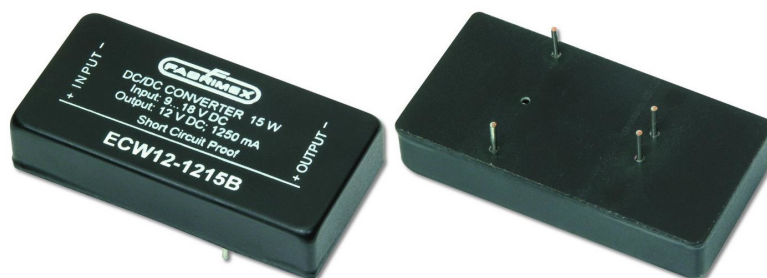


DC/DC Wide Input Converter ECW 15B Series



- * I/O isolation of 500 VDC
- * Pi-filter at input
- * Continuous short circuit proof
- * No derating up to 70°C
- * Low output ripple and noise
- * Low silhouette
- * Metal case with non conductive base plate, six sides shielded
- * SMD technology

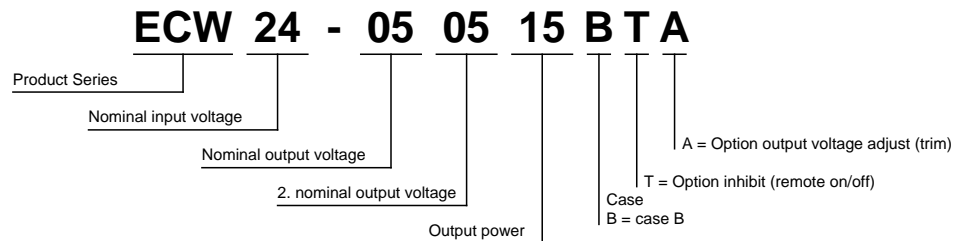
Product Range

| Model | Input | | I _{in} @ U _{in} nom. | | Output | | Efficiency typ. | Max. capacity | |
|---------------|---------|------------|--|---------|------------------|-----------------------|--------------------|------------------|---------|
| | nominal | range | full load | no load | U _{out} | I _{out} max. | | | |
| Single | | | | | | | | | |
| ECW12-0315B | 12Vdc | 9...18Vdc | 1.086A | 20mA | 3.3Vdc | 3.0A | 10W | 76% | 3'000uF |
| ECW12-0515B | 12Vdc | 9...18Vdc | 1.650A | 20mA | 5.1Vdc | 3.0A | 15W | 78% | 3'000uF |
| ECW12-1215B | 12Vdc | 9...18Vdc | 1.570A | 20mA | 12Vdc | 1.25A | 15W | 82% | 1'250uF |
| ECW12-1515B | 12Vdc | 9...18Vdc | 1.570A | 20mA | 15Vdc | 1.0A | 15W | 82% | 1'000uF |
| ECW24-0315B | 24Vdc | 18...36Vdc | 0.543A | 20mA | 3.3Vdc | 3.0A | 10W | 76% | 3'000uF |
| ECW24-0515B | 24Vdc | 18...36Vdc | 0.800A | 20mA | 5.1Vdc | 3.0A | 15W | 80% | 3'000uF |
| ECW24-1215B | 24Vdc | 18...36Vdc | 0.780A | 20mA | 12Vdc | 1.25A | 15W | 82% | 1'250uF |
| ECW24-1515B | 24Vdc | 18...36Vdc | 0.780A | 20mA | 15Vdc | 1.0A | 15W | 82% | 1'000uF |
| ECW48-0315B | 48Vdc | 36...72Vdc | 0.272A | 15mA | 3.3Vdc | 3.0A | 10W | 76% | 3'000uF |
| ECW48-0515B | 48Vdc | 36...72Vdc | 0.390A | 15mA | 5.1Vdc | 3.0A | 15W | 80% | 3'000uF |
| ECW48-1215B | 48Vdc | 36...72Vdc | 0.380A | 15mA | 12Vdc | 1.25A | 15W | 83% | 1'250uF |
| ECW48-1515B | 48Vd | 36...72Vdc | 0.380A | 15mA | 15Vdc | 1.0A | 15W | 83% | 1'000uF |

Dual

| | | | | | | | | | |
|---------------|-------|------------|--------|------|--------------------|--------------------|--------------|-----|--------------------|
| ECW12-050515B | 12Vdc | 9...18Vdc | 1.570A | 30mA | +5.1Vdc -5.1Vdc | +1.5A -1.5A | 7.5W 7.5W | 80% | 1'500uF 1'500uF |
| ECW12-121215B | 12Vdc | 9...18Vdc | 1.570A | 30mA | -12Vdc -12Vdc | +0.625A -0.625A | 7.5W 7.5W | 83% | 625uF 625uF |
| ECW12-151515B | 12Vdc | 9...18Vdc | 1.570A | 30mA | +15Vdc -15Vdc | +0.5A -0.5A | 7.5W 7.5W | 83% | 500uF 500uF |
| ECW24-050515B | 24Vdc | 18...36Vdc | 0.780A | 25mA | +5.1Vdc -5.1Vdc | +1.5A -1.5A | 7.5W 7.5W | 81% | 1'500uF 1'500uF |
| ECW24-121215B | 24Vdc | 18...36Vdc | 0.780A | 25mA | +12Vdc -12Vdc | +0.625A -0.625A | 7.5W 7.5W | 83% | 625uF 625uF |
| ECW24-151515B | 24Vdc | 18...36Vdc | 0.780A | 25mA | +15Vdc -15Vdc | +0.5A -0.5A | 7.5W 7.5W | 83% | 500uF 500uF |
| ECW48-050515B | 48Vdc | 36...72Vdc | 0.380A | 20mA | +5.1Vdc -5.1Vdc | +1.5A -1.5A | 7.5W 7.5W | 83% | 1'500uF 1'500uF |
| ECW48-121215B | 48Vdc | 36...72Vdc | 0.380A | 20mA | +12Vdc -12Vdc | +0.625A -0.625A | 7.5W 7.5W | 83% | 625uF 625uF |
| ECW48-151515B | 48Vdc | 36...72Vdc | 0.380A | 20mA | +15Vdc -15Vdc | +0.5A -0.5A | 7.5W 7.5W | 83% | 500uF 500uF |

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 | V |
| U_{UVLO} Under voltage lockout | | | | | V |
| Max. input current at full load | | See | product | range | A |
| No load input current | | See | product | range | mA |

Output Specifications

| Characteristic | Conditions | min | typ | max | unit |
|-----------------------------------|-----------------------------|-----|-------------|-----|------|
| U_{ACC} Output voltage accuracy | | | ±1 | | % |
| Output voltage adjust | | | single: ±10 | | % |
| Line regulation | | | ±0.2 | | % |
| Load regulation | 25% / 100% step load change | | ±1 | | % |
| Load transient recovery time | 25% / 100% step load change | | <500 | | us |
| Load transient error band | | | ±1 | | % |
| Temperature coefficient | | | ±0.02 | | %/K |
| Ramp up time | | | | | ms |
| Start up time | | | | | 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 | | | 500 | | Vdc |
| R_{ISO} | Isolation resistance | | | > 1G | | Ohm |
| F_{SW} | Switching frequency | | | 300 | | kHz |
| | Approvals | | | | | |
| | Safety Approvals | | | | | |
| | MTBF | | | >1'500'000 | | h |
| | Case material | | | Copper, black coated | | |
| | Compound material | | | | | |
| | PCB material | | | | | |
| | Weight | | | 32 | | 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 | | | -25...+71 | | °C |
| T_{AMB} | Storage temperature | | | -40...+100 | | °C |
| T_{SD} | Thermal shutdown range | | | | | °C |

Own notes

EMC information

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

Electro-Metrics

EMV Messung

Date : 10/18/99 Time : 09:40:14.57
Technician : U. Luessi Test Equip. : EMC-30 MKIV
Test Method : CONDUCTED EMISSION Test Number : 1
Equipment : ECW24-0515B Sensor Loc. : NA
Mode of Op. : Normal operation Sensor Pol. : positiv
Serial No. : 9920 Ext. Atten. : 0 dB

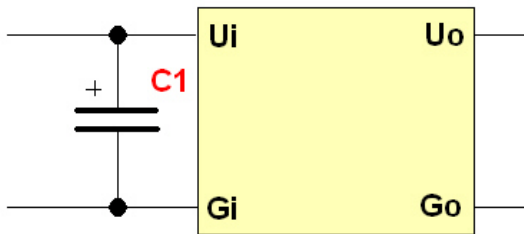
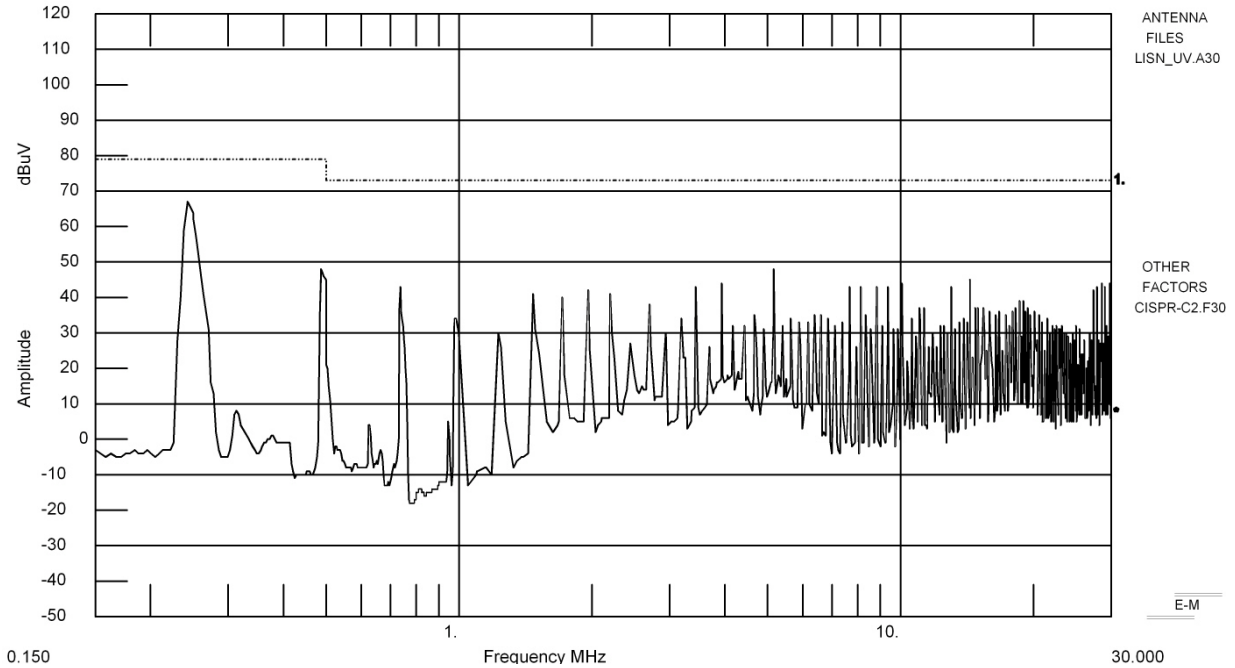
EMC-30 SETTINGS

Detector QuasiPeak
Bandwidth CISPR
Dwell N/A
RF Atten. 0 dB
IF Atten. 0 dB

SPECS

1) EN 55022 Class A QuasiPeak

Comment : 24DC input voltage with 220uF capacitor near input



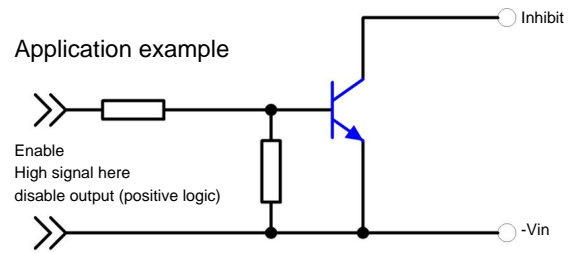
This was achieved with the following filter:
 $C1 = 220\mu\text{F}$

Inhibit

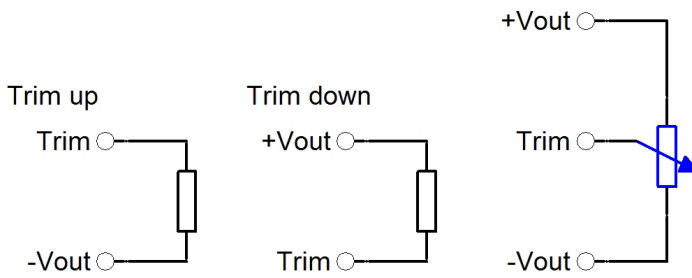
The ECW 15B Series allows the user to switch the module on and off electronically by inhibit on/off feature.

Logic table (inhibit pin)

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



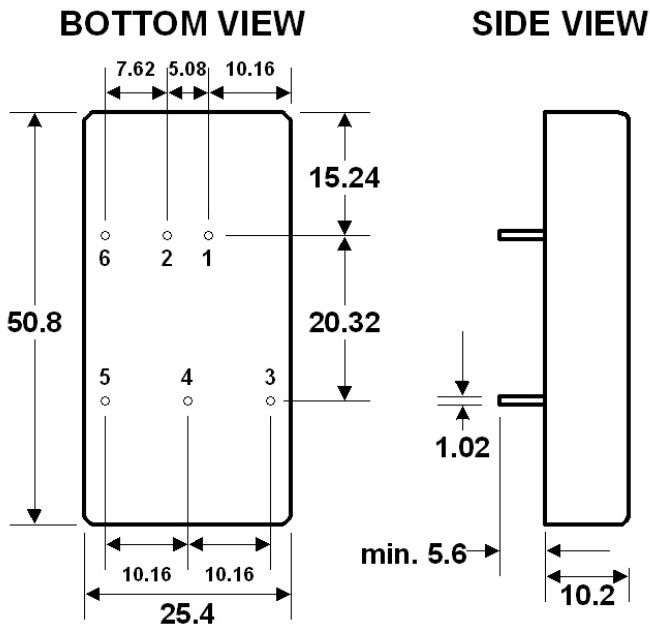
Trimming



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



| Pin | Single | Dual | Pin |
|-----|--------------|--------------|-----|
| 1 | +Vi | +Vi | 1 |
| 2 | -Vi | -Vi | 2 |
| 3 | +Vo | +Vo | 3 |
| 4 | Trim (opt) | Com | 4 |
| 5 | -Vo | -Vo | 5 |
| 6 | on/off (opt) | on/off (opt) | 6 |

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.

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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