# VS78D06 Three-terminal positive voltage regulator

## FEATURES

- Maximum output current
  $I_{OM}$:1.0 A
- Output voltage
  $V_O$: 6 V
- Continuous total dissipation
  $P_D$: 1.25 W ( $T_a$= 25 ℃ )

1.IN
2.GND
3.OUT

TO-252

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

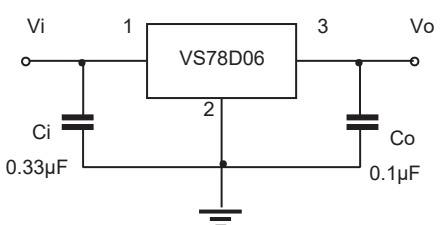
| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Input Voltage | $V_i$ | 35 | V |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 80 | ℃/W |
| Operating Junction Temperature Range | $T_{OPR}$ | -40~+125 | ℃ |
| Storage Temperature Range | $T_{STG}$ | -65~+150 | ℃ |

**ELECTRICALCHARACTERISTICSAT SPECIFIED VIRTUAL JINCTION TEMPERATURE** (Vi=11V, Io=500mA, Ci=0.33μF, Co=0.1μF, unless otherwise specified )

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Output Voltage | Vo | $T_J$=25℃ | 5.82 | 6.0 | 6.18 | V |
| | | Io= 5mA-1A, 9.0V≤ $V_i$ ≤21V | 5.76 | 6.0 | 6.24 | V |
| Load Regulation | ΔVo | $I_O$=5mA -1.0A, $T_J$=25℃ | | | 120 | mV |
| | | $I_O$=250mA - 750mA,$T_J$=25℃ | | | 60 | mV |
| Line Regulation | ΔVo | 8.5V≤ Vi ≤25V,$T_J$=25℃ | | | 120 | mV |
| | | 9.0V≤$V_i$≤13V,$T_J$=25℃ | | | 60 | mV |
| Quiescent Current | Iq | $T_J$=25℃ | | 4.3 | 8.0 | mA |
| Quiescent Current Change | ΔIq | 5.0mA≤ $I_O$ ≤1.0A | | | 0.5 | mA |
| | | 9V ≤$V_i$≤ 25V | | | 0.8 | mA |
| Output Voltage Drift | △Vo/△T | $I_O$=5mA | | 0.8 | | mV/℃ |
| Output Noise Voltage | $V_N$ | f =10Hz to 100KHz,$T_J$=25℃ | | 42 | | μV/Vo |
| Ripple Rejection | RR | f =120Hz, 9V≤ $V_i$ ≤19V | | 68 | | dB |
| Dropout Voltage | $V_d$ | $I_O$=1.0A,$T_J$=25℃ | | 2.0 | | V |
| Output Resistance | $R_O$ | f = 1KHz | | 17 | | mΩ |
| Short Circuit Current | Isc | $T_J$=25℃ | | 200 | | mA |

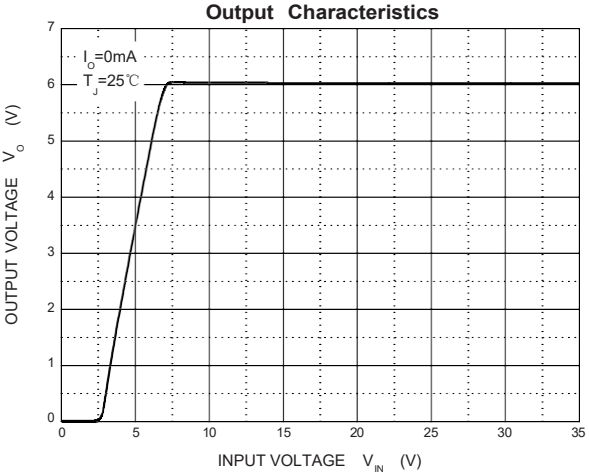
* Pulse test.

## TYPICAL APPLICATION

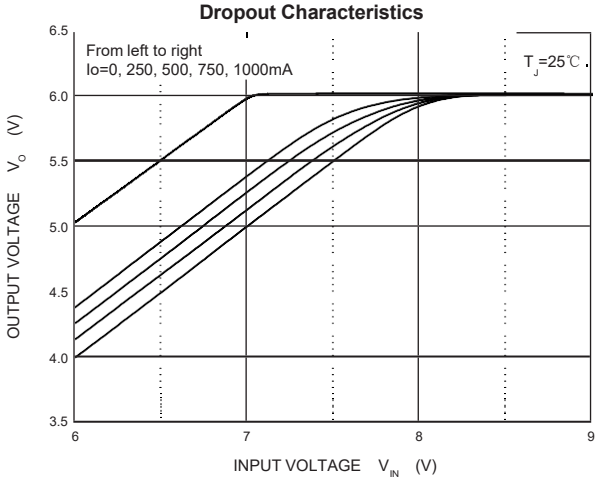



Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

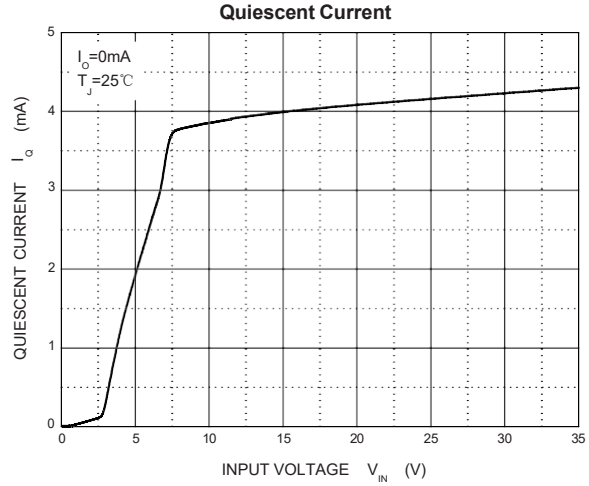
**Output Characteristics**



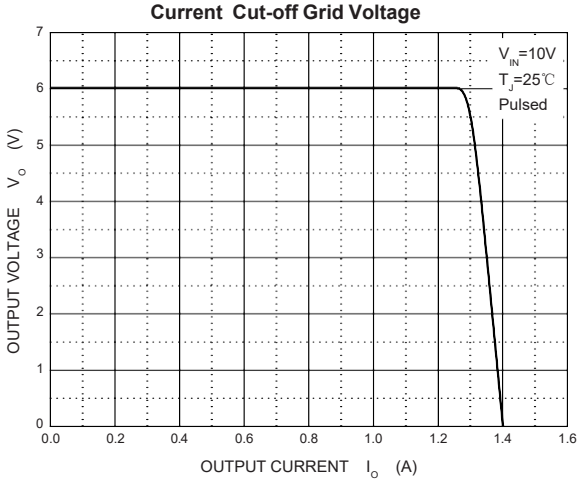

**Dropout Characteristics**



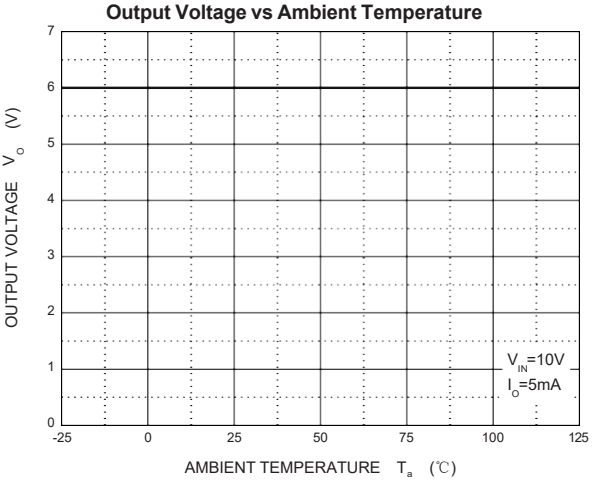

**Quiescent Current**




**Current Cut-off Grid Voltage**




**Output Voltage vs Ambient Temperature**




**Power Derating Curve**