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DC02S0505A

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DC02S/D Series

2W DC/DC CONVERTER, DIP-Package, High Isolation

FEATURES

- Efficiency up to 64%
- Regulated Outputs
- Short Circuit Protection
- High Isolation Voltage 6000VDC
- Low Leakage Current
- Low Isolation Capacitance
- Low Ripple & Noise
- Complies with EN55022 Class A
- Lead free, RoHs Compliant
- 3 Years Product Warranty

The DC02S/D series are miniature, DIP Package, isolated 2W DC/DC converters with ultra- high 6,000VDC isolation . It offers short circuit protection and allows a wide operating temperature range of –25°C to +75°C.These isolated DC/DC converters are the latest offering from a world leader in power systems technology and manufacturing — Delta Electronics, Inc. With creative design technology and optimization of component placement, these converters possess outstanding electrical and thermal performance, as well as extremely high reliability under highly stressful operating conditions

Model List

Model Number	Input Voltage (Range)	Output Voltage	Output Current		Input Current		Reflected Ripple Current	Max. capacitive Load	Efficiency (typ.)
			Max.	Min.	@Max. Load	@No Load			@Max. Load
	VDC	VDC	mA	mA	mA(typ.)	mA(typ.)	mA (typ.)	uF	%
DC02S0505A	5 (4.5 ~ 5.5)	5	400	0	645	100	15	680	62
DC02S0512A		12	165		629				63
DC02S0515A		15	133		623				64
DC02D0505A		±5	±100		476			270*	42
DC02D0512A		±12	±83		699				57
DC02D0515A		±15	±66		695				57
DC02S1205A	12 (10.8 ~ 13.2)	5	400	0	269	50	8	680	62
DC02S1212A		12	165		262				63
DC02S1215A		15	133		260				64
DC02D1205A		±5	±100		185			270*	45
DC02D1212A		±12	±83		281				59
DC02D1215A		±15	±66		280				59
DC02S2405A	24 (21.6 ~ 26.4)	5	400	0	134	30	3	680	62
DC02S2412A		12	165		131				63
DC02S2415A		15	133		130				64
DC02D2405A		±5	±100		93			270*	45
DC02D2412A		±12	±83		143				58
DC02D2415A		±15	±66		142				58

* For each output

Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Voltage Range	5V Input Models	4.5	5	5.5	VDC
	12V Input Models	10.8	12	13.2	
	24V Input Models	21.6	24	26.4	
Input Surge Voltage (1 sec. max.)	5V Input Models	-0.7	---	7.5	
	12V Input Models	-0.7	---	15	
	24V Input Models	-0.7	---	30	
Reverse Polarity Input Current	All Models	---	---	0.5	A
Short Circuit Input Power		---	---	2000	mW
Internal Power Dissipation		---	---	2000	mW
Conducted EMI		Compliance to EN 55022,class A and FCC part 15,class A			

Output Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		---	±2.0	±4.0	%
Output Voltage Balance	Dual Output, Balanced Loads	---	±2.0	±4.0	%
Line Regulation	Vin=Min. to Max.	---	±0.3	±0.5	%
Load Regulation	Io=10% to 100%	---	±0.5	±1.0	%
Ripple & Noise (20MHz)		---	30	50	mV_{P-P}
Ripple & Noise (20MHz)	Over Line, Load & Temp.	---	---	100	mV_{P-P}
Ripple & Noise (20MHz)		---	---	15	mV rms
Temperature Coefficient		---	±0.01	±0.02	%/℃
Short Circuit Protection	Continuous				

General Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (rated)	60 Seconds	6000	---	---	VDC
I/O Isolation Test Voltage	Flash tested for 1 Second	8000	---	---	V_{PK}
Leakage Current	240VAC, 60Hz	---	---	2	uA
I/O Isolation Resistance	500 VDC	10	---	---	GΩ
I/O Isolation Capacitance	100KHz, 1V	---	20	30	pF
Switching Frequency		25	---	80	KHz
MTBF(calculated)	MIL-HDBK-217F@25℃, Ground Benign	600,000	---	---	Hours

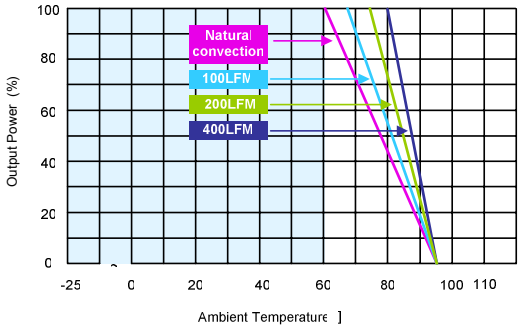
Recommended Input Fuse

5V Input Models	12V Input Models	24V Input Models
1000mA Slow-Blow Type	500mA Slow-Blow Type	250mA Slow-Blow Type

Environmental Characteristics

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature Range (with Derating)	Ambient	-25	+75	℃
Case Temperature		---	+90	℃
Storage Temperature Range		-50	+125	℃
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	℃

Power Derating Curve

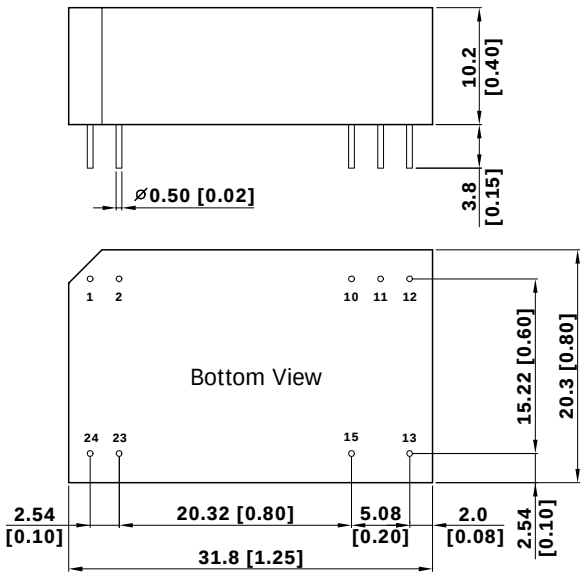


Notes

1 Specifications typical at Ta=+25℃, resistive load, nominal input voltage and rated output current unless otherwise noted.
2 Ripple & Noise measurement bandwidth is 0-20 MHz.
3 All DC/DC converters should be externally fused at the front end for protection.
4 Specifications subject to change without notice.

Mechanical Drawing

Mechanical Dimensions



Pin Connections

Pin	Single Output	Dual Output
1	+Vin	+Vin
2	+Vin	+Vin
10	No Pin	Common
11	No Pin	Common
12	-Vout	No Pin
13	+Vout	-Vout
15	No Pin	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

- All dimensions in mm (inches)
- Tolerance: X.X±0.25 (X.XX±0.01)
  X.XX±0.13 (X.XXX±0.005)
- Pin pitch tolerance: ±0.25 (0.01)

Physical Outline

Case Size	:	31.8x20.3x10.2mm (1.25x0.8x0.40 Inches)
Case Material	:	Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Weight	:	12.4g

Part Numbering System

D	C	02	S	05	05	A
Form factor	Family series	Watt	Number of Outputs	Input Voltage	Output Voltage	Option Code
D-DIP	A~Z	01:1W	S - Single	03:3.3V	03:3.3V	A - Std. Functions
P-SIP		02:2W	D- Dual	05: 5V	05: 5V	
S-SMD		03:3W		12:12V	12:12V	
		04:4W		24: 24V	15: 15V	
		06:6W		48:48V	24: 24V	

WARRANTY

Delta offers a three(3) years limited warranty. Complete warranty information is listed on our web site or is available upon request from Delta.

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