

DC/DC Wide Input Converter ECW 20 Series



- * I/O isolation of 1500 VDC
- * Pi-filter at input
- * Continuous short circuit proof
- * Efficiency up to 90%
- * Low output ripple and noise
- * Low silhouette
- * Metal case with a non conductive base plate
- * EMC: six-sides shielded
- * Remote on/off control
- * External output voltage adjust
- * Alternate pinnings, ask factory
- * UL60950-1, registered



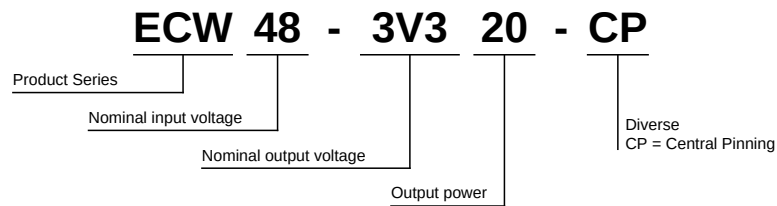
Product Range

Model	Input nominal	Input range	Iin @ Uin nom.		Uout	Output Iout max.	power	Efficiency typ.	Max. capacity
			full load	no load					
Single									
ECW24-1V820	24Vdc	18...36Vdc	0.523A	30mA	1.8Vdc	6.0A	10.8W	86%	6'000uF
ECW24-2V520	24Vdc	18...36Vdc	0.710A	30mA	2.5Vdc	6.0A	15W	88%	6'000uF
ECW24-3V320	24Vdc	18...36Vdc	0.764A	40mA	3.3Vdc	5.0A	16.5W	90%	5'000uF
ECW24-5V120	24Vdc	18...36Vdc	0.926A	60mA	5.1Vdc	4.0A	20.4W	90%	4'000uF
ECW24-1220	24Vdc	18...36Vdc	0.928A	20mA	12Vdc	1.67A	20W	90%	2'000uF
ECW24-1520	24Vdc	18...36Vdc	0.924A	20mA	15Vdc	1.33A	20W	90%	2'000uF
ECW48-1V820	48Vdc	36...72Vdc	0.262A	30mA	1.8Vdc	6.0A	10.8W	86%	6'000uF
ECW48-2V520	48Vdc	36...72Vdc	0.359A	30mA	2.5Vdc	6.0A	15W	87%	6'000uF
ECW48-3V320	48Vdc	36...72Vdc	0.386A	30mA	3.3Vdc	5.0A	16.5W	89%	5'000uF
ECW48-5V120	48Vdc	36...72Vdc	0.463A	40mA	5.1Vdc	4.0A	20.4W	90%	4'000uF
ECW48-1220	48Vdc	36...72Vdc	0.469A	15mA	12Vdc	1.67A	20W	89%	2'000uF
ECW48-1520	48Vdc	36...72Vdc	0.472A	15mA	15Vdc	1.33A	20W	88%	2'000uF

Dual

ECW12-121220-CP	12Vdc	9...18Vdc	1.856A	40mA	+12Vdc -12Vdc	+0.835A -0.835A	10W 10W	90%	1'000 uF 1'000 uF
ECW12-151520-CP	12Vdc	9...18Vdc	1.861A	40mA	+15Vdc -15Vdc	+0.67A -0.67A	10W 10W	90%	800uF 800uF
ECW24-121220-CP	24Vdc	18...36Vdc	0.928A	20mA	+12Vdc -12Vdc	+0.835A -0.835A	10W 10W	90%	1'000 uF 1'000 uF
ECW24-151520-CP	24Vdc	18...36Vdc	0.930A	20mA	+15Vdc -15Vdc	+0.67A -0.67A	10W 10W	90%	800uF 800uF
ECW48-121220-CP	48Vdc	36...72Vdc	0.464A	10mA	+12Vdc -12Vdc	+0.835A -0.835A	10W 10W	90%	1'000 uF 1'000 uF
ECW48-151520-CP	48Vdc	36...72Vdc	0.471A	10mA	+15Vdc -15Vdc	+0.67A -0.67A	10W 10W	89%	800uF 800uF

Nomenclature



Specifications

All values refer to an ambient temperature of 25°C and nominal rated values where nothing else is specified.

Input Specifications

Characteristic	Conditions	min	typ	max	unit
U_{IN} Input voltage		See	product	range	Vdc
U_{UVLO} Under voltage lockout			-		Vdc
Max. input current at full load		See	product	range	A
No load input current		See	product	range	mA
Inrush current			-		A ² s
Input surge voltage			-		Vdc

Output Specifications

Characteristic	Conditions	min	typ	max	unit
U_{ACC} Output voltage accuracy	$T_A < T_{MAX}$		±1.5		%
Output voltage adjust		single: ±10			%
Line regulation		single: ±0.2, dual: ±0.5			%
Load regulation				±1	%
Cross regulation			-		%
Load transient recovery time			< 500		us
Load transient error band	75% / 100% step load change		±5		%
Temperature coefficient			±0.03		%/K
Ramp up time			-		ms
Start up time		12/15V: 22ms, others: 5ms			ms
Ripple and noise	BW = 20MHz	75			mVpp
Current limit			-		% Inom

	Over voltage protection			-		% Unom
	Short circuit protection			-		% Inom
	Short circuit characteristic		continuous			

General Specifications

Characteristic		Conditions	min	typ	max	unit
U _{ISO}	Isolation voltage		I/O 1500			Vdc
R _{ISO}	Isolation resistance		>100M			Ohm
C _{ISO}	Isolation capacity		1000			pF
F _{SW}	Switching frequency		350			kHz
	Approvals					
	Safety Approvals		UL60950-1			
	MTBF		S: 900k, D:740k			h
	Case material		Copper, black coated			
	Compound material		UL 94V-0			
	PCB material					
	Weight		35			gr
	Dimensions		50.8 x 25.4 x 10.2			mm
	Soldering infos		275°C for 10			s

EMC Specifications

Characteristic		Conditions	
	EMC conducted	See EMC information	EN55022/11 Class A

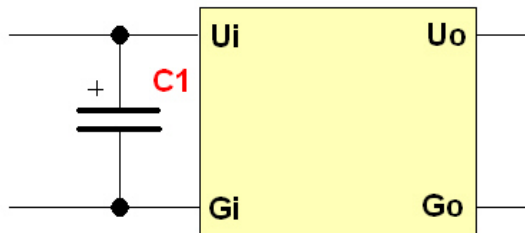
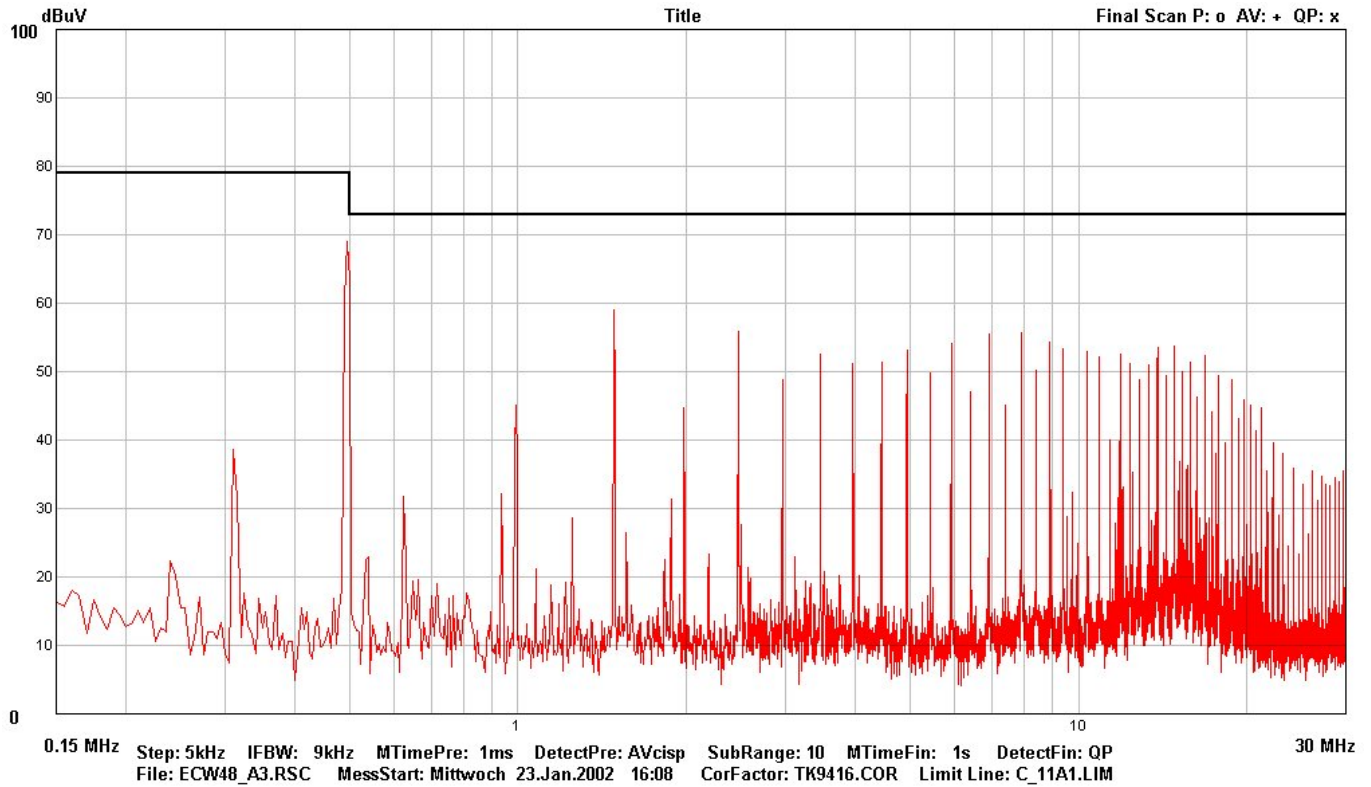
Environmental Specifications

Characteristic		Conditions	min	typ	max	unit
T _{AMB}	Operation temperature	Derating above 71°C	-40...+85			°C
T _{AMB}	Storage temperature		-55...+125			°C
T _{SD}	Thermal shutdown range		-			°C

Own notes

EMC information

EMC emissions conducted, EN55022/11 Class A, Example:



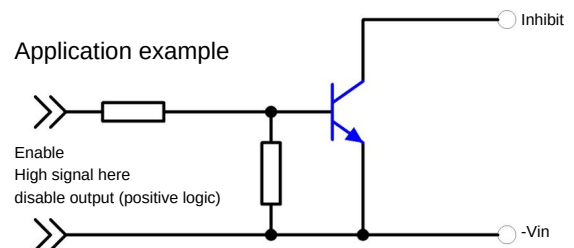
This was achieved with the following filter:
C1 = 100uF / 100V

Inhibit

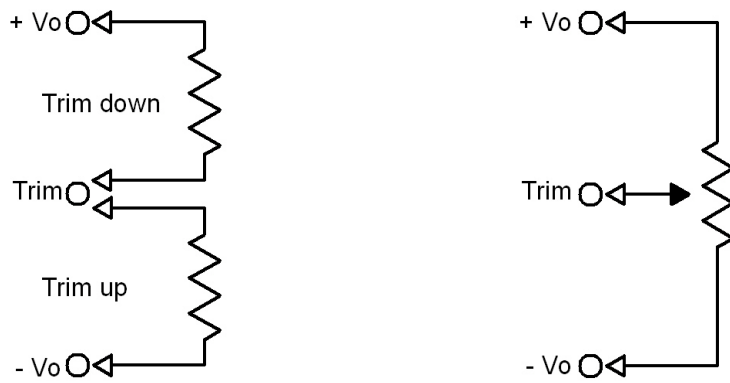
The ECW 20 Series allows the user to switch the module on and off electronically by inhibit on/off feature.

Logic table (inhibit pin)

Logic state	Positive logic
Logic low	Module off
Logic high	Module on

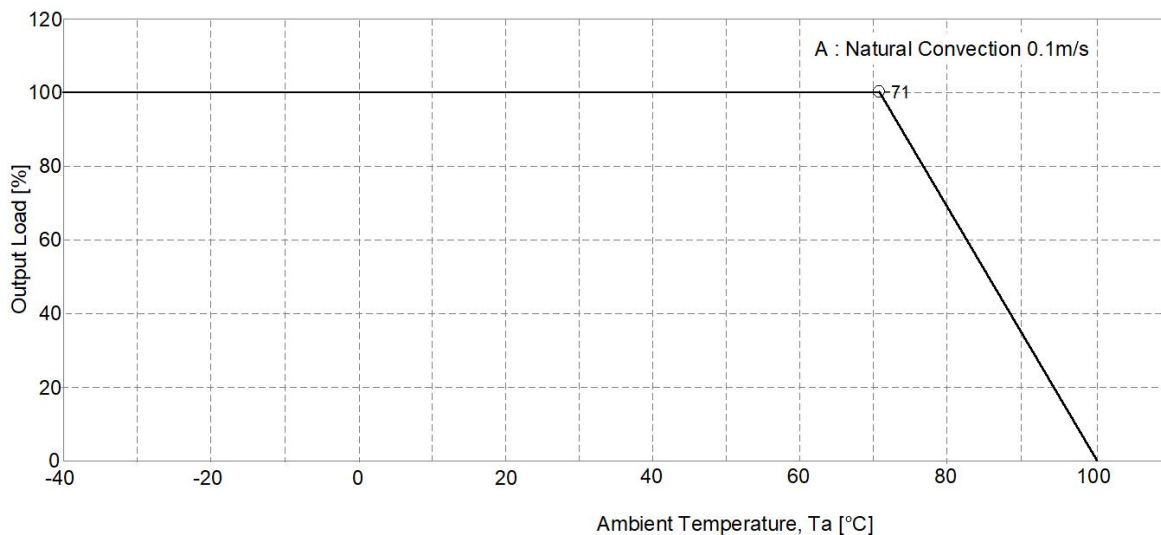


Trimming



Derating

The operating case temperature range of ECW 20 series is $-40...+85^{\circ}\text{C}$. When operating the ECW 20 series, proper derating or cooling is needed. The following curves are the derating curves of ECW 20. Please note that these are relative values in a test environment. Ambient temperature can not be exactly defined in an application, only the case temperature. Please ask the factory for a suitable heat sink.



Own notes

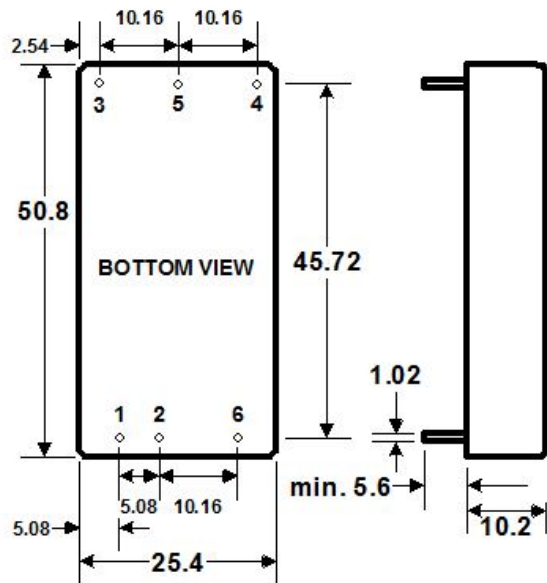
Case

Normal tolerance $1/10 \pm 0.5$ mm, $1/100 \pm 0.25$ mm; Pin tolerance ± 0.05 mm diameter

NP = No pin, NC = Not connected, NA = Not available for electrical contact, do not connect, (opt) = optional

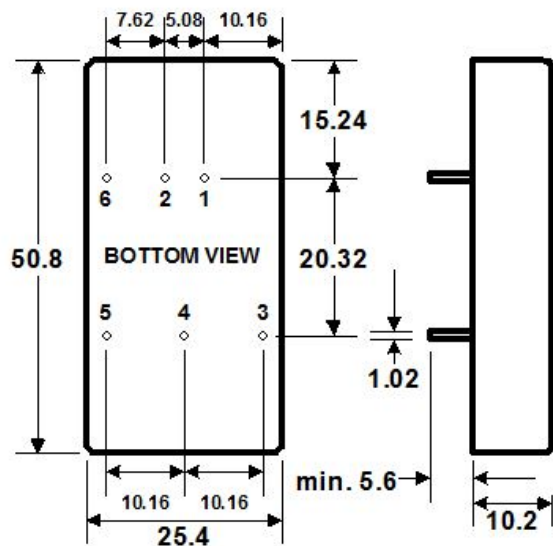
Pin Configuration

Standard Pinning:



Pin	Single	Dual	Pin
1	+Vin	+Vin	1
2	-Vin	-Vin	2
3	+Vout	+Vout	3
4	Trim	Common	4
5	-Vout	-Vout	5
6	on/off	on/off	6

Alternate Pinning: -CP



Cleaning

The modules are cleanable with the today's known and in the electronics industry usually used products. Due to the different cleaning processes and new available products, we highly recommend to do a compatibility test when using the converters the first time.

Own notes

Notice: All statements, technical information, and recommendations related to FABRIMEX's products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use.

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The logo for EXISTA, featuring the word "EXISTA" in a bold, sans-serif font. The letters "E", "X", "I", and "S" are dark blue, while the letters "T" and "A" are a lighter, teal blue.