

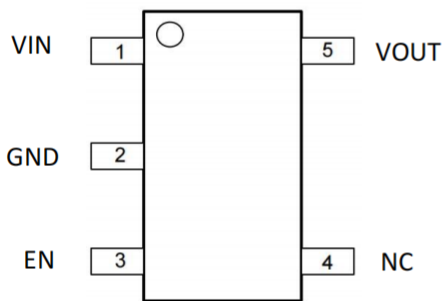
### Features

- 20  $\mu$ A Current at no Load
- $\pm 2\%$  Output Accuracy
- 100mA Output Current
- Current Limit Protection

### Applications

- Industrial Controls
- Home Automation
- Low Power Microcontrollers
- Portable, Battery Powered Equipment

### PIN CONFIGURATION

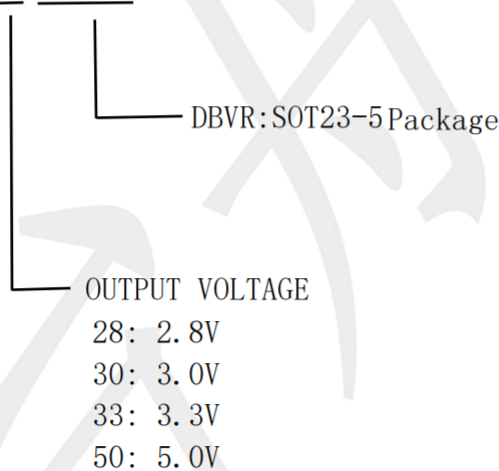


**SOT23-5**

| Pin Number | Pin Name | Pin Function            |
|------------|----------|-------------------------|
| SOT23-5    |          |                         |
| 1          | VIN      | Input of Supply Voltage |
| 2          | GND      | Ground                  |
| 3          | EN       | Enable Control Input    |
| 4          | NC       | No Internal Connection  |
| 5          | VOUT     | Output of the Regulator |

### Ordering Information

TPLP2981-30DBVR



### Absolute Maximum Ratings

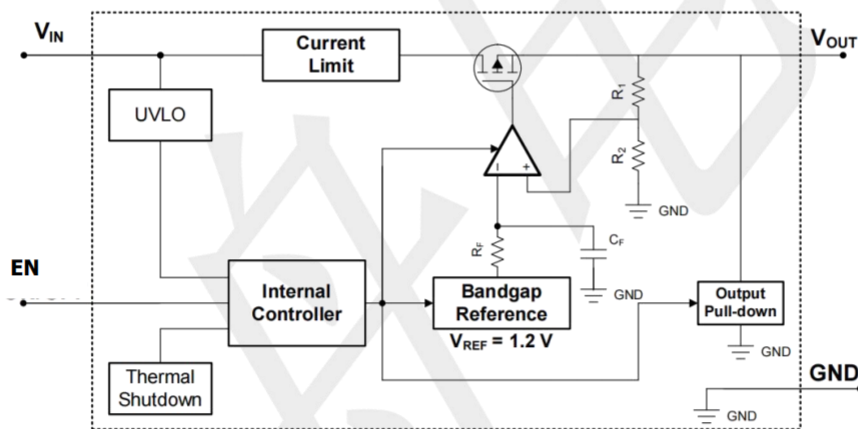
over operating free-air temperature range (unless otherwise noted)

|                  |                                    | MIN                | MAX | UNIT |
|------------------|------------------------------------|--------------------|-----|------|
| V <sub>IN</sub>  | Continuous input voltage range     | -0.3               | 18  | V    |
| V <sub>OUT</sub> | Output voltage range               | -0.3               | 18  |      |
| EN               | EN pin voltage range               | -0.3               | 18  |      |
| Current          | Maximum output current             | Internally limited |     | mA   |
| Temperature      | Operating junction, T <sub>J</sub> | -40                | 150 | °C   |
|                  | Storage, T <sub>stg</sub>          | -40                | 150 |      |

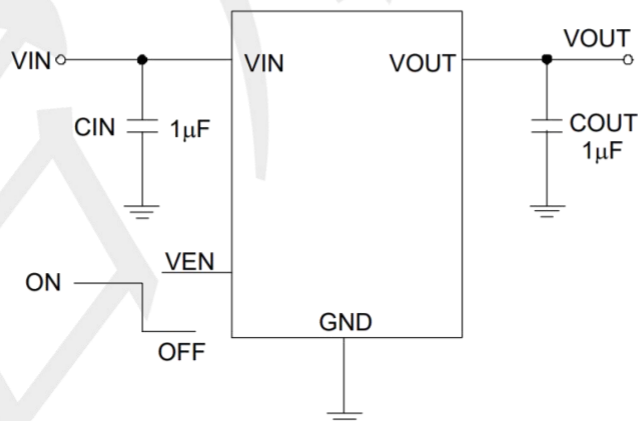
### ESD Ratings

|        |                         |                        | VALUE | UNIT |
|--------|-------------------------|------------------------|-------|------|
| V(ESD) | Electrostatic discharge | Human body model (HBM) | ±2000 | V    |
|        |                         | Machine Model (MM)     | ±200  |      |

### BLOCK DIAGRAM



### Typical Application Circuit



**Electrical Characteristics**

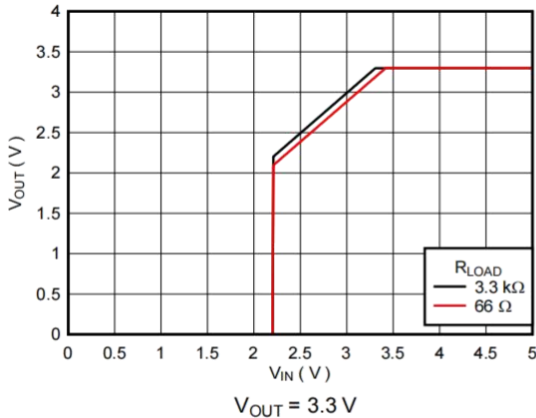
(VIN=15V, VEN=5V, TA=25°C, unless otherwise specified)

| PARAMETER                              | SYMBOL            | TEST Conditions                                      | MIN | TYP  | MAX | UNIT |
|--|-------------------|--|-----|------|-----|------|
| Supply Voltage                         | VIN               |  | 2   | --   | 18  | V    |
| Output current                         | IOUT              |  | 0   | --   | 100 | mA   |
| DC Output Voltage Accuracy             |                   | IOUT = 0.1mA   | -2  | --   | 2   | %    |
| Dropout Voltage (VIN-VOUT)             | IOUT = 100mA      | VOUT = 1.2V  | --  | 111  | --  | mV   |
|  |                   | VOUT = 1.5V  | --  | 106  | --  |      |
|  |                   | VOUT = 1.8V  | --  | 101  | --  |      |
|  |                   | VOUT = 3.0V  | --  | 95   | --  |      |
|  |                   | VOUT = 3.3V  | --  | 90   | --  |      |
|  |                   | VOUT = 5.0V  | --  | 85   | --  |      |
| Ground Current (IOUT = 0mA)            | IQ                | VOUT = 3.3V  | --  | --   | 20  | uA   |
| Shutdown Ground Current                | ISD               | VEN = 0V,  | --  | 0.01 | 0.5 |      |
| VOUT Shutdown Leakage Current          | I <sub>LEAK</sub> | VOUT = 0V  | --  | 0.01 | 0.5 |      |
| Enable Threshold Voltage               | V <sub>IH</sub>   | EN Rising  | 1.1 | --   | --  | V    |
|  | V <sub>IL</sub>   | EN Falling   | --  | --   | 0.4 |      |
| EN Input Current                       | I <sub>EN</sub>   | VEN = 16V  | --  | 10   | 100 | nA   |
| Line Regulation                        | ΔLINE             | IOUT = 1mA,<br>10 ≤ VIN ≤ 18V                        | --  | 0.3  | --  | %    |
| Load Regulation                        | ΔLOAD             | 10mA ≤ IOUT<br>≤ 100mA                               | --  | 0.3  | --  |      |
| Output Current Limit                   | I <sub>LIM</sub>  | VOUT = 0.9 ×<br>VOUT(NOM)                            | 100 | 200  | --  | mA   |
| Power Supply Rejection Ratio           | PSRR              | VOUT = 5V,<br>IOUT = 30mA,<br>VIN = 12V,<br>f = 1kHz | --  | 70   | --  | dB   |
| Thermal Shutdown Temperature           | TSD               | IOUT = 10mA  | --  | 160  | --  | °C   |
| Thermal Shutdown Hysteresis            | ΔTSD              |  | --  | 15   | --  |      |
| Package Thermal Resistance<br>(Note 1) | TJA               | Thermal Resistance<br>Junction-to-Ambient            | --  | 200  | --  | °C/W |

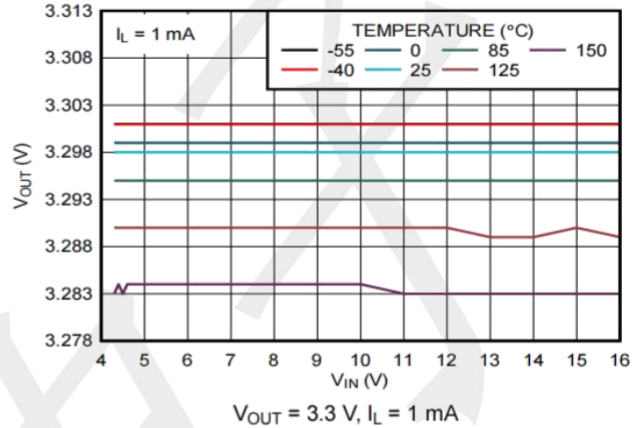
Note: 1. Test condition: For SOT23-5, the device is mounted on FR-4 substrate PC board, with minimum recommended pad layout.

**Typical Operating Characteristics** (25 °C, unless otherwise noted)

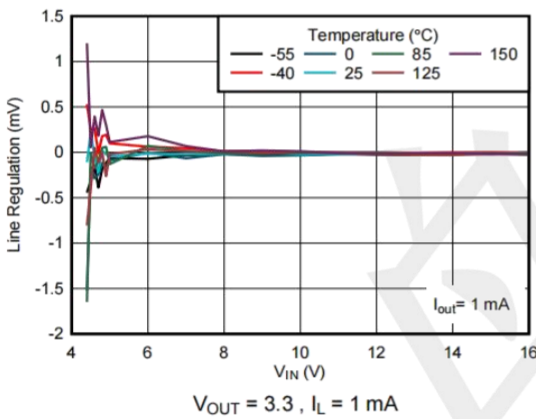
Unless otherwise specified: TA = 25 °C, VIN = VO(NOM) + 1 V, COU T = 1 μF, CIN = 1 μF all voltage options, EN pin tied to VIN.



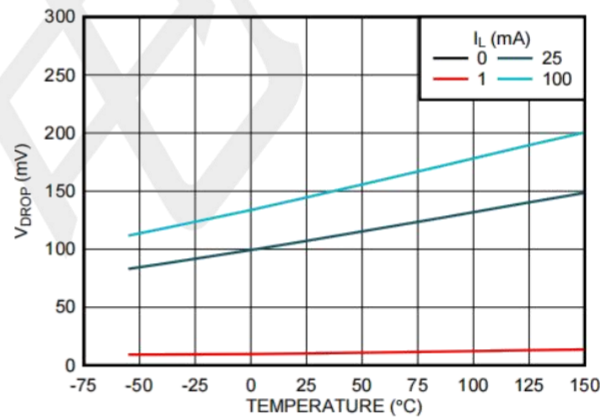
Output Voltage versus VIN



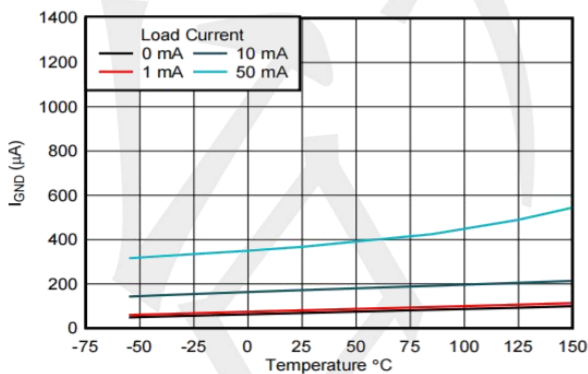
Output Voltage versus VIN and Temperature



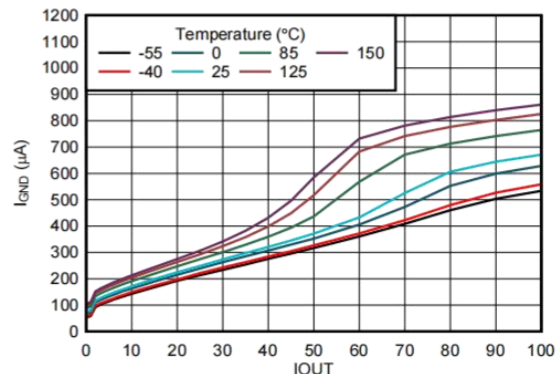
Line Regulation versus VIN & Temperature



Dropout Voltage (VDO) versus Temperature



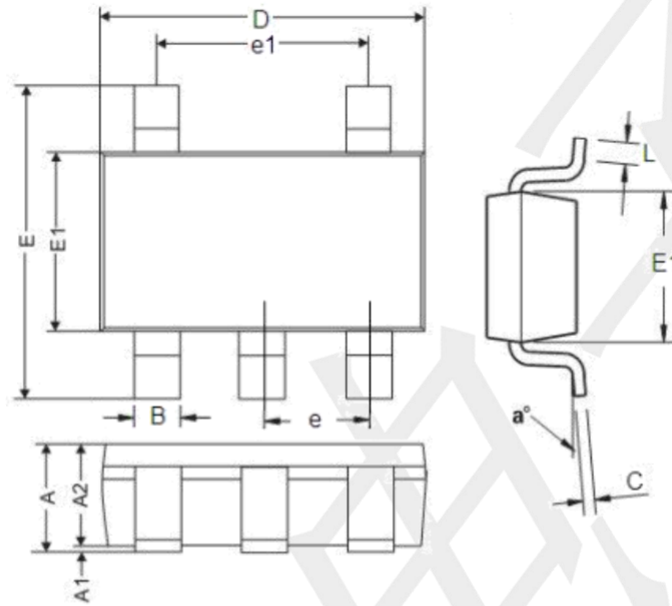
Ground Pin Current (I<sub>GND</sub>) versus Temperature



Ground Pin Current (I<sub>GND</sub>) versus Load Current

**Package informantion**

SOT23-5



| 参数 | 尺寸 (mm) |      | 尺寸 (Inch) |        |
|----|---------|------|-----------|--------|
|    | 最小值     | 最大值  | 最小值       | 最大值    |
| A  | 0.9     | 1.45 | 0.0354    | 0.0570 |
| A1 | 0       | 0.15 | 0         | 0.0059 |
| A2 | 0.9     | 1.3  | 0.0354    | 0.0511 |
| B  | 0.2     | 0.5  | 0.0078    | 0.0196 |
| C  | 0.09    | 0.26 | 0.0035    | 0.0102 |
| D  | 2.7     | 3.10 | 0.1062    | 0.1220 |
| E  | 2.2     | 3.2  | 0.0866    | 0.1181 |
| E1 | 1.30    | 1.80 | 0.0511    | 0.0708 |
| e  | 0.95REF |      | 0.0374REF |        |
| e1 | 1.90REF |      | 0.0748REF |        |
| L  | 0.10    | 0.60 | 0.0039    | 0.0236 |
| a° | 0°      | 30°  | 0°        | 30°    |