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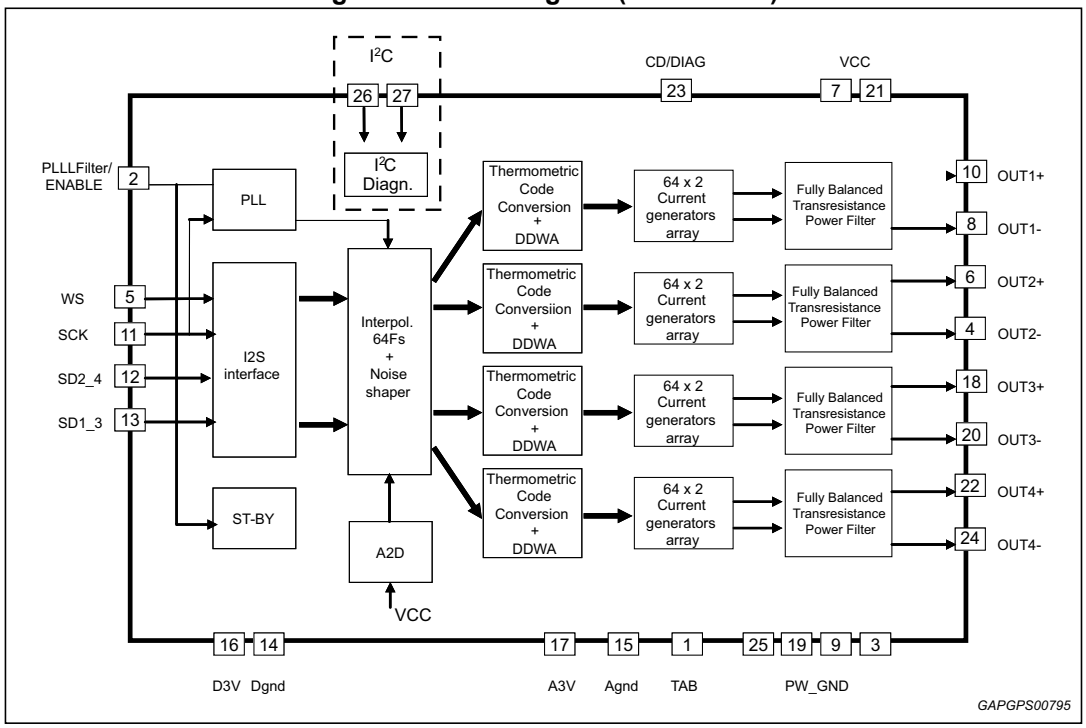
1 Block diagram and pins description

1.1 Block diagram

Figure 1. Block diagram (Flexiwatt27)



1.2 Pins description

Figure 2. Pins connection diagrams

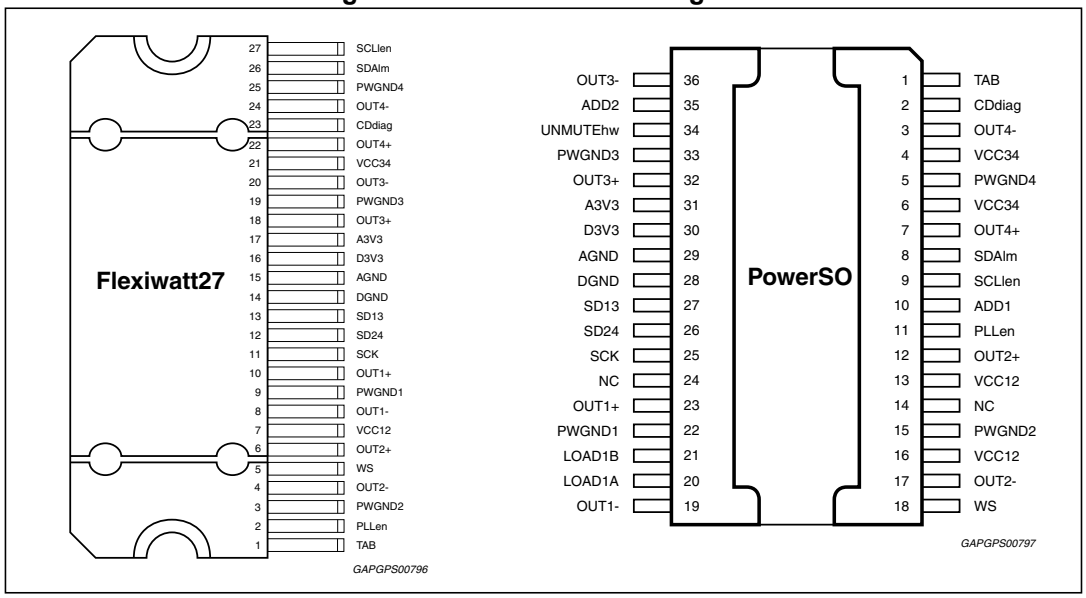


Table 2. Flexiwatt27 pins description

N°	Pin	Function	
1	TAB	TAB connection	Ground
2	PLLen	Pll loop filter / ENABLE	Input
3	PWGND2	Power ground channel 2	Power Ground
4	OUT 2-	Channel 2 (Left Rear) negative output	Power Output
5	WS	Word select (I2S bus)	Logic Input
6	OUT 2+	Channel 2 (Left Rear) positive output	Power Output
7	VCC12	Channel 1 and 2 positive supply	Battery
8	OUT 1-	Channel 1 (Left Front) negative output	Power Output
9	PWGND1	Power ground channel 1	Power Ground
10	OUT 1+	Channel 1 (Left Front) positive output	Power Output
11	SCK	Serial clock (I2S bus)	Logic Input
12	SD24	Serial data channels 2 and 4 (I2S bus)	Logic Input
13	SD13	Serial data channels 1 and 3 (I2S bus)	Logic Input
14	DGND	Digital ground	Signal Ground
15	AGND	Analog ground	Signal Ground
16	D3V3	Digital 3.3 V supply filter	Digital Regulator
17	A3V3	Analog 3.3 V supply filter	Analog Regulator
18	OUT3+	Channel 3 (right front) positive output	Power Output
19	PWGND3	Power ground channel 3	Power Ground
20	OUT3-	Channel 3 (right front) negative output	Power Output
21	VCC34	Channels 3 and 4 positive supply	Battery
22	OUT4+	Channel 4 (right rear) positive output	Power Output
23	CDdiag	Clip detector and diagnostic output: Overcurrent protection intervention Thermal warning POR Output DC offset Output short to VCC/GND	Open Drain Output
24	OUT4-	Channel 4 (right rear) negative output	Power Output
25	PWGND4	Power ground channel 4	Power Ground
26	SDAIm	I^2C data/legacy mode mute	Signal Input/Output
27	SCLIen	I^2C clock/enable legacy mode	Signal Input

Table 3. PowerSO36 pins description

N°	Pin	Function	
1	TAB	TAB connection	-
2	CDdiag	Clip detector and diagnostic output: Overcurrent protection intervention Thermal warning POR	Open Drain Output
3	OUT4-	Channel 4 (right rear) negative output	Power Output
4	VCC34	Channels 3 and 4 positive supply	Battery
5	PWGND4	Power ground channel 4	Power Ground
6	VCC34	Channels 3 and 4 positive supply	Battery
7	OUT4+	Channel 4 (right rear) positive output	Power Output
8	SDAIm	I^2C data/legacy mode mute	Signal Input/Output
9	SCLIen	I^2C clock/enable legacy mode	Signal Input
10	ADD1	I2C Address - First Pin	Logic Input
11	PLLen	Pll loop filter / ENABLE	Input
12	OUT 2+	Channel 2 (Left Rear) positive output	Power Output
13	VCC12	Channel 1 and 2 positive supply	Battery
14	NC	Not Connected	-
15	PWGND2	Power ground channel 2	Power Ground
16	VCC12	Channel 1 and 2 positive supply	Battery
17	OUT 2-	Channel 2 (Left Rear) negative output	Power Output
18	WS	Word select (I2S bus)	Logic Input
19	OUT 1-	Channel 1 (Left Front) negative output	Power Output
20	LOAD1A	Load Selection (channels 1 and 2)	Logic Input
21	LOAD1B	Load Selection (channels 3 and 4)	Logic Input
22	PWGND1	Power ground channel 1	Power Ground
23	OUT 1+	Channel 1 (Left Front) positive output	Power Output
24	NC	Not Connected	-
25	SCK	Serial clock (I2S bus)	Logic Input
26	SD24	Serial data channels 2 and 4 (I2S bus)	Logic Input
27	SD13	Serial data channels 1 and 3 (I2S bus)	Logic Input
28	DGND	Digital ground	Signal Ground
29	AGND	Analog ground	Signal Ground
30	D3V3	Digital 3.3 V supply filter	Digital Regulator
31	A3V3	Analog 3.3 V supply filter	Analog Regulator
32	OUT3+	Channel 3 (right front) positive output	Power Output
33	PWGND3	Power ground channel 3	Power Ground
34	UNMUTEhw	Unmute Hardware	Logic input
35	ADD2	I2C Address - Second Pin	Logic Input
36	OUT3-	Channel 3 (right front) negative output	Power Output

2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: *www.st.com*.

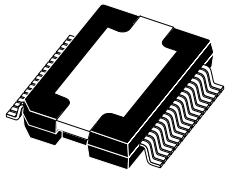
ECOPACK® is an ST trademark.

Figure 3. PowerSO36 (slug up) mechanical data and package dimensions

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	3.270	-	3.410	0.1287	-	0.1343
A2	3.100	-	3.180	0.1220	-	0.1252
A4	0.800	-	1.000	0.0315	-	0.0394
A5	-	0.200	-	-	0.0079	-
a1	0.030	-	-0.040	0.0012	-	-0.0016
b	0.220	-	0.380	0.0087	-	0.0150
c	0.230	-	0.320	0.0091	-	0.0126
D	15.800	-	16.000	0.6220	-	0.6299
D1	9.400	-	9.800	0.3701	-	0.3858
D2	-	1.000	-	-	0.0394	-
E	13.900	-	14.500	0.5472	-	0.5709
E1	10.900	-	11.100	0.4291	-	0.4370
E2	-	-	2.900	-	-	0.1142
E3	5.800	-	6.200	0.2283	-	0.2441
E4	2.900	-	3.200	0.1142	-	0.1260
e	-	0.650	-	-	0.0256	-
e3	-	11.050	-	-	0.4350	-
G	0	-	0.075	0	-	0.0031
H	15.500	-	15.900	0.6102	-	0.6260
h	-	-	1.100	-	-	0.0433
L	0.800	-	1.100	0.0315	-	0.0433
N	-	-	10°	-	-	10°
s	-	-	8°	-	-	8°

(1) "D and E1" do not include mold flash or protusions.
Mold flash or protusions shall not exceed 0.15mm (0.006").
(2) No intrusion allowed inwards the leads.

OUTLINE AND MECHANICAL DATA



PowerSO36 (SLUG UP)

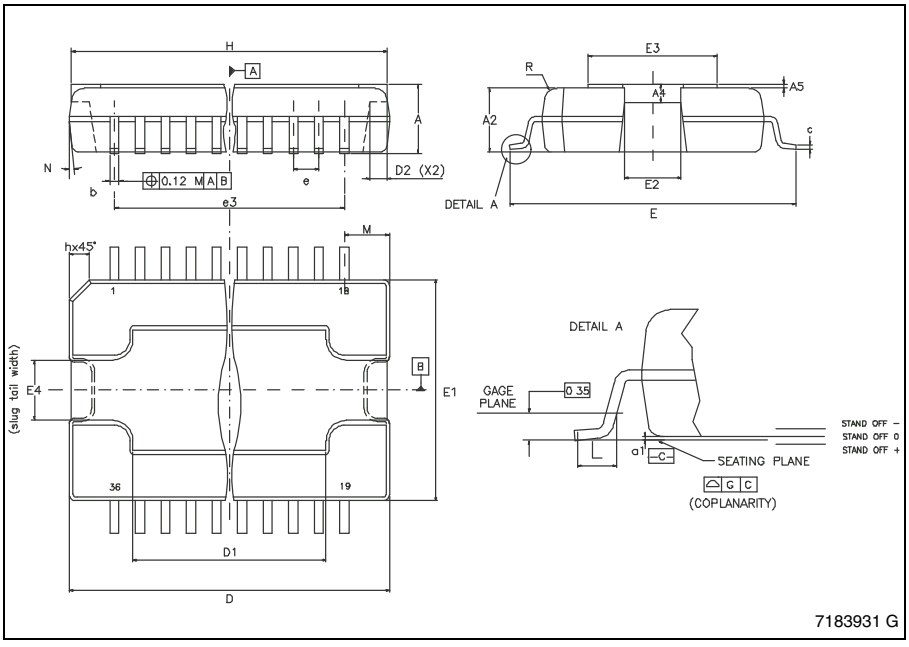
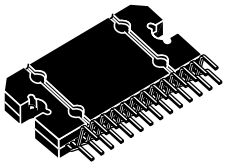


Figure 4. Flexiwatt27 (vertical) mechanical data and package dimensions

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.45	4.50	4.65	0.175	0.177	0.183
B	1.80	1.90	2.00	0.070	0.074	0.079
C		1.40			0.055	
D	0.75	0.90	1.05	0.029	0.035	0.041
E	0.37	0.39	0.42	0.014	0.015	0.016
F (1)			0.57			0.022
G	0.80	1.00	1.20	0.031	0.040	0.047
G1	25.75	26.00	26.25	1.014	1.023	1.033
H (2)	28.90	29.23	29.30	1.139	1.150	1.153
H1		17.00			0.669	
H2		12.80			0.503	
H3		0.80			0.031	
L (2)	22.07	22.47	22.87	0.869	0.884	0.904
L1	18.57	18.97	19.37	0.731	0.747	0.762
L2 (2)	15.50	15.70	15.90	0.610	0.618	0.626
L3	7.70	7.85	7.95	0.303	0.309	0.313
L4		5			0.197	
L5		3.5			0.138	
M	3.70	4.00	4.30	0.145	0.157	0.169
M1	3.60	4.00	4.40	0.142	0.157	0.173
N		2.20			0.086	
O		2			0.079	
R		1.70			0.067	
R1		0.5			0.02	
R2		0.3			0.12	
R3		1.25			0.049	
R4		0.50			0.019	
V	5° (Typ.)					
V1	3° (Typ.)					
V2	20° (Typ.)					
V3	45° (Typ.)					

(1): dam-bar protusion not included
(2): molding protusion included

OUTLINE AND MECHANICAL DATA



Flexiwatt27 (vertical)

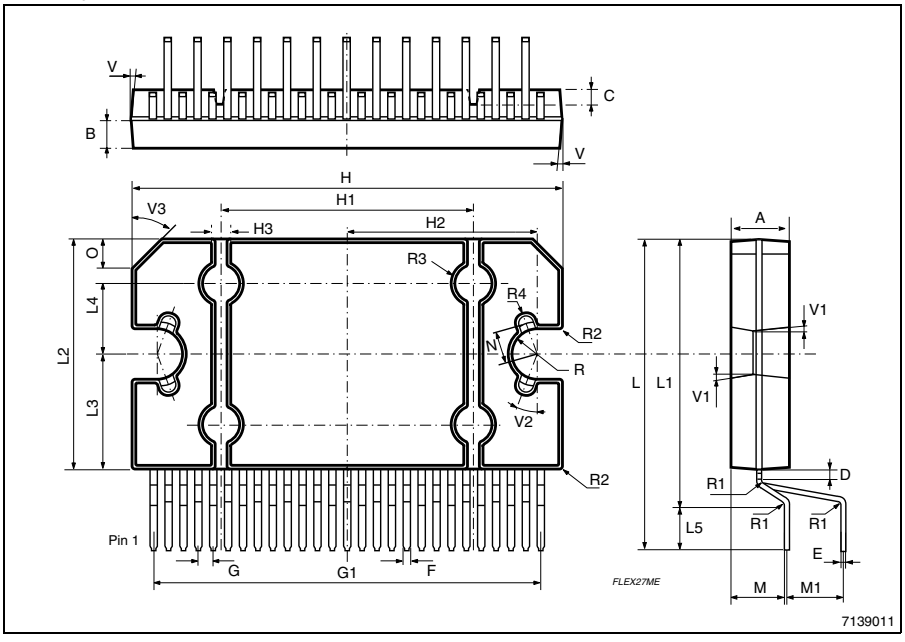
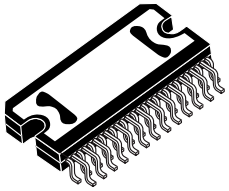


Figure 5. Flexiwatt27 (SMD) mechanical data and package dimensions

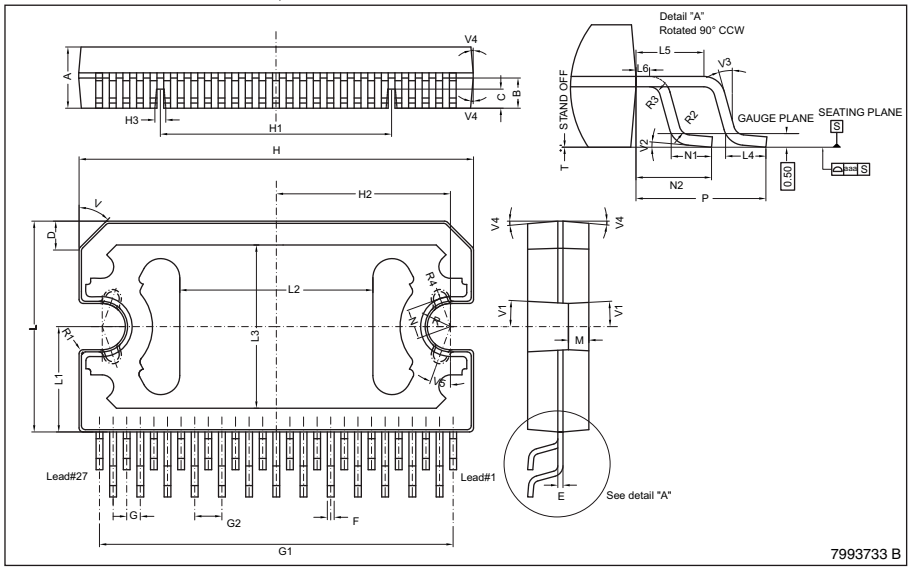
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.45	4.50	4.65	0.1752	0.1772	0.1831
B	2.12	2.22	2.32	0.0835	0.0874	0.0913
C		1.40			0.0551	
D		2.00			0.0787	
E	0.36	0.40	0.44	0.0142	0.0157	0.0173
F(**)	0.47	0.51	0.57	0.0185	0.0201	0.0224
G(*)	0.75	1.00	1.25	0.0295	0.0394	0.0492
G1	25.70	26.00	26.30	1.0118	1.0236	1.0354
G2(*)	1.75	2.00	2.25	0.0689	0.0787	0.0886
H(**)	28.85	29.23	29.40	1.1358	1.1508	1.1575
H1		17.00			0.6693	
H2		12.80			0.5039	
H3		0.80			0.0315	
L(**)	15.50	15.70	15.90	0.6102	0.6181	0.6260
L1	7.70	7.85	7.95	0.3031	0.3091	0.3130
L2	14.00	14.20	14.40	0.5512	0.5591	0.5669
L3	11.80	12.00	12.20	0.4646	0.4724	0.4803
L4	1.30	1.48	1.66	0.0512	0.0583	0.0654
L5	2.42	2.50	2.58	0.0953	0.0984	0.1016
L6	0.42	0.50	0.58	0.0165	0.0197	0.0228
M		1.50			0.0591	
N		2.20			0.0866	
N1	1.30	1.48	1.66	0.0512	0.0583	0.0654
N2(*)	2.73	2.83	2.93	0.1075	0.1114	0.1154
P(*)	4.73	4.83	4.93	0.1862	0.1902	0.1941
R		1.70			0.0669	
R1		0.30			0.0118	
R2	0.35	0.40	0.45	0.0138	0.0157	0.0177
R3	0.35	0.40	0.45	0.0138	0.0157	0.0177
R4		0.50			0.0197	
T(*)	-0.08		0.10	-0.0031		0.0039
aaa(*)		0.1			0.0039	
V		45°			45°	
V1		3°			3°	
V2	3°	5°	7°	3°	5°	7°
V3	12°	15°	18°	12°	15°	18°
V4		5°			5°	
V5		20°			20°	

(*) Golden parameters
(**) – Dimension "F" doesn't include dam-bar protrusion.
– Dimensions "H" and "L" include mold flash or protrusions.

OUTLINE AND MECHANICAL DATA



Flexiwatt27 (SMD)



3 Revision history

Table 4. Document revision history

Date	Revision	Changes
18-Jul-2013	1	Initial release.
18-Sep-2013	2	Updated Disclaimer.
24-Oct-2014	3	Added ‘AEC Q100 rev. G compliant’ in *Features* list.
27-Oct-2014	4	Modified in cover page the feature ‘AEC Q100 rev. G compliant’ in ‘Qualification in accordance to AEC Q100 rev. G standard’.

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