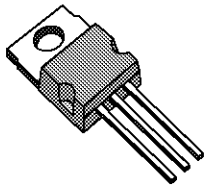
SGS-THOMSON MICROELECTRONICS

L2605
L2685-L2610

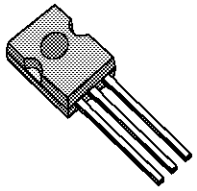
LOW DROPOUT VOLTAGE REGULATORS

- OUTPUT VOLTAGE OF 5, 8.5 AND 10 V
- OUTPUT CURRENT UP TO 500 mA
- NO EXTERNAL COMPONENTS
- LOW DROP OUT VOLTAGE
- OVERVOLTAGE PROTECTION (± 100V)
- REVERSE VOLTAGE PROTECTION
- SHORT CIRCUIT PROTECTION
- CURRENT LIMITING
- THERMAL SHUTDOWN

TO-220



SOT-82



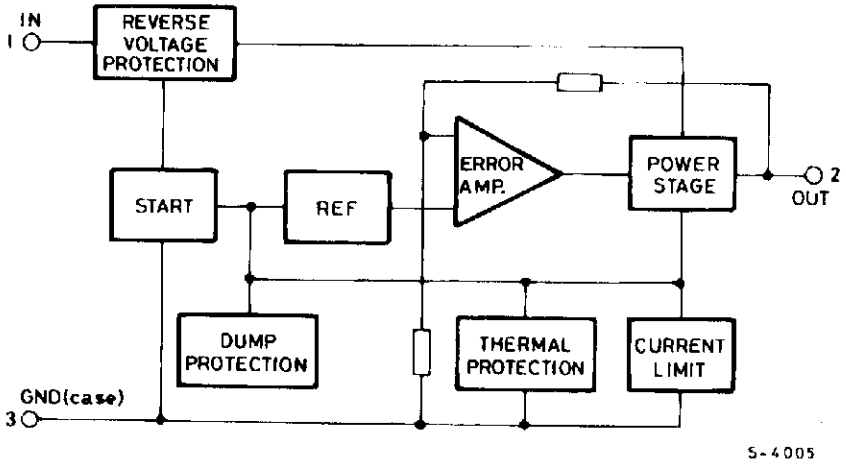
DESCRIPTION

The L2600 series og three terminal positive regulators is specially designed to stabilize power supplies car instrumentation in vehicles with 12V battery. Available with output voltages equal to 5V, 8.5 V, 10V, they can supply an output current to 500mA.

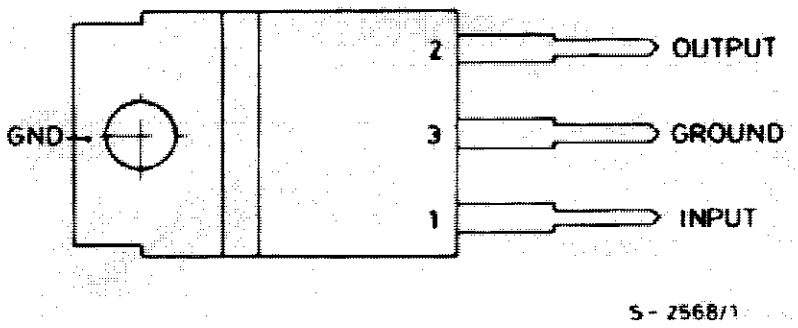
These devices are protected against load dump and field decay transients (±100V), reverse battery, short circuit and thermal overload.

Order codes		Output Voltage
TO-220	SOT-82	
L2605V	L2605X	5 V
L2685V	L2685X	8.5 V
L2610V	L2610X	10 V

BLOCK DIAGRAM



PIN CONNECTION (top view)



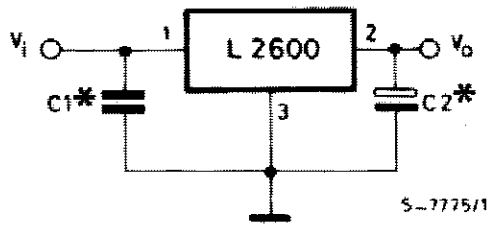
ABSOLUTE MAXIMUM RATINGS

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

THERMAL DATA

Symbol	Parameter		SOT-82	TO-220
$R_{th\text{-}j\text{-}case}$	Thermal resistance junction-case	Max	8 °C/W	4°C/W
$Rt_{h\text{-}j\text{-}amb}$	Thermal resistance junction-ambient	Max	100 °C/W	75 ° C/W

APPLICATION CIRCUIT



(*) **Note** : C_1 and C_2 are only needed if the load capacitance exceeds 1000 pF, Recommended values are C_1 = 0.1 µF and C2 ≥ 100 µF.

ELECTRICAL CHARACTERISTICS (T_j = 25 °C, V_i = 14V, unless otherwise specified)

Symbol	Parameter	Test Condition		Min.	Typ.	Max.	Unit
V_o	Output Voltage	I_o = 500 mA	V_i = 12 to 16 V (L2605) V_i = 12 to 16 V (L2685) V_i = 12 to 16 V (L2610	4.80 8.15 9.60	5.00 8.50 10.00•	5.20 8.85 10.40	V
V_i	Operating Input Voltage	See Note (*)				28	V
$\frac{\Delta V_o}{V_o}$	Line Regulation	I_o = 50 mA	V_i = 12 to 20 V		2	8	mV/V
	Load Regulation	V_i = 14 V	I_o = 50 to 500 mA		4	9	mV/V
ΔV_{i-o}	Dropout Voltage	I_o = 500 mA				1.9	V
I_d	Quiescent Current	I_o = 50 mA			20	45	mA
$\frac{\Delta V_o}{\Delta T}$	Output Voltage Drift	I_o = 50 mA V_i = 14 V	T_{amb} = - 12 to 80 °C		- 1		mV/°C
I_{sc}	Output Short Circuit Current				1.1	1.8	A
SVR	Supply Voltage Rejection	V_i = 16 f = 100 Hz	V_i = 2 V I_o = 500 mA		60		dB
R_o	Output Resistance	I_o = 500 mA			0.05		Ω
e_N	Output Noise Voltage	BW = 100 Hz to 10 KHz			20		µV

(*) **Note**: For DC innput voltage 28 V <V_i <35 V the device is not operating

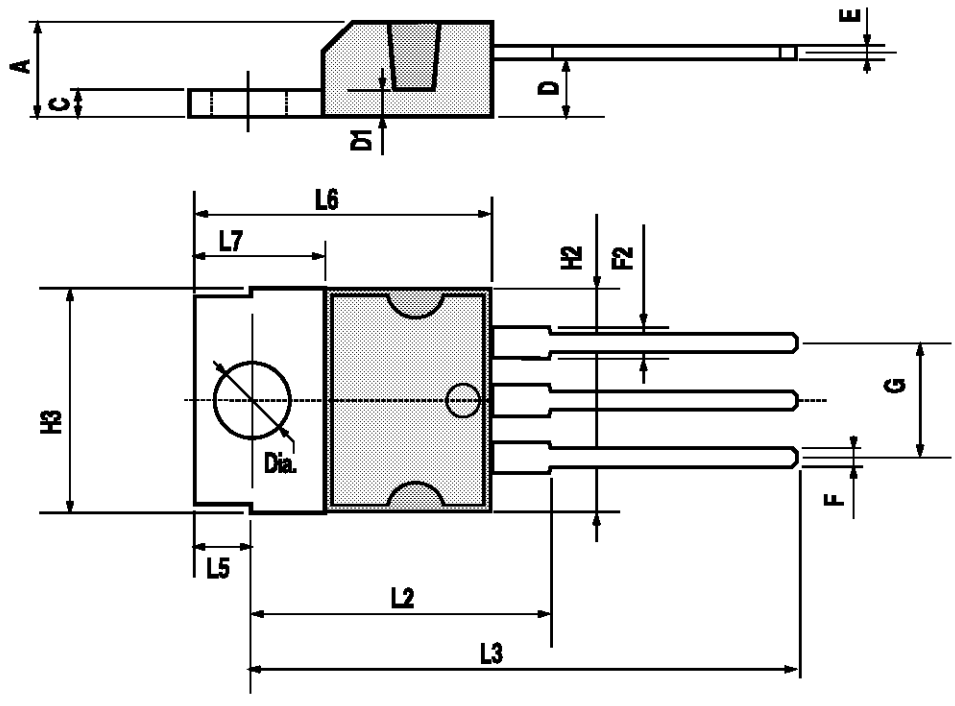
ELECTRICAL CHARACTERISTICS (- 40 ≤ T_j ≤ 125 °C (note 2), V_i = 14 V, unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
V_o	Output Voltage	I_o = 500 mA	V_i = 12.5 to 16 V (L2605) V_i = 12.5 to 16 V (L2685) V_i = 12.5 to 16 V 2610)	4.70 8.00 9.40	5.00 8.50 10.00	5.30 9.00 10.60	V
V_i	Operating Input Voltage	See Note (°)				26	V
$\frac{\Delta V_o}{V_o}$	Line Regulation	I_o = 50 mA	V_i = 12.5 to 20 V		3	12	mV/V
	Load Regulation	V_i = 14 V	I_o = 50 to 500 mA,	5	13	mV/V	
ΔV_{i-o}	Dropout Voltage	I_o = 500 mA				2.5	V
I_d	Quiescent Current	I_o = 50 mA			29	65	mA
I_{sc}	Output Short Circuit Current				1.1	2.1	A

Notes: (°). For a DC input voltage 26 V < Vi < 35 V the device is not operating.
2. The limits are guarandeed by design correlation and statistical control on production samples over the indicated temperature and supply voltage ranges.

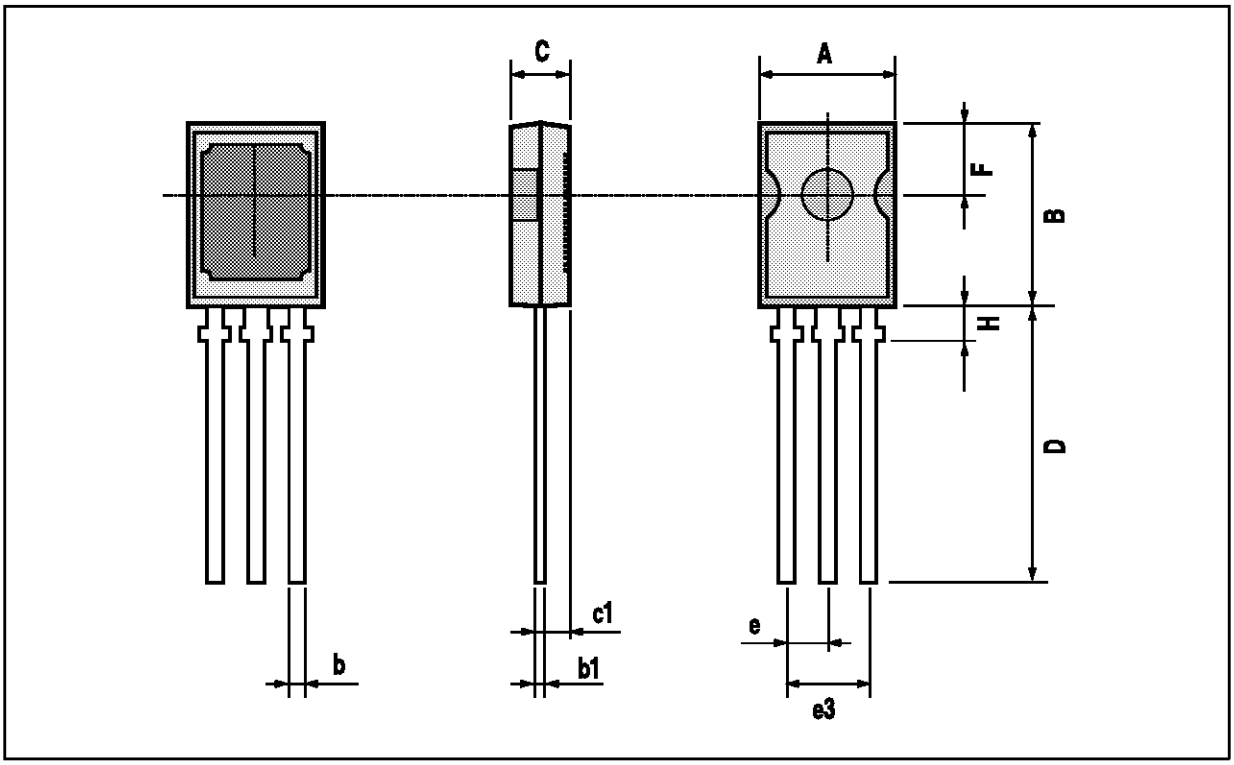
TO220 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			4.8			0.189
C			1.37			0.054
D	2.4		2.8	0.094		0.110
D1	1.2		1.35	0.047		0.053
E	0.35		0.55	0.014		0.022
F	0.8		1.05	0.031		0.041
F2	1.15		1.4	0.045		0.055
G	4.95	5.08	5.21	0.195	0.200	0.205
H2			10.4			0.409
H3	10.05		10.4	0.396		0.409
L2		16.2			0.638	
L3	26.3	26.7	27.1	1.035	1.051	1.067
L5	2.6		3	0.102		0.118
L6	15.1		15.8	0.594		0.622
L7	6		6.6	0.236		0.260
Dia	3.65		3.85	0.144		0.152



SOT82 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	7.4		7.8	0.291		0.307
B	10.5		10.8	0.413		0.425
b	0.7		0.9	0.028		0.035
b1	0.49		0.75	0.019		0.030
C	2.4		2.7	0.094		0.106
c1		1.2			0.047	
D		15.7			0.618	
e		2.2			0.087	
e3		4.4			0.173	
F		3.8			0.150	
H			2.54		0.100	



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