

isc Silicon NPN Power Transistor

BD245/A/B/C

DESCRIPTION

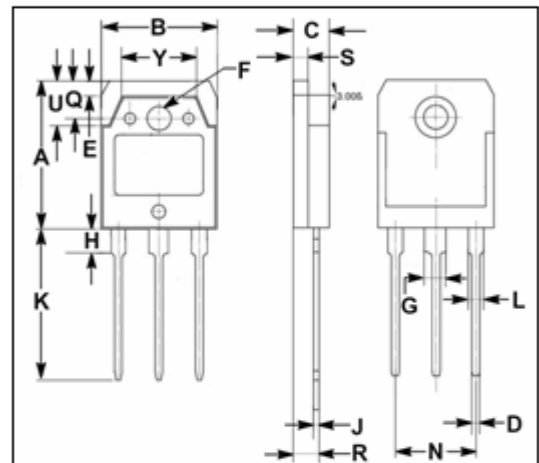
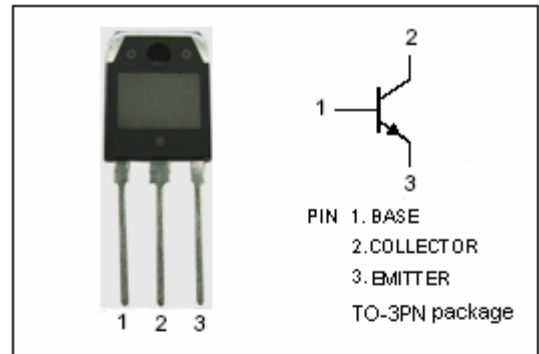
- Collector Current  $-I_C = 10A$
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 45V(\text{Min})$ - BD245;  $60V(\text{Min})$ - BD245A  
 $80V(\text{Min})$ - BD245B;  $100V(\text{Min})$ - BD245C
- Complement to Type BD246/A/B/C

APPLICATIONS

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

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

| SYMBOL    | PARAMETER  | VALUE   | UNIT             |   |
|-----------|--|---------|------------------|---|
| $V_{CER}$ | Collector-Emitter Voltage ( $R_{BE} = 100\Omega$ )   | BD245   | 55               | V |
|           |  | BD245A  | 70               |   |
|           |  | BD245B  | 90               |   |
|           |  | BD245C  | 115              |   |
| $V_{CEO}$ | Collector-Emitter Voltage                            | BD245   | 45               | V |
|           |  | BD245A  | 60               |   |
|           |  | BD245B  | 80               |   |
|           |  | BD245C  | 100              |   |
| $V_{EBO}$ | Emitter-Base Voltage                                 | 5       | V                |   |
| $I_C$     | Collector Current-Continuous                         | 10      | A                |   |
| $I_{CM}$  | Collector Current-Peak                               | 15      | A                |   |
| $I_B$     | Base Current   | 3       | A                |   |
|           | Collector Power Dissipation @ $T_a=25^\circ\text{C}$ | 3       | W                |   |
| $P_C$     | Collector Power Dissipation @ $T_C=25^\circ\text{C}$ | 80      |                  |   |
| $T_J$     | Junction Temperature                                 | 150     | $^\circ\text{C}$ |   |
| $T_{stg}$ | Storage Temperature Range                            | -65~150 | $^\circ\text{C}$ |   |



| DIM | mm    |       |
|-----|-------|-------|
|     | MIN   | MAX   |
| A   | 19.90 | 20.10 |
| B   | 15.50 | 15.70 |
| C   | 4.70  | 4.90  |
| D   | 0.90  | 1.10  |
| E   | 1.90  | 2.10  |
| F   | 3.40  | 3.60  |
| G   | 2.90  | 3.10  |
| H   | 3.20  | 3.40  |
| J   | 0.595 | 0.605 |
| K   | 20.50 | 20.70 |
| L   | 1.90  | 2.10  |
| N   | 10.89 | 10.91 |
| Q   | 4.90  | 5.10  |
| R   | 3.35  | 3.45  |
| S   | 1.995 | 2.005 |
| U   | 5.90  | 6.10  |
| Y   | 9.90  | 10.10 |

THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX  | UNIT                      |
|---------------|--------------------------------------|------|---------------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.56 | $^\circ\text{C}/\text{W}$ |

## isc Silicon NPN Power Transistor

## BD245/A/B/C

## 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  | BD245    | $I_C=30\text{mA}; I_B=0$                                     | 45  |      |     | V    |
|                 |                                      | BD245A   |  | 60  |      |     |      |
|                 |                                      | BD245B   |  | 80  |      |     |      |
|                 |                                      | BD245C   |  | 100 |      |     |      |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage |          | $I_C=3\text{A}; I_B=0.3\text{A}$                             |     |      | 1.0 | V    |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage |          | $I_C=10\text{A}; I_B=2.5\text{A}$                            |     |      | 4.0 | V    |
| $V_{BE(on)-1}$  | Base-Emitter On Voltage              |          | $I_C=3\text{A}; V_{CE}=4\text{V}$                            |     |      | 1.6 | V    |
| $V_{BE(on)-2}$  | Base-Emitter On Voltage              |          | $I_C=10\text{A}; V_{CE}=4\text{V}$                           |     |      | 3.0 | V    |
| $I_{CES}$       | Collector Cutoff Current             | BD245    | $V_{CE}=55\text{V}; V_{BE}=0$                                |     |      | 0.4 | mA   |
|                 |                                      | BD245A   | $V_{CE}=70\text{V}; V_{BE}=0$                                |     |      |     |      |
|                 |                                      | BD245B   | $V_{CE}=90\text{V}; V_{BE}=0$                                |     |      |     |      |
|                 |                                      | BD245C   | $V_{CE}=115\text{V}; V_{BE}=0$                               |     |      |     |      |
| $I_{CEO}$       | Collector Cutoff Current             | BD245/A  | $V_{CE}=30\text{V}; I_B=0$                                   |     |      | 0.7 | mA   |
|                 |                                      | BD245B/C | $V_{CE}=60\text{V}; I_B=0$                                   |     |      |     |      |
| $I_{EBO}$       | Emitter Cutoff Current               |          | $V_{EB}=5\text{V}; I_C=0$                                    |     |      | 1.0 | mA   |
| $h_{FE-1}$      | DC Current Gain                      |          | $I_C=1\text{A}; V_{CE}=4\text{V}$                            | 40  |      |     |      |
| $h_{FE-2}$      | DC Current Gain                      |          | $I_C=3\text{A}; V_{CE}=4\text{V}$                            | 20  |      |     |      |
| $h_{FE-3}$      | DC Current Gain                      |          | $I_C=10\text{A}; V_{CE}=4\text{V}$                           | 4   |      |     |      |
| $f_T$           | Current-Gain—Bandwidth Product       |          | $I_C=0.5\text{A}; V_{CE}=10\text{V}; f_{test}=1.0\text{MHz}$ | 3.0 |      |     | MHz  |

## Switching times

|           |               |   |  |     |  |               |
|-----------|---------------|---|--|-----|--|---------------|
| $t_{on}$  | Turn-on Time  | $I_C=1\text{A}; I_{B1}=-I_{B2}=0.1\text{A}; R_L=20\Omega; V_{BE(OFF)}=-3.7\text{V}$ |  | 0.2 |  | $\mu\text{s}$ |
| $t_{off}$ | Turn-off Time |   |  | 0.8 |  | $\mu\text{s}$ |

isc Silicon NPN Power Transistor

BD245/A/B/C

