

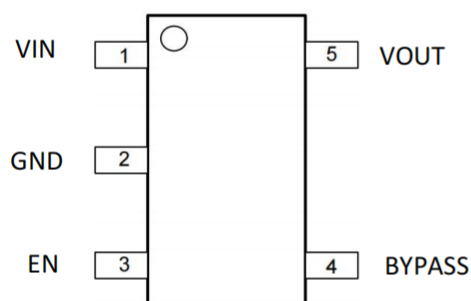
### Features

- 10  $\mu$ A Current at no Load
- $\pm 1\%$  Output Accuracy
- 500mA Output Current
- Current Limit Protection

### Applications

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

### PIN CONFIGURATION

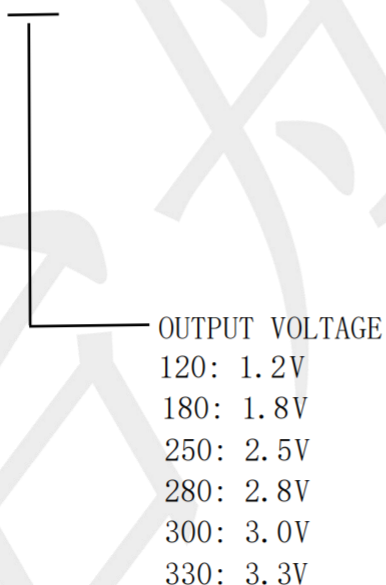


**SOT23-5**

| Pin Number | Pin Name | Pin Function                                      |
|------------|----------|---------------------------------------------------|
| SOT23-5    |          |                                                   |
| 1          | VIN      | Input of Supply Voltage                           |
| 2          | GND      | Ground                                            |
| 3          | EN       | Enable Control Input                              |
| 4          | BYPASS   | BYPASS pin to achieve low noise performance, 1.2V |
| 5          | VOUT     | Output of the Regulator                           |

### Ordering Information

TPCAT6219-300TDGT3



### Absolute Maximum Ratings

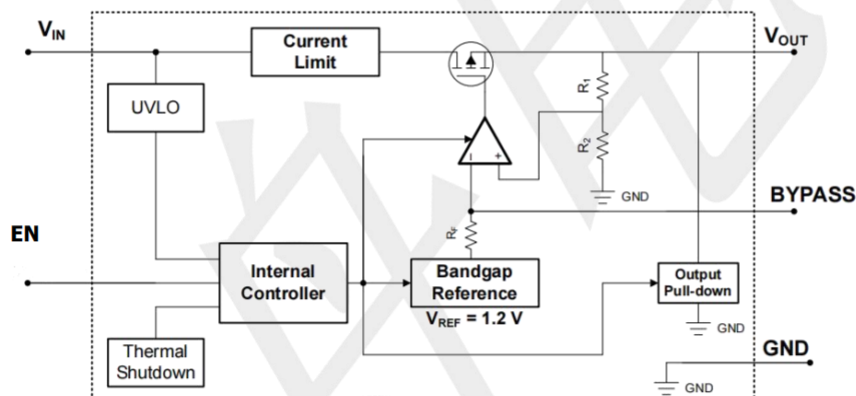
over operating free-air temperature range (unless otherwise noted)

|                  |                                    | MIN                | MAX                  | UNIT |
|------------------|------------------------------------|--------------------|----------------------|------|
| V <sub>IN</sub>  | Continuous input voltage range     | 0                  | 6                    | V    |
| V <sub>OUT</sub> | Output voltage range               | -0.3               | V <sub>IN</sub> +0.3 |      |
| EN               | EN pin voltage range               | -0.3               | V <sub>IN</sub> +0.3 |      |
| Current          | Maximum output current             | Internally limited |                      | mA   |
| Temperature      | Operating junction, T <sub>J</sub> | -40                | 150                  | °C   |
|                  | Storage, T <sub>stg</sub>          | -50                | 150                  |      |

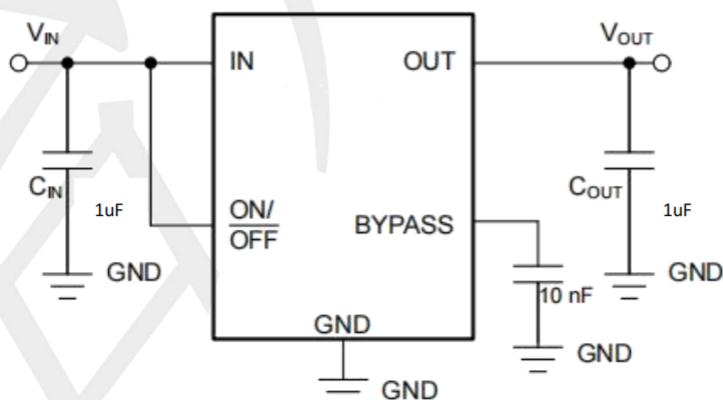
### ESD Ratings

|        |                         |                            | VALUE | UNIT |
|--------|-------------------------|----------------------------|-------|------|
| V(ESD) | Electrostatic discharge | Human body model (HBM)     | ±3000 | V    |
|        |                         | Charged device model (CDM) | ±500  |      |

### BLOCK DIAGRAM



### Typical Application Circuit



### Electrical Characteristics

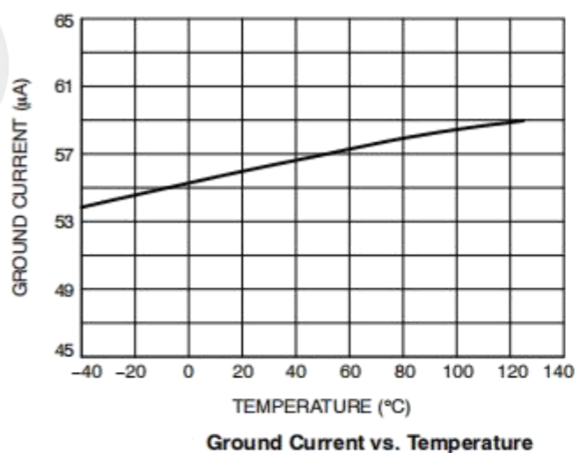
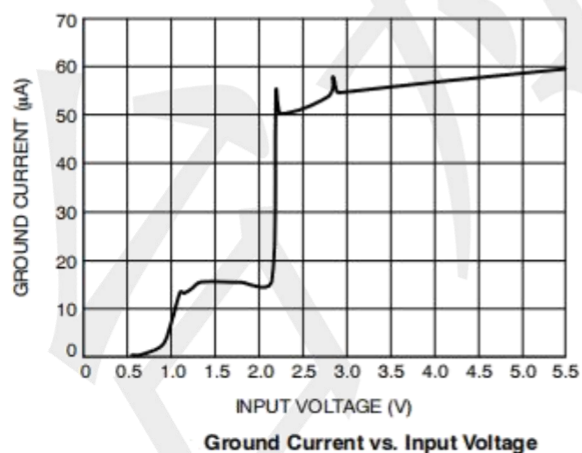
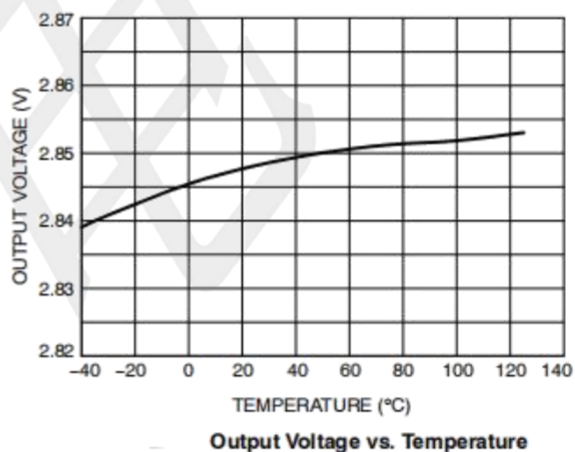
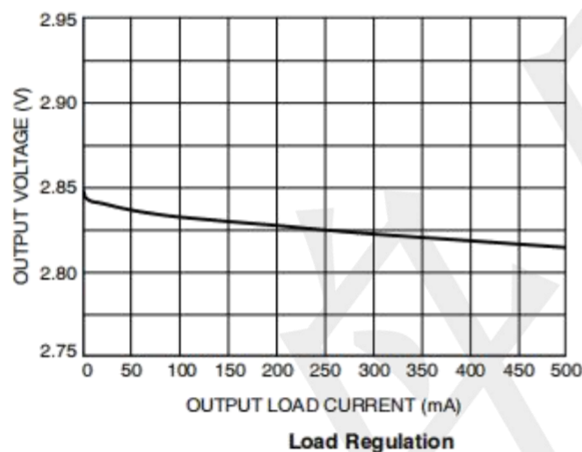
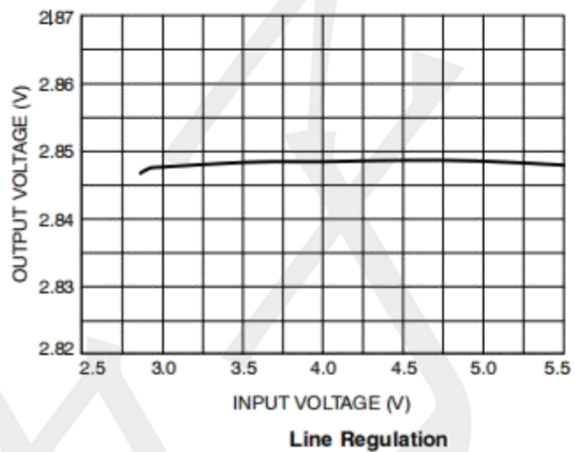
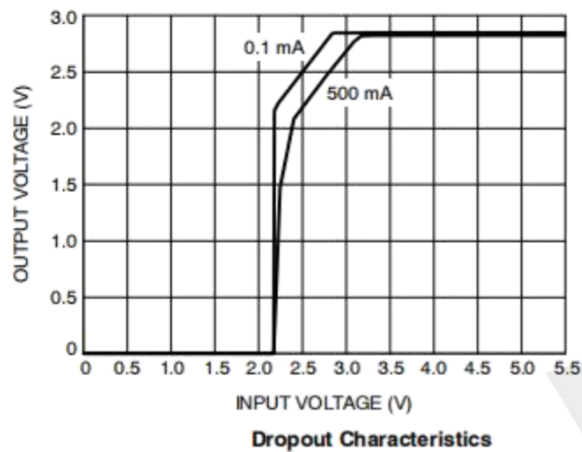
(VIN=15V, VEN=5V, TA=25°C, unless otherwise specified)

| PARAMETER                              | SYMBOL       | TEST Conditions                                         | MIN | TYP  | MAX | UNIT |
|----------------------------------------|--------------|---------------------------------------------------------|-----|------|-----|------|
| Supply Voltage                         | VIN          |                                                         | 2.3 | --   | 5.5 | V    |
| Output current                         | IOUT         |                                                         | 0   | --   | 500 | mA   |
| DC Output Voltage Accuracy             |              | IOUT = 0.1mA                                            | -2  | --   | 2   | %    |
| Dropout Voltage (VIN-VOUT)             | IOUT = 100mA | VOUT = 1.25V                                            | --  | 108  | --  | mV   |
|                                        |              | VOUT = 1.80V                                            | --  | 102  | --  |      |
|                                        |              | VOUT = 2.50V                                            | --  | 98   | --  |      |
|                                        |              | VOUT = 2.80V                                            | --  | 91   | --  |      |
|                                        |              | VOUT = 2.85V                                            | --  | 90   | --  |      |
|                                        |              | VOUT = 3.00V                                            | --  | 88   | --  |      |
|                                        |              | VOUT = 3.30V                                            | --  | 85   | --  |      |
| Ground Current (IOUT = 0mA)            | IQ           | VOUT = 3.3V                                             | --  | --   | 10  | uA   |
| Shutdown Ground Current                | ISD          | VEN = 0V,                                               | --  | 0.01 | 0.5 |      |
| VOUT Shutdown Leakage Current          | ILEAK        | VOUT = 0V                                               | --  | 0.01 | 0.5 |      |
| Enable Threshold Voltage               | VIH          | EN Rising                                               | 1.1 | --   | --  | V    |
|                                        | VIL          | EN Falling                                              | --  | --   | 0.4 |      |
| EN Input Current                       | IEN          | VEN = 5.5V                                              | --  | 10   | 100 | nA   |
| Line Regulation                        | ΔLINE        | IOUT = 1mA,<br>2.3 ≤ VIN ≤ 5.5V                         | --  | 0.3  | --  | %    |
| Load Regulation                        | ΔLOAD        | 10mA ≤ IOUT ≤ 100mA                                     | --  | 0.3  | --  |      |
| Output Current Limit                   | ILIM         | VOUT = 0.9 × VOUT(NOM)                                  | 500 | 550  | --  | mA   |
| Power Supply Rejection Ratio           | PSRR         | VOUT = 3.3V,<br>IOUT = 30mA,<br>VIN = 5.5V,<br>f = 1kHz | --  | 68   | --  | dB   |
| Thermal Shutdown Temperature           | TSD          | IOUT = 10mA                                             | --  | 160  | --  | °C   |
| Thermal Shutdown Hysteresis            | ΔTSD         |                                                         | --  | 10   | --  |      |
| 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.

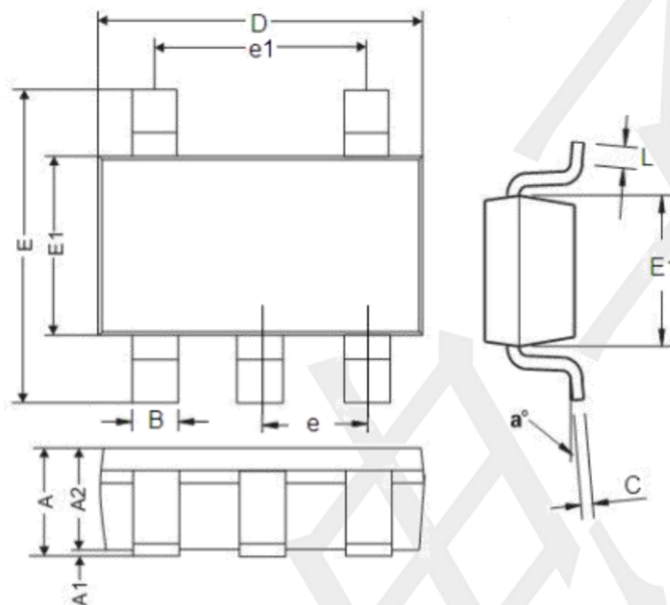
### Typical Operating Characteristics (shown for 2.80 V output option)

Unless otherwise specified:  $T_A = 25^\circ\text{C}$ ,  $V_{IN} = 3.85\text{ V}$ ,  $C_{BYP} = 10\text{ nF}$ ,  $C_{OUT} = 1\text{ }\mu\text{F}$ ,  $C_{IN} = 1\text{ }\mu\text{F}$  all voltage options, EN pin tied to  $V_{IN}$ .



**Package information**

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°    |