

SPTECH Silicon NPN Power Transistor

2SC3866

DESCRIPTION

- High Breakdown Voltage  
:  $V_{(BR)CBO} = 900V(\text{Min})$
- High Switching Speed
- High Reliability

APPLICATIONS

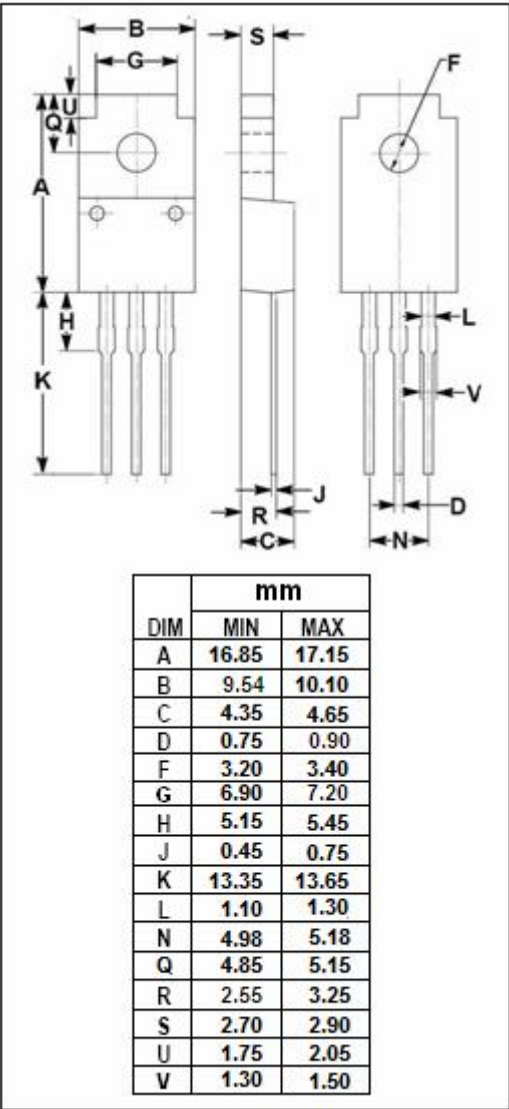
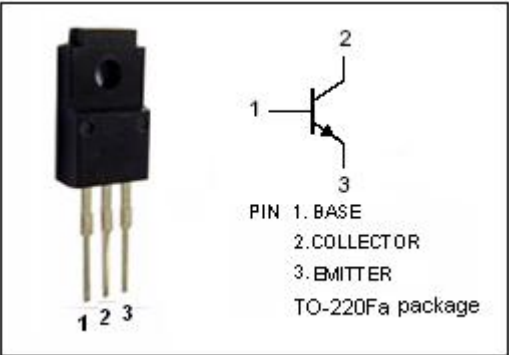
- Switching regulators
- Ultrasonic generators
- High frequency inverters
- General purpose power amplifiers

ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}\text{C}$ )

| SYMBOL    | PARAMETER                                                 | VALUE   | UNIT               |
|-----------|-----------------------------------------------------------|---------|--------------------|
| $V_{CBO}$ | Collector-Base Voltage                                    | 900     | V                  |
| $V_{CEO}$ | Collector-Emitter Voltage                                 | 800     | V                  |
| $V_{EBO}$ | Emitter-Base Voltage                                      | 10      | V                  |
| $I_C$     | Collector Current-Continuous                              | 3       | A                  |
| $I_B$     | Base Current-Continuous                                   | 1       | A                  |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^{\circ}\text{C}$ | 40      | W                  |
| $T_J$     | Junction Temperature                                      | 150     | $^{\circ}\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                                 | -55~150 | $^{\circ}\text{C}$ |

THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX | UNIT                 |
|---------------|--------------------------------------|-----|----------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 3.0 | $^{\circ}\text{C/W}$ |



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## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL        | PARAMETER                            | CONDITIONS                        | MIN | TYP. | MAX | UNIT |
|---------------|--------------------------------------|-----------------------------------|-----|------|-----|------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage  | $I_C=10\text{mA}; I_B=0$          | 800 |      |     | V    |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage     | $I_C=1\text{mA}; I_E=0$           | 900 |      |     | V    |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage       | $I_E=1\text{mA}; I_C=0$           | 10  |      |     | V    |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=1\text{A}; I_B=0.2\text{A}$  |     |      | 1.0 | V    |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage      | $I_C=1\text{A}; I_B=0.2\text{A}$  |     |      | 1.5 | V    |
| $I_{CBO}$     | Collector Cutoff Current             | $V_{CB}=900\text{V}; I_E=0$       |     |      | 1.0 | mA   |
| $I_{EBO}$     | Emitter Cutoff Current               | $V_{EB}=10\text{V}; I_C=0$        |     |      | 1.0 | mA   |
| $h_{FE}$      | DC Current Gain                      | $I_C=1\text{A}; V_{CE}=5\text{V}$ | 10  |      |     |      |

## Switching times

|           |              |                                                                                                                           |  |  |     |               |
|-----------|--------------|---------------------------------------------------------------------------------------------------------------------------|--|--|-----|---------------|
| $t_{on}$  | Turn-on Time | $I_C=2\text{A}, I_{B1}=0.4\text{A}; I_{B2}=-0.8\text{A}$<br>$R_L=150\Omega$ ;<br>$P_W=20\mu\text{s}; \text{Duty}\leq 2\%$ |  |  | 1.0 | $\mu\text{s}$ |
| $t_{stg}$ | Storage Time |                                                                                                                           |  |  | 4.0 | $\mu\text{s}$ |
| $t_f$     | Fall Time    |                                                                                                                           |  |  | 0.8 | $\mu\text{s}$ |