

DC/DC Wide Input Converter ECW 05 Series



- * I/O isolation of 500, 1500 or 3000 Vdc (4000Vdc on request)
- * Pi-filter at input
- * Continuous short circuit proof
- * Efficiency up to 84%
- * No derating up to 71°C
- * Inhibit as option
- * Metal case with non conductive base plate, or non conductive plastic case
- * SMD mounting available
- * UL60950-1 recognized, H and V Versions only
- * Safety meets IEC/EN/UL 62368-1



Product Range

Model	Input nominal	Input range	I _{in} @ U _{in} nom. full load	I _{in} @ U _{in} nom. no load	U _{out}	Output I _{out} max.	Output power	Efficiency typ.	Max. capacity
Single									
ECW12-0305S(x)(y)-(z)	12Vdc	9...18Vdc	382mA	7.5mA	3.3Vdc	1000mA	3.3W	72%	4'700uF
ECW12-0505S(x)(y)-(z)	12Vdc	9...18Vdc	541mA	7.5mA	5.0Vdc	1000mA	5W	77%	4'700uF
ECW12-1206S(x)(y)-(z)	12Vdc	9...18Vdc	573mA	7.5mA	12.0Vdc	470mA	5.6W	82%	4'700uF
ECW12-1506S(x)(y)-(z)	12Vdc	9...18Vdc	625mA	7.5mA	15.0Vdc	400mA	5.6W	80%	4'700uF
ECW24-0305S(x)(y)-(z)	24Vdc	18...36Vdc	186mA	5mA	3.3Vdc	1000mA	3.3W	74%	4'700uF
ECW24-0505S(x)(y)-(z)	24Vdc	18...36Vdc	260mA	5mA	5.0Vdc	1000 mA	5W	80%	4'700uF
ECW24-1206S(x)(y)-(z)	24Vdc	18...36Vdc	280mA	5mA	12.0Vdc	470mA	5.6W	84%	4'700uF
ECW24-1506S(x)(y)-(z)	24Vdc	18...36Vdc	298mA	5mA	15.0Vdc	400mA	5.6W	87%	4'700uF
ECW48-0305S(x)(y)-(z)	48Vdc	36...72Vdc	93mA	2mA	3.3Vdc	1000mA	3.3W	74%	4'700uF
ECW48-0505S(x)(y)-(z)	48Vdc	36...72Vdc	132mA	2mA	5.0Vdc	1000mA	5W	79%	4'700uF
ECW48-1206S(x)(y)-(z)	48Vdc	36...72Vdc	142mA	2mA	12.0Vdc	470mA	5.6W	83%	4'700uF
ECW48-1506S(x)(y)-(z)	48Vdc	36...72Vdc	154mA	2mA	15.0Vdc	400 mA	5.6W	81%	4'700uF

Dual

ECW12-0505D(x)(y)-(z)	12Vdc	9...18Vdc	541mA	12mA	+5.0Vdc -5.0Vdc	+500mA -500mA	2.5W 2.5W	77%	2'200uF 2'200uF
ECW12-1206D(x)(y)-(z)	12Vdc	9...18Vdc	554mA	12mA	+12.0Vdc -12.0Vdc	+230mA -230mA	2.8W 2.8W	83%	2'200uF 2'200uF
ECW12-1506D(x)(y)-(z)	12Vdc	9...18Vdc	556mA	12mA	+15.0Vdc -15.0Vdc	+190mA -190mA	2.8W 2.8W	81%	2'200uF 2'200uF
ECW24-0505D(x)(y)-(z)	24Vdc	18...36Vdc	260mA	7.5mA	+5.0Vdc -5.0Vdc	+500mA -500mA	2.5W 2.5W	80%	2'200uF 2'200uF
ECW24-1206D(x)(y)-(z)	24Vdc	18...36Vdc	280mA	7.5mA	+12.0Vdc -12.0Vdc	+230mA -230mA	2.8W 2.8W	82%	2'200uF 2'200uF
ECW24-1506D(x)(y)-(z)	24Vdc	18...36Vdc	293mA	7.5mA	+15.0Vdc -15.0Vdc	+190mA -190mA	2.8W 2.8W	81%	2'200uF 2'200uF
ECW48-0505D(x)(y)-(z)	48Vdc	36...72Vdc	130mA	3mA	+5.0Vdc -5.0Vdc	+500mA -500mA	2.5W 2.5W	80%	2'200uF 2'200uF
ECW48-1206D(x)(y)-(z)	48Vdc	36...72Vdc	142mA	3mA	+12.0Vdc -12.0Vdc	+230mA -230mA	2.8W 2.8W	81%	2'200uF 2'200uF
ECW48-1506D(x)(y)-(z)	48Vdc	36...72Vdc	147mA	3mA	+15.0Vdc -15.0Vdc	+190mA -190mA	2.8W 2.8W	81%	2'200uF 2'200uF

Notes:

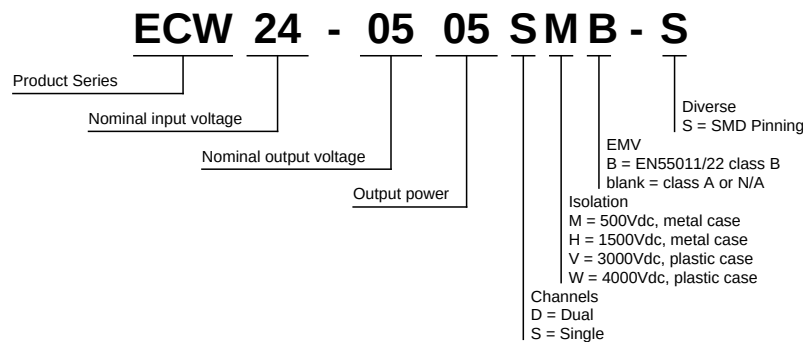
(x) can be M, H, V or blank.

(y) can be B or BT (please see separate datasheet) or blank.

(z) can be S (please see separate datasheet) or blank.

Maximum case temperature should not exceeded 100°C under any operating condition (plastic case 95°C)

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				0.01	A ² s
Input surge voltage					Vdc

Output Specifications

Characteristic		Conditions	min	typ	max	unit
U_{ACC}	Output voltage accuracy				± 2	%
	Output voltage adjust					%
	Line regulation	Measured from high to low			± 0.5	%
	Load regulation	Single / Dual				%
	Cross regulation					%
	Load transient recovery time					us
	Load transient error band					%
	Temperature coefficient			± 0.05		%/K
	Ramp up time			3		ms
	Start up time			6	10	ms
	Ripple and noise	BW = 20MHz	3.3V/5V: 100, 12V/15V: 1%			mVpp
	Current limit			120		% I_{nom}
	Over voltage protection					% U_{nom}
	Short circuit protection					% I_{nom}
	Short circuit characteristic		continuous			

General Specifications

Characteristic		Conditions	min	typ	max	unit
U_{ISO}	Isolation voltage		500, 1500, 3000, (4000Vdc on request)			Vdc
R_{ISO}	Isolation resistance		> 1G			Ohm
C_{ISO}	Isolation capacity		50			pF
F_{SW}	Switching frequency		100			kHz
	Approvals					
	Safety Approvals		UL60950-1 recognized, H and V versions			
	MTBF	MIL-STD-217-F, GB, 25°C	>2'000'000			h
	Case material		Black Coated Copper or Plastic			
	Compound material		UL94V-0			
	PCB material		UL94V-0			
	Weight		12.5			gr
	Dimensions		31.8 x 20.3 x 10.2 (SMD 11.4)			mm
	Soldering infos		275°C for 10			s

EMC Specifications

Characteristic		Conditions	
	EMC conducted	With external filter	EN55022 A/B

Environmental Specifications

Characteristic		Conditions	min	typ	max	unit
T _{AMB}	Operation temperature	Derating above 71°C	-40...+85			°C
T _{AMB}	Storage temperature		-40...+100			°C
T _{SD}	Thermal shutdown range					°C

Own notes

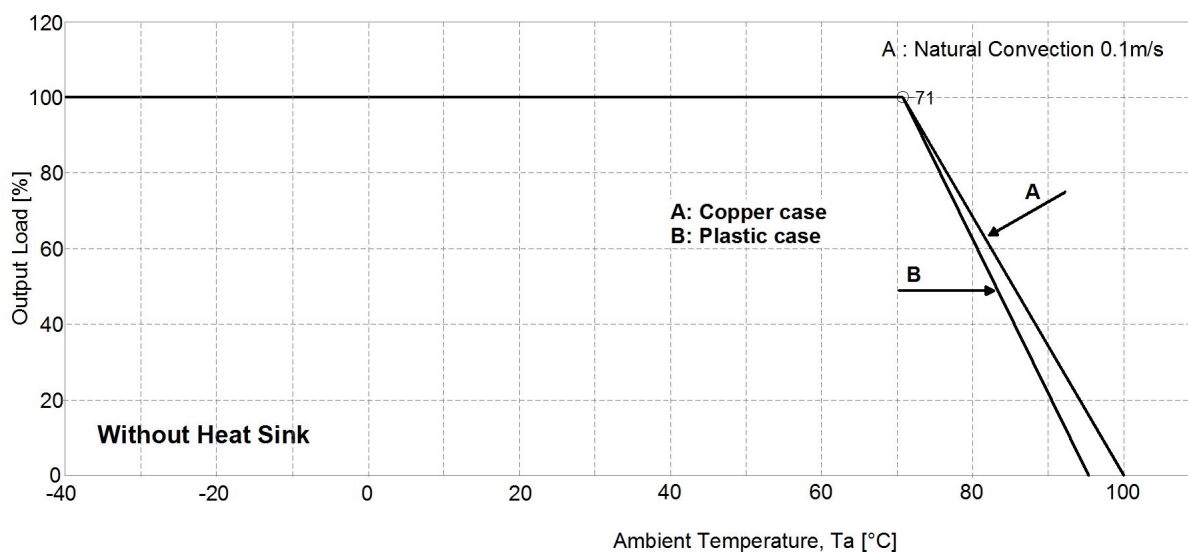
EMC information

No EMC graph available yet, please contact factory

No EMC filter available yet, please contact factory

Derating

The operating case temperature range of ECW 05 series is -40...+85°C. When operating the ECW 05 series, proper derating or cooling is needed. The following curves are the derating curves of ECW 05. 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

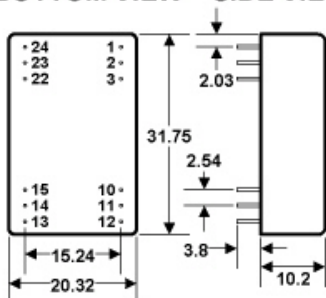
Case

Normal tolerance 1/10 ± 0.5 mm, 1/100 ± 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

500V THD

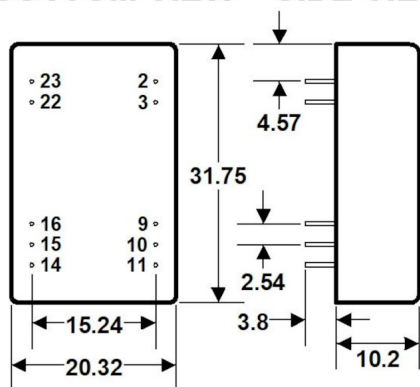
BOTTOM VIEW SIDE VIEW



Pin	Single	Dual	Pin
1	+Vi	+Vi	1
2	NC	-Vo	2
3	NC	Go	3
10	Go	Go	10
11	+Vo	+Vo	11
12	Gi	Gi	12
13	Gi	Gi	13
14	+Vo	+Vo	14
15	Go	Go	15
22	NC	Go	22
23	NC	-Vo	23
24	+Vi	+Vi	24

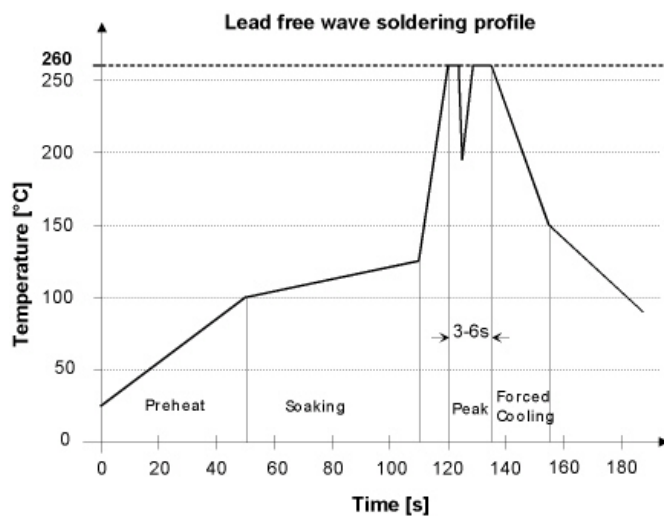
1k5, 3kV: A4 / A5 10.2mm

BOTTOM VIEW SIDE VIEW



Pin	Single	Dual	Pin
2	Gi	Gi	2
3	Gi	Gi	3
9	NC	Go	9
10	NC	NC	10
11	NC	-Vo	11
14	+Vo	+Vo	14
15	NC	NC	15
16	Go	Go	16
22	+Vi	+Vi	22
23	+Vi	+Vi	23

Soldering



1. Soldering Materials: Sn/Cu/Ni
2. Preheat: 1.4 °C/s (From 30°C to 100°C)
3. Soaking: 0.5 °C/s (From 100°C to 130°C), 60 $\pm$ 20s
4. Peak temperature: 260°C, above 250°C 3~6s
5. Forced cooling: -10.0 °C/s (From 260°C to 150°C)

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 "E" is dark blue, and the "XISTA" part is a lighter blue/cyan color.