

isc Silicon NPN Power Transistor

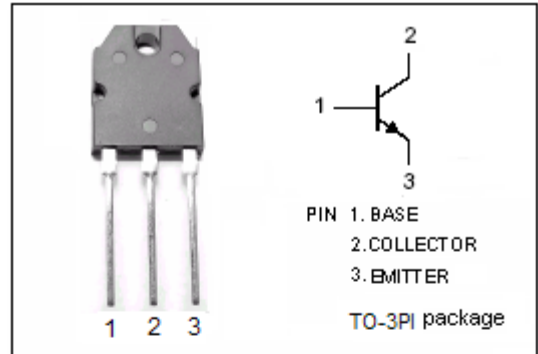
2SC3657

DESCRIPTION

- High Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 800V(\text{Min})$
- Fast Switching Speed

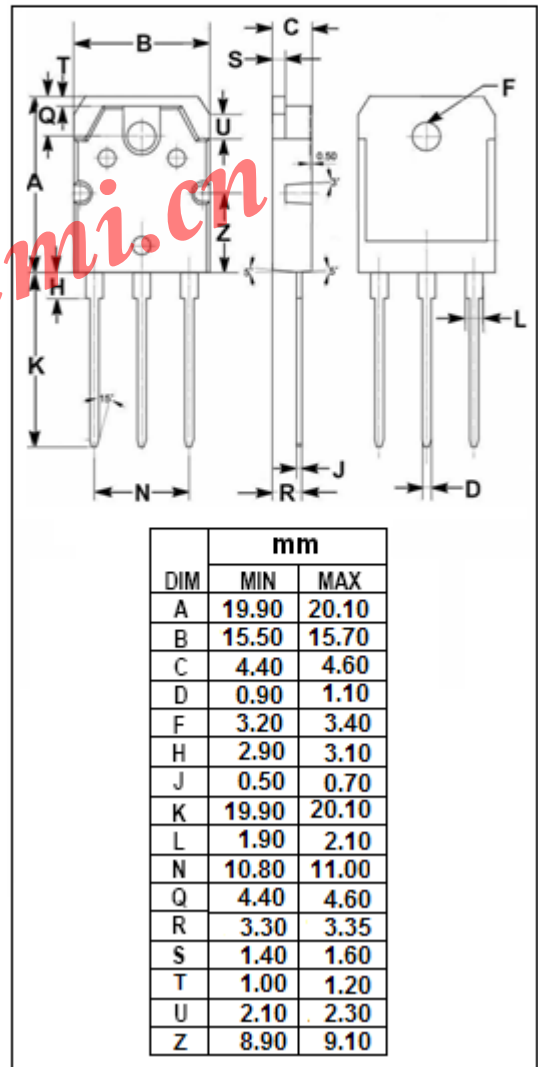
APPLICATIONS

- Switching regulator and high voltage switching applications
- High speed DC-DC converter applications.



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 | 7 | V |
| I_C | Collector Current-Continuous | 4 | A |
| I_{CM} | Collector Current-Peak | 8 | A |
| I_B | Base Current-Continuous | 2 | A |
| I_{BM} | Base Current-Peak | 5 | A |
| P_C | Collector Power Dissipation @ $T_C=25^\circ\text{C}$ | 80 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature Range | -55~150 | $^\circ\text{C}$ |



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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 |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=2\text{A}; I_B=0.4\text{A}$ | | | 1.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C=2\text{A}; I_B=0.4\text{A}$ | | | 1.5 | V |
| I_{CBO} | Collector Cutoff Current | $V_{CB}=800\text{V}; I_E=0$ | | | 100 | μA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB}=7\text{V}; I_C=0$ | | | 1 | mA |
| h_{FE} | DC Current Gain | $I_C=1\text{A}; V_{CE}=5\text{V}$ | 10 | | | |

Switching times

| | | | | | | |
|-----------|--------------|---|--|--|-----|---------------|
| t_r | Rise Time | $I_C=1\text{A}; I_{B1}=-I_{B2}=-0.4\text{A};$ $R_L=400\Omega; V_{CC}\approx 400\text{V}$ | | | 1.0 | μs |
| t_{stg} | Storage Time | | | | 2.5 | μs |
| t_f | Fall Time | | | | 1.0 | μs |

◆ h_{FE-1} Classifications

| K | L | M |
|-------|-------|-------|
| 10-20 | 15-30 | 20-40 |