

# isc Silicon NPN Power Transistor

## 2N6121

### DESCRIPTION

- Collector-Emitter Sustaining Voltage-  
:  $V_{CE(sat)} = 0.6V(\text{Max.}) @ I_C = 1.5A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 45V(\text{Min})$
- Complement to Type 2N6124
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### APPLICATIONS

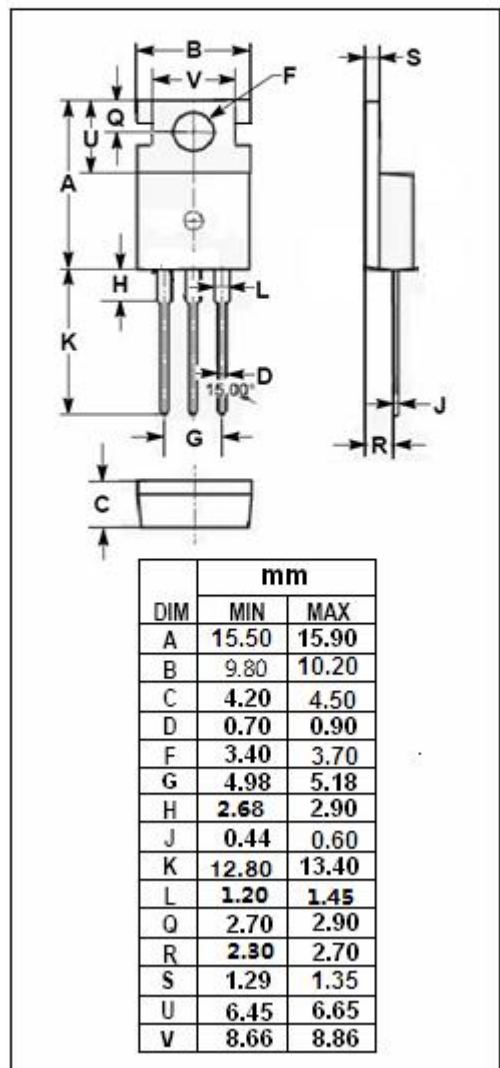
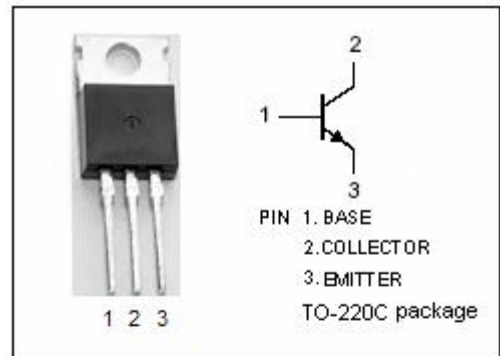
- Designed for use in power amplifier and switching circuits applications

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

| SYMBOL    | PARAMETER                                                 | VALUE   | UNIT             |
|-----------|-----------------------------------------------------------|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                    | 45      | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                                 | 45      | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                      | 5       | V                |
| $I_C$     | Collector Current-Continuous                              | 4       | A                |
| $I_{CM}$  | Collector Current-Peak                                    | 8       | A                |
| $I_B$     | Base Current                                              | 1       | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C = 25^\circ\text{C}$ | 40      | W                |
| $T_J$     | Junction Temperature                                      | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                                 | -65~150 | $^\circ\text{C}$ |

### THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX   | UNIT               |
|---------------|--------------------------------------|-------|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 3.125 | $^\circ\text{C/W}$ |



**isc Silicon NPN Power Transistor****2N6121****ELECTRICAL CHARACTERISTICS****T<sub>C</sub>=25°C unless otherwise specified**

| SYMBOL                 | PARAMETER                            | CONDITIONS                                                                                                                        | MIN | MAX        | UNIT |
|------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----|------------|------|
| V <sub>CEQ(SUS)</sub>  | Collector-Emitter Sustaining Voltage | I <sub>C</sub> = 50mA ; I <sub>B</sub> =0                                                                                         | 45  |            | V    |
| V <sub>CE(sat)-1</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 1.5A; I <sub>B</sub> = 0.15A                                                                                     |     | 0.6        | V    |
| V <sub>CE(sat)-2</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 4A; I <sub>B</sub> = 1.0A                                                                                        |     | 1.4        | V    |
| V <sub>BE(on)</sub>    | Base-Emitter On Voltage              | I <sub>C</sub> = 1.5A ; V <sub>CE</sub> = 2V                                                                                      |     | 1.2        | V    |
| I <sub>CEX</sub>       | Collector Cutoff Current             | V <sub>CE</sub> = 45V; V <sub>BE(off)</sub> = 1.5V<br>V <sub>CE</sub> = 45V; V <sub>BE(off)</sub> = 1.5V ; T <sub>C</sub> = 150°C |     | 0.1<br>2.0 | mA   |
| I <sub>CEO</sub>       | Collector Cutoff Current             | V <sub>CE</sub> = 45V; I <sub>B</sub> = 0                                                                                         |     | 1.0        | mA   |
| I <sub>EBO</sub>       | Emitter Cutoff Current               | V <sub>EB</sub> = 5V; I <sub>C</sub> = 0                                                                                          |     | 1.0        | mA   |
| h <sub>FE-1</sub>      | DC Current Gain                      | I <sub>C</sub> = 1.5A ; V <sub>CE</sub> = 2V                                                                                      | 25  | 100        |      |
| h <sub>FE-2</sub>      | DC Current Gain                      | I <sub>C</sub> = 4A ; V <sub>CE</sub> = 2V                                                                                        | 10  |            |      |
| f <sub>T</sub>         | Current-Gain—Bandwidth Product       | I <sub>C</sub> = 1.0A; V <sub>CE</sub> = 4V, f <sub>test</sub> = 1.0MHz                                                           | 2.5 |            | MHz  |

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