

◆Si APN  
◆RoHS COMPLIANT

## 1. APPLICATION

Fluorescent Lamp、Electronic Ballast、  
Computer Switch Power Supply

## 2. FEATURES

- High voltage capability
- Features of good high temperature
- High switching speed

## 3. PACKAGE

TO-220

## 4. Electrical Characteristics

### 4.1 Absolute Maximum Ratings

$T_{amb} = 25^{\circ}\text{C}$  unless specified

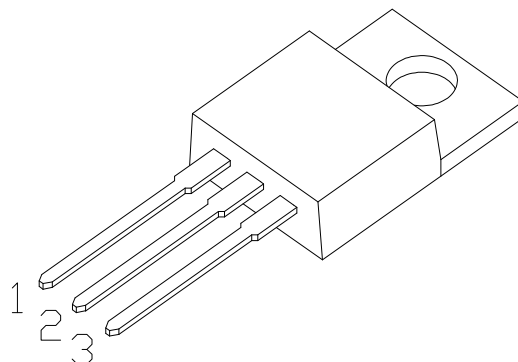
| PARAMETER                 |                          | SYMBOL    | VALUE   | UNIT               |
|---------------------------|--------------------------|-----------|---------|--------------------|
| Collector-Base Voltage    |                          | $V_{CBO}$ | 700     | V                  |
| Collector-Emitter Voltage |                          | $V_{CEO}$ | 400     | V                  |
| Emitter- Base Voltage     |                          | $V_{EBO}$ | 9       | V                  |
| Collector Current         |                          | $I_C$     | 9       | A                  |
| Power Dissipation         | $T_a=25^{\circ}\text{C}$ | $P_{tot}$ | 2       | W                  |
|                           | $T_c=25^{\circ}\text{C}$ |           | 85      |                    |
| Junction Temperature      |                          | $T_j$     | 150     | $^{\circ}\text{C}$ |
| Storage Temperature       |                          | $T_{stg}$ | -55~150 | $^{\circ}\text{C}$ |

### 4.2 Electrical Parameter

$T_{amb} = 25^{\circ}\text{C}$  unless specified

| PARAMETER                            | SYMBOL                | TEST CONDITION                                           | VALUE |      |     | UNIT          |
|--------------------------------------|-----------------------|----------------------------------------------------------|-------|------|-----|---------------|
|                                      |                       |                                                          | MIN   | TYP  | MAX |               |
| Collector-Base Voltage               | $BV_{CBO}$            | $I_C=1\text{mA}, I_E=0$                                  | 700   |      |     | V             |
| Collector-Emitter Voltage            | $BV_{CEO}$            | $I_C=1\text{mA}, I_B=0$                                  | 400   |      |     | V             |
| Emitter-Base Voltage                 | $BV_{EBO}$            | $I_E=1\text{mA}, I_C=0$                                  | 9     |      |     | V             |
| Collector-Base Cutoff Current        | $I_{CBO}$             | $V_{CB}=700\text{V}, I_E=0$                              |       |      | 10  | $\mu\text{A}$ |
| Collector-Emitter Cutoff Current     | $I_{CEO}$             | $V_{CE}=400\text{V}, I_B=0$                              |       |      | 20  | $\mu\text{A}$ |
| Emitter-Base Cutoff Current          | $I_{EBO}$             | $V_{EB}=9\text{V}, I_C=0$                                |       |      | 10  | $\mu\text{A}$ |
| DC Current Gain                      | $h_{FE}^*$            | $V_{CE}=5\text{V}, I_C=1\text{mA}$                       | 8     |      |     |               |
|                                      |                       | $V_{CE}=5\text{V}, I_C=2\text{A}$                        | 20    |      | 35  |               |
| Collector-Emitter Saturation Voltage | $V_{CE\text{ sat}}^*$ | $I_C=5\text{A}, I_B=2.5\text{A}$                         |       |      | 0.8 | V             |
| Base-Emitter Saturation Voltage      | $V_{BE\text{ sat}}^*$ | $I_C=5\text{A}, I_B=2.5\text{A}$                         |       |      | 1.4 | V             |
| Rising Time                          | $t_r$                 | $I_C=500\text{mA}$<br>(UI9600)                           |       |      | 0.5 | $\mu\text{s}$ |
| Falling Time                         | $t_f$                 |                                                          |       | 0.17 | 0.5 | $\mu\text{s}$ |
| Storage Time                         | $t_s$                 |                                                          | 3.0   |      | 5.5 | $\mu\text{s}$ |
| Typical Frequency                    | $f_T$                 | $V_{CE}=10\text{V}, I_C=0.5\text{A},$<br>$f=1\text{MHz}$ | 5     |      |     | MHz           |

\* : Pulse test  $t_p \leq 300 \mu\text{s}, \delta \leq 2\%$



1 Base(B) 2 Collector(C) 3 Emitter(E)

## 5. Characteristic Curve

Fig1 SOA (DC)

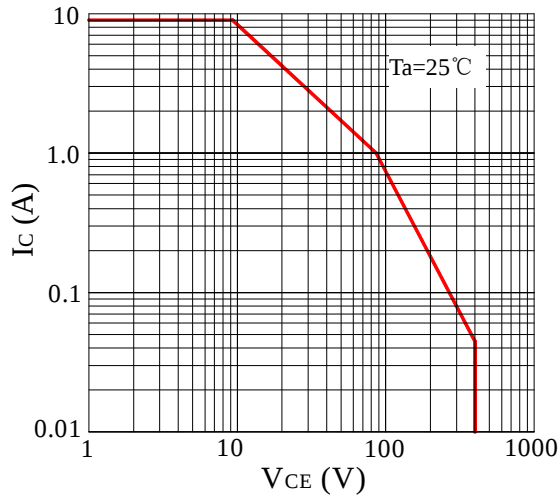


Fig2 Ptot - T

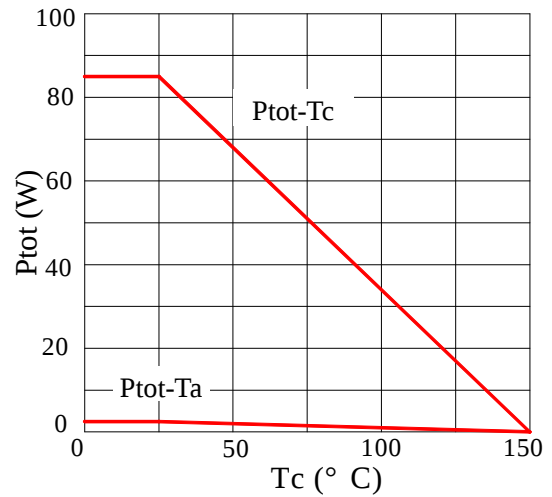


Fig3 Static Characteristic

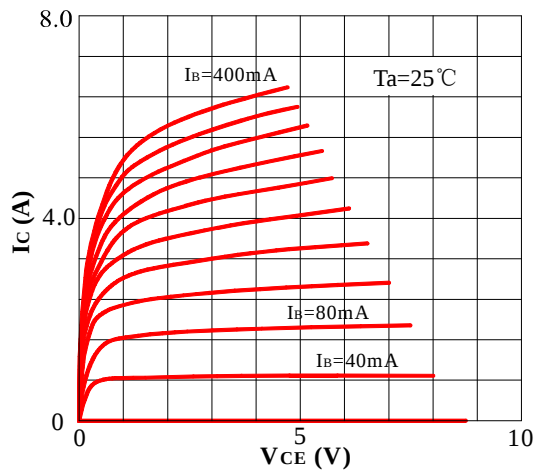


Fig4 hFE-IC

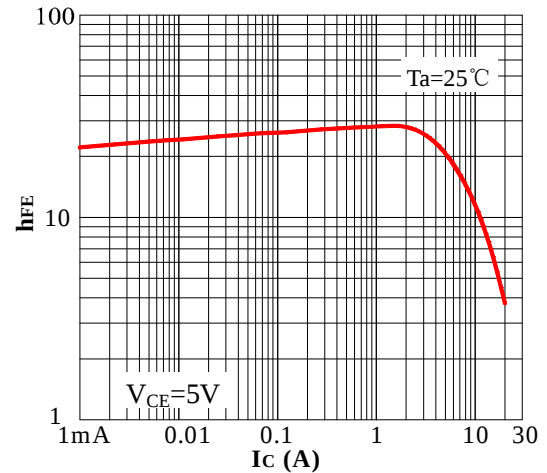


Fig5 VCESat-IC

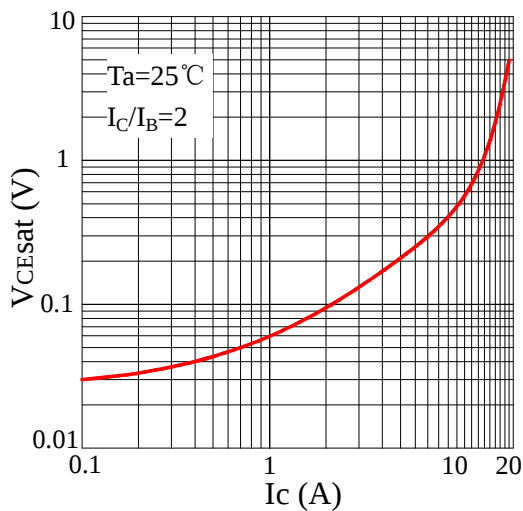
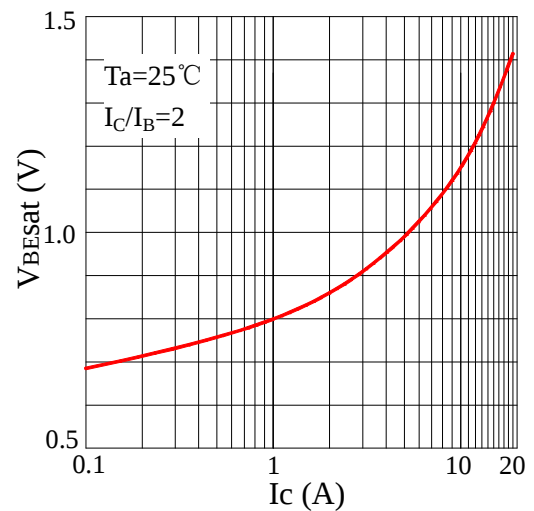


Fig6 VBESat-IC



## 6. Package Dimentions(Unit: mm)

### T0-220

