

## HIGH VOLTAGE SILICON POWER TRANSISTORS

The D44T series are high voltage power transistor designed for general purpose amplifier and switching applications.

### FEATURES:

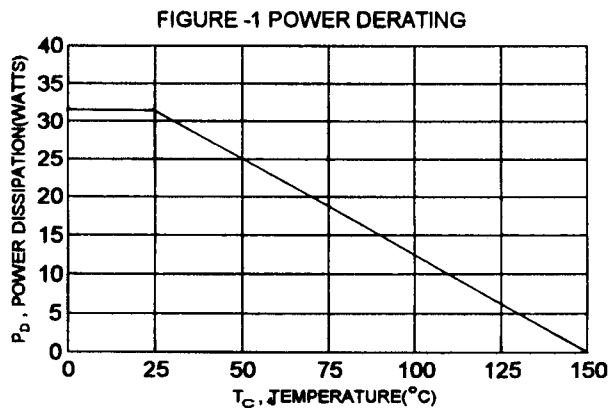
- \* Very Low Leakage Current
- \* Very Low Collector Saturation Voltage
- \* Excellent Linearity
- \* Fast Switching

### MAXIMUM RATINGS

| Characteristic   | Symbol            | D44T1,2,5,7  | D44T3,4,6,8 | Unit                     |
|--|-------------------|--------------|-------------|--------------------------|
| Collector-Emitter Voltage  | $V_{CEO}$         | 250          | 300         | V                        |
| Collector-Emitter Voltage( $V_{BE} = 0$ V)   | $V_{CES}$         | 300          | 400         | V                        |
| Emitter-Base Voltage   | $V_{EBO}$         | 5.0          |             | V                        |
| Collector Current - Continuous<br>- Peak   | $I_C$<br>$I_{CM}$ | 2.0<br>4.0   |             | A                        |
| Base Current   | $I_B$             | 0.5          |             | A                        |
| Total Power Dissipation<br>@ $T_C = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$             | 31.2<br>0.25 |             | W<br>W/ $^\circ\text{C}$ |
| Operating and Storage Junction<br>Temperature Range                                      | $T_J, T_{STG}$    | -55 to +150  |             | $^\circ\text{C}$         |

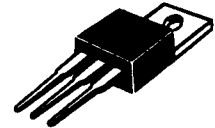
### THERMAL CHARACTERISTICS

| Characteristic                      | Symbol          | Max | Unit               |
|-------------------------------------|-----------------|-----|--------------------|
| Thermal Resistance Junction to Case | $R_{\theta JC}$ | 4.0 | $^\circ\text{C/W}$ |

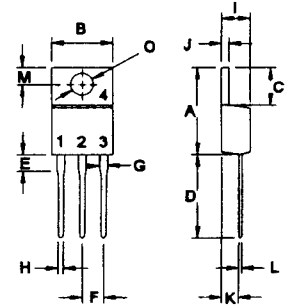


## NPN D44T Series

2.0 AMPERE  
SILICON POWER  
TRANSISTORS  
250-300 VOLTS  
31 WATTS



TO-220



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

| DIM | MILLIMETERS |       |
|-----|-------------|-------|
|     | MIN         | MAX   |
| A   | 14.68       | 15.31 |
| B   | 9.78        | 10.42 |
| C   | 5.01        | 6.52  |
| D   | 13.08       | 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  |

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

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

## OFF CHARACTERISTICS

|   |           |  |    |               |
|---|-----------|--|----|---------------|
| Collector-Base Cutoff Current<br>( $V_{CE} = \text{Rated } V_{CES}$ ) | $I_{CES}$ |  | 10 | $\mu\text{A}$ |
| Emitter-Base Cutoff Current<br>( $V_{BE} = 5.0\text{ V}, I_C = 0$ )   | $I_{EBO}$ |  | 10 | $\mu\text{A}$ |

## ON CHARACTERISTICS(1)

|  |                 |               |     |     |   |
|--|-----------------|---------------|-----|-----|---|
| DC Current Gain<br>( $I_C = 500\text{ mA}, V_{CE} = 10\text{ V}$ )   | D44T1,3         | hFE           | 30  | 90  |   |
|  | D44T2,4         |               | 75  | 175 |   |
| ( $I_C = 50\text{ mA}, V_{CE} = 10\text{ V}$ )   | D44T5,6         |               | 30  |     |   |
|  | D44T7,8         |               | 150 | 300 |   |
|  | D44T1,3         |               | 20  |     |   |
|  | D44T2,4         |               | 40  |     |   |
| Collector-Emitter Saturation Voltage<br>( $I_C = 500\text{ mA}, I_B = 50\text{ mA}$ )<br>( $I_C = 300\text{ mA}, I_B = 30\text{ mA}$ ) | D44T1,2,3,4,7,8 | $V_{CE(sat)}$ |     | 1.0 | V |
|  | D44T5,6         |               |     | 1.0 |   |
| Base-Emitter Saturation Voltage<br>( $I_C = 500\text{ mA}, I_B = 50\text{ mA}$ )   | ALL Devices     | $V_{BE(sat)}$ |     | 1.2 | V |

## DYAMIC CHARATERISTICS

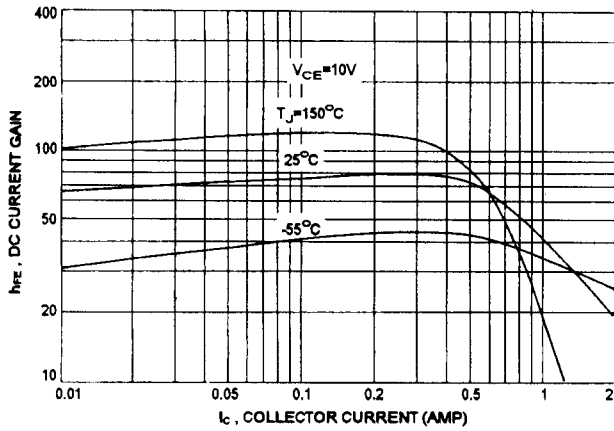
|   |       |         |  |     |
|---|-------|---------|--|-----|
| Current-Gain Bandwidth Product (2)<br>( $I_C = 100\text{ mA}, V_{CE} = 10\text{ V}, f = 1.0\text{ MHz}$ ) | $f_T$ | 15(typ) |  | MHz |
|---|-------|---------|--|-----|

## SWTCHING CHARATERISTICS

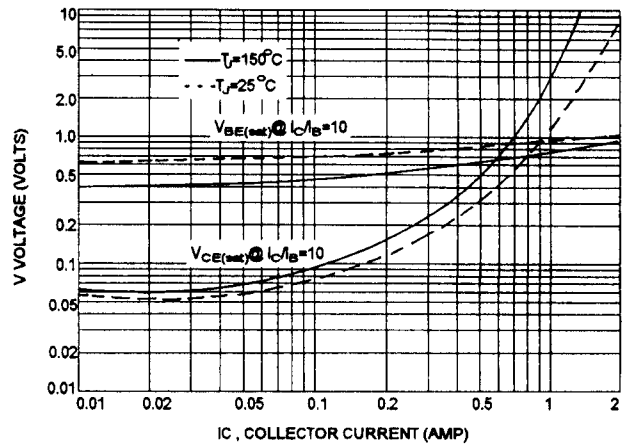
|              |   |       |  |     |               |
|--------------|---|-------|--|-----|---------------|
| Rise Time    | $I_C = 500\text{ mA}$<br>$I_{B1} = I_{B2} = 50\text{ mA}$ | $t_r$ |  | 0.3 | $\mu\text{s}$ |
| Storage Time |   | $t_s$ |  | 3.0 | $\mu\text{s}$ |
| Fall Time    |   | $t_f$ |  | 0.7 | $\mu\text{s}$ |

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

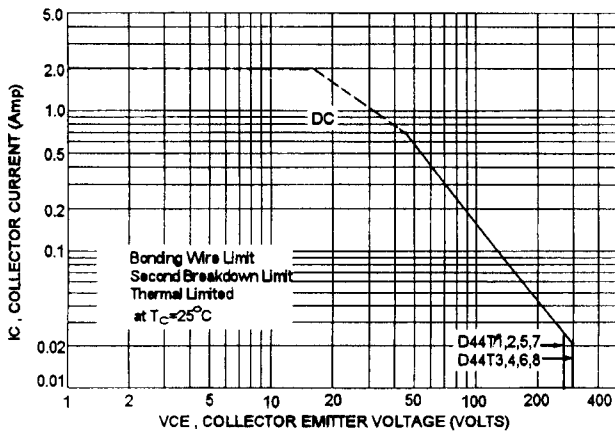
DC CURRENT GAIN



"ON" VOLTAGES



FORWARD-BIAS SAFE OPERATING AREA



CAPACITANCES

