

## High Input Voltage Charger (OVP)

### GENERAL DESCRIPTION

The PW2605 is a front-end over voltage and over current protection device. It achieves wide input voltage range from 2.8VDC to 36VDC. The over voltage threshold can be programmed externally or set to internal default setting. The low resistance of integrated power path nFET switch ensures better performance for battery charging system applications. It can deliver up to 1A current to satisfy the battery supply system. It integrates the over-temperature protection shutdown and auto-recovery circuit with hysteresis to protect against over current events.

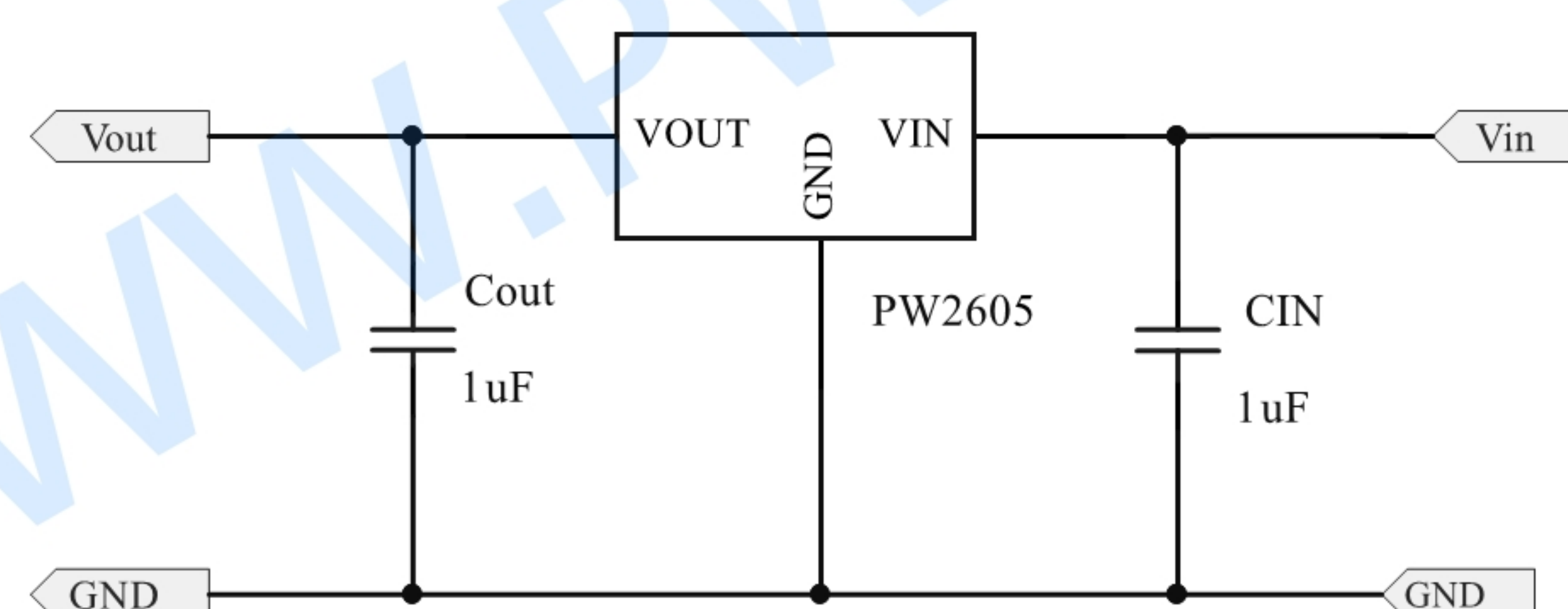
### FEATURES

- Absolute maximum input voltage: 36V
- Maximum load current : 1A
- Low power path resistance : 350mΩ (Typ.)
- Fixed Internal OVP threshold :6.1 (Typ.)
- OVP response time : 50ns
- Internal 15-ms Start-Up or OVP Recovery Delay
- OVP: PW2606B ( 350mΩ ); PW2609A ( 35mΩ )
- OVP+OCP: PW1558 ( 3V ~ 20V 5.8A); PW1515 (3.5V~6V 2A)
- Internal soft start to prevent In-rush current
- Thermal shutdown protection & Auto recovery
- Output short-circuit protection
- RoHS compliant and Halogen free
- Compact package :SOT23-3L

### APPLICATIONS

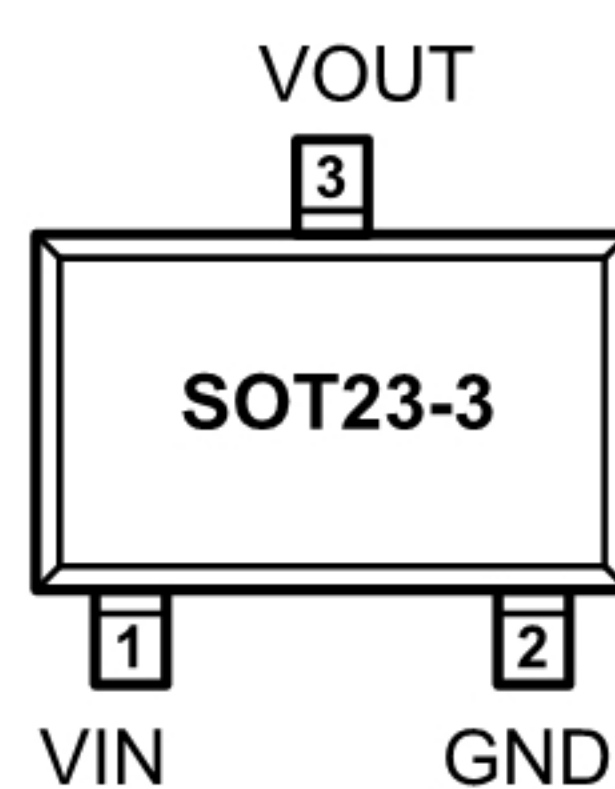
- Smart Device
- Battery Supplied System
- Wearable Device

### TYPICAL APPLICATION CIRCUIT





## PIN ASSIGNMENT/DESCRIPTION



| Pin No | Pin Name | Functions   |
|--------|----------|---|
| 1      | VIN      | Power input pin. Decouple high frequency noise by connecting at least 0.1uF MLCC to ground. |
| 3      | VOUT     | Output voltage pin. Source side of the internal nFET.                                       |
| 2      | GND      | Power ground pin.   |

## RECOMMENDED OPERATING RANGE

| SYMBOL | ITEMS                   | VALUE      | UNIT |
|--------|-------------------------|------------|------|
| VIN    | Input Supply Voltage    | 2.5 to 20  | V    |
| VOUT   | Output Voltage          | < 10       | V    |
| IOUT   | Continue Output Current | <1         | A    |
| CIN    | Input capacitance       | 1          | uF   |
| Cout   | Output load capacitance | 1          | uF   |
| TOPT   | Operating Temperature   | -40 to +85 | °C   |

## Absolute Maximum Ratings (note)

| SYMBOL  | ITEMS                                    | VALUE      | UNIT |
|---------|--|------------|------|
| VIN     | Input Voltage                            | -0.3~36    | V    |
| Vout    | Output Voltage                           | -0.3~15    | V    |
| VOVLO   | OVLO Voltage                             | -0.3~20    | V    |
| IOMAX   | Maximum Output Continues Load Current    | 1          | A    |
| RθJA    | Thermal Resistance                       | 300        | °C/W |
| TJ      | Junction Temperature                     | -40~150    | °C   |
| TSTG    | Storage Temperature                      | -55 ~ +150 | °C   |
| TSOLDER | Package Lead Soldering Temperature (10s) | 260        | °C   |
| ESD HBM | Human Body Mode                          | 8          | KV   |

**Note:** Exceed these limits to damage to the device. Exposure to absolute maximum rating conditions may affect device reliability.

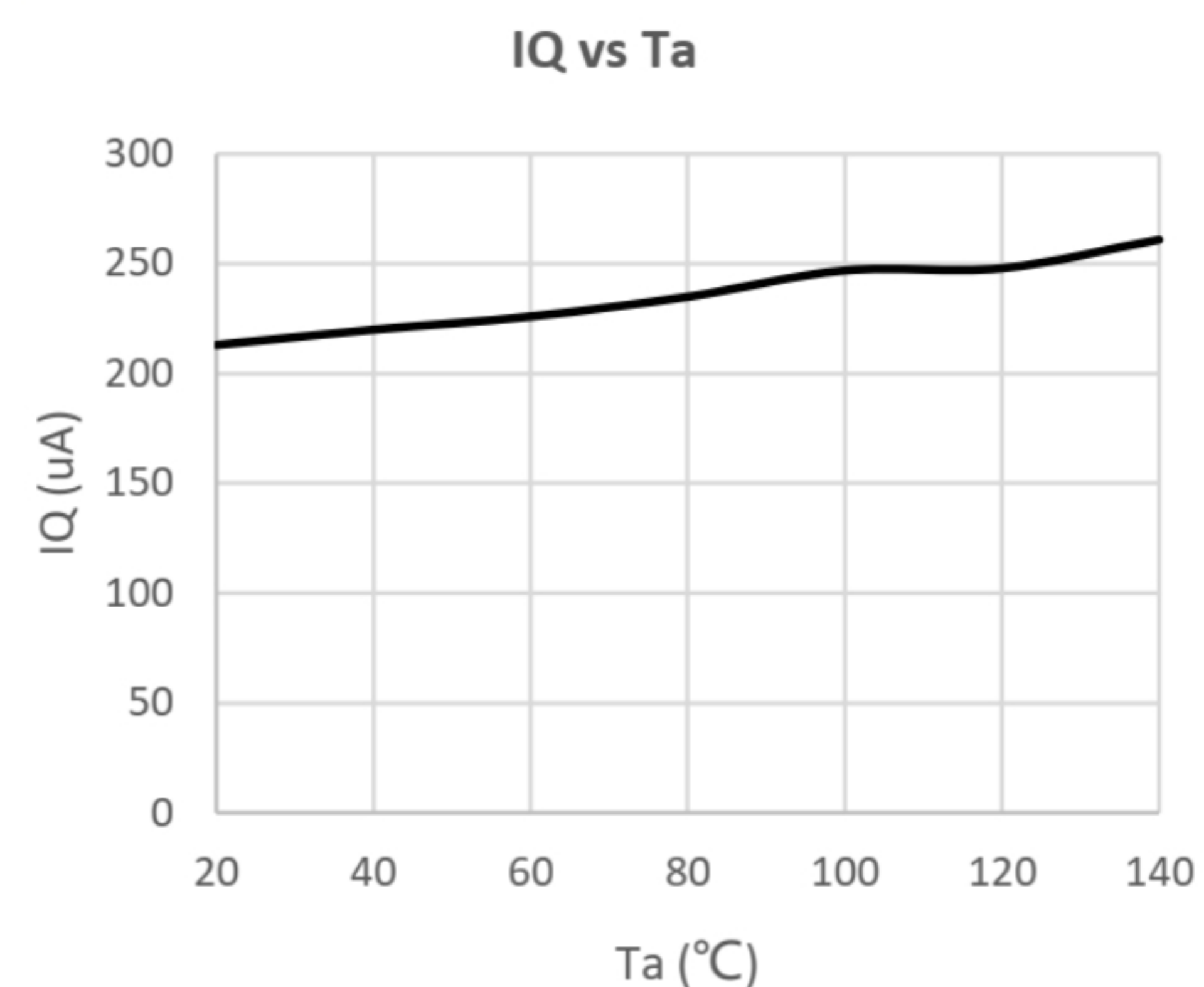
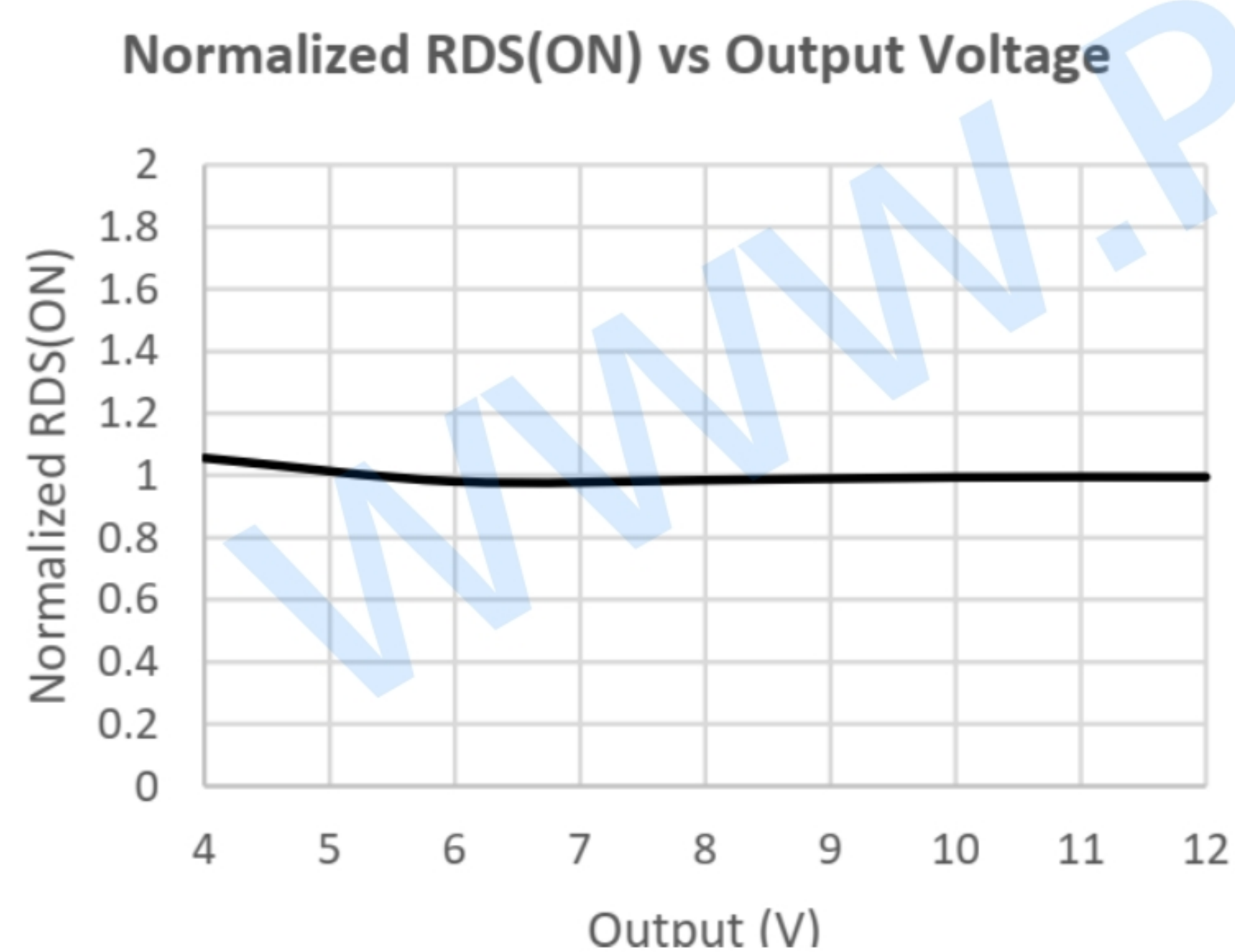


## ELECTRICAL CHARACTERISTICS

(VIN = 2.8V to 36V, CIN=1uF, COU=1uF, TA=25 °C, unless otherwise noted.)

| Parameter                             | Symbol    | Test Conditions                                      | MIN  | TYP | MAX | UNIT |
|---------------------------------------|-----------|--|------|-----|-----|------|
| Input Voltage                         | VIN       |  | 2.8  |     | 36  | V    |
| Input UVLO Threshold                  | VUVLO     |  |      | 2.5 |     | V    |
| UVLO Hysteresis                       | VHYS      |  |      | 260 |     | mV   |
| Input Quiescent Current               | IQ        | VIN=5V, VIN<VOVLO                                    |      | 240 |     | μA   |
| OVLO Input Leakage Current            | IovLO     | VOVLO=VOVLO_TH                                       | -100 |     | 100 | nA   |
| Internal Default OVP Threshold        | VOVLO     | Rising   | 5.8  | 6.1 | 6.4 | V    |
| Internal OVP Hysteresis               | VOVLO_HYS | Falling  |      | 190 |     | mV   |
| On Resistance of power path           | RON       | VIN=5V,<br>IOUT=500mA,                               |      | 350 |     | mΩ   |
| Startup or OVP Recovery Debounce Time | TDEB      | Time from<br>2.5V<VIN<VOVLO to<br>VOUT=10%<br>of VIN |      | 15  |     | mS   |
| OVP Switch Turn-Off Time              | tOFF      | VIN> VOVLO to VOUT stop<br>rising                    |      | 50  | 100 | nS   |
| Output Discharge Resistance           | RDISC     | OVP Triggered, VOUT=1V                               |      | 350 |     | Ω    |
| Thermal Shutdown Temperature          | TSD       |  |      | 150 |     | °C   |
| Thermal Shutdown Hysteresis           | THYS      |  |      | 20  |     | °C   |

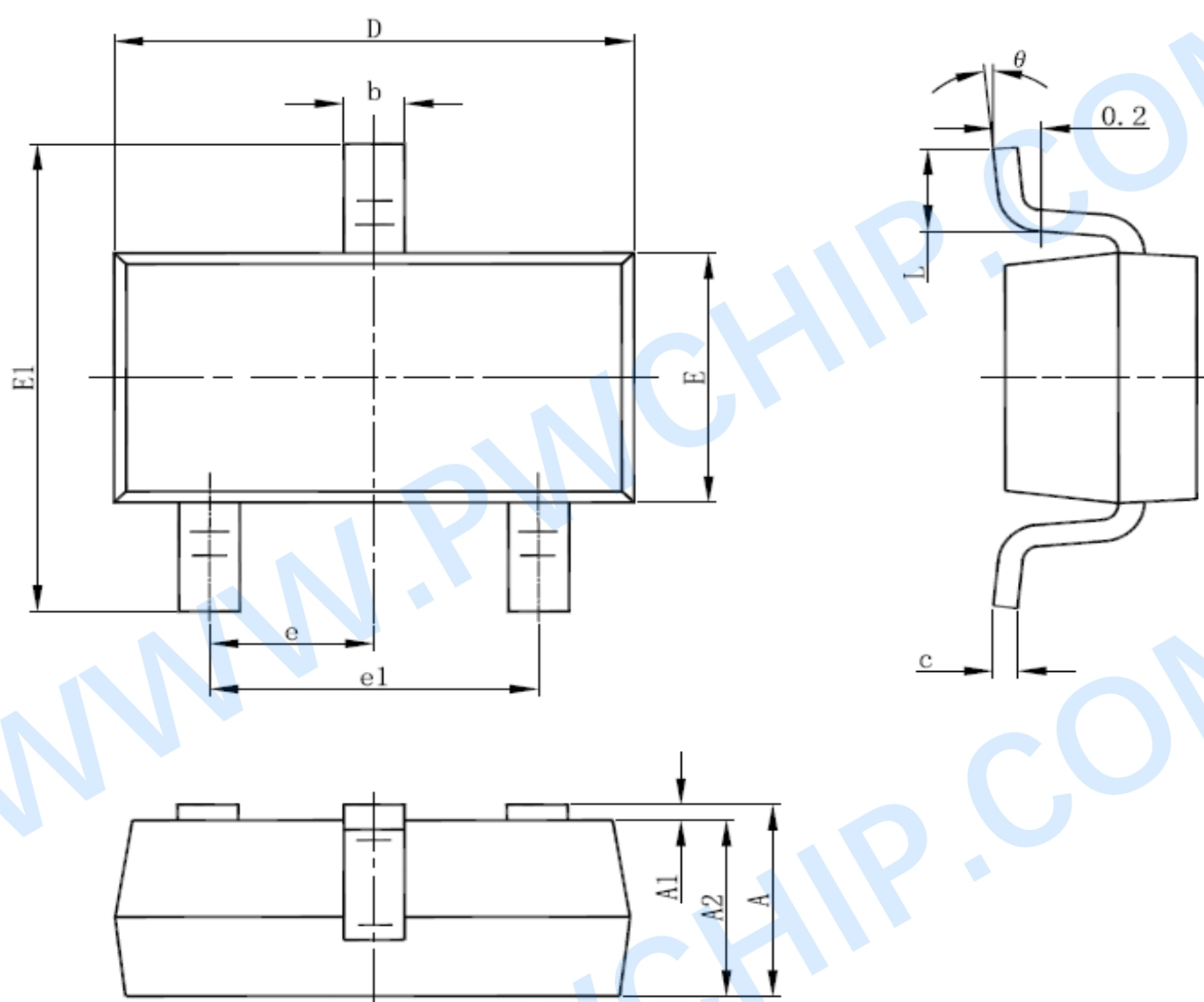
## TYPICAL PERFORMANCE CHARACTERISTICS





## PACKAGE DESCRIPTION

### SOT23-3



| Symbol   | Dimensions In Millimeters |       | Dimensions In Inches |       |
|----------|---------------------------|-------|----------------------|-------|
|          | Min.                      | Max.  | Min.                 | Max.  |
| A        | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1       | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2       | 0.900                     | 1.050 | 0.035                | 0.041 |
| b        | 0.300                     | 0.500 | 0.012                | 0.020 |
| c        | 0.080                     | 0.150 | 0.003                | 0.006 |
| D        | 2.800                     | 3.000 | 0.110                | 0.118 |
| E        | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1       | 2.250                     | 2.550 | 0.089                | 0.100 |
| e        | 0.950 TYP.                |       | 0.037 TYP.           |       |
| e1       | 1.800                     | 2.000 | 0.071                | 0.079 |
| L        | 0.550 REF.                |       | 0.022 REF.           |       |
| L1       | 0.300                     | 0.500 | 0.012                | 0.020 |
| $\theta$ | 0°                        | 8°    | 0°                   | 8°    |