POWER

LGA80D Series

Dual O/P Non-isolated 80 A Digital DC/DC Converter

Data Sheet

Total Current: 80 A (single)
40 A (dual)
Input Voltage: 7.5 - 14 Vdc
Variable Output: 0.6 - 5.2 V



DIGITAL DC DC

SPECIAL FEATURES

- Two-phase design
- Dual or single output configuration possible
- High efficiency up to 95.5%
- Small size 1” x 0.5” x 0.48” (LxWxH)
- Supports PMBus
- No minimum load requirement
- Wide operating temperature range
- Exceptional power density
- Automatic loop compensation
- Excellent transient response
- Analog or digital control
- IPC9592B compliant
- Tape and reel packaging
- Reflow compatible
- Possible to stack up to 8 phases for 320 A
- Two year warranty (Consult factory for extended terms)

SAFETY

- Designed to meet EN60950-1

PMBus® Power Management. Defined.

Electrical Specifications

Input		
Input voltage range	7.5 -14 Vdc	
Max input current @ 7.5 V	33 A	
Input capacitor (internal)	120 µF	
Environmental and General Information		
Operating ambient temperature	-40 °C to +85 °C	
Storage temperature	-40 °C to +125 °C	
Switching frequency (RSYNC = 23.7 Kohm)	457 kHz typical (can be configured)	
CMTBF Telcordia SR-332, Issue 3, Method 1 Case 1	50 MHours	
Protection		
Overcurrent protection	Refer to application note for detail	
Overvoltage protection	110% Vo nominal	
Overtemperature protection (controller temperature)	120 °C nominal	
Output*		
Independent output 1 and 2	0.6 V to 1 V 1.8 V 2.5 V 3.3 V 5 V	40 A 35 A 32.5 A 30 A 20 A
Combined output 1 and 2	0.6 V to 1 V 1.8 V 2.5 V 3.3 V 5 V	80 A 70 A 65 A 60 A 40 A
Efficiency at 11 Vin and 25 °C	1 V @ 80 A 1.8 V @ 70 A 2.5 V @ 65 A 3.3 V @ 60 A 5 V @ 40 A	89.9% typical 93% typical 94.5% typical 95% typical 95.5% typical
Max output power (Watts)	200 W	

*Output @ Vin = 12 V, Ta = 25 °C, unless otherwise noted

ARTESYN™ EMBEDDED TECHNOLOGIES

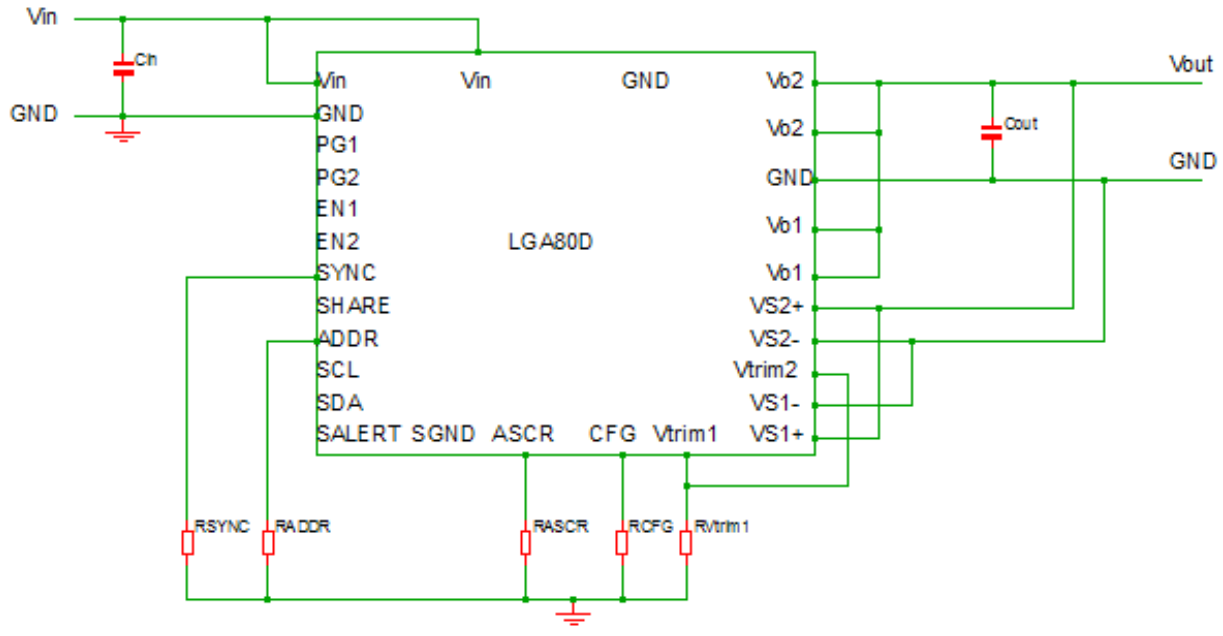
Electrical Specifications (continued)

Parameter	Conditions	Min	Nom	Max
Line regulation 0.6 ~ 1.0 V 1.0 ~ 5.0 V	Measured at remote sense	—	 2 mV 0.2%	—
Load regulation 0.6 ~ 1.0 V 1.0 ~ 5.0 V	Measured at remote sense	—	 5 mV 0.5%	—
Output capacitor per output (external minimum)	2 x 220 µF / 6.3 V polymer tan caps (6TPF220M5L or equivalent 3 x 100 µF / 6.3 V ceramic caps	—	740 µF	—
Ripple and noise (with minimum caps) 5 Hz to 20 MHz 0.6 to 1.8 V 2.5 V to 3.3 V 5.0 V	One module one output	 — — —	 15 mV 25 mV 40 mV	 — — —
Ripple and noise (with minimum caps) 5 Hz to 20 MHz 0.6 to 1.8 V 2.5 V to 3.3 V 5.0 V	One module two outputs	 — — —	 18 mV 35 mV 50 mV	 — — —

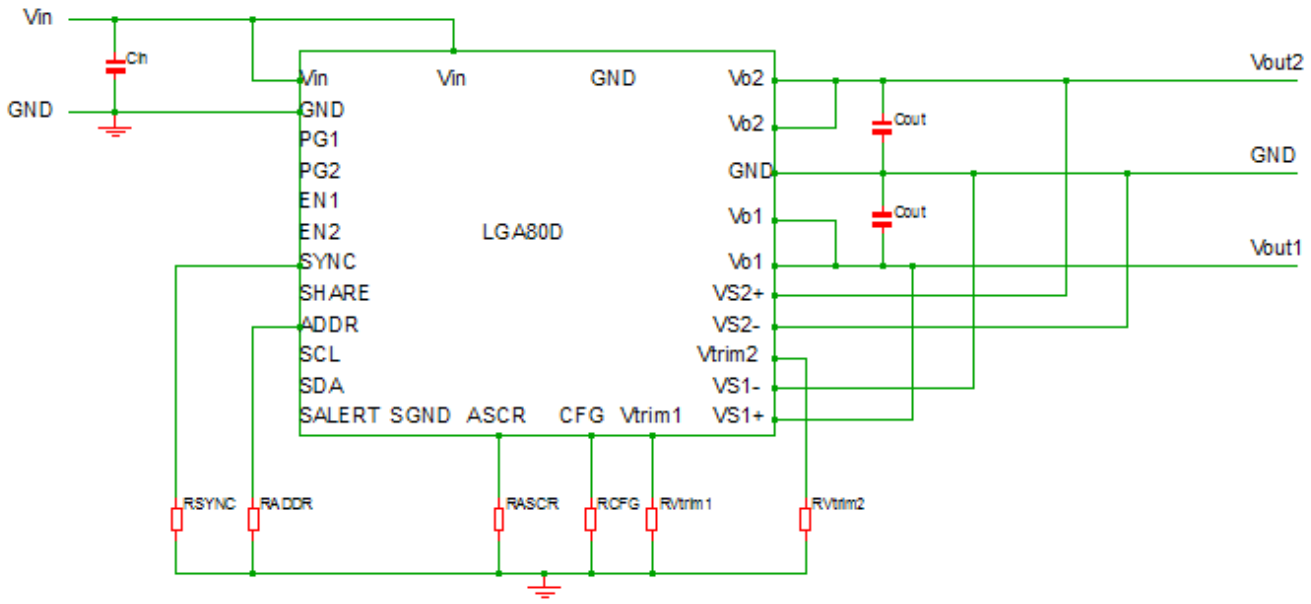
Ordering Information

Model Number	Input Voltage	Output Voltage Set Point	Output Current	Efficiency
LGA80D-00DADJJ	7.5 - 14 Vdc	See table	80 A max	See table

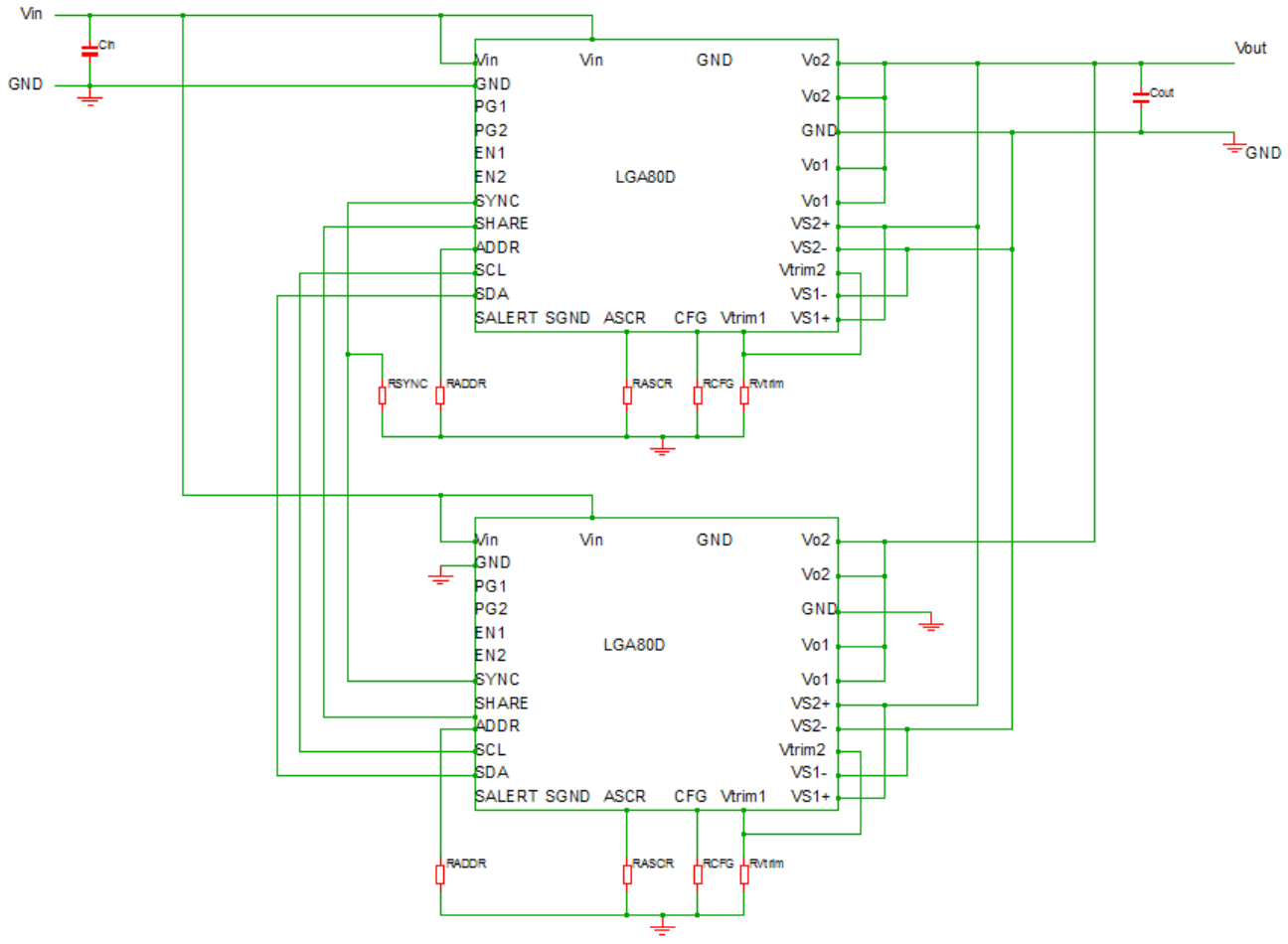
Block Diagram - One Module One Output



Block Diagram - One Module Two Outputs



Block Diagram - Two Modules One Output

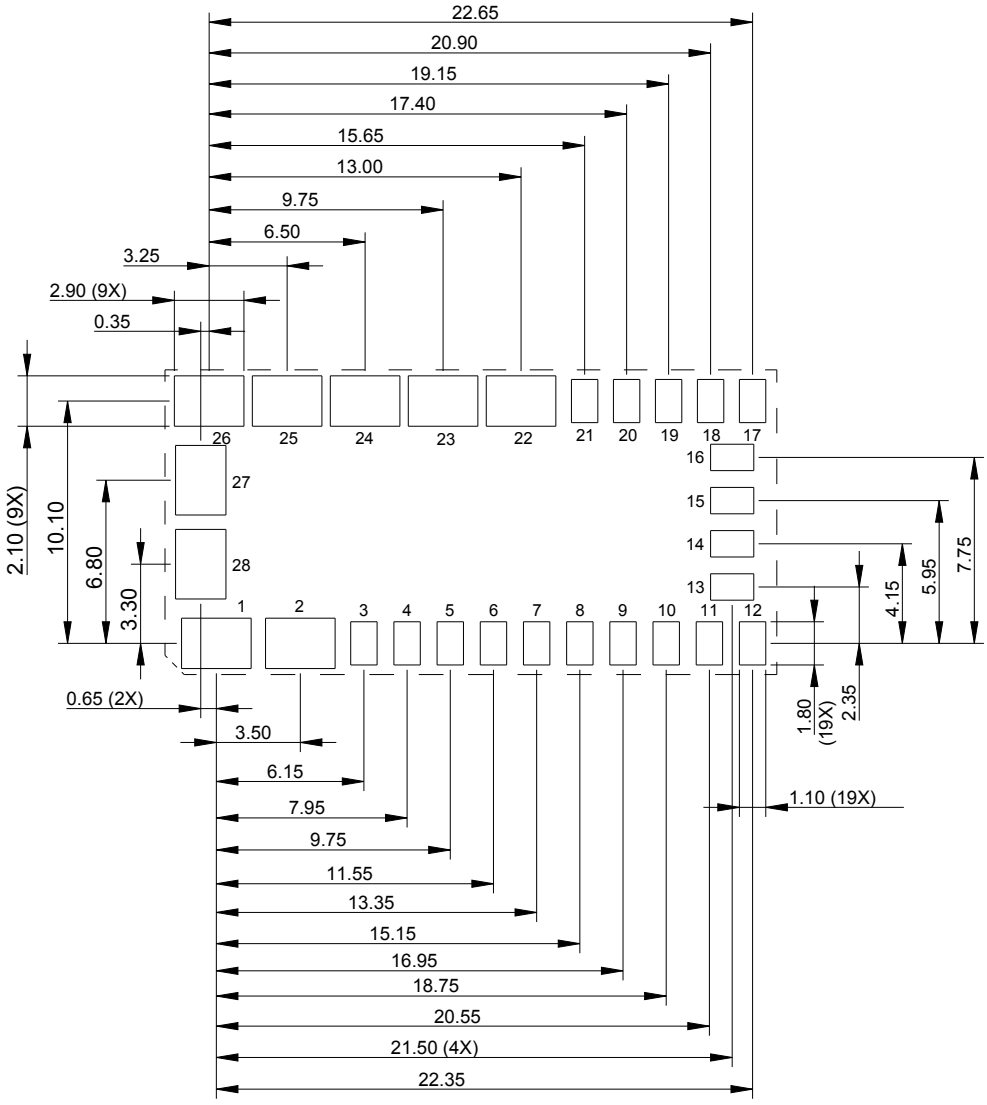


Vout & Address Settings

Vout Setting	
RVtrim (kΩ)	Vout (V)
LOW	1
OPEN	1.2
HIGH	0.9
10	0.6
11	0.65
12.1	0.7
13.3	0.75
14.7	0.8
16.2	0.85
17.8	0.9
19.6	0.95
21.5	1
23.7	1.05
26.1	1.1
28.7	1.15
31.6	1.2
34.8	1.25
38.3	1.3
42.2	1.4
46.4	1.5
51.1	1.6
56.2	1.7
61.9	1.8
68.1	1.9
75	2
82.5	2.1
90.9	2.2
100	2.3
110	2.5
121	2.8
133	3
147	3.3
162	4
178	5

Address Setting	
RADDR (kΩ)	SMbus ADDRESS
LOW	40h
OPEN	42h
10	41h
11	43h
12.1	44h
13.3	45h
14.7	46h
16.2	47h
17.8	48h
19.6	49h
21.5	4Ah
23.7	4Bh
26.1	4Ch
28.7	4Dh
31.6	4Eh
34.8	4Fh
42.2	51h
46.4	52h
51.1	53h
56.2	54h
61.9	55h
68.1	56h
75	57h
82.5	58h
90.9	59h
100	5Ah
110	5Bh
121	5Ch
133	5Dh
147	5Eh
162	5Fh
178	60h

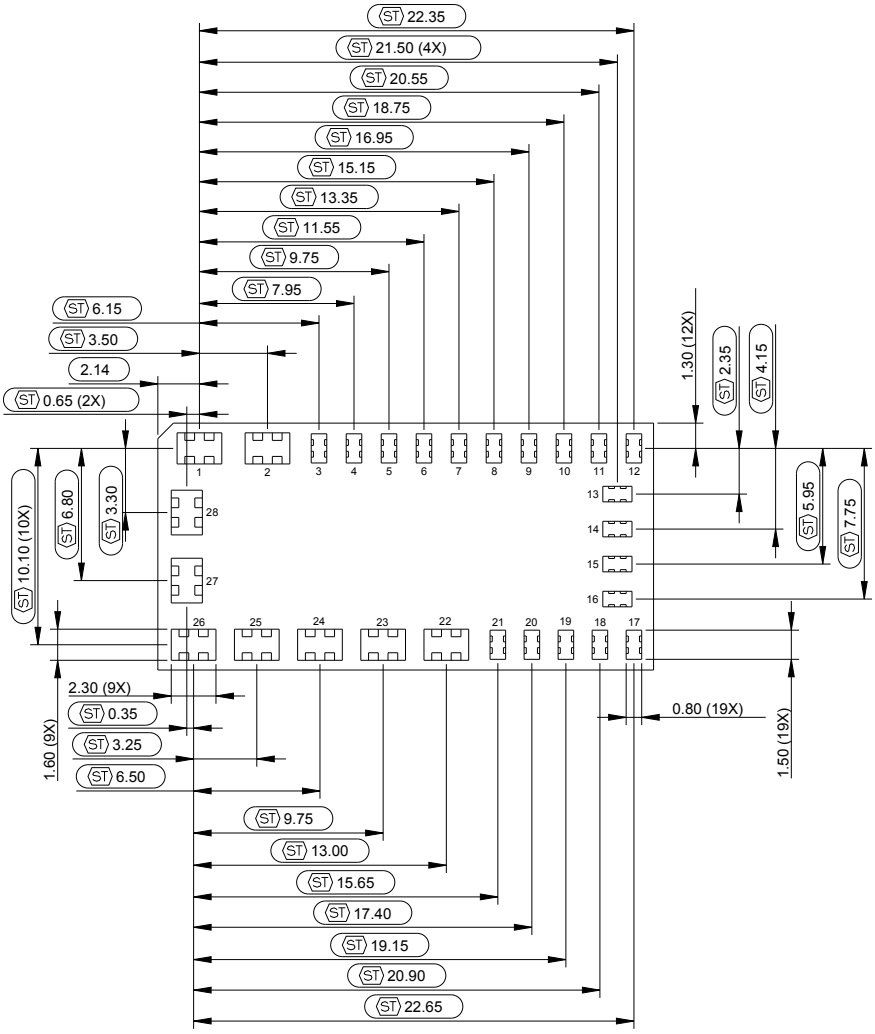
Mechanical Drawings

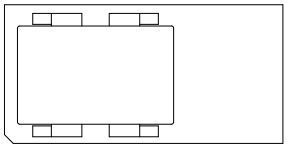


RECOMMENDED PAD LAYOUT (FOOTPRINT)
Notes:
Dimensions are in millimeters and (inches)
Tolerance: X.X mm ±0.5 mm (X.XX in. ±0.02 in.)
X.XX mm ±0.25 mm (X.XXX in. ±0.010 in.)

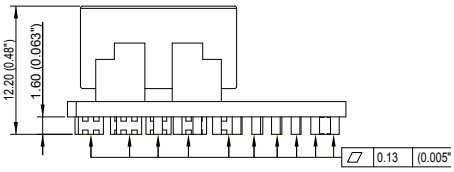
Pin Assignments Single Output	
Pin #	**Function**
1	Vin
2	GND
3	PG1
4	PG2
5	EN1
6	EN2
7	SYNC
8	SHARE
9	ADDR
10	SCL
11	SDA
12	SALERT
13	SGND
14	ASCRCFG
15	CFG
16	Vtrim1
17	VS1+
18	VS1-
19	Vtrim2
20	VS2-
21	VS2+
22	Vo1
23	Vo1
24	GND
25	Vo2
26	Vo2
27	GND
28	Vin

Mechanical Drawings





TOP VIEW



SIDE VIEW

FOOTPRINT DRAWING OF METAL PINS
(BOTTOM VIEW)
Notes:
Dimensions are in millimeters and (inches)
Tolerance: X.X mm ±0.5 mm (X.XX in. ±0.02 in.)
X.XX mm ±0.25 mm (X.XXX in. ±0.010 in.)

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