

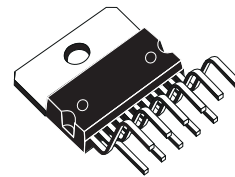


MULTIFUNCTION VOLTAGE REGULATOR FOR HOME AUDIO

- 4 OUTPUTS:
12V (1.3A); 12V (0.8A); 8.6V (0.6A); 5.6V (0.25A) STANDBY
- OUT1 12V(a), OUT2 12V(b) AND OUT3 8.6V WITH INDEPENDENT ENABLE CONTROL FOR STAND-BY MODE
- SHORT-CIRCUIT PROTECTION TO GROUND
- THERMAL SHUTDOWN

DESCRIPTION

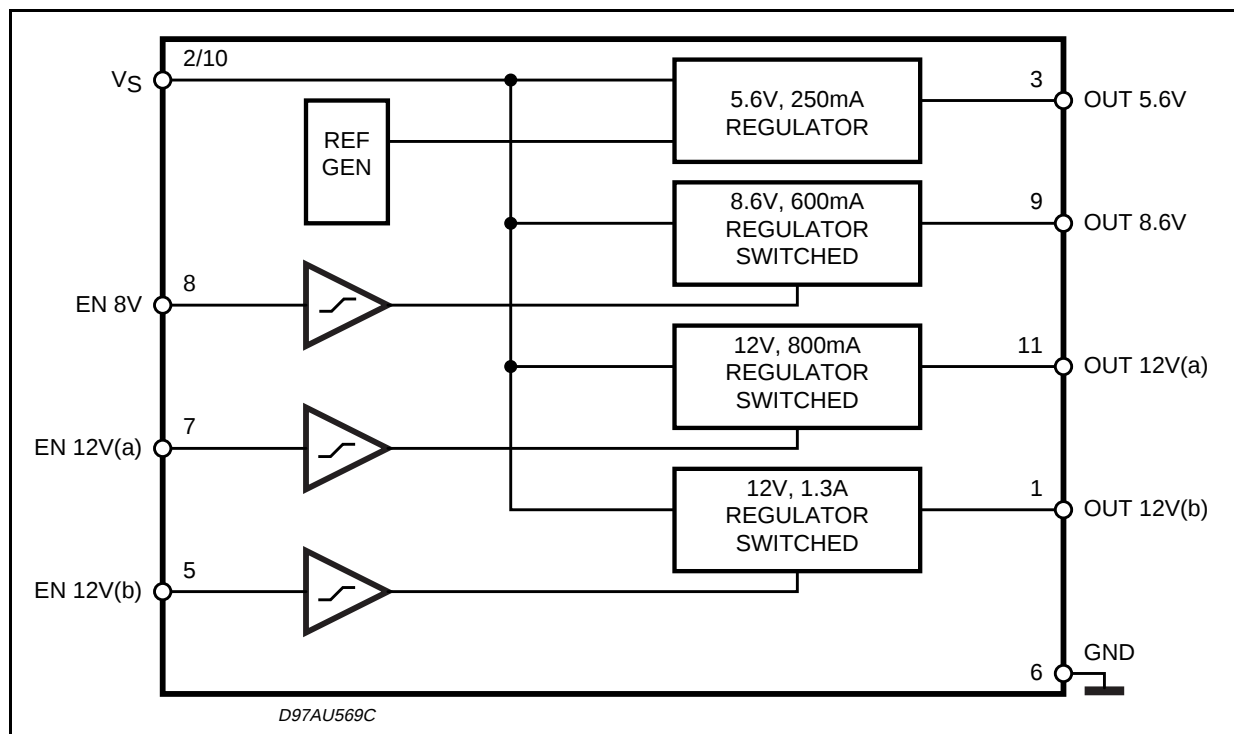
The L4959 is a monolithic Multifunction Voltage Regulator, designed mainly for supplying Home Audio systems. The L4959 contains one unswitched linear 5.6V regulator for Micro, two switched regulators 8.6V and 12V, suitable to feed CD or CD players and LED, Signal Process. An additional 12V regulator for Solenoid Motor an CD_TRAY Driven is also available.



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ORDERING NUMBER: L4959

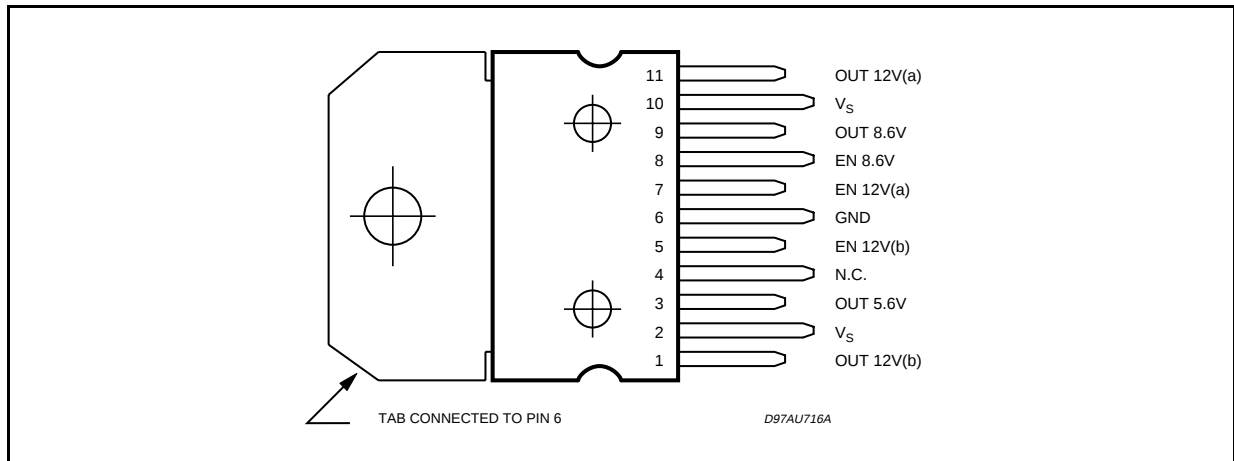
BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	DC Supply Voltage	35	V
I_O	Output Current	internally limited	
T_{op}	Operating Temperature Range	0 to +70	°C
T_{stg}	Storage Temperature	−40 to 150	°C

PIN CONNECTION (Top view)



PIN DESCRIPTION

Pin	Pins	Description
1	OUT 12V (b)	12V/1.3A SWITCHED OUTPUT VOLTAGE
2	V_S	Supply Voltage
3	OUT 5.6V	5.6V/250mA OUTPUT VOLTAGE
4	N.C.	not connected
5	EN 12V (b)	Enable 12V/1.3A SWITCHED OUTPUT VOLTAGE
6	GND	Ground
7	EN 12V (a)	Enable 12V/0.8A SWITCHED OUTPUT VOLTAGE
8	EN 8.6V	Enable 8.6V/0.6A SWITCHED OUTPUT VOLTAGE
9	OUT 8.6	8.6V/0.6A SWITCHED OUTPUT VOLTAGE
10	V_S	Supply Voltage
11	OUT 12V (a)	12V/0.8A SWITCHED OUTPUT VOLTAGE

QUICK REFERENCE DATA

Symbol	Parameter	Test Condition	Typ.	Unit
$V_{out\ 5V}$	5V Output Voltage	$I_O = 125mA$	5.6	V
		$14.4V < V_S < 21.6V$ $5mA < I < 0.25A$	5.6	V
$V_{out\ 8V}$	8.6V Output Voltage	$I_O = 300mA$	8.6	V
		$14.4V < V_S < 21.6V$ $5mA < I < 0.6A$	8.6	V
$V_{out\ 12Va}$	12V Output Voltage	$I_{out} = 400mA$	12	V
		$14.4V < V_S < 21.6V$ $5mA < I < 0.8A$	12	V
$V_{out\ 12Vb}$	12V Output Voltage	$I_{out} = 650mA$	12	V
		$14.4V < V_S < 21.6V$ $5mA < I < 1.3A$	12	V

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th\ j-case}$	Thermal Resistance Junction-case	2	°C/W

ELECTRICAL CHARACTERISTICS ($V_S = 18V$, $T_{case} = 25^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_S	Operating Supply Voltage	no load	15	22	30	V
		loaded (*)	14.4	18	21.6	V
E_n	Output Noise Voltage	Any reg. supply, $f = 100Hz$ to $20KHz$		200	400	μV
I_q	Quiescent Current			8		mA

5.6V/250mA OUTPUT VOLTAGE

$V_{out\ 5V}$	5V Output Voltage	$I_O = 125mA$	5.45		5.9	V
		$14.4V < V_S < 21.6V$ $5mA < I < 0.25$	5.40		6	V
ΔV_{line}	Line Regulation	$14.4V < V_S < 21.6V$		5	50	mV
ΔV_{load}	Load Regulation	$5mA < I_O < 250mA$		50	150	mV
$V_{dropout}$	Dropout Voltage	$I_{out} = 250mA$		2.05	2.7	V
I_{lim}	Current Limit	$V_S = 21.6V$	250	325		mA

8.6V/0.6A SWITCHED OUTPUT VOLTAGE

$V_{out\ 8V}$	8.6V Output Voltage	$I_O = 300mA$	8.4		9.1	V
		$14.4V < V_S < 21.6V$ $5mA < I < 0.6A$	8.3		9.2	V
ΔV_{line}	Line Regulation	$14.4V < V_S < 21.6V$		5	50	mV
ΔV_{load}	Load Regulation	$5mA < I_O < 0.6A$		50	350	mV
$V_{dropout}$	Dropout Voltage	$I_{out} = 0.6A$		2.05	2.7	V
I_{lim}	Current Limit	$V_S = 21.6V$	0.6	0.8		A
SWon	Switch ON			2.31	3.5	V
SW off	Switch OFF		1.5	2.11		V
SW hyst	Switch Hysteresis			200		mV

12V/0.8A SWITCHED OUTPUT VOLTAGE

$V_{out12Va}$	12V Output Voltage	$I_{out} = 400mA$	11.7		12.7	V
		$14.4V < V_S < 21.6V$ $5mA < I < 0.8A$	11.6		12.8	V
ΔV_{line}	Line Regulation	$14.4V < V_S < 21.6V$		10	50	mV
ΔV_{load}	Load Regulation	$5mA < I_O < 0.8A$		100	350	mV
$V_{dropout}$	Dropout Voltage	$I_{out} = 0.8A$		2.13	2.7	V
I_{lim}	Current Limit	$V_S = 21.6V$	0.8	1.1		A
SVR	Supply Voltage Rejection	$f = 100Hz$ $f = 10KHz$	55 40	75		dB
SWon	Switch ON			2.31	3.5	V
SW off	Switch OFF		1.5	2.11		V
SW hyst	Switch Hysteresis			200		mV

12V/1.3A SWITCHED OUTPUT VOLTAGE

$V_{out12Vb}$	12V Output Voltage	$I_{out} = 650mA$	11.6		12.6	V
		$14.4V < V_S < 21.6V$ $5mA < I < 1.3A$	11.5		12.7	V
ΔV_{line}	Line Regulation	$14.4V < V_S < 21.6V$		10	50	mV
ΔV_{load}	Load Regulation	$5mA < I_O < 1.3A$		200	450	mV
$V_{dropout}$	Dropout Voltage	$I_{out} = 1.3A$		2.15	2.7	V
I_{lim}	Current Limit	$V_S = 21.6V$	1.3	1.7		A

ELECTRICAL CHARACTERISTICS (continued)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
SVR	Supply Voltage Rejection	f = 100Hz f = 10KHz	55 40	75		dB
SWon	Switch ON			2.31	3.5	V
SW off	Switch OFF		1.5	2.11		V
SW hyst	Switch Hysteresis			200		mV

(*) The max value is limited by the power dissipation

Figure 1: Application and Test Circuit.

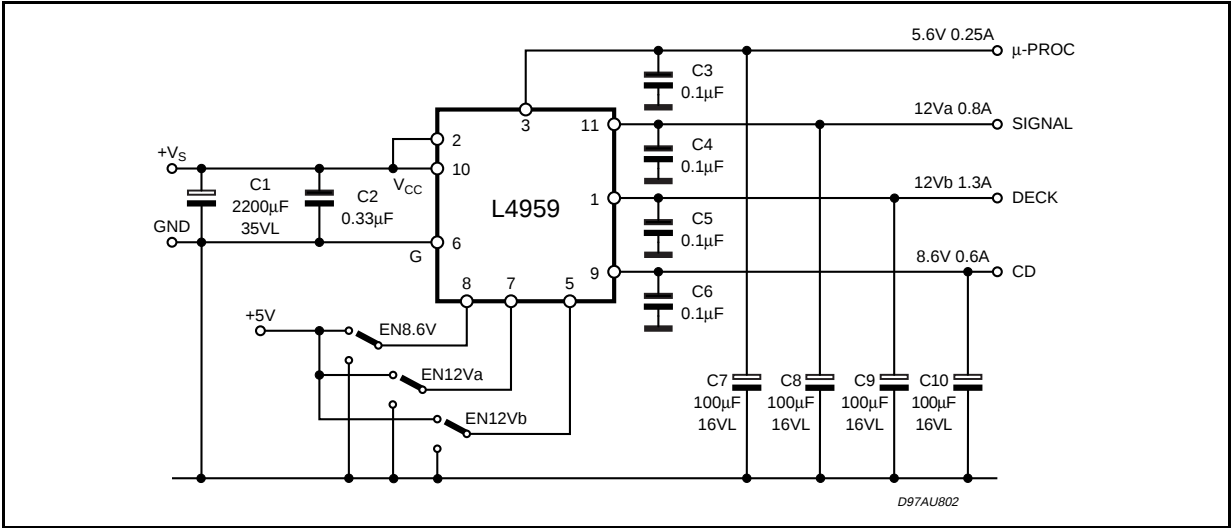
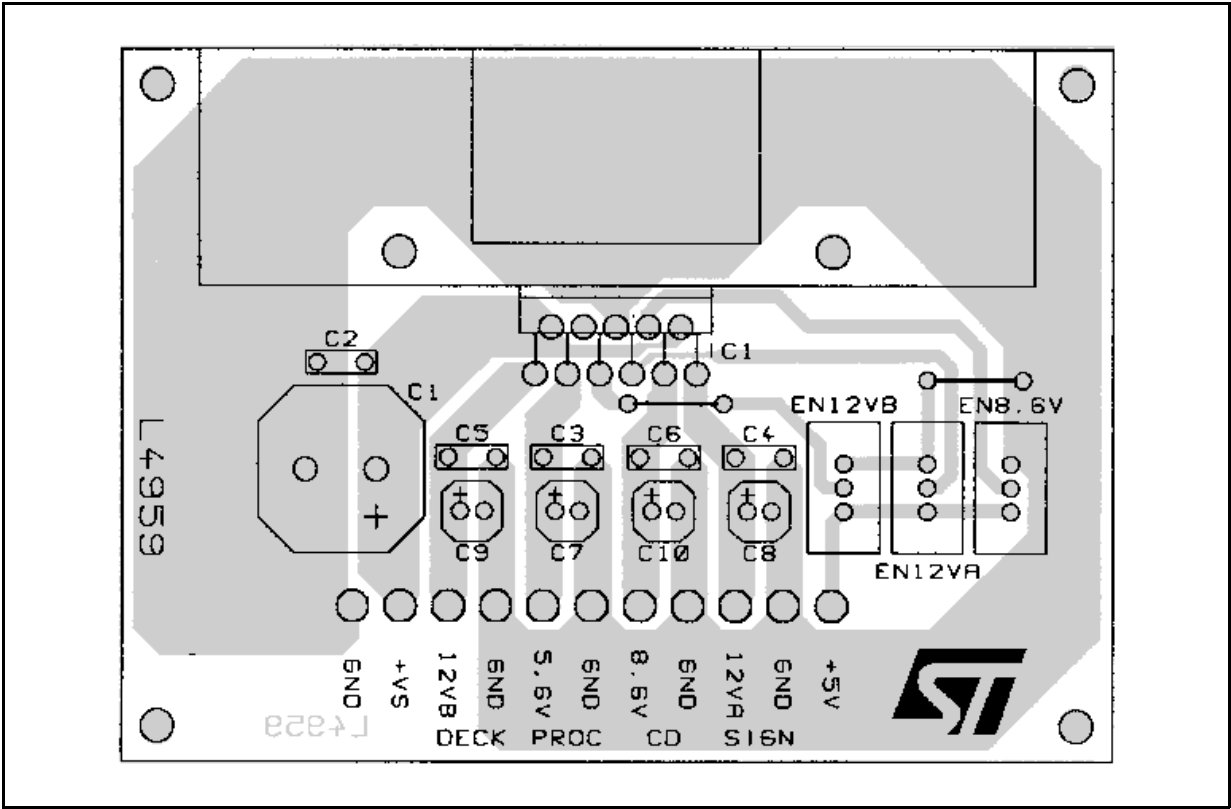
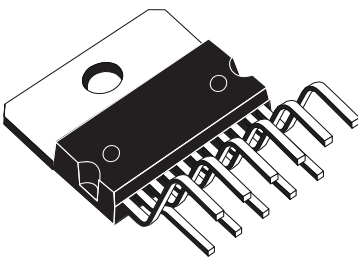


Figure 2: PCB and Components layout of the Figure 1.

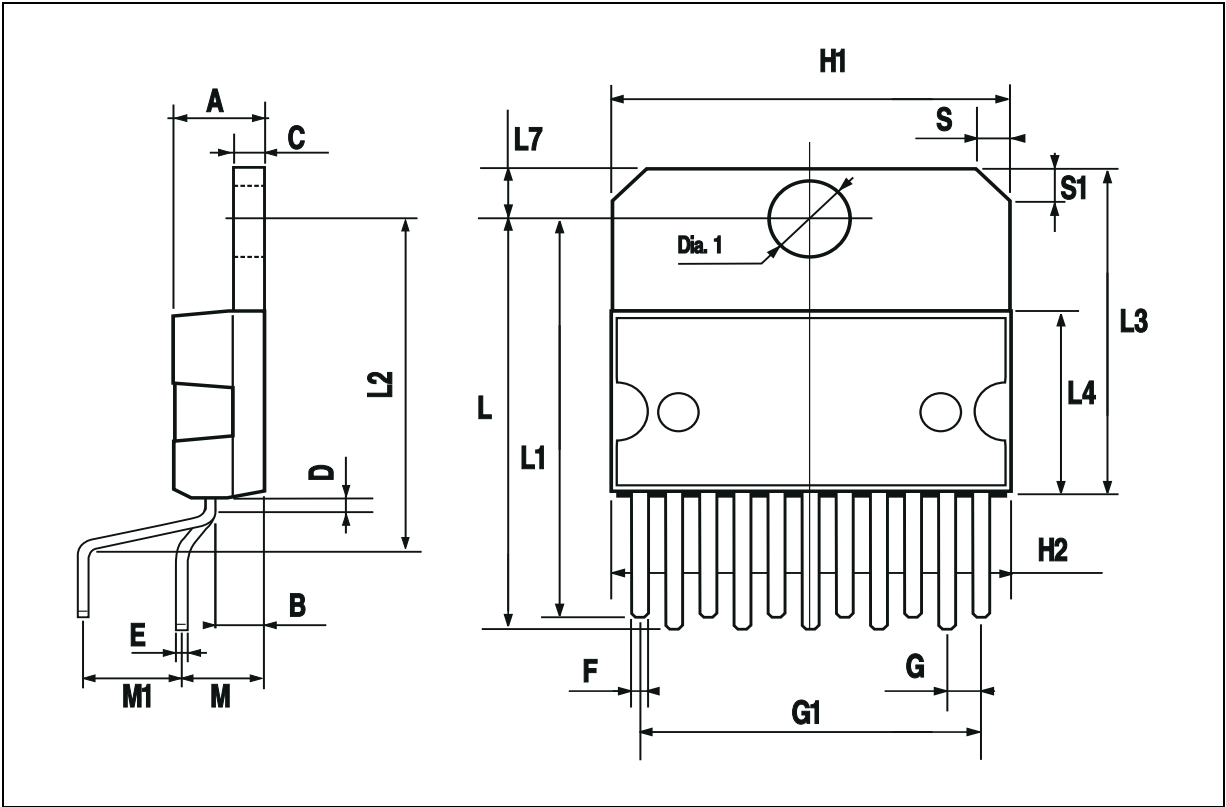


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			5			0.197
B			2.65			0.104
C			1.6			0.063
D		1			0.039	
E	0.49		0.55	0.019		0.022
F	0.88		0.95	0.035		0.037
G	1.45	1.7	1.95	0.057	0.067	0.077
G1	16.75	17	17.25	0.659	0.669	0.679
H1	19.6			0.772		
H2			20.2			0.795
L	21.9	22.2	22.5	0.862	0.874	0.886
L1	21.7	22.1	22.5	0.854	0.87	0.886
L2	17.4		18.1	0.685		0.713
L3	17.25	17.5	17.75	0.679	0.689	0.699
L4	10.3	10.7	10.9	0.406	0.421	0.429
L7	2.65		2.9	0.104		0.114
M	4.25	4.55	4.85	0.167	0.179	0.191
M1	4.73	5.08	5.43	0.186	0.200	0.214
S	1.9		2.6	0.075		0.102
S1	1.9		2.6	0.075		0.102
Dia1	3.65		3.85	0.144		0.152

OUTLINE AND MECHANICAL DATA



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