



FEATURES

- Efficiency up to 84%
- DIP Package with Industry Standard Pinout
- Ultra-wide 4:1 Input Range
- Isolation Voltage 1500VDC
- Operating Temperature Range -40°C to +85°C
- Complies with EN55022 Class A
- Short Circuit Protection
- CSA 60950-1 Safety Approval
- 3 Years Product Warranty



The DL03S/D series are miniature, DIP Package, isolated 3W DC/DC converters with 1,500VDC isolation. The DL03S/D series feature fully regulated output and ultra wide 4:1 input voltage ranges. It offers short circuit protection and allows a wide operating temperature range of -40°C to +85°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) VDC	Output Voltage VDC	Output Current		Input Current		Reflected Ripple Current mA(typ.)	Max. capacitive Load µF	Efficiency (typ.)
			Max. mA	Min. mA	@Max. Load mA(typ.)	@No Load mA(typ.)			@Max. Load %
DL03S2403A	24 (9 ~ 36)	3.3	750	93	138	20	15	680	75
DL03S2405A		5	600	75	158			470	79
DL03S2412A		12	250	32	154			330	81
DL03S2415A		15	200	25	152			220	82
DL03D2412A		±12	±125	±16	156			150*	80
DL03D2415A		±15	±100	±13	156			100*	80
DL03S4803A		48 (18 ~ 75)	3.3	750	93			68	10
DL03S4805A	5		600	75	78	470	80		
DL03S4812A	12		250	32	75	330	83		
DL03S4815A	15		200	25	74	220	84		
DL03D4812A	±12		±125	±16	76	150*	82		
DL03D4815A	±15		±100	±13	76	100*	82		

* For each output

Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Surge Voltage (1 sec. max.)	24V Input Models	-0.7	---	50	VDC
	48V Input Models	-0.7	---	100	
Start-Up Threshold Voltage	24V Input Models	6	7.5	9	
	48V Input Models	12	15	18	
Under Voltage Shutdown	24V Input Models	---	---	8.5	
	48V Input Models	---	---	16	
Reverse Polarity Input Current	All Models	---	---	0.5	A
Short Circuit Input Power		---	---	2000	mW
Internal Power Dissipation		---	---	2500	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 Setting Accuracy	At 50% Load and Nominal Vin	---	---	±2.0	%Vom.
Output Voltage Balance	Dual Output, Balanced Loads	---	±0.5	±3.0	%
Line Regulation	Vin=Min. to Max.	---	±0.2	±1.0	%
Load Regulation	Io=Min. to Max.	---	±0.3	±1.0	%
Ripple & Noise (20MHz)		---	40	75	mV _{P-P}
Transient Recovery Time	25% Load Step Change	---	150	500	μsec
Transient Response Deviation		---	±3	---	%
Temperature Coefficient		---	±0.01	±0.02	%/°C
Over Load Protection	Foldback	110	300	---	%
Short Circuit Protection		Continuous			

General Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (rated)	60 Seconds	1500	---	---	VDC
I/O Isolation Resistance	500 VDC	1000	---	---	MΩ
I/O Isolation Capacitance	100KHz, 1V	---	380	500	pF
Switching Frequency		---	350	---	KHz
MTBF (calculated)	MIL-HDBK-217F@25°C, Ground Benign	1,000,000	---	---	Hours
Safety Approvals	UL/cUL 60950-1 recognition(CSA certificate), IEC/EN 60950-1				

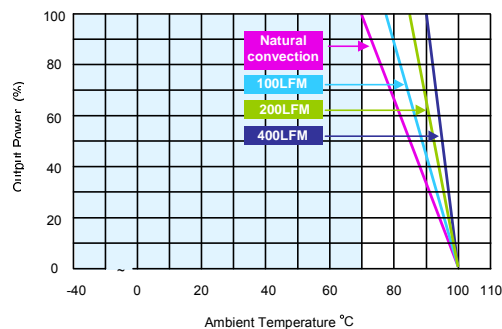
Recommended Input Fuse

24V Input Models	48V Input Models
1000mA Slow-Blow Type	500mA Slow-Blow Type

Environmental Characteristics

Parameter	Conditions	Min.	Max.	Unit
Operating Ambient Temperature Range (See Power Derating Curve)	Natural Convection	-40	+85	°C
Case Temperature		---	+90	°C
Storage Temperature Range		-50	+125	°C
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	°C

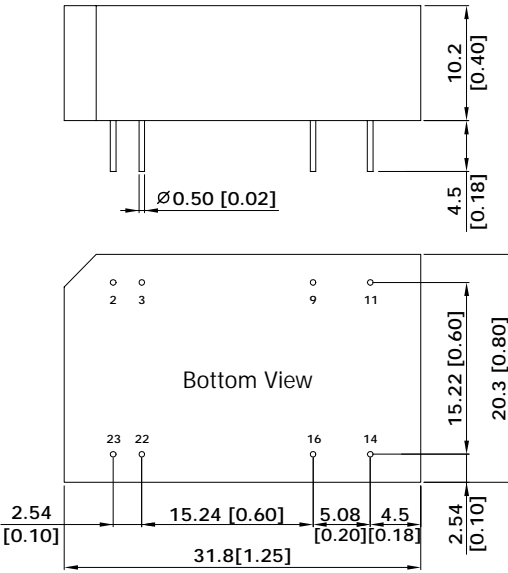
Power Derating Curve



Notes

- 1 Specifications typical at Ta=+25°C, resistive load, nominal input voltage and rated output current unless otherwise noted.
- 2 Transient recovery time is measured to within 1% error band for a step change in output load of 75% to 100%
- 3 Ripple & Noise measurement bandwidth is 0-20MHz.
- 4 These power converters require a minimum output loading to maintain specified regulation, operation under no-load conditions will not damage these modules; however they may not meet all specifications listed.
- 5 All DC/DC converters should be externally fused at the front end for protection.
- 6 That "natural convection" is about 20LFM but is not equal to still air (0 LFM).
- 7 Specifications subject to change without notice.

Package Specifications

Mechanical Dimensions	Pin Connections																											
 <p>The drawing shows two views of the module. The top view shows a rectangular component with a width of 31.8 mm [1.25 inches] and a height of 10.2 mm [0.40 inches]. It has four pins extending downwards, with a diameter of $\phi 0.50$ mm [0.02 inches]. The distance from the right edge to the center of the rightmost pin is 4.5 mm [0.18 inches]. The bottom view shows the same component from below, with a width of 31.8 mm [1.25 inches] and a height of 20.3 mm [0.80 inches]. The distance from the left edge to the center of the leftmost pin is 2.54 mm [0.10 inches]. The distance between the centers of the two leftmost pins is 15.24 mm [0.60 inches]. The distance between the centers of the two rightmost pins is 15.24 mm [0.60 inches]. The distance from the center of the leftmost pin to the center of the rightmost pin is 31.8 mm [1.25 inches]. The distance from the center of the leftmost pin to the center of the second pin from the left is 5.08 mm [0.20 inches]. The distance from the center of the second pin from the left to the center of the third pin from the left is 4.5 mm [0.18 inches]. The distance from the center of the third pin from the left to the center of the rightmost pin is 2.54 mm [0.10 inches]. The pins are numbered 2, 3, 9, 11, 14, 16, 22, and 23.</p>	<table border="1"> <thead> <tr> <th>Pin</th> <th>Single Output</th> <th>Dual Output</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>-Vin</td> <td>-Vin</td> </tr> <tr> <td>3</td> <td>-Vin</td> <td>-Vin</td> </tr> <tr> <td>9</td> <td>No Pin</td> <td>Common</td> </tr> <tr> <td>11</td> <td>NC</td> <td>-Vout</td> </tr> <tr> <td>14</td> <td>+Vout</td> <td>+Vout</td> </tr> <tr> <td>16</td> <td>-Vout</td> <td>Common</td> </tr> <tr> <td>22</td> <td>+Vin</td> <td>+Vin</td> </tr> <tr> <td>23</td> <td>+Vin</td> <td>+Vin</td> </tr> </tbody> </table> <p>NC: No Connection</p> <ul style="list-style-type: none"> ▶ All dimensions in mm (inches) ▶ Tolerance: X.X±0.25 (X.XX±0.01) X.XX±0.13 (X.XXX±0.005) ▶ Pin diameter $\Leftrightarrow 0.5 \pm 0.05$ (0.02±0.002) 	Pin	Single Output	Dual Output	2	-Vin	-Vin	3	-Vin	-Vin	9	No Pin	Common	11	NC	-Vout	14	+Vout	+Vout	16	-Vout	Common	22	+Vin	+Vin	23	+Vin	+Vin
Pin	Single Output	Dual Output																										
2	-Vin	-Vin																										
3	-Vin	-Vin																										
9	No Pin	Common																										
11	NC	-Vout																										
14	+Vout	+Vout																										
16	-Vout	Common																										
22	+Vin	+Vin																										
23	+Vin	+Vin																										

Physical Outline

Case Size : 31.8x20.3x10.2mm (1.25x0.80x0.40 inches)

Case Material : Non-Conductive Black Plastic (flammability to UL 94V-0 rated)

Pin Material : phosphor bronze

Weight : 12.2g



Part Numbering System						
D	L	03	S	24	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.

Information furnished by Delta is believed to be accurate and reliable. However, no responsibility is assumed by Delta for its use, nor for any infringements of patents or other rights of third parties, which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Delta. Delta reserves the right to revise these specifications at any time, without notice.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.