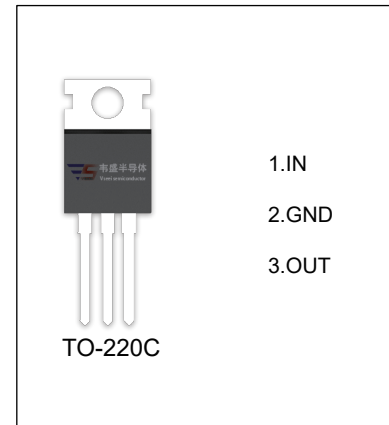


## VS7815 Three-terminal positive voltage regulator

### FEATURES

- Maximum output current  
 $I_{OM}: 1.5\text{ A}$
- Output voltage  
 $V_O: 15\text{ V}$
- Continuous total dissipation  
 $P_D: 1.5\text{ W}$  ( $T_a = 25^\circ\text{C}$ )



### ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

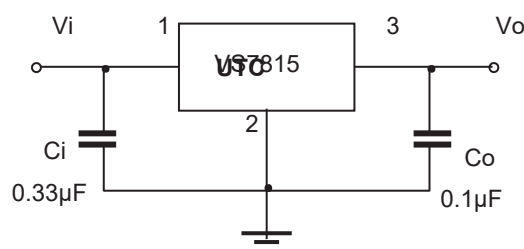
| Parameter                                   | Symbol          | Value    | Unit               |
|---|-----------------|----------|--------------------|
| Input Voltage                               | $V_i$           | 35       | V                  |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 66.7     | $^\circ\text{C/W}$ |
| Operating Junction Temperature Range        | $T_{OPR}$       | -40~+125 | $^\circ\text{C}$   |
| Storage Temperature Range                   | $T_{STG}$       | -65~+150 | $^\circ\text{C}$   |

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ( $V_i=23\text{V}$ ,  $I_o=500\text{mA}$ ,  $C_i=0.33\mu\text{F}$ ,  $C_o=0.1\mu\text{F}$ , unless otherwise specified)

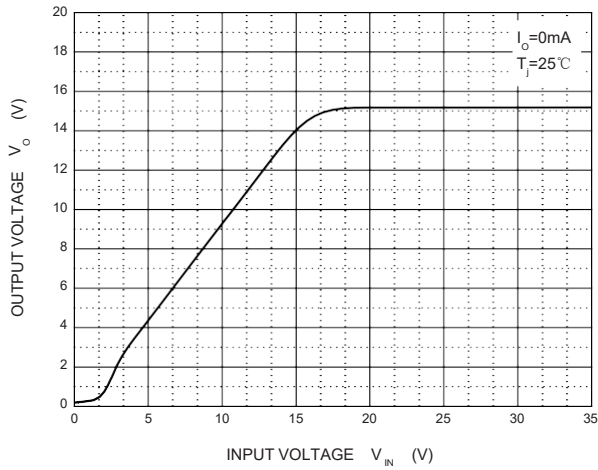
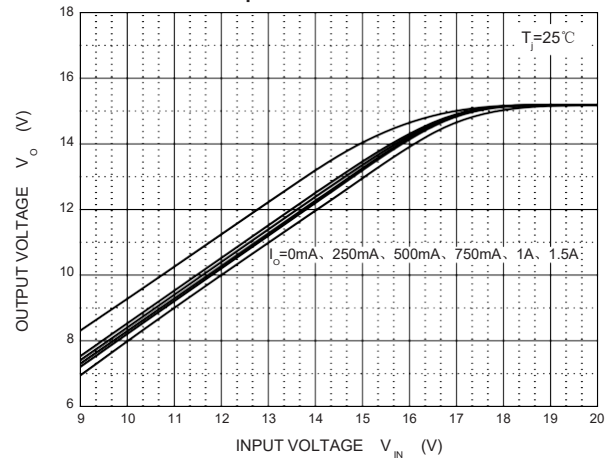
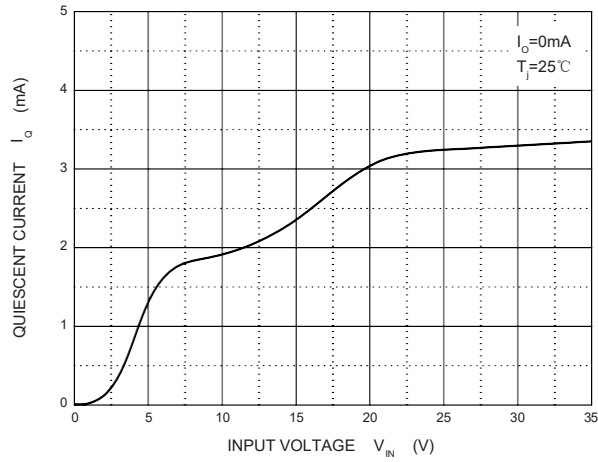
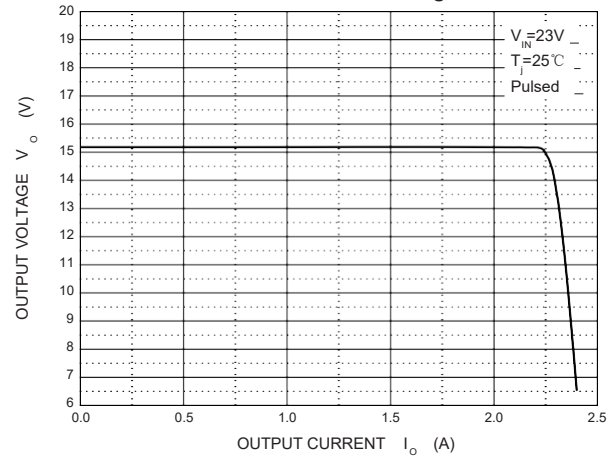
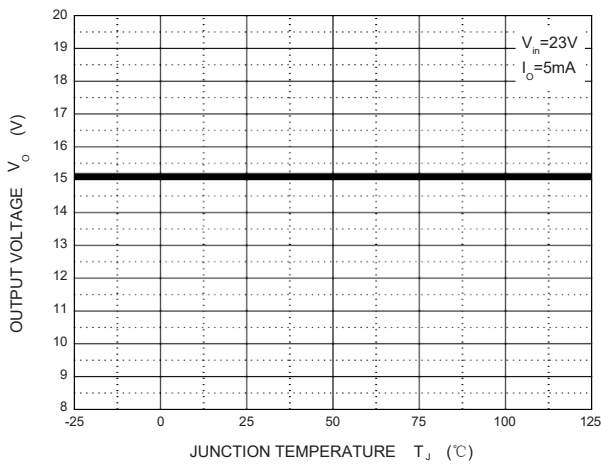
| Parameter                | Symbol                  | Test conditions  | MIN   | TYP | MAX   | UNIT                 |
|--------------------------|-------------------------|--|-------|-----|-------|----------------------|
| Output voltage           | $V_o$                   | $T_J=25^\circ\text{C}$   | 14.55 | 15  | 15.45 | V                    |
|                          |                         | $17.5\text{V} \leq V_i \leq 30\text{V}$ , $I_o=5\text{mA}-1\text{A}$ | 14.25 | 15  | 15.75 | V                    |
| Load Regulation          | $\Delta V_o$            | $I_o=5\text{mA}-1.5\text{A}$ , $T_J=25^\circ\text{C}$                |       | 12  | 300   | mV                   |
|                          |                         | $I_o=250\text{mA}-750\text{mA}$ , $T_J=25^\circ\text{C}$             |       | 4   | 150   | mV                   |
| Line regulation          | $\Delta V_o$            | $17.5\text{V} \leq V_i \leq 30\text{V}$ , $T_J=25^\circ\text{C}$     |       | 12  | 300   | mV                   |
|                          |                         | $20\text{V} \leq V_i \leq 26\text{V}$ , $T_J=25^\circ\text{C}$       |       | 3   | 150   | mV                   |
| Quiescent Current        | $I_q$                   | $T_J=25^\circ\text{C}$   |       | 4.3 | 8     | mA                   |
| Quiescent Current Change | $\Delta I_q$            | $17.5\text{V} \leq V_i \leq 30\text{V}$                              |       |     | 1     | mA                   |
|                          | $\Delta I_q$            | $5\text{mA} \leq I_o \leq 1\text{A}$                                 |       |     | 0.5   | mA                   |
| Output voltage drift     | $\Delta V_o / \Delta T$ | $I_o=5\text{mA}$   |       | -1  |       | mV/ $^\circ\text{C}$ |
| Output Noise Voltage     | $V_N$                   | $10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_J=25^\circ\text{C}$     |       | 90  |       | $\mu\text{V}/V_o$    |
| Ripple Rejection         | RR                      | $18.5\text{V} \leq V_i \leq 28.5\text{V}$ , $f=120\text{Hz}$         | 54    | 70  |       | dB                   |
| Dropout Voltage          | $V_d$                   | $I_o=1\text{A}$ , $T_J=25^\circ\text{C}$                             |       | 2   |       | V                    |
| Output resistance        | $R_o$                   | $f=1\text{KHz}$ , $T_J=25^\circ\text{C}$                             |       | 19  |       | $\text{m}\Omega$     |
| Short Circuit Current    | $I_{sc}$                | $T_J=25^\circ\text{C}$   |       | 230 |       | mA                   |
| Peak Current             | $I_{pk}$                | $T_J=25^\circ\text{C}$   |       | 2.1 |       | A                    |

\* Pulse test.

### TYPICAL APPLICATION



Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

**Output Characteristics**

**Dropout Characteristics**

**Quiescent Current vs Input Voltage**

**Current Cut-off Grid Voltage**

**Output Voltage vs Junction Temperature**

**Power Derating Curve**
