

INCHANGE Semiconductor

isc Product Specification

isc Silicon PNP Power Transistor

BD744C

DESCRIPTION

- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = -100V(\text{Min})$
- Collector Power Dissipation-
: $P_C = 90W @ I_C = 25^\circ C$
- 15A Continuous Collector Current
- Complement to Type BD743C

APPLICATIONS

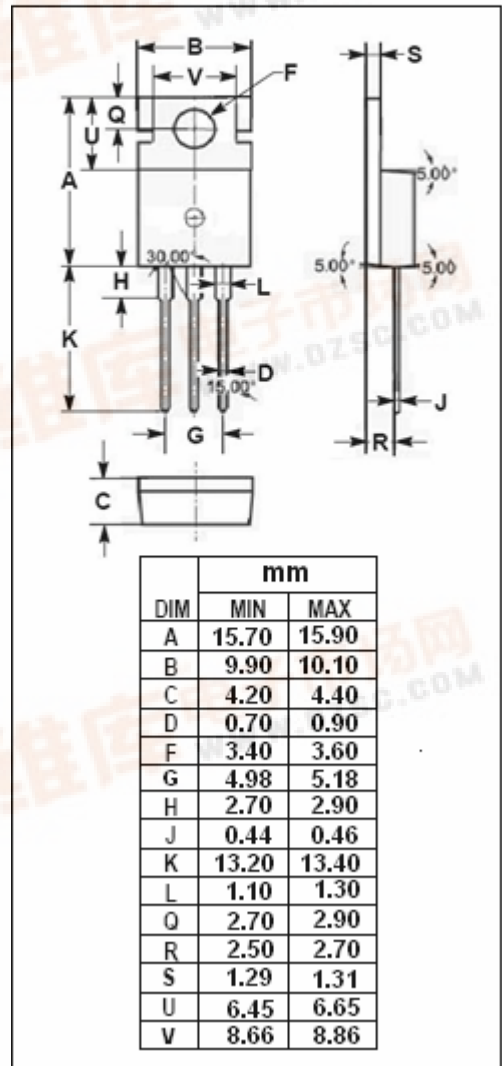
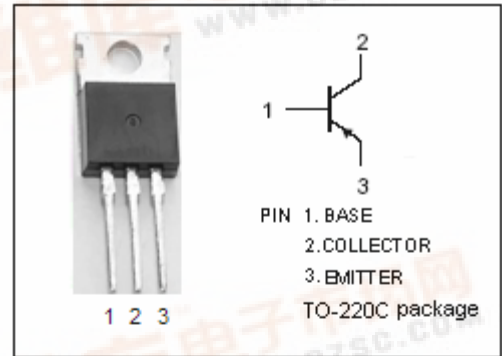
- Designed for use in general purpose power amplifier and switching applications.

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|--|---------|------------|
| V_{CBO} | Collector-Base Voltage | -110 | V |
| V_{CEO} | Collector-Emitter Voltage | -100 | V |
| V_{EBO} | Emitter-Base Voltage | -5 | V |
| I_C | Collector Current-Continuous | -15 | A |
| I_{CM} | Collector Current-Peak | -20 | A |
| I_B | Base Current-Continuous | -5 | A |
| P_C | Collector Power Dissipation @ $T_a=25^\circ C$ | 2 | W |
| | Collector Power Dissipation @ $T_C=25^\circ C$ | 90 | |
| T_J | Junction Temperature | 150 | $^\circ C$ |
| T_{stg} | Storage Temperature Range | -65~150 | $^\circ C$ |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|---|------|--------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.4 | $^\circ C/W$ |
| $R_{th\ j-a}$ | Thermal Resistance, Junction to Ambient | 62.5 | $^\circ C/W$ |



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ELECTRICAL CHARACTERISTICS

 $T_C=25^\circ\text{C}$ unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | MAX | UNIT |
|-----------------|--------------------------------------|---|------|------|------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | $I_C = -30\text{mA}; I_B = 0$ | -100 | | V |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C = -5\text{A}; I_B = -0.5\text{A}$ | | -1.0 | V |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C = -15\text{A}; I_B = -5\text{A}$ | | -3.0 | V |
| $V_{BE(on)-1}$ | Base-Emitter On Voltage | $I_C = -5\text{A}; V_{CE} = -4\text{V}$ | | -1.0 | V |
| $V_{BE(on)-2}$ | Base-Emitter On Voltage | $I_C = -15\text{A}; V_{CE} = -4\text{V}$ | | -3.0 | V |
| I_{CBO} | Collector Cutoff Current | $V_{CB} = -110\text{V}; I_E = 0$ | | -0.1 | mA |
| | | $V_{CB} = -110\text{V}; I_E = 0; T_C = 125^\circ\text{C}$ | | -5.0 | |
| I_{CEO} | Collector Cutoff Current | $V_{CE} = -60\text{V}; I_B = 0$ | | -0.1 | mA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB} = -5\text{V}; I_C = 0$ | | -0.5 | mA |
| h_{FE-1} | DC Current Gain | $I_C = -1\text{A}; V_{CE} = -4\text{V}$ | 40 | | |
| h_{FE-2} | DC Current Gain | $I_C = -5\text{A}; V_{CE} = -4\text{V}$ | 20 | 150 | |
| h_{FE-3} | DC Current Gain | $I_C = -15\text{A}; V_{CE} = -4\text{V}$ | 5 | | |

Switching Times

| | | | | | | |
|-------|--------------|---|--|-----|--|----|
| t_d | Delay Time | $I_C = -5\text{A}; I_{B1} = -I_{B2} = -5\text{A};$ $V_{BE(off)} = 4.2\text{V}; R_L = 6\ \Omega;$ $t_p = 20\ \mu\text{s}, \text{DutyCycle} \leq 2\%$ | | 20 | | ns |
| t_r | Rise Time | | | 120 | | ns |
| t_s | Storage Time | | | 600 | | ns |
| t_f | Fall time | | | 300 | | ns |