| $I_{EBO}$       | Emitter Cutoff Current               | $V_{EB} = -2.5\text{V}$ ; $I_C = 0$<br>$V_{EB} = -5\text{V}$ ; $I_C = 0$                                      |      | -0.1<br>-1.0 | mA   |
| $h_{FE-1}$      | DC Current Gain                      | $I_C = -2.5\text{A}$ ; $V_{CE} = -4\text{V}$                                                                  | 30   | 150          |      |
| $h_{FE-2}$      | DC Current Gain                      | $I_C = -5\text{A}$ ; $V_{CE} = -4\text{V}$                                                                    | 15   |              |      |