

**COMPLEMENTARY SILICON PLASTIC  
POWER TRANSISTORS**

... designed for use in general purpose power amplifier and switching applications.

**FEATURES:**

- \* Collector-Emitter Sustaining Voltage -  
 $V_{CEO(max)} = 45V(\text{Min})$ - BD243,BD244  
 $60V(\text{Min})$ - BD243A,BD244A  
 $80V(\text{Min})$ - BD243B,BD244B  
 $100V(\text{Min})$ - BD243C,BD244C

\* DC Current Gain  $hFE = 30(\text{Min}) @ I_C = 0.3A$

\* Current Gain-Bandwidth Product  $fT = 3.0 \text{ MHz} (\text{Min}) @ I_C = 500mA$

**Boca Semiconductor Corp.  
BSC**

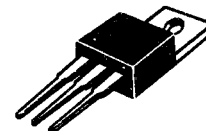
<http://www.bocasemi.com>

| NPN    | PNP    |
|--------|--------|
| BD243  | BD244  |
| BD243A | BD244A |
| BD243B | BD244B |
| BD243C | BD244C |

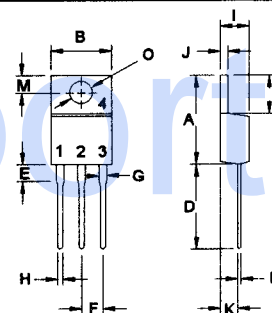
**6 AMPERE  
COMPLEMENTARY SILICON  
POWER TRANSISTORS  
45 -100 VOLTS  
65 WATTS**

**MAXIMUM RATINGS**

| Characteristic  | Symbol         | BD243       | BD243A | BD243B | BD243C | Unit               |
|---|----------------|-------------|--------|--------|--------|--------------------|
|   |                | BD244       | BD244A | BD244B | BD244C |                    |
| Collector-Emitter Voltage   | $V_{CEO}$      | 45          | 60     | 80     | 100    | V                  |
| Collector-Base Voltage  | $V_{CBO}$      | 45          | 60     | 80     | 100    | V                  |
| Emitter-Base Voltage  | $V_{EBO}$      | 5.0         |        |        |        | V                  |
| Collector Current - Continuous<br>- Peak                                  | $I_C$          | 6.0<br>10   |        |        |        | A                  |
| Base Current  | $I_B$          | 2.0         |        |        |        | A                  |
| Total Power Dissipation @ $T_C = 25^\circ C$<br>Derate above $25^\circ C$ | $P_D$          | 65<br>0.52  |        |        |        | W<br>W/ $^\circ C$ |
| Operating and Storage Junction<br>Temperature Range                       | $T_J, T_{STG}$ | -65 to +150 |        |        |        | $^\circ C$         |



**TO-220**



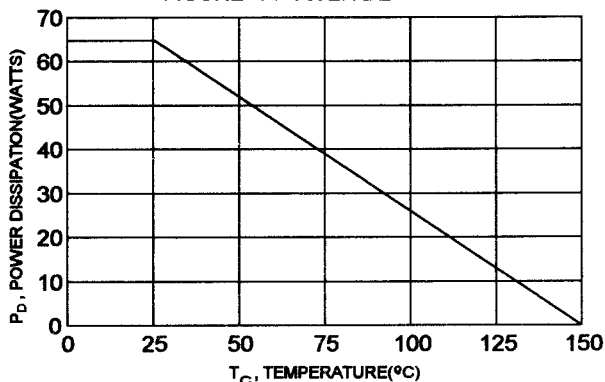
PIN 1.BASE  
2.COLLECTOR  
3.EMITTER  
4.COLLECTOR(CASE)

**THERMAL CHARACTERISTICS**

| Characteristic                      | Symbol          | Max  | Unit         |
|-------------------------------------|-----------------|------|--------------|
| Thermal Resistance Junction to Case | $R_{\theta jc}$ | 1.92 | $^\circ C/W$ |

| DIM | MILLIMETERS |       |
|-----|-------------|-------|
|     | MIN         | MAX   |
| A   | 14.68       | 15.31 |
| B   | 9.78        | 10.42 |
| C   | 5.01        | 6.52  |
| D   | 13.06       | 14.62 |
| E   | 3.57        | 4.07  |
| F   | 2.42        | 3.66  |
| G   | 1.12        | 1.36  |
| H   | 0.72        | 0.96  |
| I   | 4.22        | 4.98  |
| J   | 1.14        | 1.38  |
| K   | 2.20        | 2.97  |
| L   | 0.33        | 0.55  |
| M   | 2.48        | 2.98  |
| O   | 3.70        | 3.90  |

**FIGURE -1 POWER DERATING**



**ELECTRICAL CHARACTERISTICS** (  $T_C = 25^\circ\text{C}$  unless otherwise noted )

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

**OFF CHARACTERISTICS**

|   |  |               |                       |                                |
|---|--|---------------|-----------------------|--------------------------------|
| Collector-Emitter Sustaining Voltage(1)<br>( $I_C = 30\text{ mA}$ , $I_B = 0$ )   | BD243, BD244<br>BD243A, BD244A<br>BD243B, BD244B<br>BD243C, BD244C | $V_{CE(sus)}$ | 45<br>60<br>80<br>100 | V                              |
| Collector Cutoff Current<br>( $V_{CE} = 30\text{ V}$ , $I_B = 0$ )<br>( $V_{CE} = 60\text{ V}$ , $I_B = 0$ )  | BD243/44/43A/44A<br>BD243B/44B/43C/44C                             | $I_{CEO}$     |                       | 0.7<br>0.7<br>mA               |
| Collector Cutoff Current<br>( $V_{CE} = 45\text{ V}$ , $V_{EB} = 0$ )<br>( $V_{CE} = 60\text{ V}$ , $V_{EB} = 0$ )<br>( $V_{CE} = 80\text{ V}$ , $V_{EB} = 0$ )<br>( $V_{CE} = 100\text{ V}$ , $V_{EB} = 0$ ) | BD243/44<br>BD243A/44A<br>BD243B/44B<br>BD243C/44C                 | $I_{CES}$     |                       | 0.4<br>0.4<br>0.4<br>0.4<br>mA |
| Emitter Cutoff Current<br>( $V_{EB} = 5.0\text{ V}$ , $I_C = 0$ )   |  | $I_{EBO}$     |                       | 1.0<br>mA                      |

**ON CHARACTERISTICS (1)**

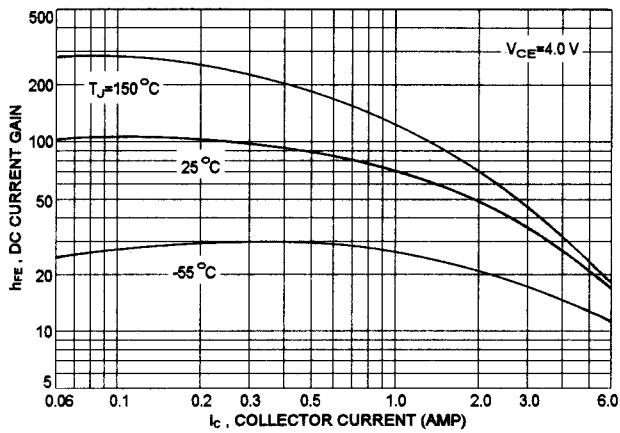
|   |  |               |          |          |
|---|--|---------------|----------|----------|
| DC Current Gain<br>( $V_{CE} = 4.0\text{ V}$ , $I_C = 0.3\text{ A}$ )<br>( $V_{CE} = 4.0\text{ V}$ , $I_C = 3.0\text{ A}$ ) |  | $h_{FE}$      | 30<br>15 |          |
| Collector-Emitter Saturation Voltage<br>( $I_C = 6.0\text{ A}$ , $I_B = 1.0\text{ A}$ )                                     |  | $V_{CE(sat)}$ |          | 1.5<br>V |
| Base-Emitter On Voltage<br>( $I_C = 6.0\text{ A}$ , $V_{CE} = 4.0\text{ V}$ )   |  | $V_{BE(on)}$  |          | 2.0<br>V |

**DYNAMIC CHARACTERISTICS**

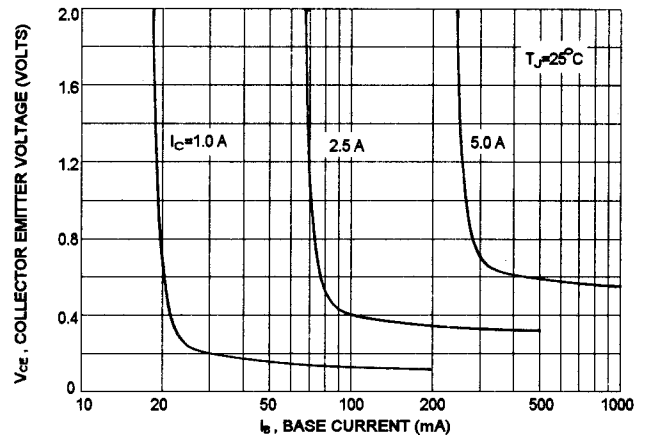
|   |  |          |     |     |
|---|--|----------|-----|-----|
| Current Gain-Bandwidth Product (2)<br>( $I_C = 500\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 1\text{ MHz}$ ) |  | $f_T$    | 3.0 | MHz |
| Small-Signal Current Gain<br>( $I_C = 500\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 1\text{ KHz}$ )          |  | $h_{fe}$ | 20  |     |

(1) Pulse Test: Pulse width =  $300\ \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ (2)  $f_T = |h_{fe}| \cdot f_{test}$

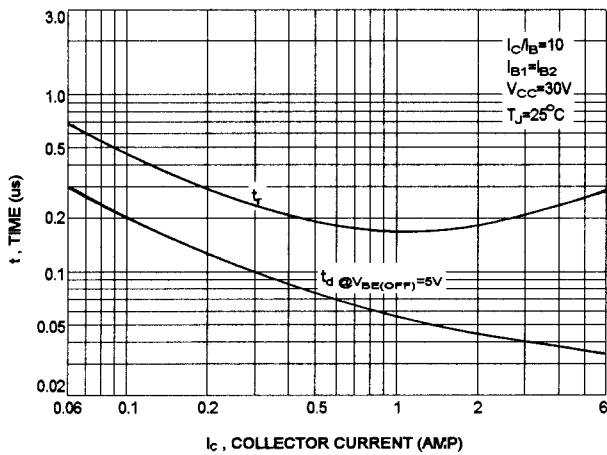
DC CURRENT GAIN



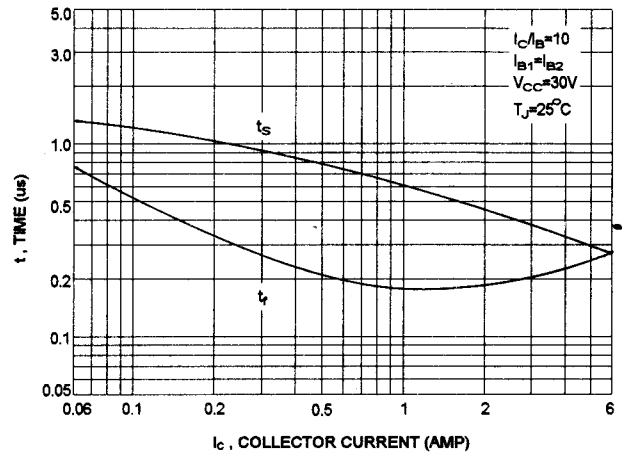
COLLECTOR SATURATION REGION



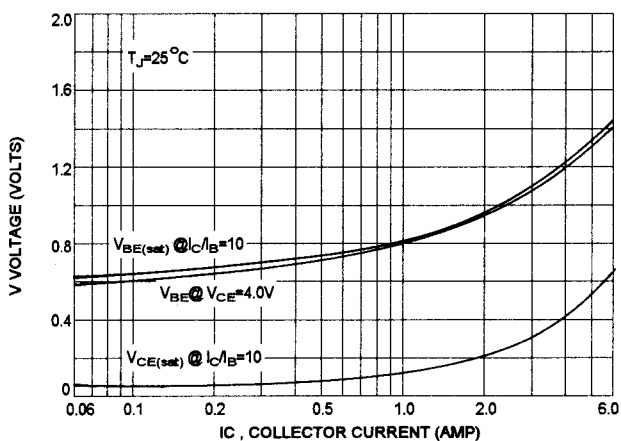
TURN-ON TIME



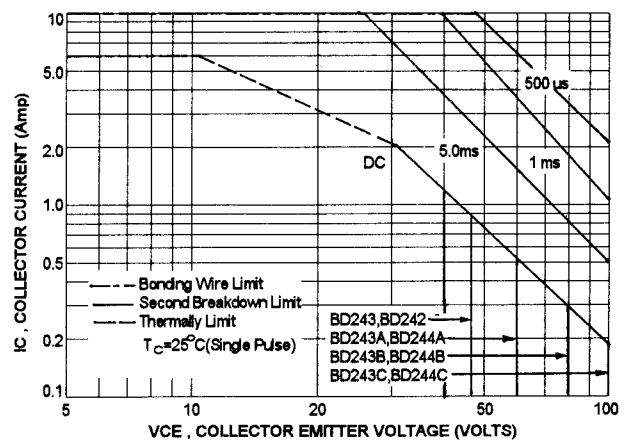
TURN-OFF TIME



"ON" VOLTAGES



ACTIVE REGION SAFE OPERATING AREA



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