

## 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

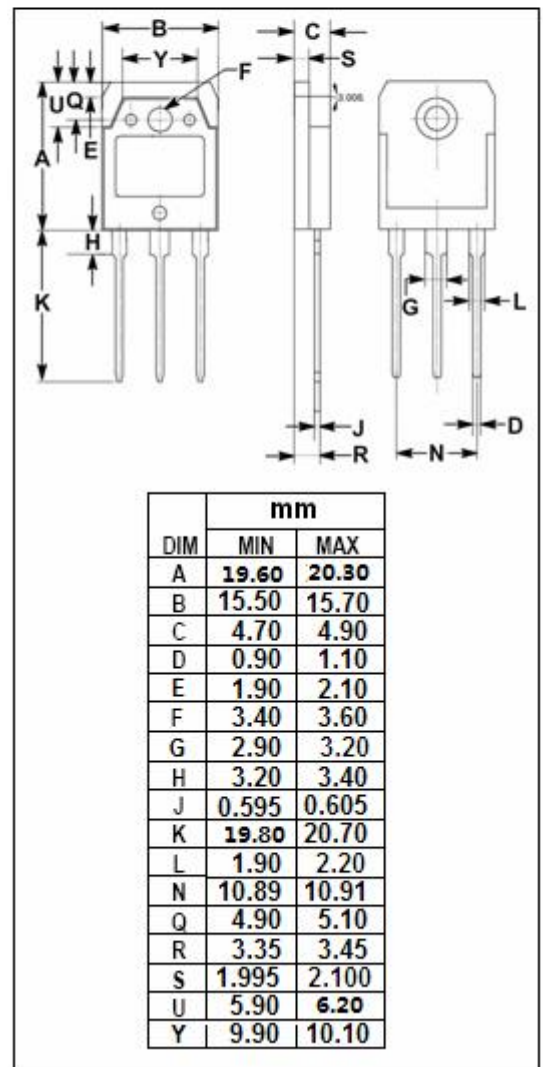
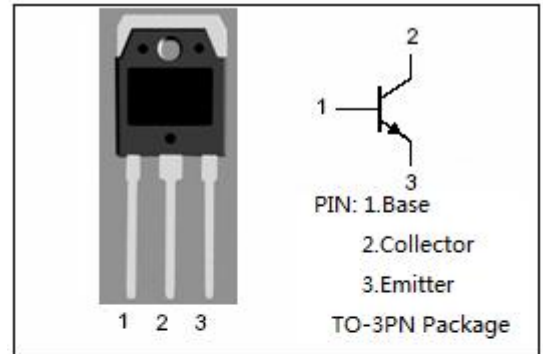
- Designed for use in general purpose power amplifier and switching applications

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     |                  |
| $V_{CE0}$ | 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                |
| $P_C$     | Collector Power Dissipation<br>@ $T_a=25^\circ\text{C}$ |        | 3       | W                |
|           | Collector Power Dissipation<br>@ $T_c=25^\circ\text{C}$ |        | 80      |                  |
| $T_J$     | Junction Temperature                                    |        | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                               |        | -65~150 | $^\circ\text{C}$ |

## THERMAL CHARACTERISTICS

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



**SPTECH 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       |          | $I_C=0.5\text{A}; V_{CE}=10\text{V}, f_{\text{test}}=1.0\text{MHz}$ | 3.0 |      |     | MHz  |

Switching times

|           |               |                                                                                     |  |     |  |               |
|-----------|---------------|-------------------------------------------------------------------------------------|--|-----|--|---------------|
| $t_{on}$  | Turn-on Time  | $I_C=1\text{A}; I_{B1}=-I_{B2}=0.1\text{A}; R_L=20\Omega; V_{BE(OFF)}=-3.7\text{V}$ |  | 0.3 |  | $\mu\text{s}$ |
| $t_{off}$ | Turn-off Time |                                                                                     |  | 1.0 |  | $\mu\text{s}$ |