

Silicon NPN Power Transistors

2SC5241

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
 $V_{CEO(SUS)} = 450V(\text{Min})$
- Fast Switching Speed
- Low Saturation Voltage

APPLICATIONS

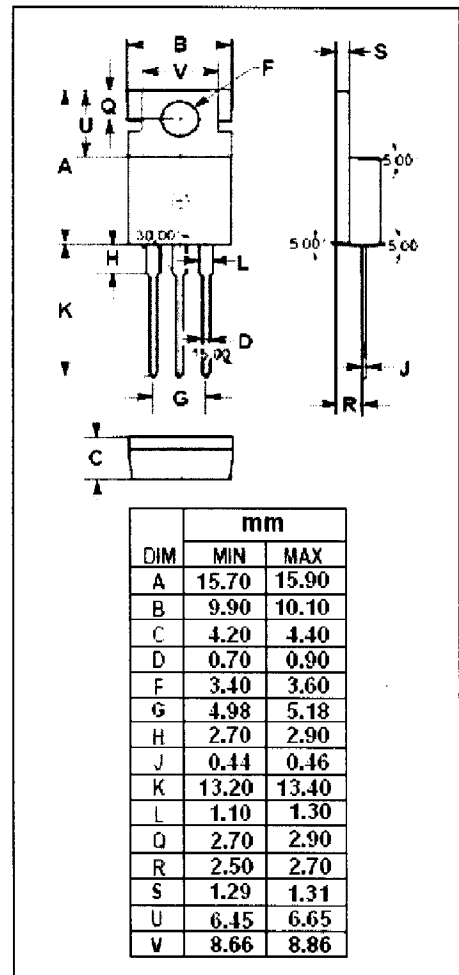
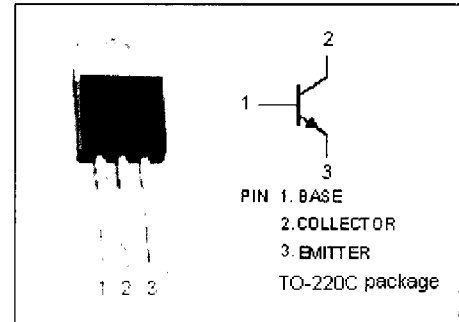
- Switching regulators
- High frequency inverters
- General purpose power amplifiers

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|---|---------|------------------|
| V_{CBO} | Collector-Base Voltage | 600 | V |
| V_{CEO} | Collector-Emitter Voltage | 450 | V |
| V_{CEX} | Collector-Emitter Voltage $V_{EB} = 5V$ | 600 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current-Continuous | 5 | A |
| I_{CM} | Collector Current-Peak | 10 | A |
| I_B | Base Current-Continuous | 2 | A |
| I_{BM} | Base Current-Peak | 4 | A |
| P_T | Total Power Dissipation @ $T_C=25^\circ\text{C}$ | 30 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature Range | -55~150 | $^\circ\text{C}$ |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|--------------------------------------|------|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 4.16 | $^\circ\text{C/W}$ |



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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 | $I_C=0.1\text{A}; I_B=0$ | 450 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=2.5\text{A}; I_B=0.5\text{A}$ | | | 1.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C=2.5\text{A}; I_B=0.5\text{A}$ | | | 1.5 | V |
| I_{CBO} | Collector Cutoff Current | At rated Voltage | | | 100 | μA |
| I_{CEO} | Collector Cutoff Current | At rated Voltage | | | 100 | μA |
| I_{EBO} | Emitter Cutoff Current | At rated Voltage | | | 100 | μA |
| h_{FE-1} | DC Current Gain | $I_C=2.5\text{A}; V_{CE}=5\text{V}$ | 10 | | | |
| h_{FE-2} | DC Current Gain | $I_C=1\text{mA}; V_{CE}=5\text{V}$ | 5 | | | |
| f_T | Current-Gain—Bandwidth Product | $I_C=0.5\text{A}; V_{CE}=10\text{V}$ | | 20 | | MHz |

Switching times

| | | | | | | |
|-----------|--------------|---|--|--|-----|---------------|
| t_{on} | Turn-on Time | $I_C=2.5\text{A}; I_{B1}=0.5\text{A}; I_{B2}=-1\text{A}$ $R_L=60\Omega; V_{BB2}=4\text{V}$ | | | 0.5 | μs |
| t_{stg} | Storage Time | | | | 2.0 | μs |
| t_f | Fall Time | | | | 0.2 | μs |