



HIGH-VOLTAGE POWER NPN SILICON TRANSISTORS

... designed for use in high-voltage, high-speed, power switching regulators, converter, converter, inverter, motor control system application.

FEATURES:

- * Collector-Emitter Sustaining Voltage-
 $V_{CE(sus)} = 300\text{ V (Min)}$
- * Collector-Emitter Saturation Voltage-
 $V_{CE(sat)} = 2.5\text{ V (Max.) @ } I_C = 2.0\text{ A}$
- *DC Current gain $h_{fe} = 20\text{ (Min.) } I_C = 2.0\text{ A}$

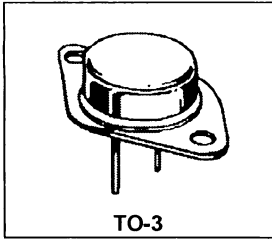
**NPN
2N5240**

**5 AMPERES
POWER TRANSISTOR
NPN SILICON

300 VOLTS
100 WATTS**

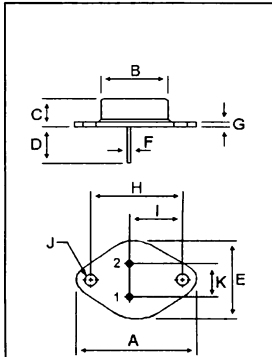
MAXIMUM RATINGS

| Rating | Symbol | 2N5240 | Unit |
|--|----------------|-------------|------------------------------------|
| Collector-Base Voltage | V_{CB} | 375 | V |
| Collector-Emitter Voltage | V_{CEO} | 300 | V |
| Emitter-Base Voltage | V_{EB} | 6.0 | V |
| Collector Current-Continuous Peak | I_C | 5 | A |
| Base Current | I_B | 2 | A |
| Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C | P_D | 100 0.57 | Watts $\text{W}/^\circ\text{C}$ |
| Operating and Storage Junction Temperature Range | T_J, T_{STG} | -65 to +200 | $^\circ\text{C}$ |



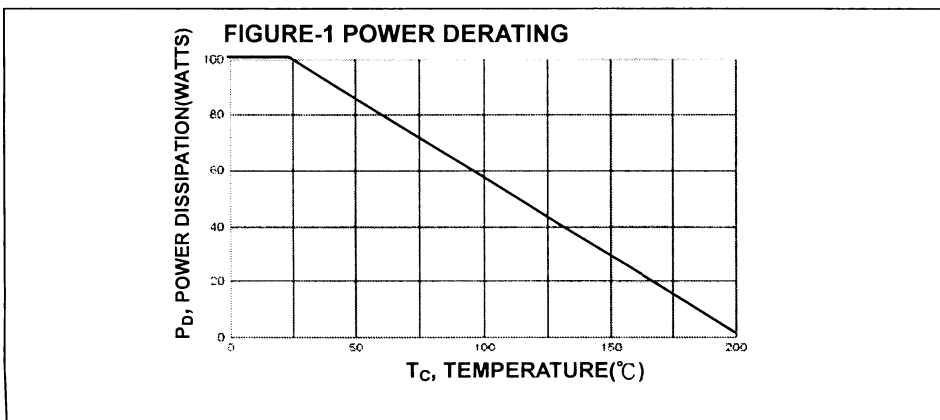
THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|--------------------------------------|-----------------|------|---------------------------|
| Thermal Resistance, junction to Case | $R_{\theta JC}$ | 1.75 | $^\circ\text{C}/\text{W}$ |



PIN 1.BASE
2.EMITTER
COLLECTOR(CASE)

| DIM | MILLIMETERS | |
|-----|-------------|-------|
| | MIN | MAX |
| A | 38.75 | 39.96 |
| B | 19.28 | 22.23 |
| C | 7.96 | 9.28 |
| D | 11.18 | 12.19 |
| E | 25.20 | 26.67 |
| F | 0.92 | 1.09 |
| G | 1.38 | 1.62 |
| H | 29.90 | 30.40 |
| I | 16.64 | 17.30 |
| J | 3.88 | 4.36 |
| K | 10.67 | 11.18 |



ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min. | Typ. | Max | Unit |
|--|----------------|------|------|-----|------|
| OFF CHARACTERISTICS | | | | | |
| Collector-Emitter Sustaining Voltage ($I_C = 0.20\text{Adc}$, $I_B = 0$) | $V_{CEO(sus)}$ | 300 | -- | -- | V |
| Base-Emitter Breakdown Voltage ($I_E = 0.02\text{Adc}$, $I_C = 0$) | V_{EBO} | 6 | -- | -- | V |
| Collector Current ($V_{CE} = 200\text{Vdc}$, $I_B = 0$) | I_{CEO} | -- | -- | 2 | mAdc |
| Emitter Cutoff Current ($V_{BE} = 6.0\text{Vdc}$, $I_C = 0$) | I_{EBO} | -- | -- | 5 | mAdc |

ON CHARACTERISTICS(1)

| | | | | | |
|--|---------------|---------------|----------------|----------------|-----|
| DC current gain ($I_C = 0.4\text{Adc}$, $V_{CE} = 10.0\text{Vdc}$) ($I_C = 2.0\text{Adc}$, $V_{CE} = 10.0\text{Vdc}$) ($I_C = 4.5\text{Adc}$, $V_{CE} = 10.0\text{Vdc}$) | h_{FE} | 20 20 5 | -- -- -- | 80 80 -- | |
| Collector-Emitter Saturation Voltage ($I_C = 2.0\text{Adc}$, $I_B = 0.25\text{Adc}$) ($I_C = 4.5\text{Adc}$, $I_B = 1.125\text{Adc}$) | $V_{CE(sat)}$ | -- -- | -- -- | 2.5 5.0 | Vdc |
| Base-Emitter Saturation Voltage ($I_C = 20\text{Adc}$, $I_B = 2.0\text{Adc}$) ($I_C = 50\text{Adc}$, $I_B = 10\text{Adc}$) | $V_{BE(sat)}$ | -- -- | -- -- | 1.8 3.5 | Vdc |
| Base-Emitter On Voltage ($I_C = 2.0\text{Adc}$, $V_{CE} = 10.0\text{Vdc}$) | $V_{BE(on)}$ | -- | -- | 3.0 | Vdc |

DYNAMIC CHARACTERISTICS

| | | | | | |
|--|----------|----|----|-----|-----|
| Current-Gain—Bandwidth Product ($I_C = 0.2\text{Adc}$, $V_{CE} = 10\text{Vdc}$, $f=10\text{MHz}$) | f_T | 2 | -- | -- | MHz |
| Output Capacitance ($V_{CB} = 10\text{Vdc}$, $I_E = 0$, $f=0.1\text{MHz}$) | C_{ob} | -- | -- | 250 | pF |