

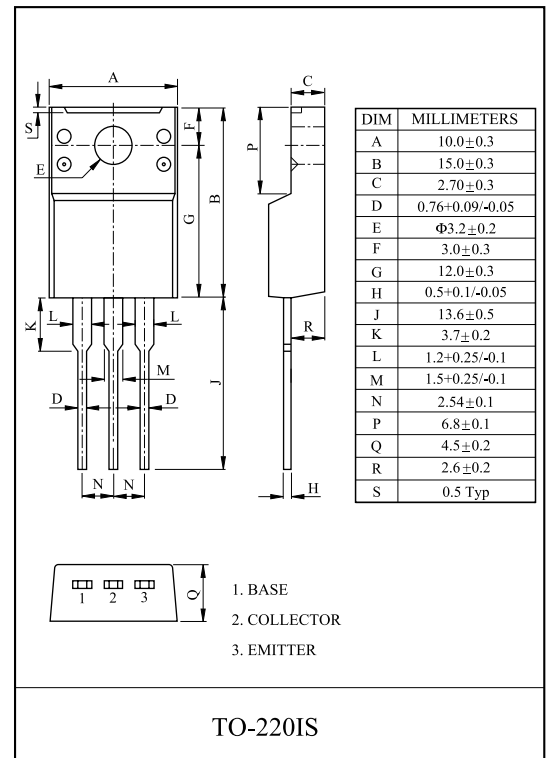
SWITCHING REGULATOR APPLICATION.  
HIGH VOLTAGE SWITCHING APPLICATION.  
HIGH SPEED DC-DC CONVERTER APPLICATION.

### FEATURES

- Excellent Switching Times  
:  $t_{on}=1.1\mu S(\text{Max.})$ ,  $t_f=0.7\mu S(\text{Max.})$ , at  $I_C=8A$
- High Collector Voltage :  $V_{CBO}=700V$ .

### MAXIMUM RATING (Ta=25 °C)

| CHARACTERISTIC                            |       | SYMBOL    | RATING    | UNIT |
|---|-------|-----------|-----------|------|
| Collector-Base Voltage                    |       | $V_{CBO}$ | 700       | V    |
| Collector-Emitter Voltage                 |       | $V_{CEO}$ | 400       | V    |
| Emitter-Base Voltage                      |       | $V_{EBO}$ | 9         | V    |
| Collector Current                         | DC    | $I_C$     | 12        | A    |
|   | Pulse | $I_{CP}$  | 24        |      |
| Base Current                              |       | $I_B$     | 6         | A    |
| Collector Power Dissipation<br>(Tc=25 °C) |       | $P_C$     | 50        | W    |
| Junction Temperature                      |       | $T_j$     | 150       | °C   |
| Storage Temperature Range                 |       | $T_{stg}$ | -55 ~ 150 | °C   |



### ELECTRICAL CHARACTERISTICS (Ta=25 °C)

| CHARACTERISTIC                       | SYMBOL             | TEST CONDITION   | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------|--------------------|--|------|------|------|------|
| Emitter Cut-off Current              | $I_{EBO}$          | $V_{EB}=9V$ , $I_C=0$                                      | -    | -    | 1    | mA   |
| DC Current Gain                      | $h_{FE}(1)$ (Note) | $V_{CE}=5V$ , $I_C=5A$                                     | 14   | -    | 28   |      |
|                                      | $h_{FE}(2)$        | $V_{CE}=5V$ , $I_C=8A$                                     | 6    | -    | -    |      |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$      | $I_C=5A$ , $I_B=1A$  | -    | -    | 1    | V    |
|                                      |                    | $I_C=8A$ , $I_B=1.6A$                                      | -    | -    | 1.5  |      |
|                                      |                    | $I_C=12A$ , $I_B=3A$                                       | -    | -    | 3    |      |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$      | $I_C=5A$ , $I_B=1A$  | -    | -    | 1.5  | V    |
|                                      |                    | $I_C=8A$ , $I_B=1.6A$                                      | -    | -    | 1.6  |      |
| Collector Output Capacitance         | $C_{ob}$           | $V_{CB}=10V$ , $f=0.1MHz$ , $I_E=0$                        | -    | 180  | -    | pF   |
| Transition Frequency                 | $f_T$              | $V_{CE}=10V$ , $I_C=0.5A$                                  | 4    | -    | -    | MHz  |
| Turn-On Time                         | $t_{on}$           | <p><math>I_{B1}=I_{B2}=1.6A</math><br/>DUTY CYCLE ≤ 2%</p> | -    | -    | 1.1  | μS   |
| Storage Time                         | $t_{stg}$          |  | -    | -    | 3    | μS   |
| Fall Time                            | $t_f$              |  | -    | -    | 0.7  | μS   |

Note :  $h_{FE}$  Classification O:14~28

Fig.1 DC current Gain

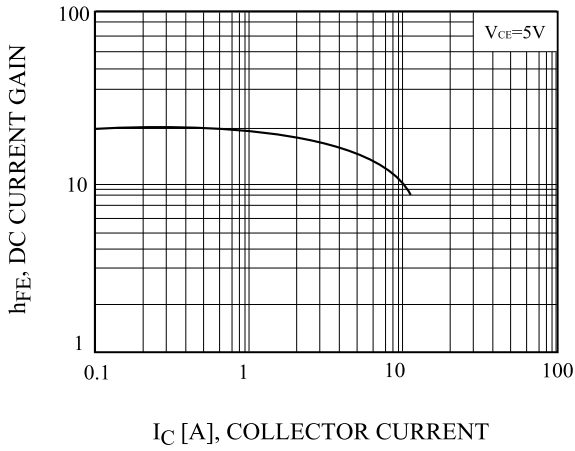


Fig.2 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

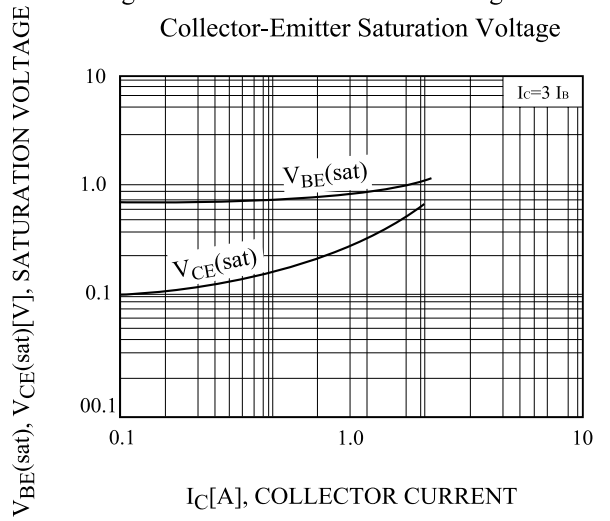


Fig.3. Collector Output Capacitance

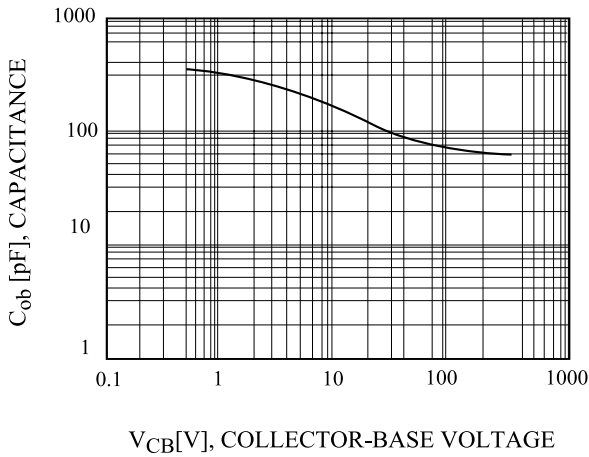


Fig.4 Turn Off Time

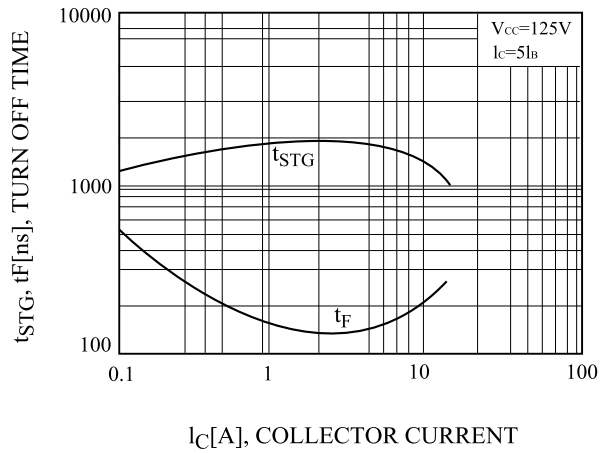


Fig.5 Forward Bias Safe Operating Area

