# L2605
# L2685
# L2610

# LINEAR INTEGRATED CIRCUITS

**PRELIMINARY DATA**

## POSITIVE VOLTAGE REGULATORS FOR AUTOMOTIVE

- OUTPUT VOLTAGE OF 5, 8.5 AND 10V
- OUTPUT CURRENT UP TO 500 mA
- NO EXTERNAL COMPONENTS
- LOW DROP-OUT VOLTAGE
- LOAD DUMP VOLTAGE SURGE PROTECTION
- REVERSE VOLTAGE PROTECTION
- SHORT CIRCUIT PROTECTION
- CURRENT LIMITING
- THERMAL SHUTDOWN

The L2600 series of three therminal positive regulators is specially designed to stabilize power supplies for car instrumentation in vehicles with 12V battery. They can supply an output current up to 500 mA.

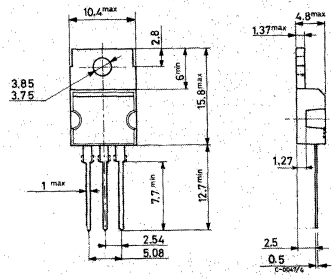
## ABSOLUTE MAXIMUM RATINGS

| | | | |
|---|---|---|---|
| $V_i$ | DC input voltage | 35 | V |
| $V_i$ | DC input reverse voltage | -28 | V |
| $V_d$ | Positive transient peak voltage (t = 40 ms, duty cycle = 1%) | 120 | V |
| $V_d$ | Negative transient peak voltage (t = 30 ms, duty cycle = 1%) | -90 | V |
| $T_{op}$ | Operating temperature | -40 to 150 | °C |
| $T_{stg}$ | Storage temperature | -65 to 150 | °C |
| $P_{tot}$ | Power dissipation | Internally limited | |

**ORDERING NUMBERS:** L2605V ($V_o$= 5V)
L2685V ($V_o$= 8.5V)
L2610V ($V_o$= 10V)

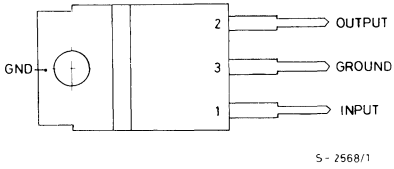
## MECHANICAL DATA

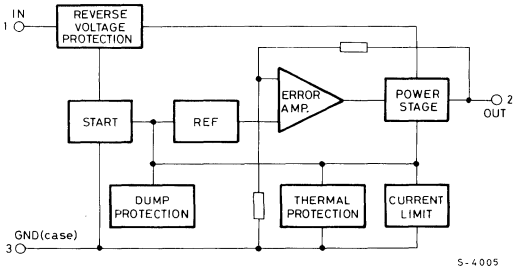
Dimensions in mm



## CONNECTION AND BLOCK DIAGRAMS

(top view)




## THERMAL DATA

| | | | |
|---|---|---|---|
| $R_{th\,j\text{-}case}$ | Thermal resistance junction-case | max. | 4 °C/W |

## ELECTRICAL CHARACTERISTICS ($T_{amb}$ = 25°)

| Parameter | | Test conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_o$ | Output voltage | $I_o$ = 500 mA | $V_i$ = 12 to 16V (L2605)<br>$V_i$ = 12 to 16V (L2685)<br>$V_i$ = 12 to 16V (L2610) | 4.8<br>8.15<br>9.55 | 5<br>8.5<br>10 | 5.2<br>8.85<br>10.45 | V |
| $V_i$ | Operating input voltage | see note (°) | | | | 28 | V |
| $\Delta V_o$ | Line regulation | $I_o$ = 50 mA | $V_i$ = 12 to 16V | | 2 | | mV |
| $\frac{\Delta V_o}{V_o}$ | Load regulation | $V_i$ = 14V | $I_o$ = 50 to 500 mA | | 0.3 | | % |
| $\Delta V_{i\text{-}o}$ | Dropout voltage | $I_o$ = 500 mA | | | | 1.8 | V |
| $\frac{\Delta V_o}{\Delta T}$ | Output voltage drift | $I_o$ = 50mA<br>$T_{amb}$ = -12 to 80°C | $V_i$ = 14V | | -1 | | mV/°C |
| $I_{sc}$ | Output short circuit current | $V_i$ = 14V | | | 900 | | mA |
| SVR | Supply voltage rejection | $V_i$ = 16V<br>f = 100Hz | $\Delta V_i$ = 2V<br>$I_o$ = 500mA | | 60 | | dB |
| $R_o$ | Output resistance | $I_o$ = 500mA | | | 0.05 | | Ω |
| $e_N$ | Output noise voltage | BW = 100Hz to 10KHz | | | 20 | | μV |

(°) Note: For a DC input voltage 28V < $V_i$ < 35V the device is not operating