

**isc Silicon PNP Power Transistor**
**2SA1744**
**DESCRIPTION**

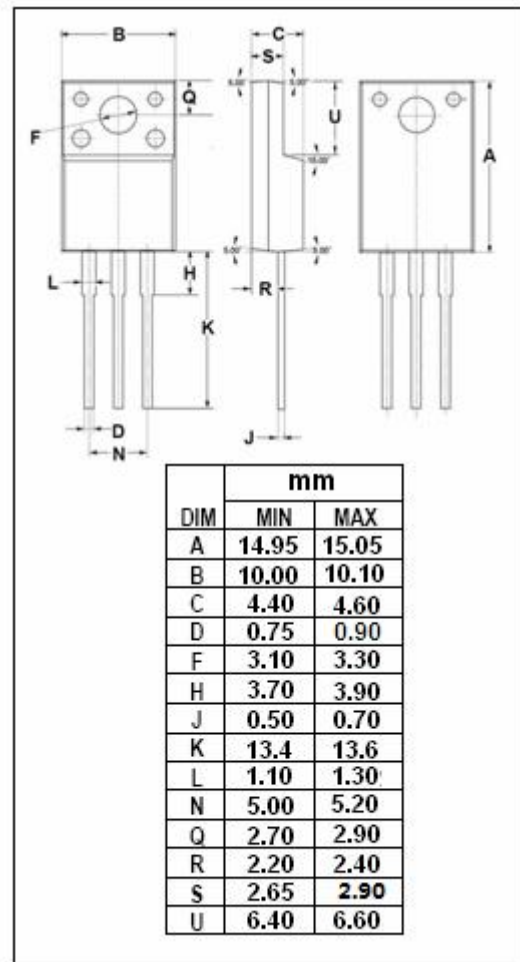
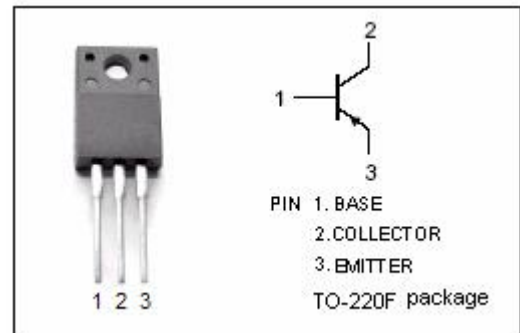
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = -60V(\text{Min})$
- High DC Current Gain-  
:  $h_{FE} = 100(\text{Min})@ (V_{CE} = -2V, I_C = -3A)$
- Low Saturation Voltage-  
:  $V_{CE(sat)} = -0.3V(\text{Max})@ (I_C = -8A, I_B = -0.4A)$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- Designed for use as a driver in DC/DC converters and actuators.

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

| SYMBOL    | PARAMETER  | VALUE   | UNIT             |
|-----------|--|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                             | -100    | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                          | -60     | V                |
| $V_{EBO}$ | Emitter-Base Voltage                               | -7.0    | V                |
| $I_C$     | Collector Current-Continuous                       | -15     | A                |
| $I_{CM}$  | Collector Current-Pulse                            | -30     | A                |
| $I_B$     | Base Current-Continuous                            | -7.5    | A                |
| $P_T$     | Total Power Dissipation @ $T_c = 25^\circ\text{C}$ | 30      | W                |
|           | Total Power Dissipation @ $T_a = 25^\circ\text{C}$ | 2.0     |                  |
| $T_J$     | Junction Temperature                               | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature                                | -55~150 | $^\circ\text{C}$ |



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**ELECTRICAL CHARACTERISTICS**
**T<sub>j</sub>=25°C unless otherwise specified**

| SYMBOL                  | PARAMETER                            | CONDITIONS  | MIN | TYP. | MAX  | UNIT |
|-------------------------|--------------------------------------|---|-----|------|------|------|
| V <sub>CE0(SUS)</sub>   | Collector-Emitter Sustaining Voltage | I <sub>c</sub> =-10mA, I <sub>b</sub> =0            | -60 | --   | --   | V    |
| I <sub>CB0</sub>        | Collector Cutoff Current             | V <sub>CB</sub> = -60V; I <sub>E</sub> = 0          | --  | --   | -10  | μ A  |
| I <sub>CE0</sub>        | Collector Cutoff Current             | V <sub>CE</sub> = -60V; I <sub>b</sub> =0           | --  | --   | -1.0 | mA   |
| I <sub>EB0</sub>        | Emitter Cutoff Current               | V <sub>EB</sub> = -5V; I <sub>c</sub> = 0           | --  | --   | -10  | μ A  |
| h <sub>FE-1*</sub>      | DC Current Gain                      | I <sub>c</sub> = -1.5A; V <sub>CE</sub> = -2V       | 100 | --   | --   |      |
| h <sub>FE-2*</sub>      | DC Current Gain                      | I <sub>c</sub> = -3A; V <sub>CE</sub> = -2V         | 100 | --   | 400  |      |
| h <sub>FE-3*</sub>      | DC Current Gain                      | I <sub>c</sub> = -8A; V <sub>CE</sub> = -2V         | 60  | --   | --   |      |
| V <sub>CE(sat)-1*</sub> | Collector-Emitter Saturation Voltage | I <sub>c</sub> = -8A; I <sub>B</sub> = -0.4A        | --  | --   | -0.3 | V    |
| V <sub>CE(sat)-2*</sub> | Collector-Emitter Saturation Voltage | I <sub>c</sub> = -12A; I <sub>B</sub> = -0.6A       | --  | --   | -0.5 | V    |
| V <sub>BE(sat)-1*</sub> | Base-Emitter Saturation Voltage      | I <sub>c</sub> = -8A; I <sub>B</sub> = -0.4A        | --  | --   | -1.2 | V    |
| V <sub>BE(sat)-2*</sub> | Base-Emitter Saturation Voltage      | I <sub>c</sub> = -12A; I <sub>B</sub> = -0.6A       | --  | --   | -1.5 | V    |
| C <sub>OB</sub>         | Output Capacitance                   | I <sub>E</sub> = 0; V <sub>CB</sub> = -10V; f= 1MHz | --  | 290  | --   | pF   |
| f <sub>T</sub>          | Current-Gain—Bandwidth Product       | I <sub>c</sub> = -1.5A ; V <sub>CE</sub> = -10V     | --  | 80   | --   | MHz  |

\* Pulse test PW ≤ 350 μs, duty cycle ≤ 2%

**h<sub>FE</sub> CLASSIFICATION**

| Marking            | M       | L       | K       |
|--------------------|---------|---------|---------|
| h <sub>FE-2*</sub> | 100-200 | 150-300 | 200-400 |

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