

Silicon PNP Power Transistor

2SA1601

DESCRIPTION

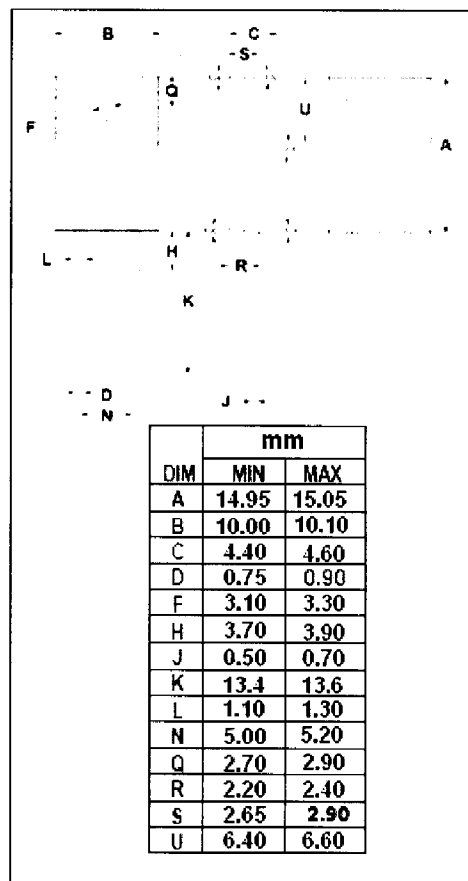
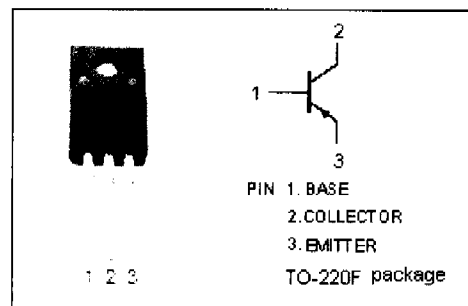
- Collector-Emitter Sustaining Voltage-
: $V_{CE(SUS)} = -40(V)(Min.)$
- Low Collector Saturation Voltage
: $V_{CE(sat)} = -0.3(V)(Max.) @ I_C = -7.5A$
- Large Current Capability- $I_C = -15A$

APPLICATIONS

- Designed for mid-switching applications, and is ideal for use as a ramp driver.

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

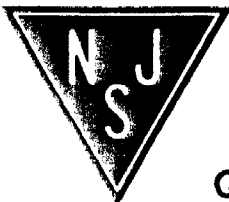
| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|--|---------|-------------|
| V_{CBO} | Collector-Base Voltage | -60 | V |
| V_{CEO} | Collector-Emitter Voltage | -40 | V |
| V_{EBO} | Emitter-Base Voltage | -7 | V |
| I_C | Collector Current-Continuous | -15 | A |
| I_{CM} | Collector Current-Peak | -30 | A |
| I_B | Base Current-Continuous | -2 | A |
| I_{BM} | Base Current-Peak | -3 | A |
| P_C | Total Power Dissipation @ $T_c=25^{\circ}C$ | 45 | W |
| T_J | Junction Temperature | 150 | $^{\circ}C$ |
| T_{stg} | Storage Temperature Range | -55~150 | $^{\circ}C$ |



THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|--------------|--------------------------------------|------|---------------|
| $R_{th j-c}$ | Thermal Resistance, Junction to Case | 2.77 | $^{\circ}C/W$ |

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ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---------------|--------------------------------------|--|-----|------|------|---------------|
| $V_{CE(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C = -10\text{mA}; I_B = 0$ | -40 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = -7.5\text{A}; I_B = -0.4\text{A}$ | | | -0.3 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = -7.5\text{A}; I_B = -0.4\text{A}$ | | | -1.2 | V |
| I_{CBO} | Collector Cutoff Current | $V_{CB} = -60\text{V}; I_E = 0$ | | | -100 | μA |
| I_{CEO} | Collector Cutoff Current | $V_{CE} = -40\text{V}; I_B = 0$ | | | -100 | μA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB} = -7\text{V}; I_C = 0$ | | | -100 | μA |
| h_{FE} | DC Current Gain | $I_C = -7.5\text{A}; V_{CE} = -2\text{V}$ | 70 | | | |
| f_T | Current-Gain—Bandwidth Product | $I_C = -1.5\text{A}; V_{CE} = -10\text{V}$ | | 50 | | MHz |

Switching Times

| | | | | | | |
|-----------|--------------|--|--|--|-----|---------------|
| t_{on} | Turn-on Time | $I_C = -7.5\text{A}, I_{B1} = -I_{B2} = -0.75\text{A}, R_L = 4\Omega, V_{BB2} = -4\text{V};$ | | | 0.3 | μs |
| t_{stg} | Storage Time | | | | 1.5 | μs |
| t_f | Fall Time | | | | 0.5 | μs |