

# 7805D

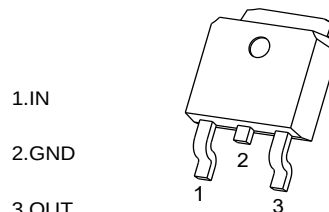
## TO-252 Plastic-Encapsulate Voltage Regulators

### 7805D Three-terminal positive voltage regulator

#### FEATURES

- Maximum output current  
 $I_{OM}$ : 1.5 A
- Output voltage  
 $V_O$ : 5V
- Continuous total dissipation  
 $P_D$ : 1.25 W ( $T_a = 25^\circ\text{C}$ )

#### TO-252



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

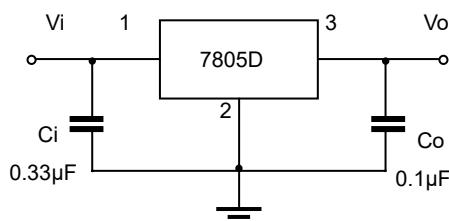
| Parameter                                   | Symbol          | Value    | Unit               |
|---------------------------------------------|-----------------|----------|--------------------|
| Input Voltage                               | $V_i$           | 35       | V                  |
| Thermal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

#### ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ( $V_i=10\text{V}$ , $I_o=500\text{mA}$ , $C_i=0.33\mu\text{F}$ , $C_o=0.1\mu\text{F}$ , unless otherwise specified)

| Parameter                | Symbol                | Test conditions                                                   | Min  | Typ  | Max  | Unit                       |
|--------------------------|-----------------------|-------------------------------------------------------------------|------|------|------|----------------------------|
| Output Voltage           | $V_o$                 | $T_J=25^\circ\text{C}$                                            | 4.85 | 5.0  | 5.15 | V                          |
|                          |                       | $7\text{V} \leq V_i \leq 20\text{V}$ , $I_o=5\text{mA}-1\text{A}$ | 4.75 | 5.00 | 5.25 | V                          |
| Load Regulation          | $\Delta V_o$          | $I_o=5\text{mA}-1.5\text{A}$ , $T_J=25^\circ\text{C}$             |      | 9    | 100  | mV                         |
|                          |                       | $I_o=250\text{mA}-750\text{mA}$ , $T_J=25^\circ\text{C}$          |      | 4    | 50   | mV                         |
| Line Regulation          | $\Delta V_o$          | $7\text{V} \leq V_i \leq 25\text{V}$ , $T_J=25^\circ\text{C}$     |      | 4    | 100  | mV                         |
|                          |                       | $8\text{V} \leq V_i \leq 12\text{V}$ , $T_J=25^\circ\text{C}$     |      | 1.6  | 50   | mV                         |
| Quiescent Current        | $I_q$                 | $T_J=25^\circ\text{C}$                                            |      | 5    | 8    | mA                         |
| Quiescent Current Change | $\Delta I_q$          | $7\text{V} \leq V_i \leq 25\text{V}$                              |      | 0.3  | 1.3  | mA                         |
|                          |                       | $5\text{mA} \leq I_o \leq 1\text{A}$                              |      | 0.03 | 0.5  | mA                         |
| Output Noise Voltage     | $V_N$                 | $10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_J=25^\circ\text{C}$  |      | 42   |      | $\mu\text{V}/V_o$          |
| Output voltage drift     | $\Delta V_o/\Delta T$ | $I_o=5\text{mA}$                                                  |      | -1.1 |      | $\text{mV}/^\circ\text{C}$ |
| Ripple Rejection         | RR                    | $8\text{V} \leq V_i \leq 18\text{V}$ , $f=120\text{Hz}$           | 62   | 73   |      | dB                         |
| Dropout Voltage          | $V_d$                 | $I_o=1\text{A}$ , $T_J=25^\circ\text{C}$                          |      | 2    |      | V                          |
| Output resistance        | $R_o$                 | $f=1\text{KHz}$ , $T_J=25^\circ\text{C}$                          |      | 10   |      | $\text{m}\Omega$           |
| Short Circuit Current    | $I_{sc}$              | $T_J=25^\circ\text{C}$                                            |      | 230  |      | mA                         |
| Peak Current             | $I_{pk}$              | $T_J=25^\circ\text{C}$                                            |      | 2.2  |      | A                          |

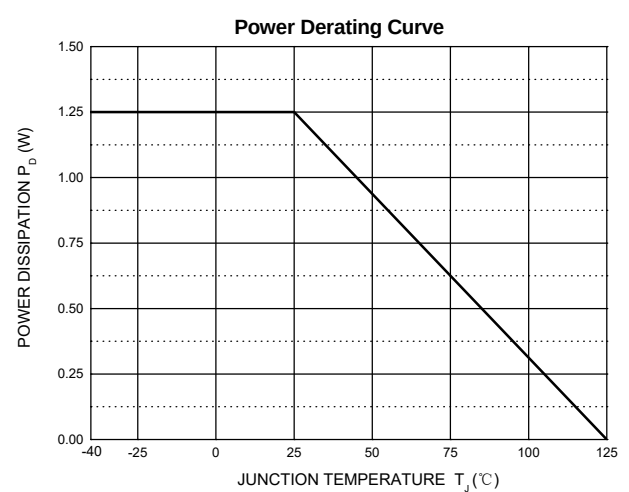
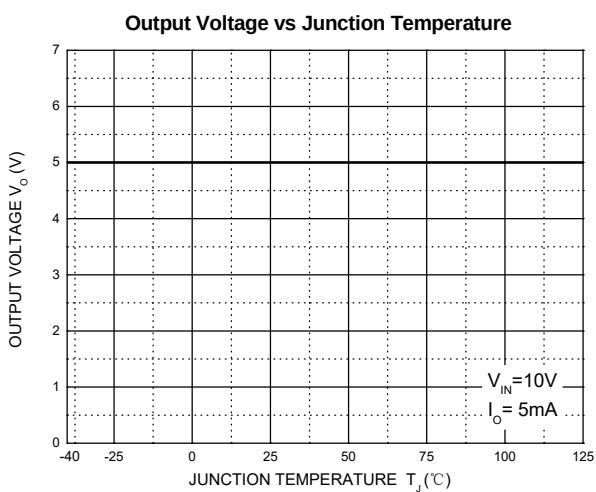
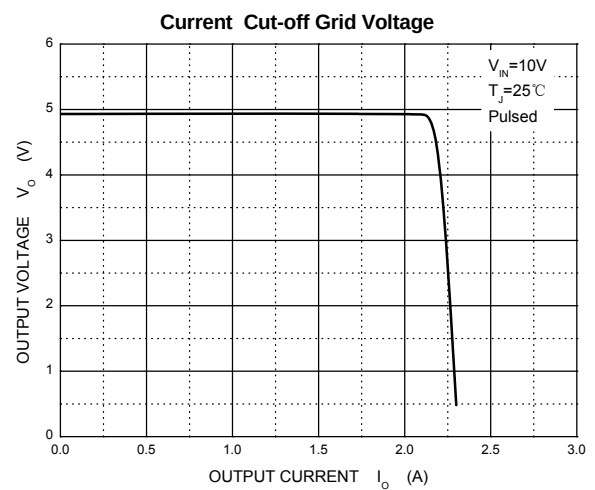
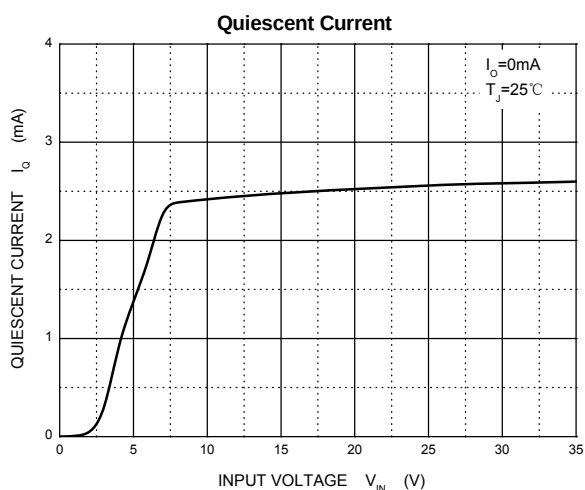
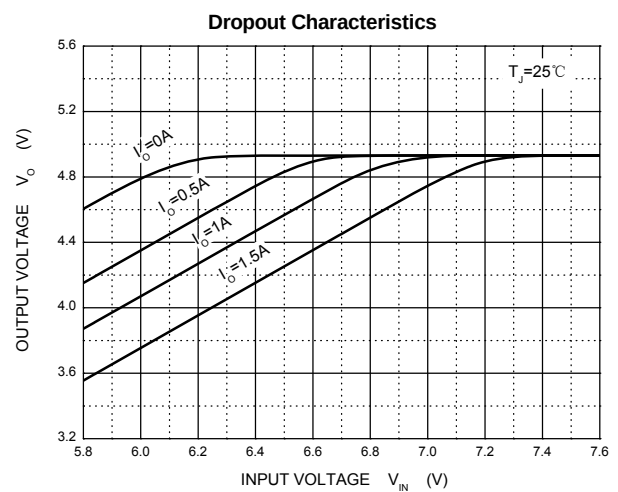
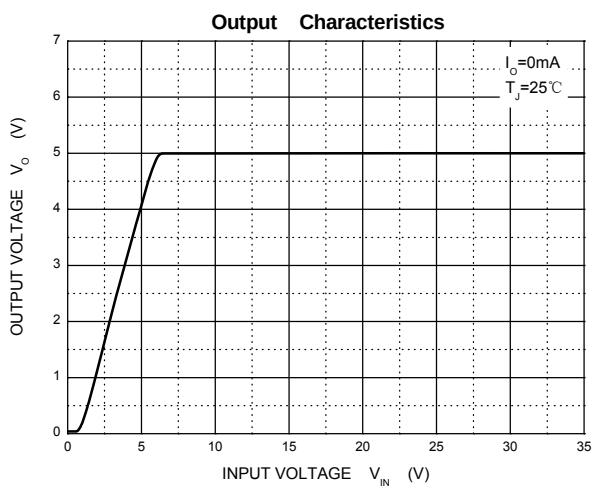
\* Pulse test.

#### TYPICAL APPLICATION

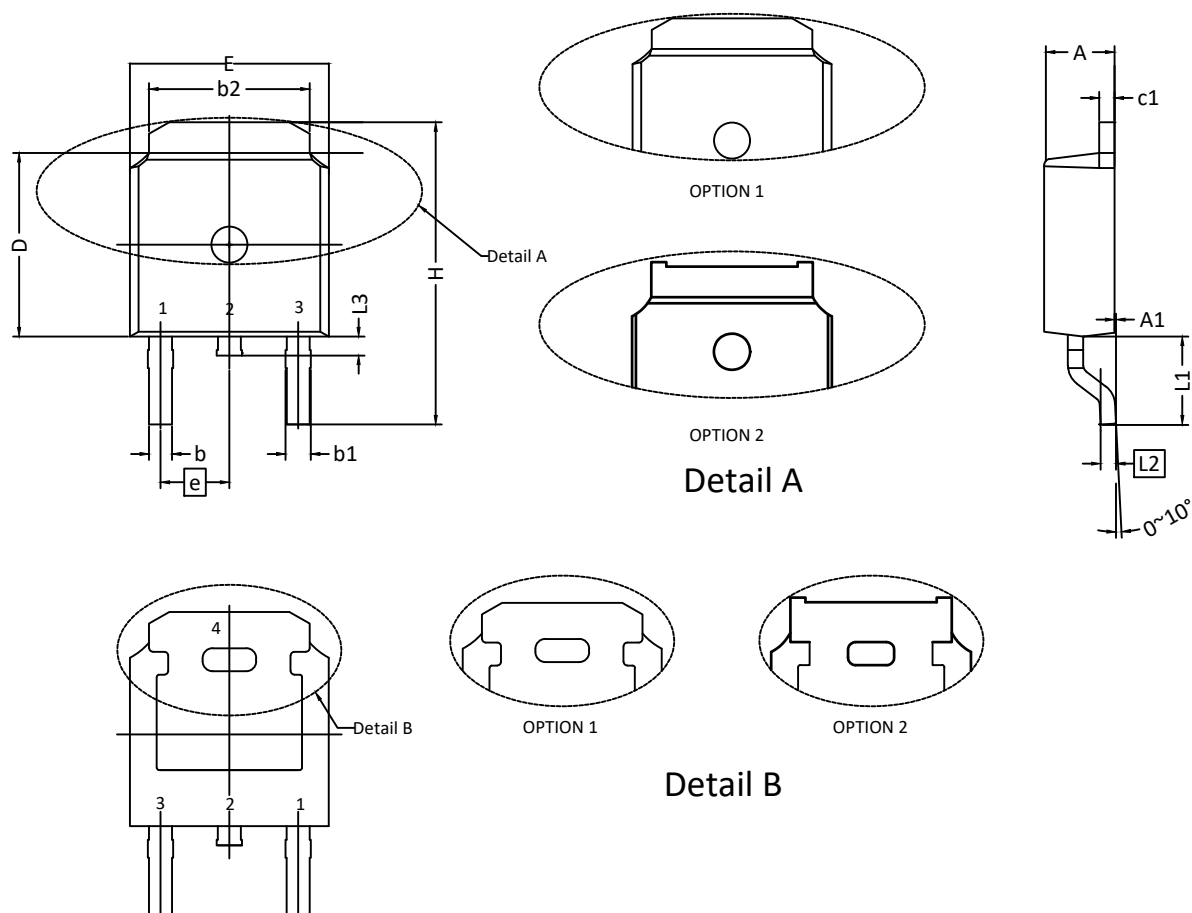


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

## Typical Characteristics



## TO-252 Package Outline



| SYMBOLS | DIMENSION IN MM |        |        |
|---------|-----------------|--------|--------|
|         | MIN             | NOM    | MAX    |
| A       | 2.184           | 2.286  | 2.400  |
| A1      | 0.000           | ---    | 0.200  |
| b       | 0.635           | 0.762  | 0.889  |
| b1      | 0.680           | 0.840  | 1.143  |
| b2      | 4.953           | 5.340  | 5.500  |
| c1      | 0.450           | 0.508  | 0.630  |
| D       | 5.969           | 6.096  | 6.223  |
| E       | 6.350           | 6.604  | 6.800  |
| e       | 2.286 BSC       |        |        |
| H       | 9.398           | 10.033 | 10.500 |
| L1      | 2.921 REF.      |        |        |
| L2      | 0.408           | 0.508  | 0.608  |
| L3      | 0.600           | ---    | 1.016  |