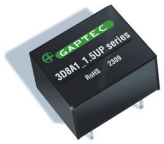
3D8A1_1.5UP series

3W Single & Dual Output - Fixed Input - Isolated & Semi-regulated
SIP Package



DC-DC Converter 3 Watt

- 8Pin DIP Package
- No load input current as low as 8mA
- Continuous short circuit protection
- High efficiency up to 88%
- Unregulated output types
- 1.5kVDC isolation
- Operating Temperature: -40°C to +105°C
- Industry Standard Pinout
- Meets IEC62368, UL62368, EN62368 approvals

The Introducing our cutting-edge 3D8A1_1.5UP series in a 8Pin DIP Package, designed to elevate your electronic projects with unmatched performance and reliability. Experience the advantage of incredibly low no-load input current, reduced to as low as 8mA, ensuring efficient energy usage and cost savings. Our package offers continuous short circuit protection, safeguarding your devices and extending their lifespan. Achieve high efficiency levels of up to 88%, maximizing the output while minimizing energy wastage. The unregulated output types cater to a variety of applications, providing versatility and adaptability in your designs. With a robust 1.5kVDC isolation, our package ensures superior protection against electrical disturbances, maintaining the integrity of your circuits. Engineered to perform in extreme conditions, our package operates seamlessly within a wide temperature range of -40°C to +105°C.

UL-62368-1 (E347551)

Common specifications

Item	Test condition	Min	Typ	Max	Units
Switching frequency	Full load, nominal input		250		kHz
Operation temperature	(with derating)	-40		+105	°C
Storage temperature		-55		+125	°C
Humidity	Non condensing			95	%
Cooling	Free air convection				
Case material	DAP				
MTBF	MIL-HDBK-217F@25°C	3500000			hours
Weight			1.9		g
Dimensions			12.70 x 10.16 x 7.50		mm

Input specifications

Item	Test condition	Min	Typ	Max	Units
Voltage range	Vo, Io Nom		±10		%
Input filter	Capacitor				

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation capacitance	Input-output, 100kHz/0.1V		20		pF
Isolation resistance	500VDC	1000			MΩ

Output specifications

Item	Test condition	Min	Typ	Max	Units
Voltage tolerance	100% full load			±5	%
Short circuit protection	Continuous				
Line regulation	For 1.0% of Vin		1.2		%
Load regulation	5V (10% to 100% F.L.)		9	15	%
	12V (10% to 100% F.L.)		7	10	%
	15V (10% to 100% F.L.)		6	10	%
	24V (10% to 100% F.L.)		5	10	%
Ripple & noise	BW = DC to 20MHz		100	150	mVp-p

Example:
3D8A1_0505S1.5UP
3 = 3Watt; D8 = DIP8; A1 = Series; 05 = 5Vin; 05 = 5Vout; S = Single Output; 1.5 = 1.5kVDC isolation; U = Unregulated Output; P = Short circuit protected

EMC specifications

CE	CISPR32/EN55032	CLASS B (see Fig. 1 for recommended circuit)
RE	CISPR32/EN55032	CLASS B (see Fig. 1 for recommended circuit)
ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B	

Note:
1. Operation under minimum load will not damage the converter; However, theymay not meet all specification listed, and that will reduce the life of product.
2. All specifications measured at Ta = 25°C, humidity <95%, nominal input voltage and rated output load unless otherwise specified.
3. Measured Input reflected ripple current with a simulated source inductance of 12µH and a source capacitor
4. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating
5. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

GAPTEC-Electronic GmbH & Co. KG
sales@gaptec-electronic.com – www.gaptec-electronic.com

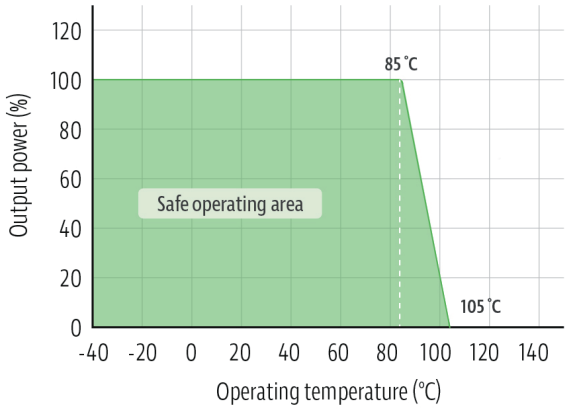
Product Selection Guide

Part Number	Output Voltage [VDC]	Output Current [Full Load mA, max]	Efficiency [@FL, %, max]	CapacitorLoad [@FL, µF]
3D8A1_1205S1.5UP	5	600	85	1000
3D8A1_1212S1.5UP	12	250	87	220
3D8A1_1215S1.5UP	15	200	88	220
3D8A1_1224S1.5UP	24	125	88	47
3D8A1_1505S1.5UP	5	600	85	1000
3D8A1_1512S1.5UP	12	250	87	220
3D8A1_1515S1.5UP	15	200	88	220
3D8A1_1524S1.5UP	24	125	88	47
3D8A1_2405S1.5UP	5	600	85	1000
3D8A1_2412S1.5UP	12	250	87	220
3D8A1_2415S1.5UP	15	200	88	220
3D8A1_2424S1.5UP	24	125	88	47

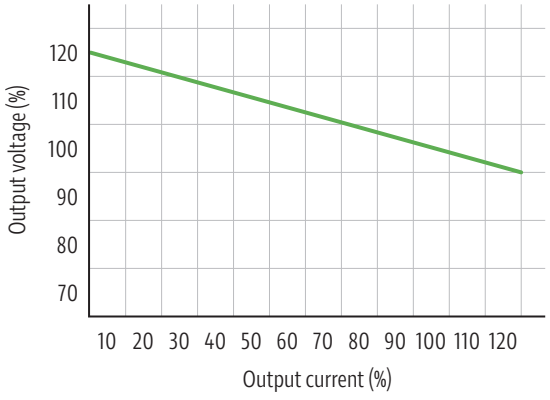
Part Number	Output Voltage [VDC]	Output Current [Full Load mA, max]	Efficiency [@FL, %, max]	CapacitorLoad [@FL, µF]
3D8A1_1205D1.5UP	±5	±300	86	±560
3D8A1_1212D1.5UP	±12	±125	86	±100
3D8A1_1215D1.5UP	±15	±100	88	±100
3D8A1_1224D1.5UP	±24	±63	88	±22
3D8A1_1505D1.5UP	±5	±300	86	±560
3D8A1_1512D1.5UP	±12	±125	86	±100
3D8A1_1515D1.5UP	±15	±100	88	±100
3D8A1_1524D1.5UP	±24	±63	88	±22
3D8A1_2405D1.5UP	±5	±300	86	±560
3D8A1_2412D1.5UP	±12	±125	86	±100
3D8A1_2415D1.5UP	±15	±100	88	±100
3D8A1_2424D1.5UP	±24	±63	88	±22

Typical characteristics

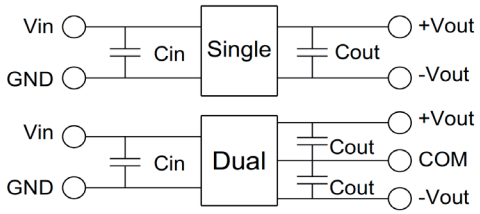
Temperature derating graph



Tolerance envelope graph

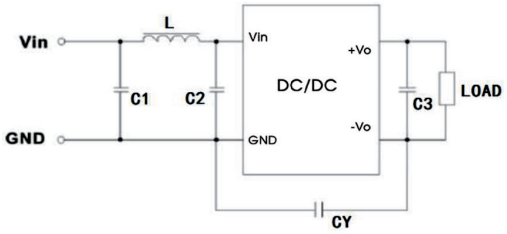


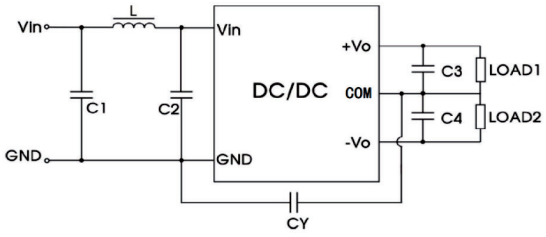
Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
12VDC	2.2µF/25V	5VDC	10µF/16V	±5VDC	±4.7µF/16V
15VDC	2.2µF/25V	9VDC	2.2µF/16V	±9VDC	±1µF/16V
24VDC	1µF/50V	12VDC	2.2µF/25V	±12VDC	±1µF/25V
- -	- -	15VDC	1µF/25V	±15VDC	±1µF/25V
- -	- -	24VDC	1µF/50V	±24VDC	±1µF/50V

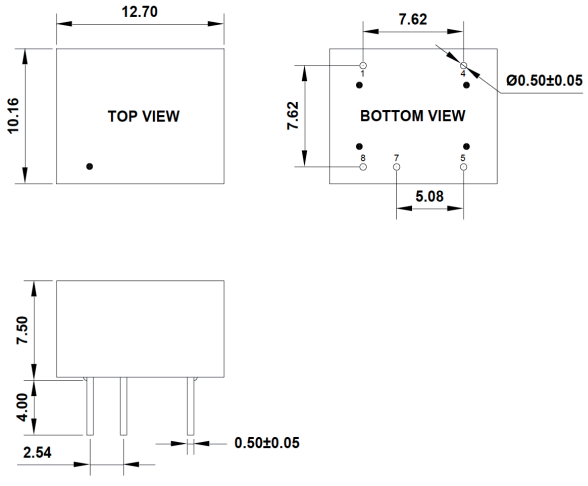
EMC (CLASS B) compliance circuit





EMC recommended circuit value table		
EMI	C1	10µF /50V
	C2	10µF /50V
	CY	1nF/4kV
	C3, C4	Recommended Test Circuit
	L	6.8µH

Markings and dimensions



PIN Connection							
PIN	1	2	3	4	5	7	8
Single	-Vin			+Vin	+Vout	-Vout	No Pin
Dual	-Vin			+Vin	+Vout	Com	-Vout