

isc Silicon NPN Power Transistor

2SD1187

DESCRIPTION

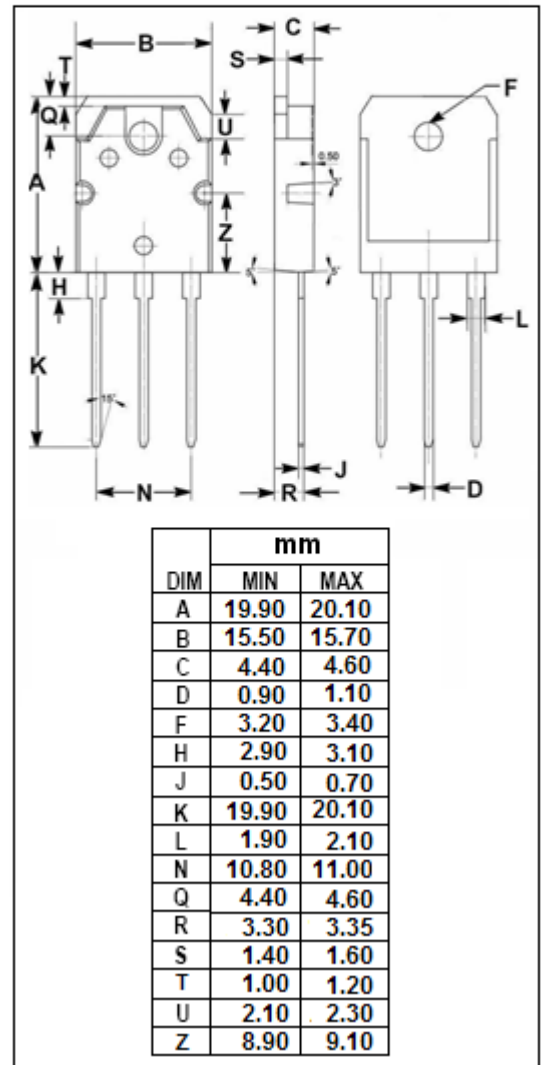
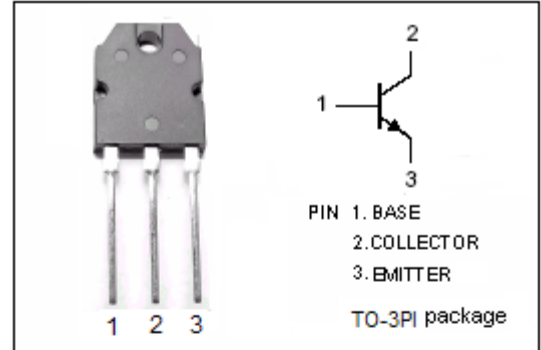
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 80V(\text{Min})$
- Low Collector Saturation Voltage-
: $V_{CE(sat)} = 0.5V(\text{Max.}) @ I_C = 6A$
- High Power Dissipation

APPLICATIONS

- High power switching applications
- DC-DC converter and DC-AC inverter applications

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|---|---------|------------------|
| V_{CBO} | Collector-Base Voltage | 100 | V |
| V_{CEO} | Collector-Emitter Voltage | 80 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current-Continuous | 10 | A |
| I_B | Base Current-Continuous | 2 | 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 | $I_C=50\text{mA}; I_B=0$ | 80 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=6\text{A}; I_B=0.3\text{A}$ | | | 0.5 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C=6\text{A}; I_B=0.3\text{A}$ | | | 1.4 | V |
| I_{CBO} | Collector Cutoff Current | $V_{CB}=100\text{V}; I_E=0$ | | | 10 | μA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB}=5\text{V}; I_C=0$ | | | 10 | μA |
| h_{FE-1} | DC Current Gain | $I_C=1\text{A}; V_{CE}=1\text{V}$ | 70 | | 240 | |
| h_{FE-2} | DC Current Gain | $I_C=6\text{A}; V_{CE}=1\text{V}$ | 30 | | | |
| C_{OB} | Output Capacitance | $I_E=0; V_{CB}=10\text{V}; f_{test}=1.0\text{MHz}$ | | 350 | | pF |
| f_T | Current-Gain—Bandwidth Product | $I_C=1\text{A}; V_{CE}=4\text{V}$ | | 10 | | MHz |

Switching Times

| | | | | | | |
|-----------|--------------|--|--|-----|--|---------------|
| t_{on} | Turn-on Time | $I_{B1}=-I_{B2}=0.3\text{A}; R_L=5\Omega;$ $V_{CC}=30\text{V};$ $P_W=20\mu\text{s}; \text{Duty Cycle}\leq 1\%$ | | 0.5 | | μs |
| t_{stg} | Storage Time | | | 2.5 | | μs |
| t_f | Fall Time | | | 0.8 | | μs |

◆ h_{FE-1} Classifications

| | |
|--------|---------|
| O | Y |
| 70-140 | 120-240 |