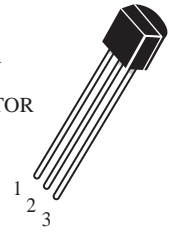


High-Voltage NPN Transistors

(Pb) Lead(Pb)-Free

1. EMITTER
2. BASE
3. COLLECTOR



TO-92

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| Rating | Symbol | Value | Unit |
|---|------------------|-------------|------------------|
| Collector-Emitter Voltage | V _{CEO} | 200 | V _{dc} |
| Collector-Base Voltage | V _{CBO} | 200 | V _{dc} |
| Emitter-Base Voltage | V _{EBO} | 6.0 | V _{dc} |
| Collector Current | I _C | 500 | mA _{dc} |
| Total Device Dissipation T _A =25°C | P _D | 0.625 | W |
| Junction Temperature | T _j | 150 | °C |
| Storage Temperature | T _{stg} | -55 to +150 | °C |

ELECTRICAL CHARACTERISTICS

| Characteristics | Symbol | Min | Max | Unit |
|---|----------------------|-----|-----|-----------------|
| Collector-Emitter Breakdown Voltage (I _C = 1.0 mA _{dc} , I _B =0) | V _{(BR)CEO} | 200 | - | V _{dc} |
| Collector-Base Breakdown Voltage (I _C = 100 uA _{dc} , I _E =0) | V _{(BR)CBO} | 200 | - | V _{dc} |
| Emitter-Base Breakdown Voltage (I _E = 100 uA _{dc} , I _C =0) | V _{(BR)EBO} | 6.0 | - | V _{dc} |
| Collector Cutoff Current (V _{CB} = 160V _{dc} , I _E =0) | I _{CBO} | - | 0.1 | μA |
| Emitter Cutoff Current (V _{EB} = 4.0V _{dc} , I _C =0) | I _{EBO} | - | 0.1 | μA |

Electrical Characteristics (T_A=25°C unless otherwise noted) (Continued)

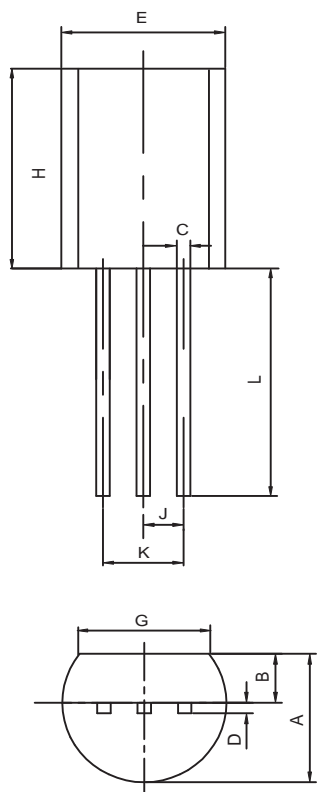
| Characteristics | Symbol | Min | Max | Unit |
|-----------------|--------|-----|-----|------|
|-----------------|--------|-----|-----|------|

On Characteristics

| | | | | |
|--|----------------------------|----------------|-----|-----|
| DC Current Gain (I _C = 1.0 mA, V _{CE} =10Vdc) (I _C = 10 mA, V _{CE} = 10Vdc) (I _C = 30 mA, V _{CE} = 10Vdc) | HFE(1) HFE(2) HFE(3) | 25 40 40 | - | - |
| Collector-Emitter Saturation Voltage (I _C = 20 mA, I _B = 2.0 mA) | V _{CE(sat)} | - | 0.4 | Vdc |
| Base-Emitter Saturation Voltage (I _C = 20 mA, I _B = 2.0 mA) | V _{BE(sat)} | - | 0.9 | Vdc |
| Transition Frequency (I _C = 10 mA, V _{CE} = 20 Vdc, f=100MHz) | f _T | 50 | - | MHz |

TO-92 Outline Dimensions

unit:mm



| TO-92 | | |
|--------------|------------|------------|
| Dim | Min | Max |
| A | 3.30 | 3.70 |
| B | 1.10 | 1.40 |
| C | 0.38 | 0.55 |
| D | 0.36 | 0.51 |
| E | 4.40 | 4.70 |
| G | 3.43 | - |
| H | 4.30 | 4.70 |
| J | 1.270TYP | |
| K | 2.44 | 2.64 |
| L | 14.10 | 14.50 |