

isc Silicon NPN Power Transistor

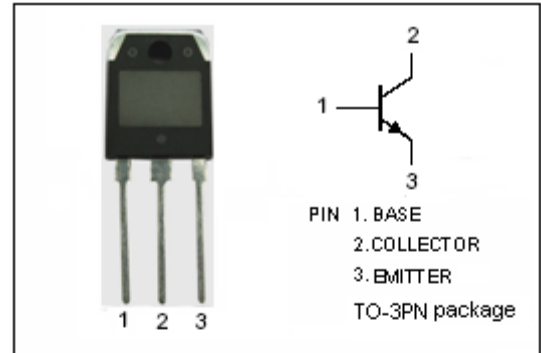
2SC3450

DESCRIPTION

- High Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 500V(\text{Min})$
- High Switching Speed
- Wide Area of Safe Operation

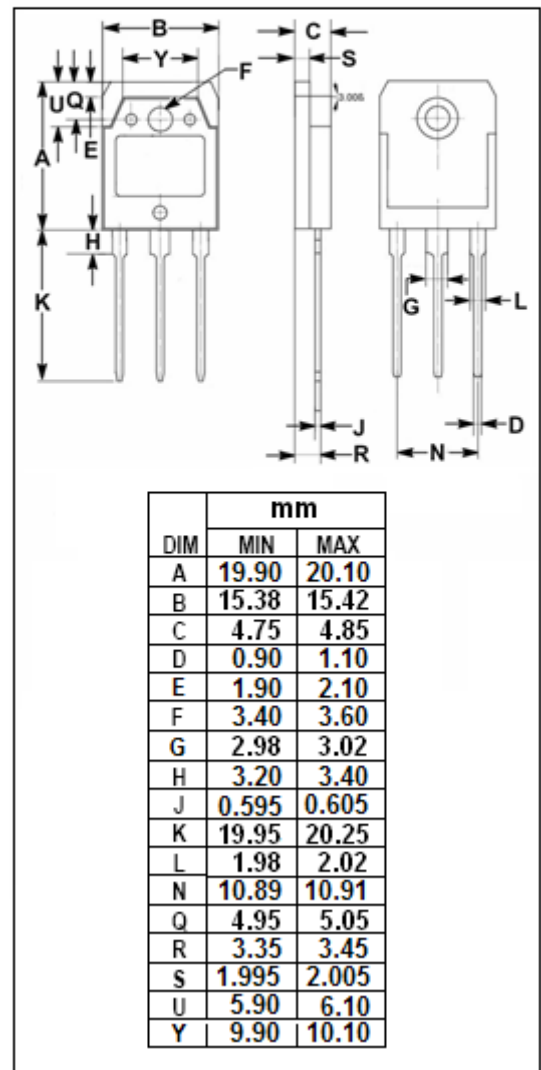
APPLICATIONS

- Designed for switching regulator and general purpose applications.



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

| SYMBOL    | PARAMETER   | VALUE   | UNIT             |
|-----------|---|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                  | 800     | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                               | 500     | V                |
| $V_{EBO}$ | Emitter-Base voltage                                    | 7       | V                |
| $I_C$     | Collector Current-Continuous                            | 10      | A                |
| $I_{CM}$  | Collector Current-Peak                                  | 20      | A                |
| $I_B$     | Base Current-Continuous                                 | 3       | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^\circ\text{C}$ | 90      | W                |
| $T_J$     | Junction Temperature                                    | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                               | -55~150 | $^\circ\text{C}$ |



## isc Silicon NPN Power Transistor

## 2SC3450

## ELECTRICAL CHARACTERISTICS

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

| SYMBOL        | PARAMETER                            | CONDITIONS   | MIN | TYP. | MAX | UNIT          |
|---------------|--------------------------------------|--|-----|------|-----|---------------|
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage     | $I_C=1\text{mA}; I_E=0$                            | 800 |      |     | V             |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage  | $I_C=5\text{mA}; R_{BE}=\infty$                    | 500 |      |     | V             |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage       | $I_E=1\text{mA}; I_C=0$                            | 7   |      |     | V             |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=4\text{A}; I_B=0.8\text{A}$                   |     |      | 1.0 | V             |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage      | $I_C=4\text{A}; I_B=0.8\text{A}$                   |     |      | 1.5 | V             |
| $I_{CBO}$     | Collector Cutoff Current             | $V_{CB}=500\text{V}; I_E=0$                        |     |      | 10  | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter Cutoff Current               | $V_{EB}=5\text{V}; I_C=0$                          |     |      | 10  | $\mu\text{A}$ |
| $h_{FE-1}$    | DC Current Gain                      | $I_C=0.8\text{A}; V_{CE}=5\text{V}$                | 15  |      | 50  |               |
| $h_{FE-2}$    | DC Current Gain                      | $I_C=4\text{A}; V_{CE}=5\text{V}$                  | 8   |      |     |               |
| $f_T$         | Current-Gain—Bandwidth Product       | $I_C=0.8\text{A}; V_{CE}=10\text{V}$               |     | 18   |     | MHz           |
| $C_{OB}$      | Output Capacitance                   | $I_E=0; V_{CB}=10\text{V}; f_{test}=1.0\text{MHz}$ |     | 120  |     | pF            |

## Switching Times

|           |              |  |  |  |     |               |
|-----------|--------------|--|--|--|-----|---------------|
| $t_{on}$  | Turn-on Time | $I_C=5\text{A}; I_{B1}=1\text{A}; I_{B2}=-2\text{A}$<br>$R_L=40\Omega; V_{CC}=200\text{V}$ |  |  | 0.5 | $\mu\text{s}$ |
| $t_{stg}$ | Storage Time |  |  |  | 3.0 | $\mu\text{s}$ |
| $t_f$     | Fall Time    |  |  |  | 0.3 | $\mu\text{s}$ |

◆  $h_{FE-1}$  Classifications

| L     | M     | N     |
|-------|-------|-------|
| 15-30 | 20-40 | 30-50 |