



3

YEARS
WARRANTY

ROHS
COMPLIANT

REACH
COMPLIANT



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



Medical



PV



Railway



1600
VDC
Isolation
Voltage

4 : 1
Wide
Input
Range

NO
Min. Load
Required

REMOTE
ON
OFF

SCP

UVP

PART NUMBER STRUCTURE

EDL02	-	48	S	05	W
Series Name		Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range
		12:4.5~18 24:9~36 48:18~75	S:Single	3P3:3.3 05:5 09:9 12:12 15:15 24:24	4 : 1
			D: Dual	05:±5 12:±12 15:±15	

TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25°C unless otherwise noted

Model Number	Input Range	Output Voltage	Output Current @ Full Load	Input Current @ No Load	Efficiency	Maximum Capacitor Load
	VDC	VDC	mA	mA	%	μF
EDL02-12S3P3W	4.5 ~ 18	3.3	500	30	75	3300
EDL02-12S05W	4.5 ~ 18	5	400	30	80	1680
EDL02-12S09W	4.5 ~ 18	9	222	35	81	1000
EDL02-12S12W	4.5 ~ 18	12	167	35	81	820
EDL02-12S15W	4.5 ~ 18	15	134	40	82	680
EDL02-12S24W	4.5 ~ 18	24	83	40	82	220
EDL02-12D05W	4.5 ~ 18	±5	±200	35	80	±1000
EDL02-12D12W	4.5 ~ 18	±12	±83	40	82	±470
EDL02-12D15W	4.5 ~ 18	±15	±67	45	81	±330
EDL02-24S3P3W	9 ~ 36	3.3	500	20	76	3300
EDL02-24S05W	9 ~ 36	5	400	20	80	1680
EDL02-24S09W	9 ~ 36	9	222	20	80	1000
EDL02-24S12W	9 ~ 36	12	167	20	82	820
EDL02-24S15W	9 ~ 36	15	134	20	82	680
EDL02-24S24W	9 ~ 36	24	83	20	82	220
EDL02-24D05W	9 ~ 36	±5	±200	20	79	±1000
EDL02-24D12W	9 ~ 36	±12	±83	20	82	±470
EDL02-24D15W	9 ~ 36	±15	±67	20	80	±330
EDL02-48S3P3W	18 ~ 75	3.3	500	10	74	3300
EDL02-48S05W	18 ~ 75	5	400	10	79	1680
EDL02-48S09W	18 ~ 75	9	222	10	81	1000
EDL02-48S12W	18 ~ 75	12	167	10	82	820
EDL02-48S15W	18 ~ 75	15	134	10	81	680
EDL02-48S24W	18 ~ 75	24	83	10	81	220
EDL02-48D05W	18 ~ 75	±5	±200	10	79	±1000
EDL02-48D12W	18 ~ 75	±12	±83	10	81	±470
EDL02-48D15W	18 ~ 75	±15	±67	10	81	±330

INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	12Vin(nom)	4.5	12	18	VDC
	24Vin(nom)	9	24	36	
	48Vin(nom)	18	48	75	
Start up voltage	12Vin(nom)			4.5	VDC
	24Vin(nom)			9	
	48Vin(nom)			18	
Shutdown voltage	12Vin(nom)	2	3	4	VDC
	24Vin(nom)	6	7	8	
	48Vin(nom)	13	15	17	
Start up time	Constant resistive load		10	20	ms
	Power up		10	20	
	Remote ON/OFF				
Input surge voltage	1 second, max.			25	VDC
	12Vin(nom)			50	
	24Vin(nom)			100	
Input filter					Capacitor type
Remote ON/OFF	DC-DC ON		Open or high impedance		
	Ctrl pin applied current via 1k Ω	2	3	4	mA
	DC-DC OFF		2.5		mA
	Remote off input current				
Application circuit					
DC-DC ON					
DC-DC OFF					



OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Voltage accuracy		-1.0		+1.0	%
Line regulation	Low Line to High Line at Full Load	-0.2		+0.2	%
Load regulation	No Load to Full Load	-1.0		+1.0	%
	Single	-1.0		+1.0	
	Dual	-0.5		+0.5	
	10% Load to 90% Load	-0.8		+0.8	
Cross regulation	Asymmetrical load 25%/100% FL	-5.0		+5.0	%
Ripple and noise	Measured by 20MHz bandwidth		75		mVp-p
Temperature coefficient		-0.02		+0.02	%/°C
Transient response recovery time	25% load step change		500		μs
Over current protection		130	170	230	%
Short circuit protection					Continuous, automatic recovery

GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	1 minute Input to Output	1600			VDC
Isolation resistance	500VDC	1			G Ω
Isolation capacitance				50	pF
Switching frequency	Full load to minimum load	100			kHz
Safety meets					IEC/ EN/ UL 62368-1
Case material					Non-conductive black plastic
Potting material					Silicone (UL94 V-0)
Weight				4.5g (0.16oz)	
MTBF	MIL-HDBK-217F			6.621 x 10 ⁶ hrs	

ENVIRONMENTAL SPECIFICATIONS

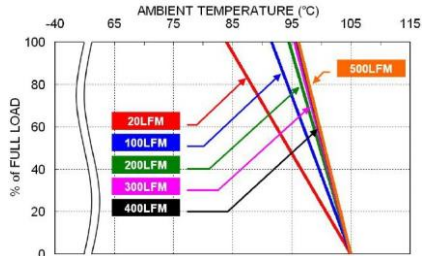
Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	With derating	-40		+105	°C
Maximum case temperature				105	°C
Storage temperature range		-55		+125	°C
Thermal shock				MIL-STD-810F	
Vibration				MIL-STD-810F	
Relative humidity				5% to 95% RH	

EMC SPECIFICATIONS

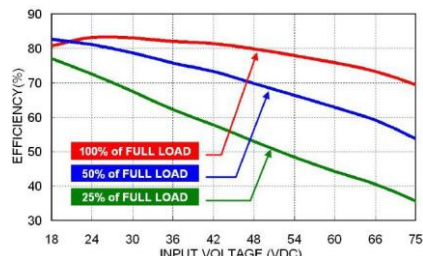
Parameter	Conditions	Level
EMI	EN55032	Class A , Class B
EMS	EN55024	
ESD	EN61000-4-2	Air ± 8kV and Contact ± 6kV
Radiated immunity	EN61000-4-3	10 V/m
Fast transient	EN61000-4-4	±2kV
Surge	EN61000-4-5	With an external input filter capacitor (Nippon chemi-con KY series, 220µF/100V) ±1kV
Conducted immunity	EN61000-4-6	10 Vr.m.s
Power frequency magnetic field	EN61000-4-8	100A/m continuous; 1000A/m 1 second

CAUTION: This power module is not internally fused. An input line fuse must always be used.

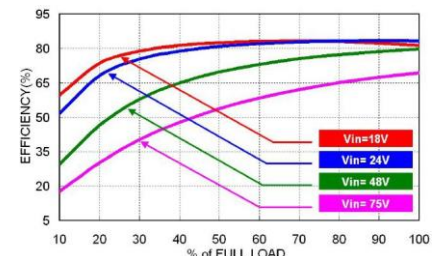
CHARACTERISTIC CURVE



EDL02-48S05W Derating Curve



EDL02-48S05W Efficiency vs. Input Voltage



EDL02-48S05W Efficiency vs. Output Load

FUSE CONSIDERATION

This power module is not internally fused. An input line fuse must always be used.

This encapsulated power module can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of sophisticated power architecture.

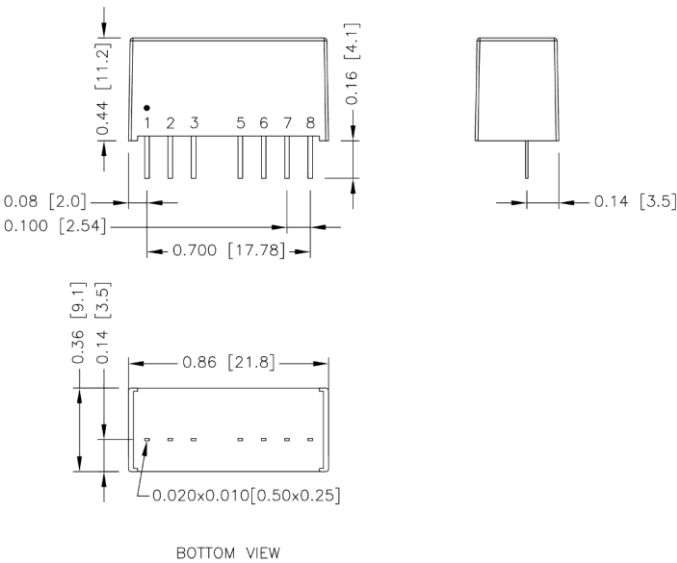
To maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse.

The input line fuse suggest as below :

Model	Fuse Rating (A)	Fuse Type
EDL02-12S□□W, EDL02-12D□□W	1	Slow-Blow
EDL02-24S□□W, EDL02-24D□□W	0.5	Slow-Blow
EDL02-48S□□W, EDL02-48D□□W	0.315	Slow-Blow

The table based on the information provided in this data sheet on inrush energy and maximum DC input current at low Vin..

MECHANICAL DRAWING

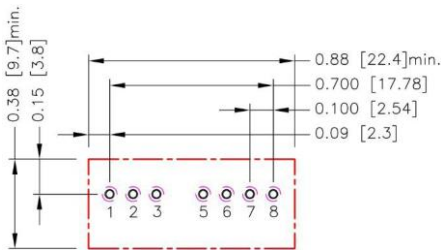


PIN CONNECTION

PIN	SINGLE	DUAL
1	-Vin	-Vin
2	+Vin	+Vin
3	Ctrl	Ctrl
5	NC	NC
6	+Vout	+Vout
7	-Vout	Common
8	NC	-Vout

1. All dimensions in inch [mm]
2. Tolerance :x.xx±0.02 [x.x±0.5]
x.xxx±0.010 [x.xx±0.25]
3. Pin dimension tolerance ±0.004 [0.10]

RECOMMENDED PAD LAYOUT

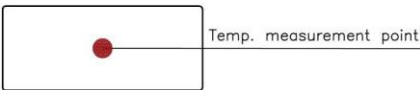


- All dimensions in inch(mm)
- Pad size(lead free recommended)
- Through hole 1.2.3.5.6.7.8: Ø0.031[0.80]
- Top view pad 1.2.3.5.6.7.8: Ø0.039[1.00]
- Bottom view pad 1.2.3.5.6.7.8: Ø0.063[1.60]

THERMAL CONSIDERATIONS

The power module operates in a variety of thermal environments. However, sufficient cooling should be provided to help ensure reliable operation of the unit. Heat is removed by conduction, convection, and radiation to the surrounding environment. Proper cooling can be verified by measuring the point as the figure below. The temperature at this location should not exceed "Maximum case temperature". When operating, adequate cooling must be provided to maintain the test point temperature at or below "Maximum case temperature". You can limit this temperature to a lower value for extremely high reliability.

- Thermal test condition with vertical direction by natural convection (20LFM).



TOP VIEW