

isc Silicon NPN Darlington Power Transistor

2SD1525

DESCRIPTION

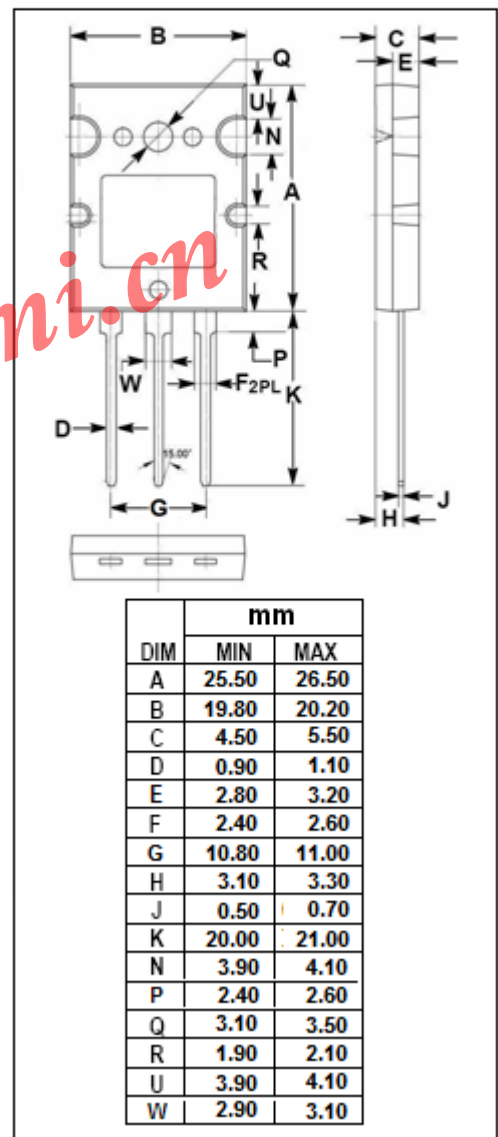
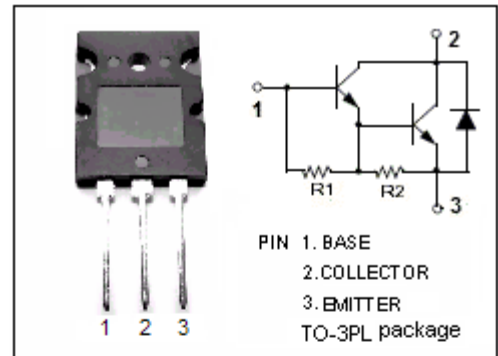
- High DC Current Gain
: $h_{FE} = 1000(\text{Min.}) @ I_C = 20A$
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 100V(\text{Min.})$

APPLICATIONS

- Designed for high current switching 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 | 100 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current-Continuous | 30 | A |
| I_B | Base Current- Continuous | 5 | A |
| P_C | Collector Power Dissipation @ $T_C=25^\circ\text{C}$ | 150 | 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 | $I_C=50\text{mA}$, $I_B=0$ | 100 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=20\text{A}$, $I_B=0.2\text{A}$ | | | 1.5 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C=20\text{A}$, $I_B=0.2\text{A}$ | | | 2.5 | V |
| I_{CBO} | Collector Cutoff current | $V_{CB}=100\text{V}$, $I_E=0$ | | | 0.1 | mA |
| I_{EBO} | Emitter Cutoff current | $V_{EB}=5\text{V}$, $I_C=0$ | | | 10 | mA |
| h_{FE-1} | DC Current Gain | $I_C=20\text{A}$; $V_{CE}=5\text{V}$ | 1000 | | | |
| h_{FE-2} | DC Current Gain | $I_C=30\text{A}$; $V_{CE}=5\text{V}$ | 200 | | | |
| V_{ECF} | C-E Diode Forward Voltage | $I_F=10\text{A}$ | | | 3.0 | V |
| f_T | Current-Gain—Bandwidth Product | $I_C=1\text{A}$; $V_{CE}=5\text{V}$ | | 10 | | MHz |
| C_{OB} | Output Capacitance | $I_E=0$; $V_{CB}=10\text{V}$; $f_{test}=1\text{MHz}$ | | 500 | | pF |

Switching Times

| | | | | | | |
|-----------|--------------|--|--|-----|--|---------------|
| t_{on} | Turn-On Time | $I_{B1} = -I_{B2} = 10\text{mA}$; $V_{CC} = 50\text{V}$; $R_L = 10\Omega$ | | 1.5 | | μs |
| t_{stg} | Storage Time | | | 10 | | μs |
| t_f | Fall Time | | | 1.5 | | μs |