

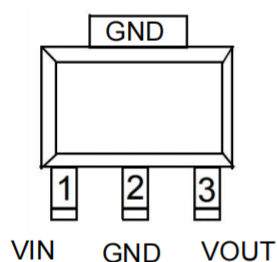
### Features

- 3μA Current at no Load(TYP.)
- ±2% Output Accuracy
- 200mA Output Current
- Current Limit Protection

### Applications

- Industrial Controls
- Home Automation
- Wireless power tools
- Motor driver and control board

### PIN CONFIGURATION



**SOT89-3(VT3)**

| Pin Number | Pin Name | Pin Function            |
|------------|----------|-------------------------|
| SOT89-3    |          |                         |
| 1          | VIN      | Input of Supply Voltage |
| 2          | GND      | Ground                  |
| 3          | VOUT     | Output of the Regulator |

### Ordering Information

**TPAP2204R- XXTRG1**

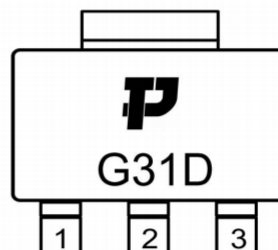
OUTPUT VOLTAGE

3.3: 3.3V

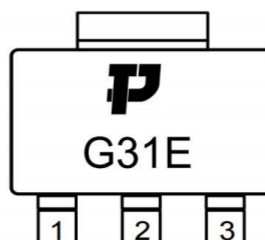
5.0: 5.0V

### Marking:

**TPAP2204R-3.3TRG1**



**TPAP2204R-5.0TRG1**

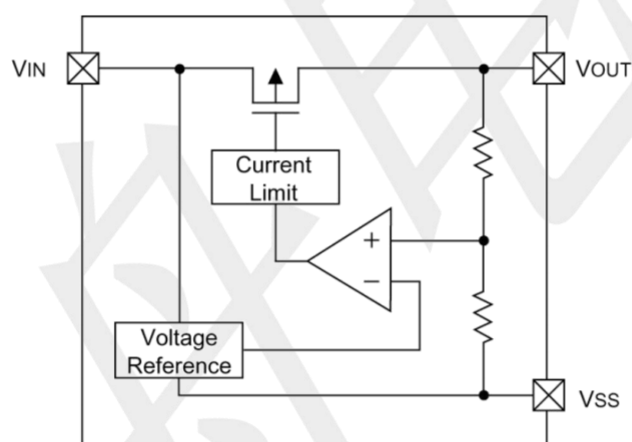


### Absolute Maximum Ratings

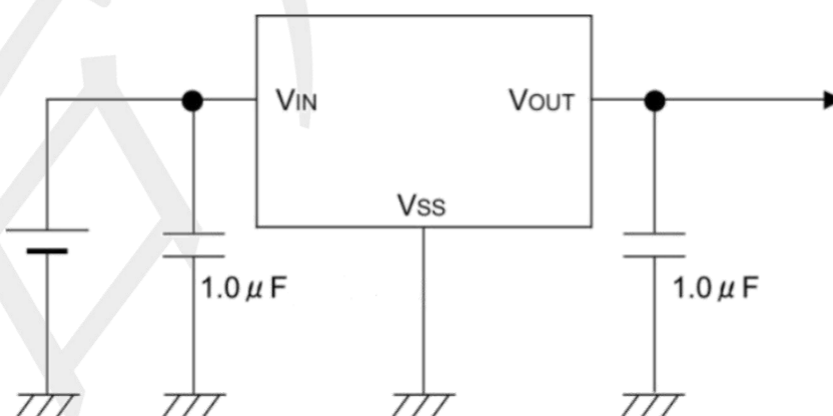
over operating free-air temperature range (unless otherwise noted)

|             |                                       | MIN                | MAX       | UNIT |
|-------------|---------------------------------------|--------------------|-----------|------|
| VIN         | Continuous input voltage range        | -0.3               | 29        | V    |
| VOUT        | Output voltage range                  | -0.3               | 6.0       |      |
| Current     | Maximum output current                | Internally limited |           | mA   |
| Temperature | Operating Temperature, Topr           | -40                | +85       | °C   |
|             | Storage, Tstg                         | -40                | +125      |      |
|             | Welding temperature and time, Tsolder |                    | +260, 10s |      |
| Pd          | Power Dissipation SOT89-3             | 500                |           | mW   |
| HBM         | ESD Susceptibility                    | 200                |           | V    |
| MM          |                                       | 2000               |           | V    |

### BLOCK DIAGRAM



### Typical Application Circuit



### Electrical Characteristics

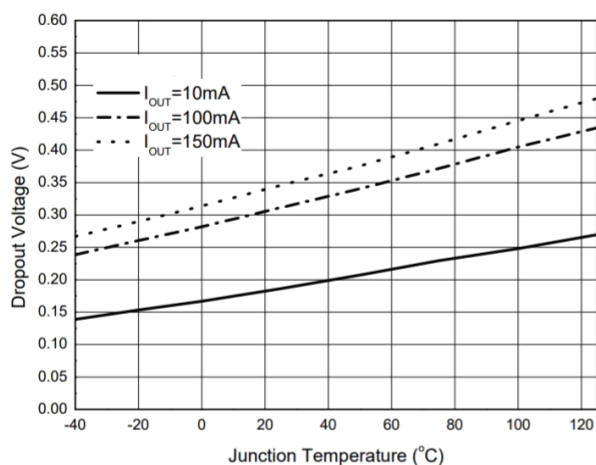
(TA=25°C, unless otherwise specified)

| PARAMETER                                            | SYMBOL                                               | TEST Conditions                                                                        | MIN | TYP | MAX | UNIT  |
|------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------------|-----|-----|-----|-------|
| Supply Voltage                                       | V <sub>IN</sub>                                      |                                                                                        | 2   | --  | 24  | V     |
| Output current                                       | I <sub>OUT(max)</sub>                                |                                                                                        | 200 | --  | --  | mA    |
| DC Output Voltage Accuracy                           |                                                      | I <sub>OUT</sub> = 0.1mA                                                               | -2  | --  | 2   | %     |
| Dropout Voltage (V <sub>IN</sub> -V <sub>OUT</sub> ) | I <sub>OUT</sub> =<br>100mA                          | V <sub>OUT</sub> = 3.3V                                                                | --  | 420 | --  | mV    |
|                                                      |                                                      | V <sub>OUT</sub> = 5.0V                                                                | --  | 350 | --  |       |
| Ground Current (I <sub>OUT</sub> = 0mA)              | I <sub>Q</sub>                                       | V <sub>OUT</sub> = 3.3V                                                                | --  | 3.0 | 10  | uA    |
| Power supply voltage regulation rate                 | $\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$ | I <sub>OUT</sub> =40mA,<br>V <sub>IN</sub> ≤18V                                        | --  | 0.2 | 0.4 | % / V |
| Output Current Limit                                 | I <sub>LIM</sub>                                     | V <sub>OUT</sub> =0.9×<br>V <sub>OUT(NOM)</sub>                                        | 300 | --  | --  | mA    |
| Power Supply Rejection Ratio                         | PSRR                                                 | V <sub>OUT</sub> =5V,<br>I <sub>OUT</sub> =30mA,<br>V <sub>IN</sub> = 12V,<br>f = 1kHz | --  | 70  | --  | dB    |
| Thermal Shutdown Temperature                         | T <sub>SD</sub>                                      | I <sub>OUT</sub> =10mA                                                                 | --  | 160 | --  | °C    |
| Thermal Shutdown Hysteresis                          | ΔT <sub>SD</sub>                                     |                                                                                        | --  | 15  | --  |       |
| Package Thermal Resistance<br>(Note 1)               | SOT89-3                                              | Thermal<br>Resistance<br>Junction-toA<br>mbient                                        | --  | 120 | --  | °C/W  |

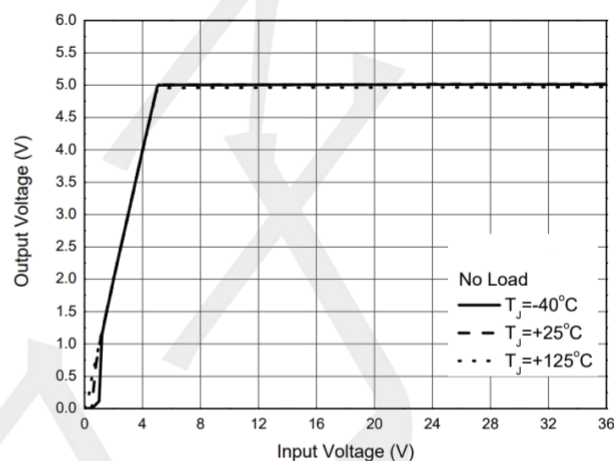
Note: 1. Test condition: the device is mounted on FR-4 substrate PC board, with minimum recommended pad layout.

### Performance Characteristics

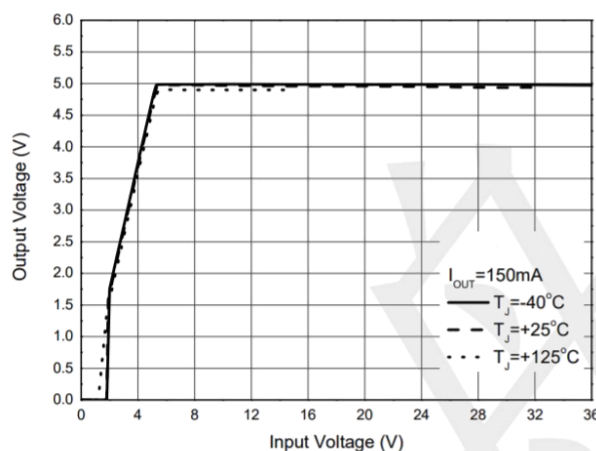
Dropout Voltage vs. Junction Temperature



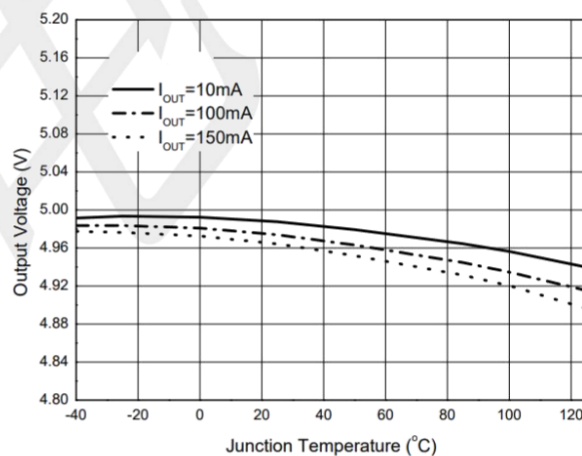
Output Voltage vs. Input Voltage



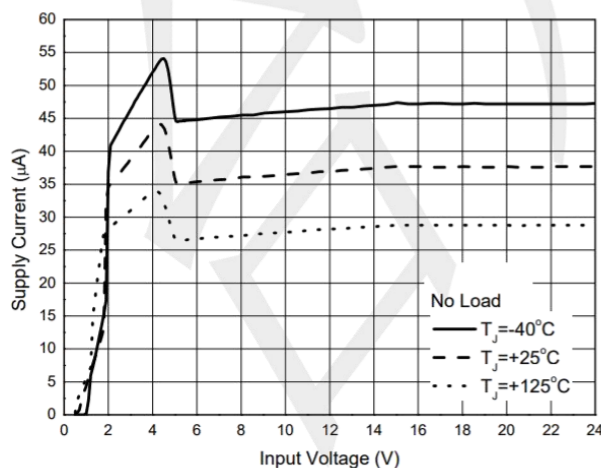
Output Voltage vs. Input Voltage



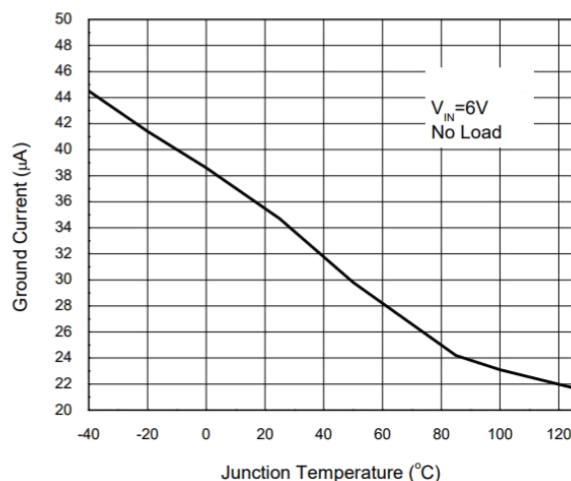
Output Voltage vs. Junction Temperature



Supply Current vs. Input Voltage

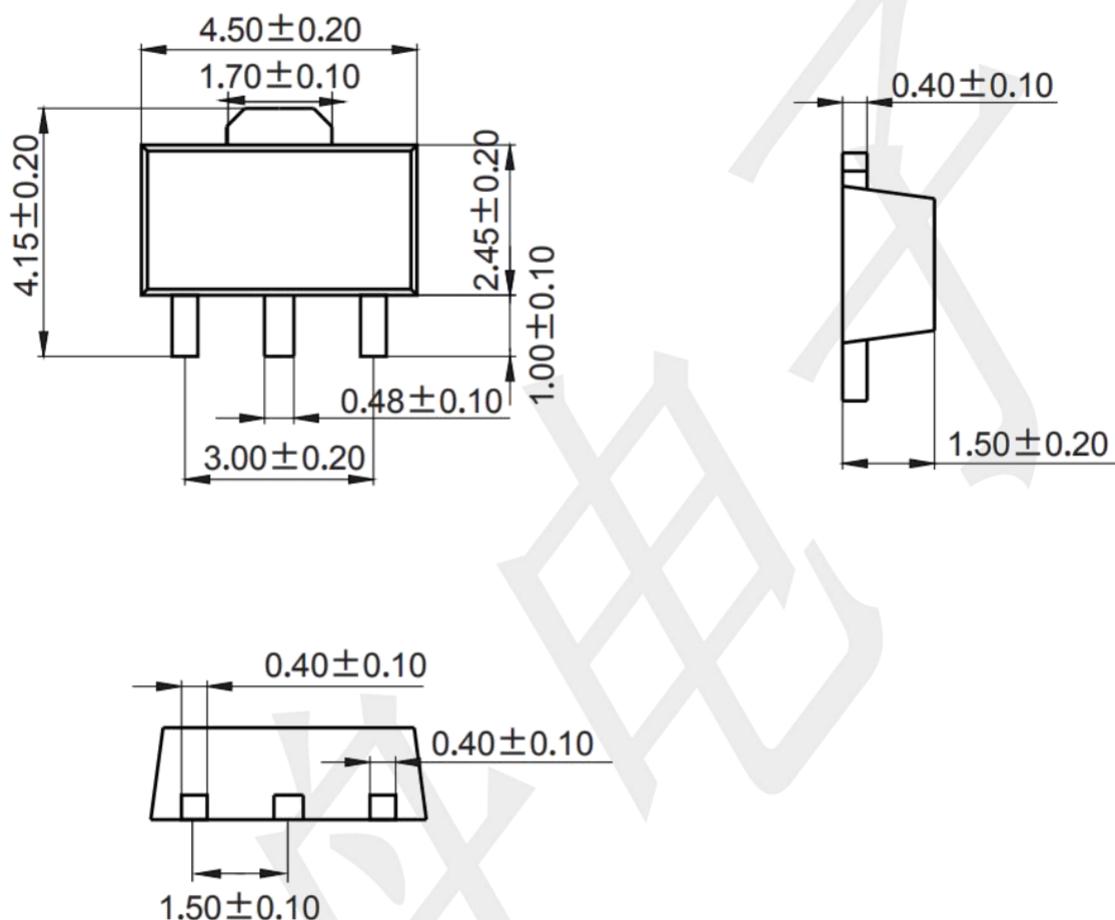


Ground Current vs. Junction Temperature



**Package Outline Dimensions (unit: mm)**

SOT89-3



**Mounting Pad Layout (unit: mm)**

