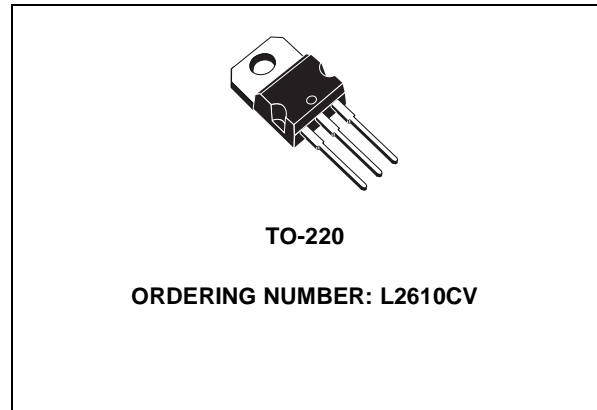




**L2610CV**

## LOW DROPOUT VOLTAGE REGULATOR

- OUTPUT VOLTAGE OF 10V
- OUTPUT CURRENT UP TO 500 mA
- NO EXTERNAL COMPONENTS
- LOW DROP OUT VOLTAGE
- OVERVOLTAGE PROTECTION ( $\pm 100V$ )
- REVERSE VOLTAGE PROTECTION
- SHORT CIRCUIT PROTECTION
- CURRENT LIMITING
- THERMAL SHUTDOWN

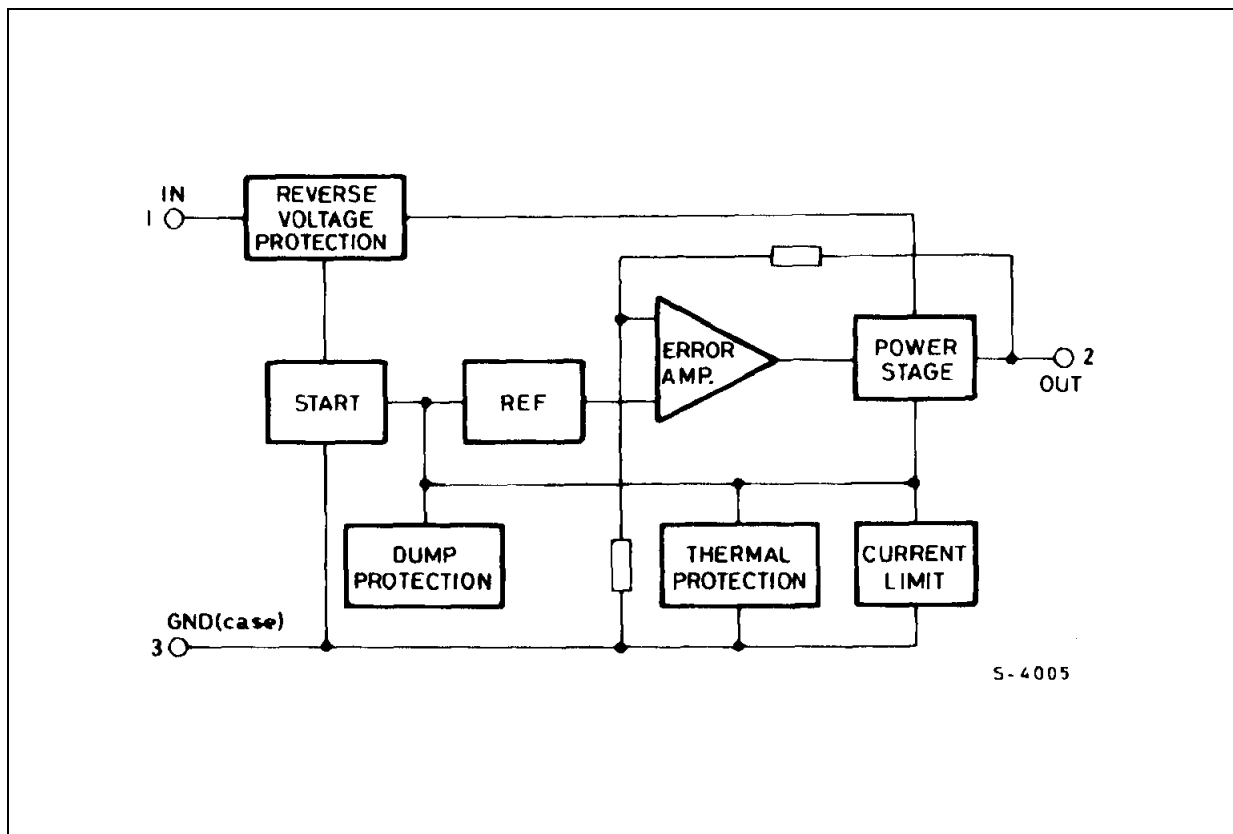


### DESCRIPTION

The L2610CV three terminal positive regulator is specially designed to stabilize power supplies car instrumentation in vehicles with 12V battery. Available with 10V output voltage, it can supply an output current to 500mA.

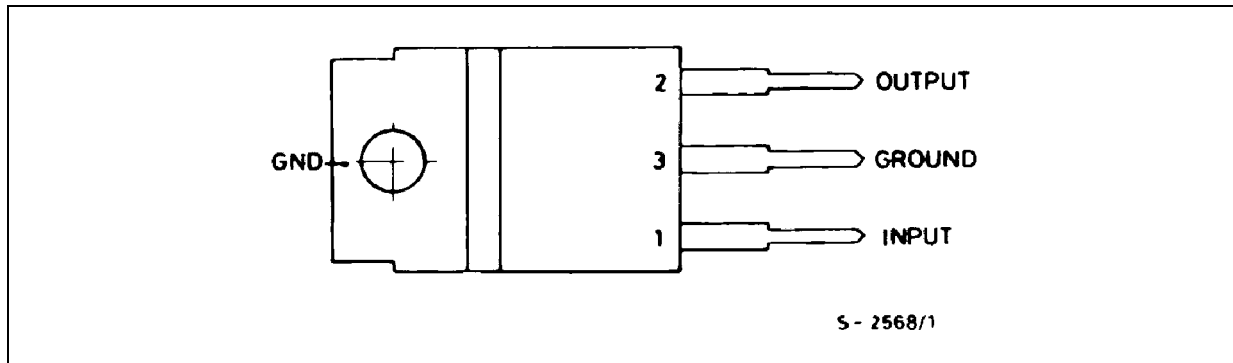
This device is protected against load dump and field decay transients ( $\pm 100V$ ), reverse battery, short circuit and thermal overload.

### BLOCK DIAGRAM



## L2610CV

### PIN CONNECTION (Top view)



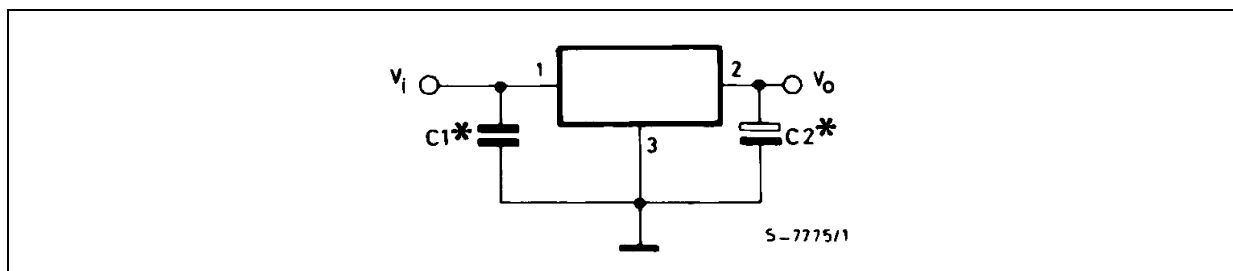
### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
	DC Input Voltage	35	V
	DC Input Reverse Voltage	-28	V
	Transient Input Overvoltage:		
	Load Dump:	+100	V
	5ms ≤ $t_{rise}$ ≤ 10ms		
	$\tau_f$ Fall Time Constant = 100ms,		
	$R_{source} \geq 0.5 \Omega$		
	Field Decay:	-100	V
	5ms ≤ $t_{fall}$ ≤ 10ms		
	$\tau_r$ Rise Time Constant = 33ms,		
	$R_{source} \geq 10\Omega$		
$P_D$	Power Dissipation	internally Limited	
$T_j, T_{stg}$	Junction and Storage Temperature Range	-55 to 150	°C

### THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th-j-case}$	Thermal resistance junction-case	Max 4	°C/W
$R_{th-j-amb}$	Thermal resistance junction-ambient	Max 75	°C/W

### APPLICATION CIRCUIT



(\*) **Note** : C1 and C2 are only needed if the load capacitance exceeds 1000 pF, Recommended values are C1 = 0.1  $\mu$ F and C2  $\geq$  100  $\mu$ F.

**ELECTRICAL CHARACTERISTICS** ( $T_j = 25\text{ °C}$ ,  $V_i = 14\text{V}$ , unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_o$	Output Voltage	$I_o = 500\text{ mA}$ , $V_i = 12\text{ to }16\text{ V}$	9.60	10.00	10.40	V
$V_i$	Operating Input	See Note (*)			28	V
$\frac{\Delta V_o}{V_o}$	Line Regulation	$I_o = 50\text{ mA}$ ; $V_i = 12\text{ to }20\text{ V}$		2	8	mV/V
	Load Regulation	$V_i = 14\text{ V}$ ; $I_o = 50\text{ to }500\text{ mA}$		4	9	mV/V
$\Delta V_{i-o}$	Dropout Voltage	$I_o = 500\text{ mA}$			1.9	V
$I_d$	Quiescent Current	$I_o = 50\text{ mA}$		20	45	mA
$\frac{\Delta V_o}{\Delta T}$	Output Voltage Drift	$I_o = 50\text{ mA}$ $V_i = 14\text{ V}$ ; $T_{amb} = -12\text{ to }80\text{ °C}$		-1		mV/°C
$I_{sc}$	Output Short Circuit Current			1.1	1.8	A
SVR	Supply Voltage Rejection	$V_i = 16\text{V}$ ; $V_i = 2\text{ V}$ $f = 100\text{ Hz}$ ; $I_o = 500\text{ mA}$		60		dB
$R_o$	Output Resistance	$I_o = 500\text{ mA}$		0.05		$\Omega$
$e_N$	Output Noise Voltage	BW = 100 Hz to 10 KHz		20		$\mu\text{V}$

(\*) **Note:** For DC input voltage  $28\text{ V} < V_i < 35\text{ V}$  the device is not operating

**ELECTRICAL CHARACTERISTICS** ( $-40 \leq T_j \leq 125\text{ °C}$  (note 2),  $V_i = 14\text{V}$ , unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_o$	Output Voltage	$I_o = 500\text{ mA}$ , $V_i = 12\text{ to }16\text{ V}$	9.40	10.00	10.60	V
$V_i$	Operating Input	See Note (1)			26	V
$\frac{\Delta V_o}{V_o}$	Line Regulation	$I_o = 50\text{ mA}$ ; $V_i = 12.5\text{ to }20\text{ V}$		3	12	mV/V
	Load Regulation	$V_i = 14\text{ V}$ ; $I_o = 50\text{ to }500\text{ mA}$	5	13		mV/V
$\Delta V_{i-o}$	Dropout Voltage	$I_o = 500\text{ mA}$			2.5	V
$I_d$	Quiescent Current	$I_o = 50\text{ mA}$		29	65	mA
$I_{sc}$	Output Short Circuit Current			1.1	2.1	A

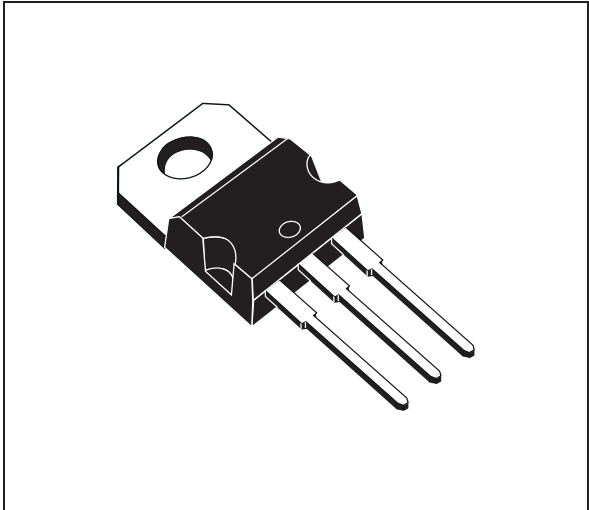
Notes: 1. For a DC input voltage  $26\text{ V} < V_i < 35\text{ V}$  the device is not operating.

2. The limits are guaranteed by design correlation and statistical control on production samples over the indicated temperature and supply voltage ranges.

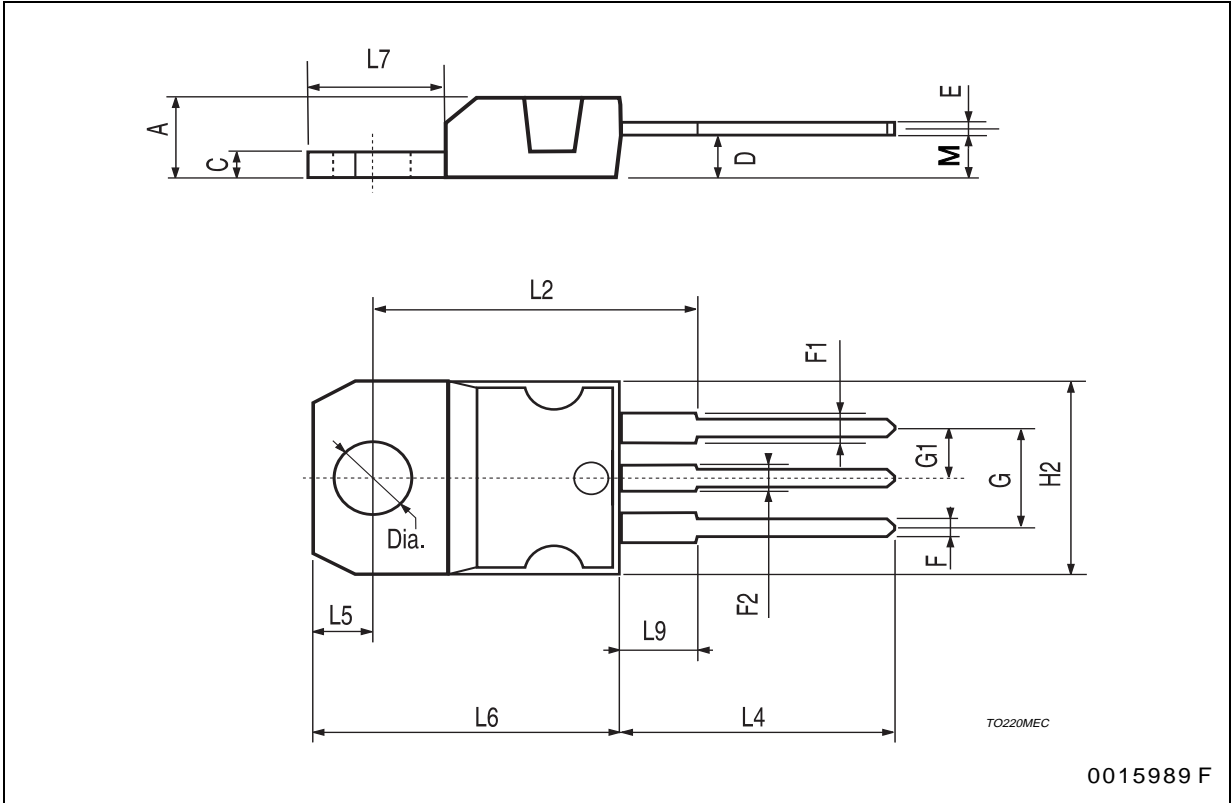
# L2610CV

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.40		2.70	0.094		0.106
H2	10.0		10.4	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.20		6.60	0.244		0.260
L9	3.50		3.93	0.137		0.154
M		2.6			0.102	
Dia	3.75		3.85	0.147		0.151

## OUTLINE AND MECHANICAL DATA



## TO220



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