

## MULTIFUNCTION VOLTAGE REGULATOR FOR CAR RADIO

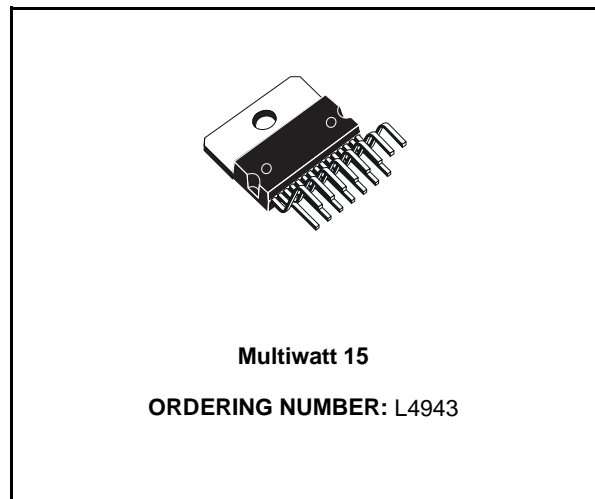
- 3 PROGRAMMABLE OUTPUTS:
  - ◆ 3 TO 11V (500mA);
  - ◆ 3 TO 11V (500mA);
  - ◆ 3 TO 7V (500mA) STANDBY
- OUT1 AND OUT2 WITH INDEPENDENT ENABLE CONTROL FOR STAND-BY MODE
- 0.4A HIGH SIDE DRIVER
- LOAD DUMP PROTECTION
- THERMAL SHUTDOWN

### DESCRIPTION

The L4943 contains a triple voltage regulator and a high side driver.

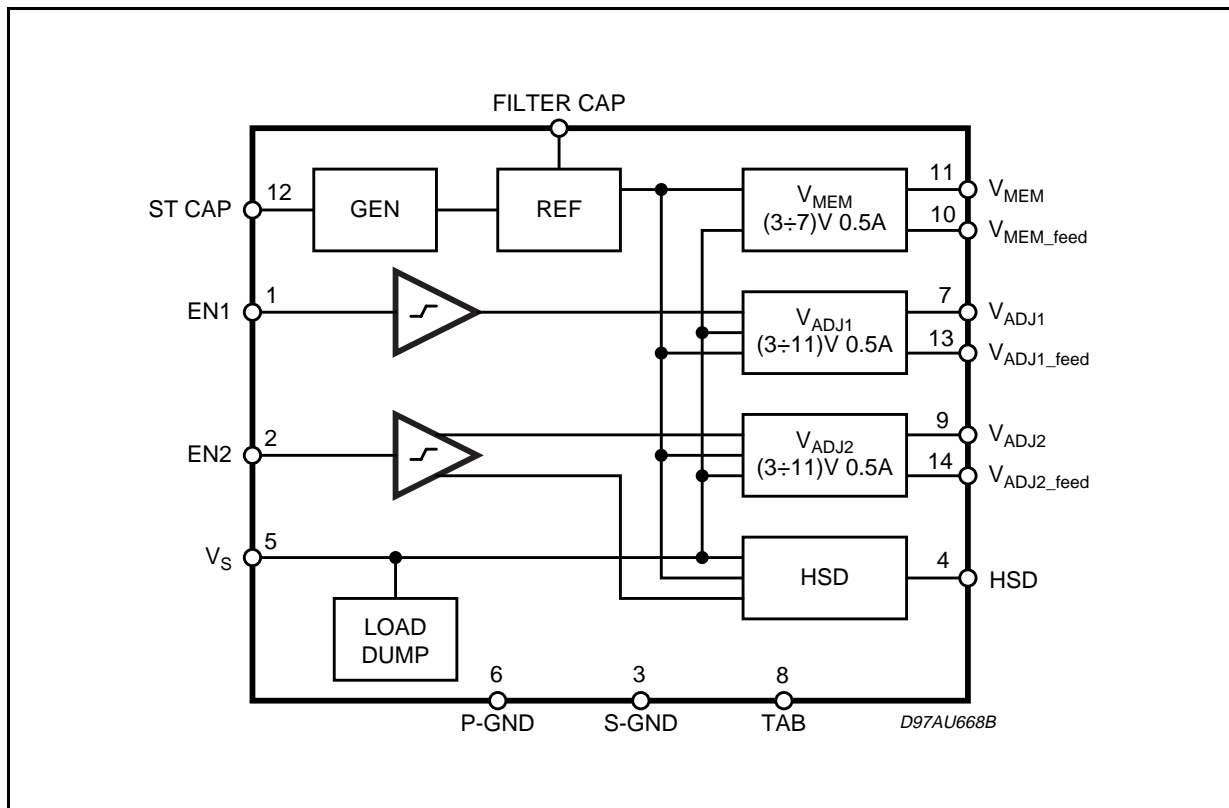
In stand-by the output is active as long as possible even when in thermal shutdown or under any other fault conditions.

The STCAP pin allows the use of a reserve supply capacitor that will hold enough energy for the



5V Stand-by line to allow the  $\mu$ P to store data.

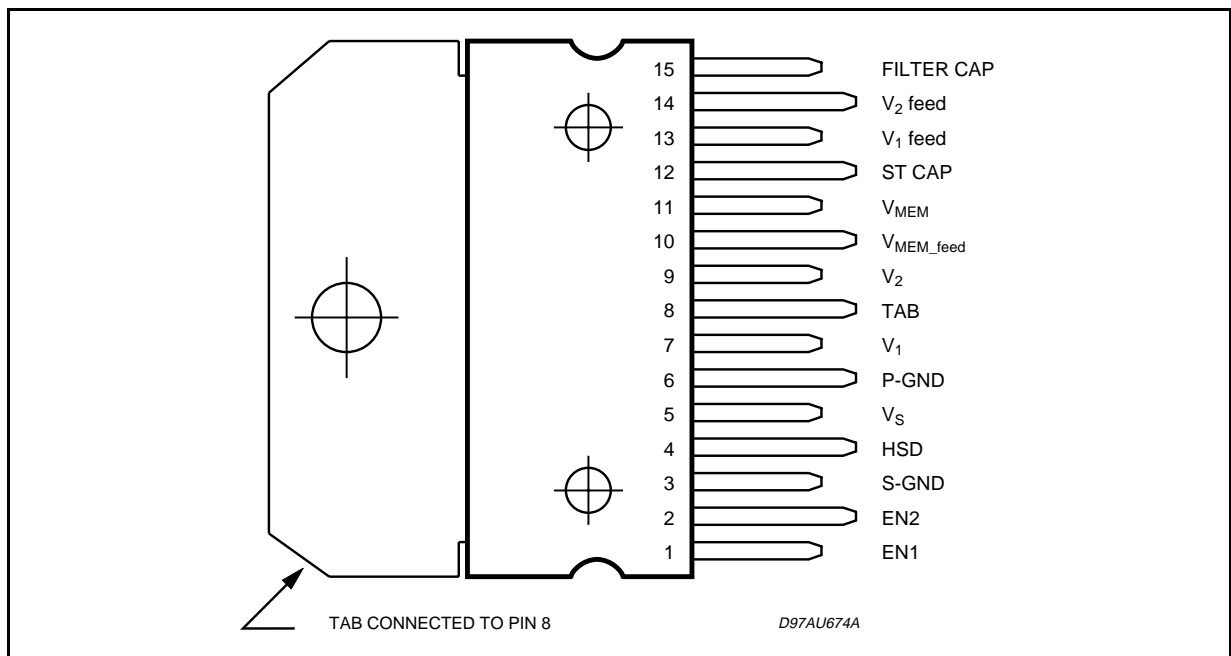
### BLOCK DIAGRAM



## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_S$	DC Operating Supply Voltage	-0.6 to 30	V
	Transient Supply Overvoltage (50ms)	50	V
$I_O$	Voltage Regulator Output Current	Internally limited	
$V_{in}$	Input Voltage (EN1, EN2)	0 to 6	V
RESR	Output Capacitor Series Eq. Resistance	0.2 to 10	$\Omega$
$P_{tot}$	Power Dissipation ( $T_{case} = 85^\circ\text{C}$ )	33	W
$T_{op}$	Operating Temperature Range	-40 to 85	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Ranges	-55 to 150	$^\circ\text{C}$

## PIN CONNECTION (t.b.d.)



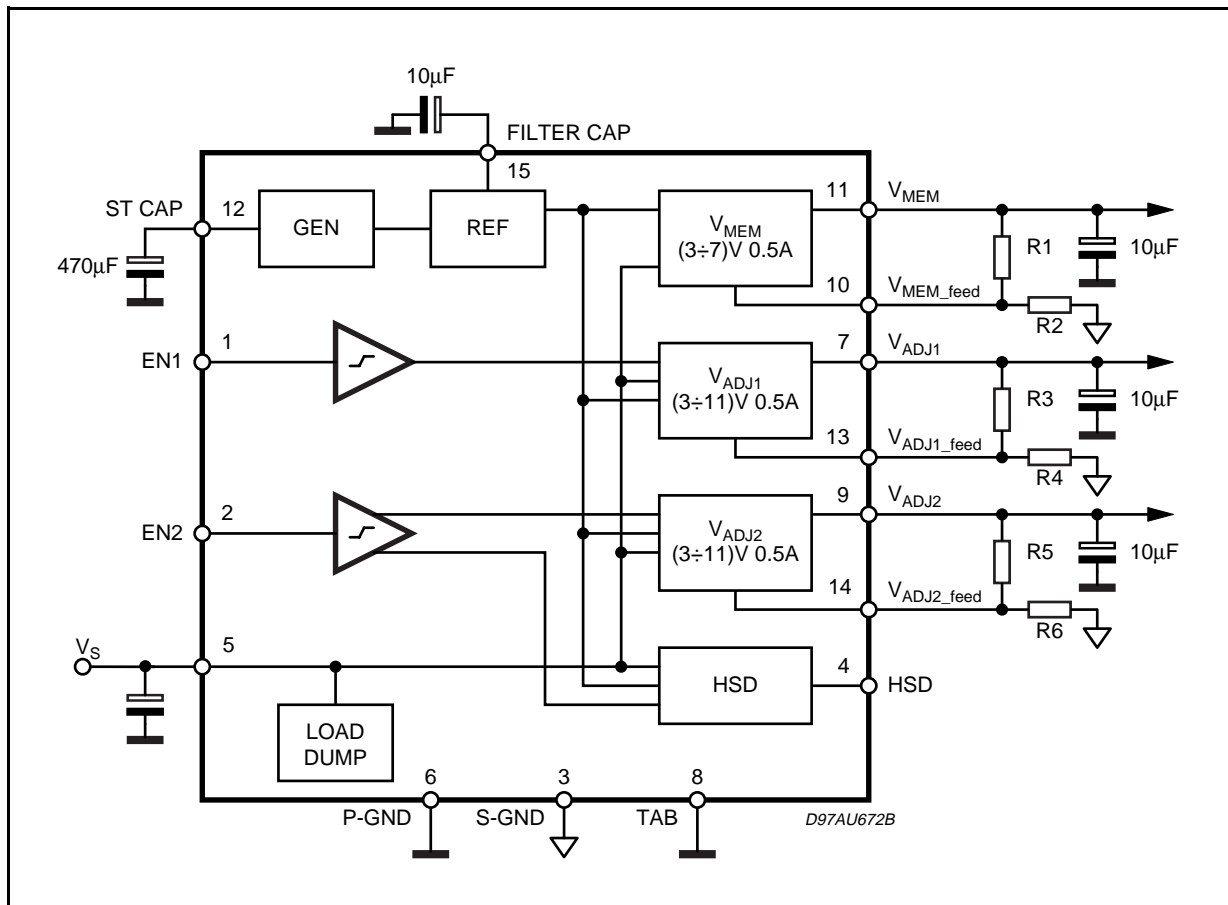
## THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{Th\ j-case}$	Thermal Resistance Junction to Case	2	$^\circ\text{C}/\text{W}$

**ELECTRICAL CHARACTERISTICS** (Referred to Test & Application Circuit;  $V_S = 14.4V$ ;  $T_{amb} = 25^\circ C$ ; unless otherwise specified).

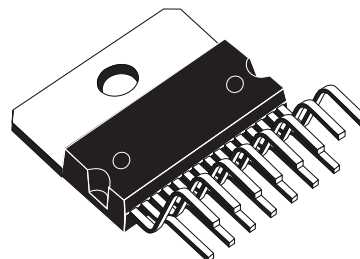
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
<b>5V STAND-BY</b>						
$V_{out\ Mem}$	Output Voltage	no load; $1+R1/R2 = 2.4$	2.85	3	3.15	V
		no load; $1+R1/R2 = 4$	4.75	5	5.25	V
		no load; $1+R1/R2 = 5.6$	6.65	7	7.35	V
$\Delta V_{line}$	Line Regulation	no load; $11 < V_S < 18V$		5	50	mV
$\Delta V_{load}$	Load Regulation	$5mA < I_O < 500mA$		8	80	mV
$V_{dropout}$	Dropout Voltage	$I_O = 200mA, V_O = 5V$		0.36	0.5	V
		$I_O = 500mA, V_O = 5V$		0.9	1.25	V
$I_{lim}$	Current Limit	Out short to GND	550	800	1000	mA
$I_{qst-by}$	Quiescent Current	$I_O = 100\mu A; EN1 = EN2 = 0$		0.35	0.5	mA
		$I_O = 500mA; EN1 = EN2 = 5V$		10	25	mA
<b>ADJUSTABLE REG1 SWITCHED</b>						
$V_{outadj}$	Output Voltage	no load; $1+R3/R4 = 2.4$	2.85	3	3.15	V
		no load; $1+R3/R4 = 4$	4.75	5	5.25	V
		no load; $1+R3/R4 = 8.8$	10.45	11	11.55	V
$\Delta V_{line}$	Line Regulation	no load		0.7	7	mV/V
$\Delta V_{load}$	Load Regulation	$5mA < I_O < 500mA$		8	80	mV
$V_{dropout}$	Dropout Voltage	$I_O = 200mA, V_O = 5V$		0.45	0.6	V
		$I_O = 500mA, V_O = 5V$		1.1	1.5	V
		$I_O = 200mA, V_O = 11V$		0.4	0.55	V
		$I_O = 500mA, V_O = 11V$		1	1.4	V
$I_{lim}$	Current Limit	Out short to GND	550	800	1000	mA
$I_{q2}$	Quiescent Current	$I_O = 500mA$		10	25	mA
SVR	Supply Voltage Rejection	$f = 0.1$ to $10kHz, V_O = 5V$	45	55		dB
EN1 on	EN ADJ1 ON		2			V
EN1 off	EN ADJ1 OFF				1	V
<b>ADJUSTABLE REG2 SWITCHED</b>						
$V_{outadj}$	Output Voltage	no load; $1+R3/R4 = 2.4$	2.85	3	3.15	V
		no load; $1+R5/R6 = 4$	4.75	5	5.25	V
		no load; $1+R3/R4 = 8.8$	10.45	11	11.55	V
$\Delta V_{line}$	Line Regulation	no load		0.7	7	mV/V
$\Delta V_{load}$	Load Regulation	$5mA < I_O < 500mA$		12	80	mV
$V_{dropout}$	Dropout Voltage	$I_O = 200mA, V_O = 5V$		0.45	0.6	V
		$I_O = 500mA, V_O = 5V$		1.1	1.5	V
		$I_O = 200mA, V_O = 11V$		0.4	0.55	V
		$I_O = 500mA, V_O = 11V$		1	1.4	V
$I_{lim}$	Current Limit	Out short to GND	550	800	1100	mA
$I_{q3}$	Quiescent Current	$I_O = 500mA$		10	25	mA
SVR	Supply Voltage Rejection	$f = 0.1$ to $10kHz, V_O = 5V$	45	55		dB
EN2H on2	EN ADJ2 ON		1.3			V
EN2H off2	EN ADJ2 OFF				0.5	V
<b>400mA HSD SWITCHED</b>						
$V_{dropout}$	Dropout Voltage	$I_O = 400mA, 9V < V_S < 16V$		0.2	0.6	V
$I_{lim}$	Current Limit		0.45	0.65	0.8	A
$I_{qhsd}$	Quiescent Current	$I_O = 400mA$		10	25	mA
EN2 on H	EN HSD ON		2.5			V
EN2 off H	EN HSD OFF				1.7	V
EN2 Gap	EN HSD ON minus EN ADJ2 ON			1		V

Figure 1. Application circuit.

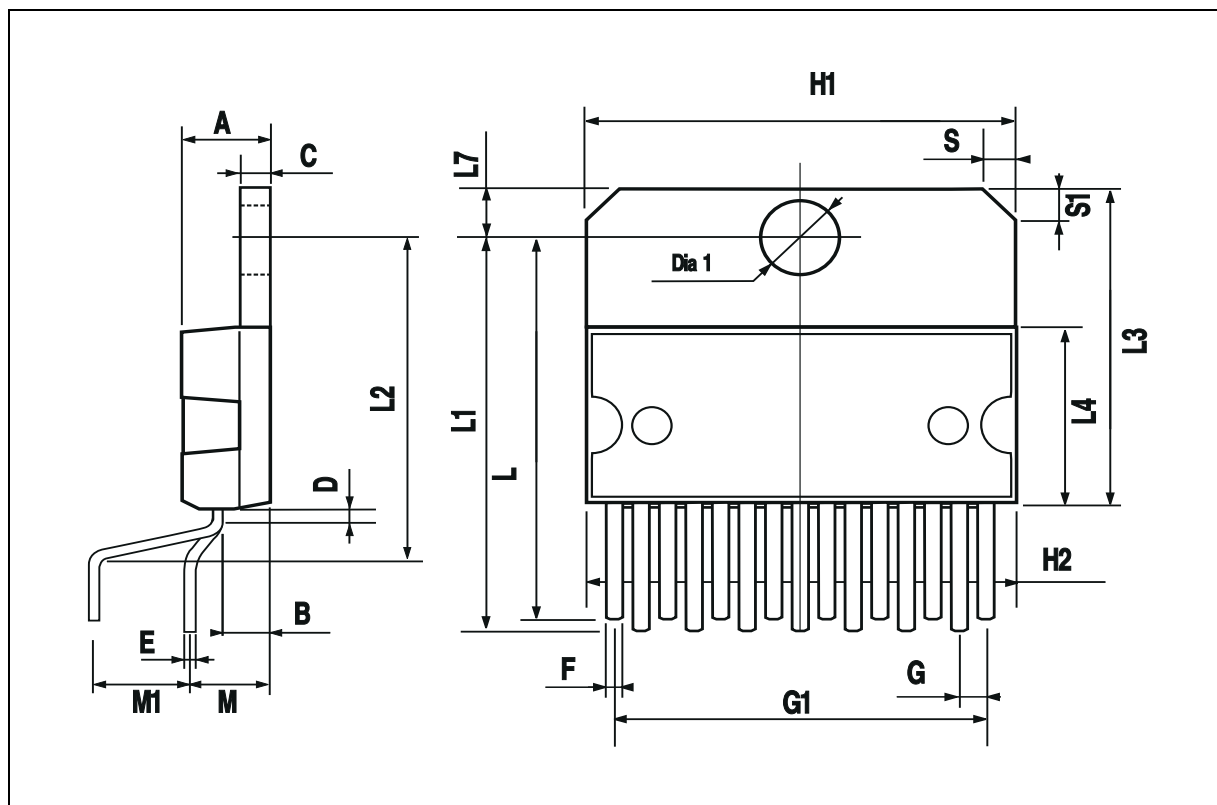


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			5			0.197
B			2.65			0.104
C			1.6			0.063
D		1			0.039	
E	0.49		0.55	0.019		0.022
F	0.66		0.75	0.026		0.030
G	1.02	1.27	1.52	0.040	0.050	0.060
G1	17.53	17.78	18.03	0.690	0.700	0.710
H1	19.6			0.772		
H2			20.2			0.795
L	21.9	22.2	22.5	0.862	0.874	0.886
L1	21.7	22.1	22.5	0.854	0.870	0.886
L2	17.65		18.1	0.695		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	4.63	5.08	5.53	0.182	0.200	0.218
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



**Multiwatt15 V**



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