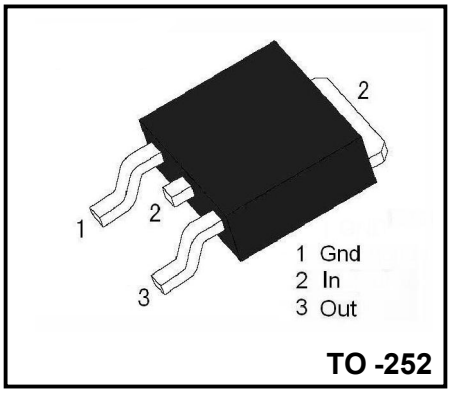
## 3-Terminal 1.5A Negative Voltage Regulator

### Description

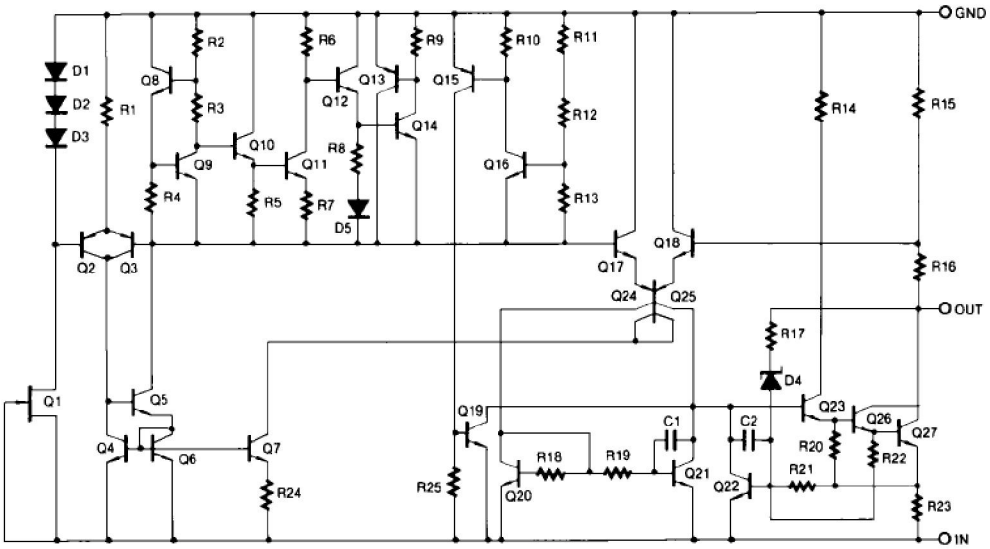
The 7905 series of 3-Terminal medium currentnegative voltage regulators are monolithic integrated circuits designed as fixed voltage regulators. These regulators employ internal current limiting, thermal shutdown and safe area compensation making them essentially indestructible.




### Features

- No external components required
- Output current in excess of 1.5A
- Internal thermal overload
- Internal short circuit current limiting
- Output transistor safe area compensation
- Output voltages of -5V

### Internal Block Digram




### Absolute Maximum Ratings ( Ta = 25 °C)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Input voltage | $V_{IN}$ | -30 | V |
| Output voltage | $V_O$ | -5 | V |
| Thermal resistance junction-air | $R_{\theta JA}$ | 65 | °C/W |
| Thermal resistance junction-cases | $R_{\theta JC}$ | 5 | °C/W |
| Operating Junction Temperature Range | $T_j$ | 0 ~ 125 | °C |
| Storage Temperature Range | $T_{stg}$ | -65 ~ 150 | °C |

## Electrical Characteristics ( Ta = 25 °C)

(Refer to the test circuits, $I_O$=1A, $V_I$=-10V, $C_I$ = 2.2μF, $C_O$=1μF unless otherwise specified)

| Parameter | Symbol | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| Output voltage | $V_O$ | $T_j$ = 25°C | | -4.8 | -5.0 | -5.2 | V |
| | | $I_O$= 5mA ~ 1A , $P_O$<15W<br>$V_I$ = -7V ~ -20V | | -4.75 | -5.0 | -5.25 | |
| Line regulation (Note) | $\Delta V_O$ | $T_j$ = 25°C | $V_I$ = -7V ~ -25V | | | 100 | mV |
| | | | $V_I$ = -8V ~ -12V | | | 50 | |
| Load regulation (Note) | $\Delta V_O$ | $T_j$ = 25°C | $I_O$= 5mA ~ 1.5A | | | 100 | mV |
| | | | $I_O$= 0.25A ~ 0.75A | | | 50 | |
| Quiescent current | $I_Q$ | $T_j$ = 25°C | | | | 6.0 | mA |
| Quiescent current change | $\Delta I_Q$ | $I_O$= 5mA ~ 1.5A | | | | 0.5 | mA |
| | | $V_I$ = -8 ~ -25V | | | | 0.8 | |
| Output voltage drift | $\Delta V/\Delta T$ | $I_O$ = 5mA | | | -0.4 | | mV/°C |
| Output noise voltage | $V_N$ | f = 10HZ ~ 100KHZ | | | 40 | | μV |
| Ripple rejection | RR | f = 120Hz, $\Delta V_I$ = 10V | | | 60 | | dB |
| Dropout voltage | $V_D$ | $T_j$ =25°C, $I_O$ = 1.5A | | | 2 | | V |
| Short Circuit Current | $I_{SC}$ | $T_j$ =25 , $V_I$= -30V | | | 300 | | mA |
| Peak Current | $I_{PK}$ | $T_j$ = 25°C | | | 2.2 | | A |

**Notes:** Load and line regulation are specified at constant junction temperature. Change in Vo due to heating effects must be taken into account separately. Pulse testing with low duty is used.

## Applications circuits

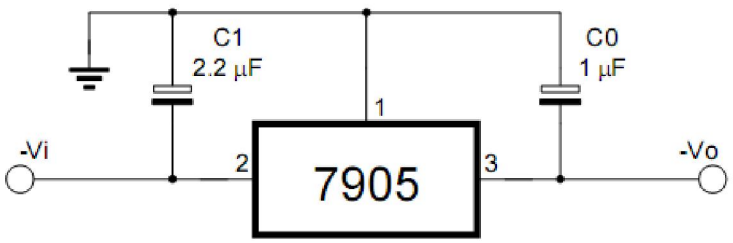



**Figure.1 Fixed output regulator**

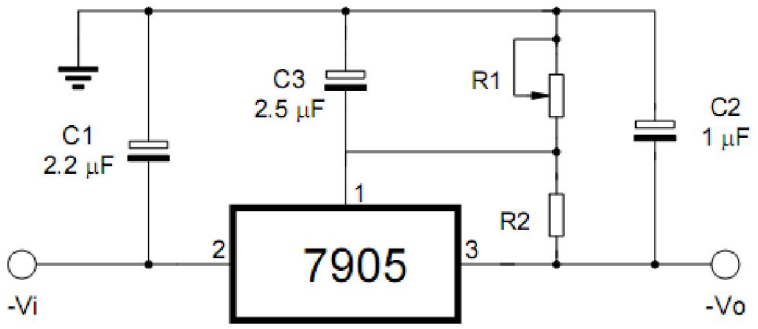
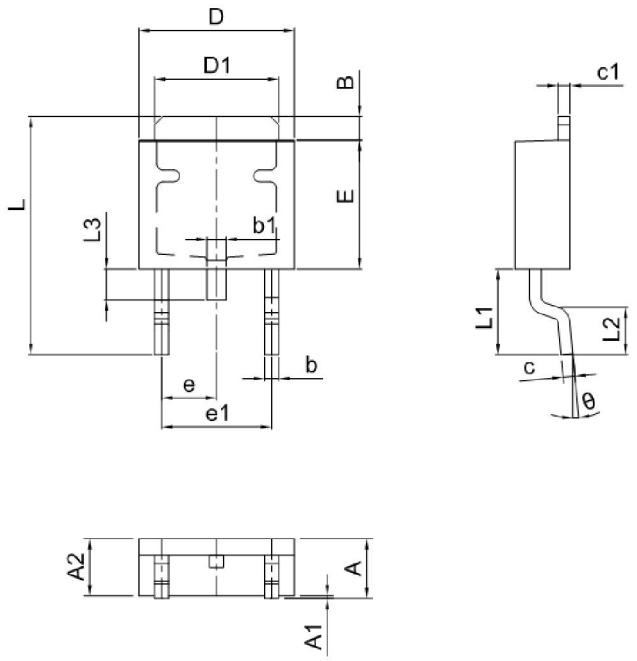



**Figure.2 Circuit for increasing output voltage**

## Package Dimensions

**TO -252**




| Dim | Millimeter | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 2.20 | 2.50 | 0.087 | 0.098 |
| A1 | 0.00 | 0.12 | 0.000 | 0.005 |
| A2 | 2.20 | 2.40 | 0.087 | 0.094 |
| B | 1.20 | 1.60 | 0.047 | 0.063 |
| b | 0.50 | 0.70 | 0.020 | 0.028 |
| b1 | 0.70 | 0.90 | 0.028 | 0.035 |
| c | 0.40 | 0.60 | 0.016 | 0.024 |
| c1 | 0.40 | 0.60 | 0.016 | 0.024 |
| D | 6.35 | 6.65 | 0.250 | 0.262 |
| D1 | 5.20 | 5.40 | 0.205 | 0.213 |
| E | 5.40 | 5.70 | 0.213 | 0.224 |
| e | 2.20 | 2.40 | 0.087 | 0.094 |
| e1 | 4.40 | 4.80 | 0.173 | 0.189 |
| L | 9.60 | 10.20 | 0.378 | 0.402 |
| L1 | 2.70 | 3.10 | 0.106 | 0.122 |
| L2 | 1.40 | 1.80 | 0.055 | 0.071 |
| L3 | 0.90 | 1.50 | 0.035 | 0.059 |

## Summary of Packing Options

| Package | Packing Description | Packing Quantity | Industry Standard |
|---|---|---|---|
| TO-252(D-PAK) | Tape/Reel,13"reel | 2500 | EIA-481-1 |