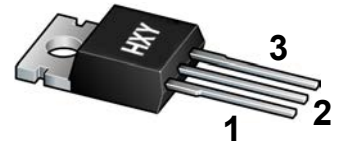




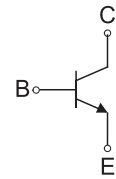
## Features

- Power switching applications



1.BASE  
2.COLLECTOR  
3.EMITTER

**TO-220**



## Maximum Ratings (Ta=25°C unless otherwise noted)

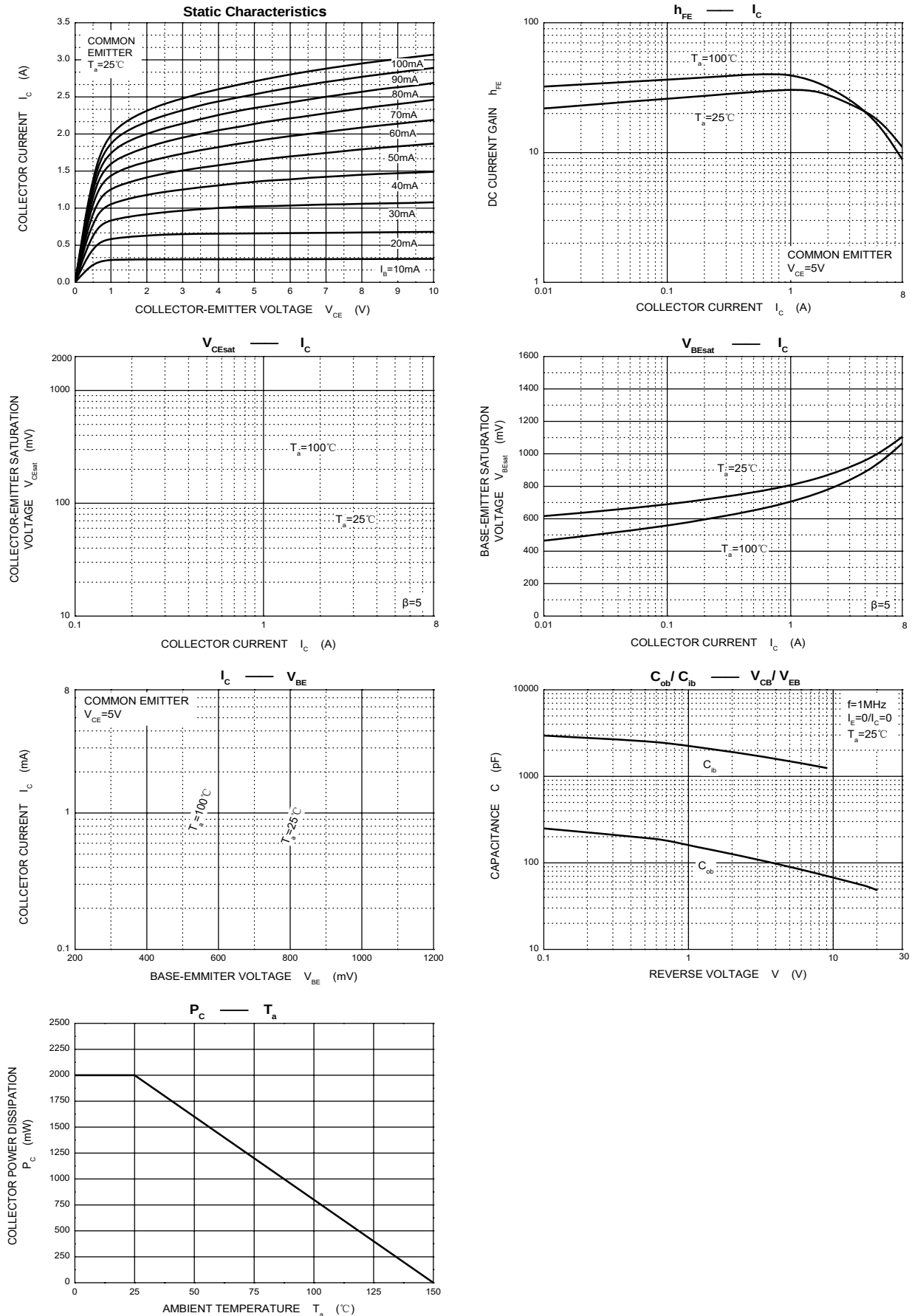
| Symbol          | Parameter                                             | Value    | Unit               |
|-----------------|-------------------------------------------------------|----------|--------------------|
| $V_{CBO}$       | Collector-Base Voltage                                | 700      | V                  |
| $V_{CEO}$       | Collector-Emitter Voltage                             | 400      | V                  |
| $V_{EBO}$       | Emitter-Base Voltage                                  | 9        | V                  |
| $I_C$           | Collector Current                                     | 8        | A                  |
| $P_C$           | Collector Power Dissipation                           | 2        | W                  |
| $P_C$           | Collector Power Dissipation( $T_C=25^\circ\text{C}$ ) | 80       | W                  |
| $R_{\theta JC}$ | Thermal Resistance from Junction to Case              | 1.56     | $^\circ\text{C/W}$ |
| $T_J, T_{stg}$  | Operation Junction and Storage Temperature Range      | -55~+150 | $^\circ\text{C}$   |

## Electrical Characteristics(Ta=25°C unless otherwise specified)

| Parameter                            | Symbol         | Test conditions                                     | Min | Max | Unit          |
|--------------------------------------|----------------|-----------------------------------------------------|-----|-----|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$  | $I_C=1\text{mA}, I_E=0$                             | 700 |     | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$  | $I_C=10\text{mA}, I_B=0$                            | 400 |     | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$  | $I_E=1\text{mA}, I_C=0$                             | 9   |     | V             |
| Collector cut-off current            | $I_{CBO}$      | $V_{CB}=700\text{V}, I_E=0$                         |     | 100 | $\mu\text{A}$ |
| Collector cut-off current            | $I_{CEO}$      | $V_{CE}=400\text{V}, I_B=0$                         |     | 100 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$      | $V_{EB}=9\text{V}, I_C=0$                           |     | 100 | $\mu\text{A}$ |
| DC current gain                      | $h_{FE(1)}$    | $V_{CE}=5\text{V}, I_C=2\text{A}$                   | 10  |     |               |
|                                      | $h_{FE(2)}$    | $V_{CE}=5\text{V}, I_C=8\text{A}$                   | 5   |     |               |
| Collector-emitter saturation voltage | $V_{CE(sat)1}$ | $I_C=2\text{A}, I_B=0.4\text{A}$                    |     | 1   | V             |
|                                      | $V_{CE(sat)2}$ | $I_C=5\text{A}, I_B=1\text{A}$                      |     | 2   | V             |
|                                      | $V_{CE(sat)3}$ | $I_C=8\text{A}, I_B=2\text{A}$                      |     | 3   | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)1}$ | $I_C=2\text{A}, I_B=0.4\text{A}$                    |     | 1.2 | V             |
|                                      | $V_{BE(sat)2}$ | $I_C=5\text{A}, I_B=1\text{A}$                      |     | 1.6 | V             |
| Storage time                         | $t_S$          | $I_C=500\text{mA}$ (UI9600)                         | 3   | 6   | $\mu\text{s}$ |
| Fall time                            | $t_f$          | $I_C=500\text{mA}$ (UI9600)                         |     | 0.5 | $\mu\text{s}$ |
| Transition frequency                 | $f_T$          | $V_{CE}=10\text{V}, I_C=0.5\text{A}, f=1\text{MHz}$ | 4   |     | MHz           |

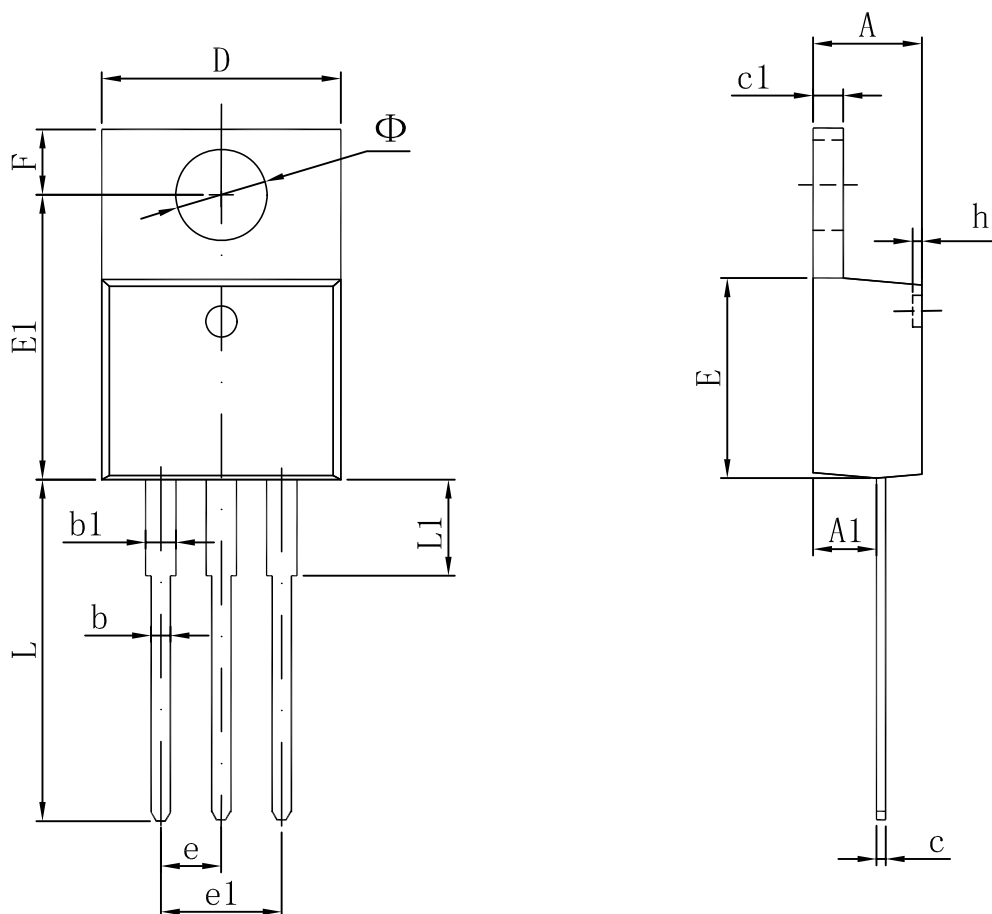


## Typical Characteristics





Package Information  
TO-220



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min                       | Max    | Min                  | Max   |
| A      | 4.470                     | 4.670  | 0.176                | 0.184 |
| A1     | 2.520                     | 2.820  | 0.099                | 0.111 |
| b      | 0.710                     | 0.910  | 0.028                | 0.036 |
| b1     | 1.170                     | 1.370  | 0.046                | 0.054 |
| c      | 0.310                     | 0.530  | 0.012                | 0.021 |
| c1     | 1.170                     | 1.370  | 0.046                | 0.054 |
| D      | 10.010                    | 10.310 | 0.394                | 0.406 |
| E      | 8.500                     | 8.900  | 0.335                | 0.350 |
| E1     | 12.060                    | 12.460 | 0.475                | 0.491 |
| e      | 2.540 TYP                 |        | 0.100 TYP            |       |
| e1     | 4.980                     | 5.180  | 0.196                | 0.204 |
| F      | 2.590                     | 2.890  | 0.102                | 0.114 |
| h      | 0.000                     | 0.300  | 0.000                | 0.012 |
| L      | 13.400                    | 13.800 | 0.528                | 0.543 |
| L1     | 3.560                     | 3.960  | 0.140                | 0.156 |
| Φ      | 3.735                     | 3.935  | 0.147                | 0.155 |



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