

EVVOSEMI[®]

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ESD



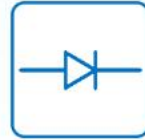
TVS



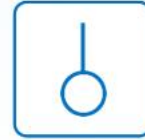
MOS



LDO



Diode



Sensor



DC-DC

Product Specification

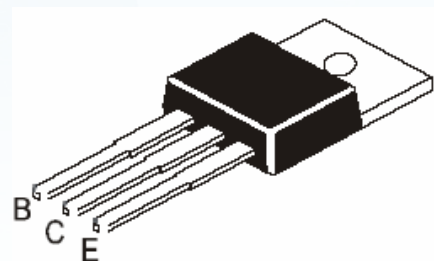
| | | |
|--------------|-------------|---------------|
| ▶ Domestic | Part Number | TIP120-TIP122 |
| ▶ Overseas | Part Number | TIP120-TIP122 |
| ▶ Equivalent | Part Number | TIP120-TIP122 |

EV is the abbreviation of name EVVO

Darlington Power Transistors (NPN)

Features

- Designed for general-purpose amplifier and low speed switching applications
- RoHS Compliant



TO-220

Maximum Ratings ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

| Symbol | Description | TIP120 | TIP121 | TIP122 | Unit |
|---------------------------------------|---|-------------|--------|--------|-----------------|
| V_{CB0} | Collector-Base Voltage | 60 | 80 | 100 | V |
| V_{CEO} | Collector-Emitter Voltage | 60 | 80 | 100 | V |
| V_{EB0} | Emitter-Base Voltage | 5.0 | | | V |
| I_C | Collector Current Continuous | 5.0 | | | A |
| I_{CM} | Collector Current Peak | 8.0 | | | A |
| I_B | Base Current | 120 | | | mA |
| P_D | Power Dissipation upto $T_C=25^{\circ}C$ | 65 | | | W |
| | Power Dissipation Derate above $T_C=25^{\circ}C$ | 0.52 | | | W/ $^{\circ}C$ |
| | Power Dissipation upto $T_A=25^{\circ}C$ | 2.0 | | | W |
| | Power Dissipation Derate above $T_A=25^{\circ}C$ | 16 | | | mW/ $^{\circ}C$ |
| R_{θJA} | Thermal Resistance from Junction to Ambient in Free Air | 62.5 | | | $^{\circ}C/W$ |
| R_{θJC} | Thermal Resistance from Junction to Case | 1.92 | | | $^{\circ}C/W$ |
| T_J, T_{STG} | Operating Junction and Storage Temperature Range | -65 to +150 | | | $^{\circ}C$ |

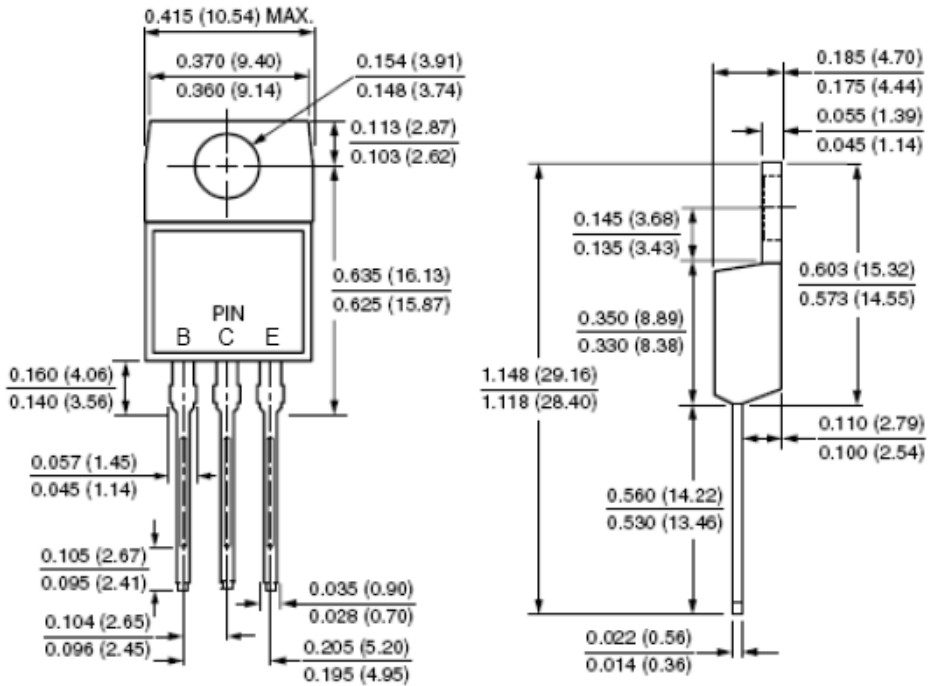
Electrical Characteristics ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

| Symbol | Description | Min. | Max. | Unit | Conditions | |
|------------------------------|--------------------------------------|-----------------|------|------|---|--|
| *h_{FE} | D.C. Current Gain | 1000 | - | | V _{CE} =3V, I _C =0.5A | |
| | | 1000 | - | | V _{CE} =3V, I _C =3A | |
| *V_{CEO(sus)} | Collector-Emitter Sustaining Voltage | TIP120 | 60 | - | V | I _C =100mA, I _B =0 |
| | | TIP121 | 80 | - | V | |
| | | TIP122 | 100 | - | V | |
| *V_{CE(sat)} | Collector-Emitter Saturation Voltage | - | 2.0 | V | I _C =3A, I _B =12mA | |
| | | - | 4.0 | V | I _C =5A, I _B =20mA | |
| *V_{BE(on)} | Base-Emitter On Voltage | - | 2.5 | V | I _C =3A, V _{CE} =3V | |
| I_{CEO} | Collector-Emitter Cut-off Current | TIP120 | - | 0.5 | mA | V _{CE} =30V, I _B =0 |
| | | TIP121 | - | 0.5 | | V _{CE} =40V, I _B =0 |
| | | TIP122 | - | 0.5 | | V _{CE} =50V, I _B =0 |
| I_{CBO} | Collector-Base Cut-off Current | TIP120 | - | 0.2 | mA | V _{CB} =60V, I _E =0 |
| | | TIP121 | - | 0.2 | | V _{CB} =80V, I _E =0 |
| | | TIP122 | - | 0.2 | | V _{CB} =100V, I _E =0 |
| I_{EBO} | Emitter-Base Cut-off Current | - | 2 | mA | V _{EB} =5V, I _C =0 | |
| h_{fe} | Small Signal Current Gain | 4.0 | - | | I _C =3A, V _{CE} =4V, f=1.0MHz, | |
| C_{ob} | Output Capacitance | - | 200 | pF | V _{CB} =10V, I _E =0, f=0.1MHz, | |
| t_{on} | Turn on time | Typ. 0.4 | | μS | I _C =3A, R _L =10Ω, I _{B1} =I _{B2} =12mA, V _{EB(off)} =5V | |
| t_{off} | Turn off time | Typ. 1.2 | | | | |

*Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

Dimensions in inch (mm)

TO-220



Pin Configuration

- B. Base
- C. Collector
- E. Emitter

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