

Silicon NPN Power Transistor

BDY55

DESCRIPTION

- Excellent Safe Operating Area
- DC Current Gain-
 $h_{FE}=20-70@I_C = 4A$
- Collector-Emitter Saturation Voltage-
 $V_{CE(sat)}= 1.1 V(Max)@ I_C = 4A$

APPLICATIONS

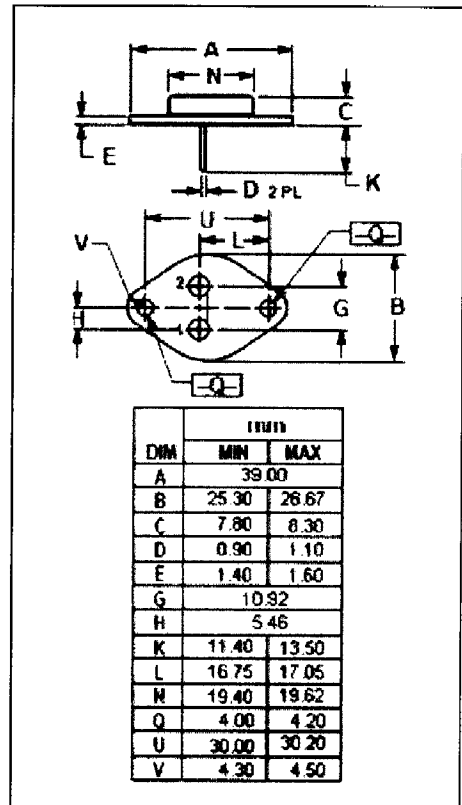
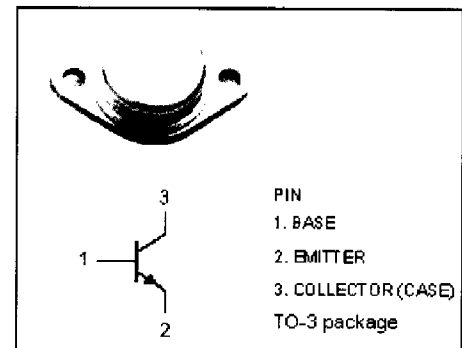
- Designed for general-purpose switching and amplifier applications

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

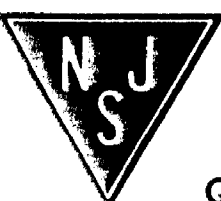
| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|--|---------|-------------|
| V_{CBO} | Collector-Base Voltage | 100 | V |
| V_{CEO} | Collector-Emitter Voltage | 60 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current-Continuous | 15 | A |
| I_B | Base Current | 7 | A |
| P_C | Collector Power Dissipation@ $T_C=25^{\circ}C$ | 117 | W |
| T_J | Junction Temperature | 200 | $^{\circ}C$ |
| T_{stg} | Storage Temperature | -65~200 | $^{\circ}C$ |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|--------------|--------------------------------------|-----|---------------|
| $R_{th j-c}$ | Thermal Resistance, Junction to Case | 1.5 | $^{\circ}C/W$ |



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ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN | MAX | UNIT |
|-----------------|--------------------------------------|---|-----|-----------|------|
| $V_{CEQ(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C=200\text{mA}; I_B=0$ | 60 | | V |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C=4\text{A}; I_B=0.4\text{A}$ | | 1.1 | V |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C=10\text{A}; I_B=3.3\text{A}$ | | 2.5 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C=4\text{A}; V_{CE}=4\text{V}$ | | 1.8 | V |
| I_{CEO} | Collector Cutoff Current | $V_{CE}=30\text{V}; I_B=0$ | | 0.7 | mA |
| I_{CEX} | Collector Cutoff Current | $V_{CE}=100\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=100\text{V}; V_{BE}=-1.5\text{V}; T_C=150^\circ\text{C}$ | | 5.0 30 | mA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB}=7\text{V}; I_C=0$ | | 5.0 | mA |
| h_{FE-1} | DC Current Gain | $I_C=4\text{A}; V_{CE}=4\text{V}$ | 20 | 70 | |
| h_{FE-2} | DC Current Gain | $I_C=10\text{A}; V_{CE}=4\text{V}$ | 10 | | |
| f_T | Current Gain-Bandwidth Product | $I_C=1\text{A}; V_{CE}=4\text{V}; f=10\text{MHz}$ | 10 | | MHz |

Switching Times

| | | | | | |
|-----------|---------------|--|--|-----|---------------|
| t_{on} | Turn-On Time | $I_C=5\text{A}; I_B=1\text{A}$ | | 0.5 | μs |
| t_{off} | Turn-Off Time | $I_C=5\text{A}; I_{B1}=1\text{A}; I_{B2}=-0.5\text{A}$ | | 2.0 | μs |