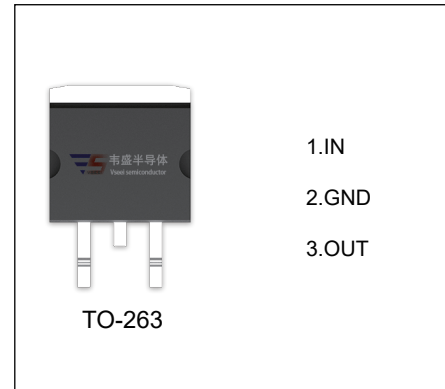


VS7815 Three-terminal positive voltage regulator

FEATURES

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



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

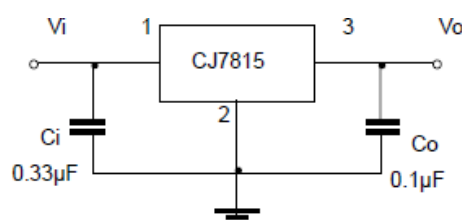
| Parameter | Symbol | Value | Unit |
|---|-----------------|----------|--------------------|
| Input Voltage | V_i | 35 | V |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 66.7 | $^\circ\text{C/W}$ |
| Operating Junction Temperature Range | T_{OPR} | -40~+125 | $^\circ\text{C}$ |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

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ($V_i=23\text{V}$, $I_o=500\text{mA}$, $0^\circ\text{C}<T_j<125^\circ\text{C}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, 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 |
| | | $17.5 \leq V_i \leq 30, I_o=5\text{mA} \sim 1\text{A}$ | 14.25 | 15 | 15.75 | V |
| Load regulation | ΔV_o | $I_o=5\text{mA} \sim 1.5\text{A}$ | | 12 | 300 | mV |
| | | $I_o=250\text{mA} \sim 750\text{mA}, T_j=25^\circ\text{C}$ | | 3 | 150 | mV |
| Line regulation | ΔV_o | $17.5 \leq V_i \leq 30\text{V}, T_j=25^\circ\text{C}$ | | 12 | 300 | mV |
| | | $20 \leq V_i \leq 26\text{V}, T_j=25^\circ\text{C}$ | | 4 | 150 | mV |
| Quiescent current | I_q | $T_j=25^\circ\text{C}$ | | 4.3 | 8 | mA |
| Quiescent current change | ΔI_q | $17.5 \leq V_i \leq 30\text{V}$ | | | 1 | mA |
| | | $5\text{mA} \leq I_o \leq 1\text{A}$ | | | 0.5 | mA |
| Output voltage drift | $\Delta V_o / \Delta T$ | $I_o=5\text{mA}$ | | -1 | | $\text{mV}/^\circ\text{C}$ |
| 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 | $18.5 \leq V_i \leq 28.5\text{V}, f=120\text{Hz}$ | 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.

