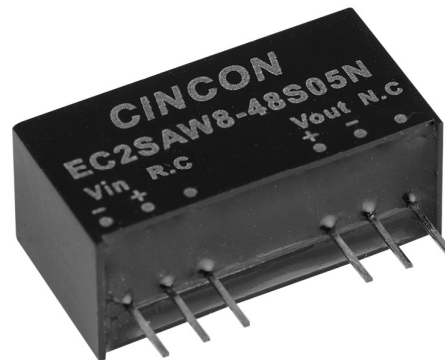




EC2SAW8 Series

Application Note V10 Augus 2025

ISOLATED DC-DC CONVERTER EC2SAW8 SERIES APPLICATION NOTE



Approved By:

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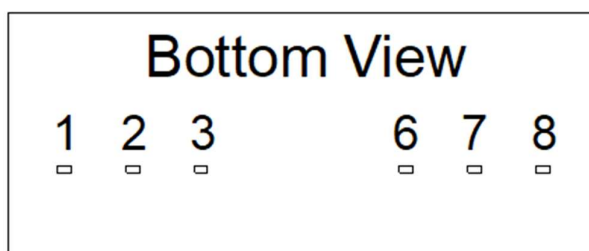
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1. Introduction

The EC2SAW8 series offer 1.65 - 3 watts of output power in a 0.86x0.36x0.44 inches SIP-8 plastic packages. The EC2SAW8 series has a 8:1 wide input voltage range of 9-75VDC and provides a precisely regulated output. This series has features such as high efficiency, 3000VDC of isolation and allows an ambient operating temperature range of -40°C to 105°C with de-rating. The features include short circuit protection and negative remote **on/off** control. All models are very suitable for distributed power architectures, telecommunications, battery operated equipment and industrial applications.

2. Pin Function Description



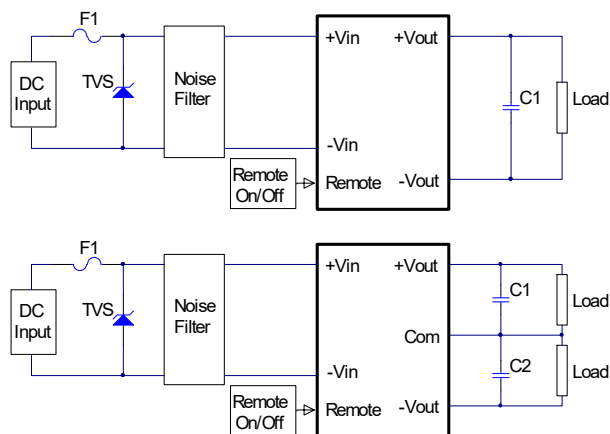


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3. Connection for Standard Use

The connection for standard use is shown below. External output capacitors (C1, C2) are recommended to reduce output ripple and noise.



Symbol	Component	Reference
F1, TVS		

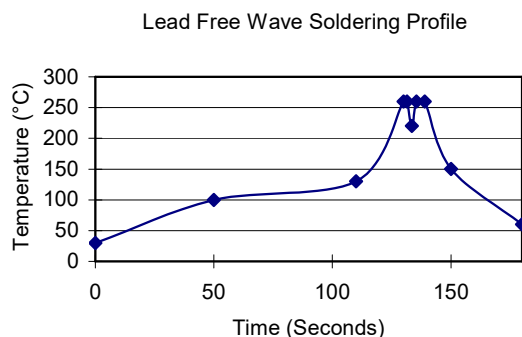


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Clean the soldered side of the module with a brush, prevent liquid from getting into the module. Do not clean by soaking the module into liquid. Do not allow solvent to come in contact with product labels or resin case as this may change the color of the resin case or cause deletion of the letters printed on the product label. After cleaning, dry the modules well.

The suggested soldering iron is $420 \pm 10^\circ\text{C}$ for up to 4-10 seconds (less than 90W) used in double PCB and multilayer PCB, the other one is $385 \pm 10^\circ\text{C}$ for up to 2-6 seconds (less than 90W) used in the single PCB. Furthermore the recommended soldering profile is shown below.





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7. Input/Output Considerations

7.1 Input Capacitance at the Power Module

The converters must be connected to low AC source impedance. To avoid problems with loop stability source inductance should be low. Also, the input capacitors (Cin) should be placed close to the converter input pins to de-couple distribution inductance. However, the external input capacitors are chosen for suitable ripple handling capability. Low ESR capacitors are good choice. Circuit as shown as below represents typical measurement methods for reflected ripple current. C1 and L1 simulate a typical DC source impedance. The input reflected-ripple current is measured by current probe to oscilloscope with a simulated source Inductance (L1



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8. Thermal Design

8.1 Operating Temperature Range

The EC2SAW8 series converters can be operated within a wide case temperature range of -40°C to 110°C. Consideration must be given to the derating curves when ascertaining maximum power that can be drawn from the converter. The maximum power drawn from models is influenced by usual factors, such as:

- Input voltage range
- Output load current
- Forced air or natural convection



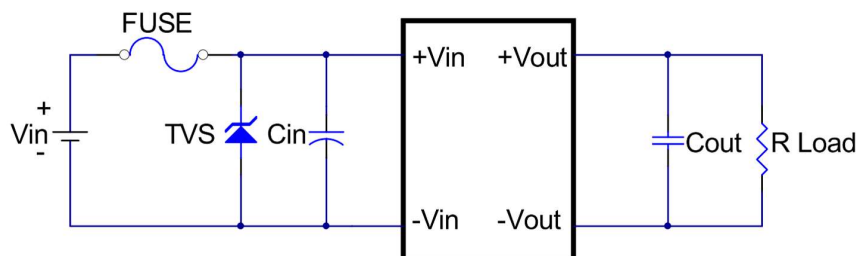
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9. Safety & EMC

9.1 Input Fusing and Safety Considerations

The EC2SAW8 series converters have no internal fuse. In order to achieve maximum safety and system protection always use an input line fuse. We recommended a fast acting fuse 1A for all models. It is recommended that the circuit have a transient voltage suppressor diode (TVS) across the input terminal to protect the unit against surge or spike voltage and input reverse voltage (as shown).





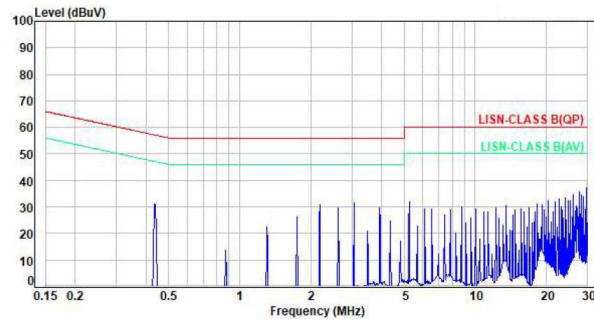
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Conducted Emission Class B ($V_{in}=24V_{dc}$):

EC2SAW8-48S33N

Line



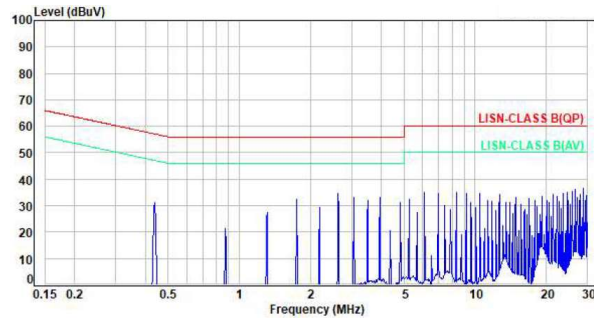


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EC2SAW8-48D05N

Line





EC2SAW8 Series

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Conducted Emission Class B ($V_{in}=48V_{dc}$):

EC2SAW8-48S33N

Line

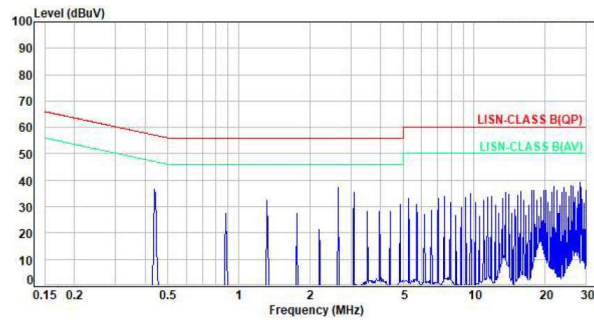


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EC2SAW8-48D05N

Line





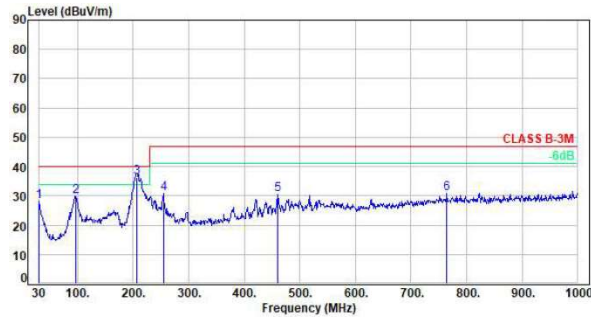
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Radiation Emission Class B ($V_{in}=24V_{dc}$):

EC2SAW8-48S33N

Horizontal



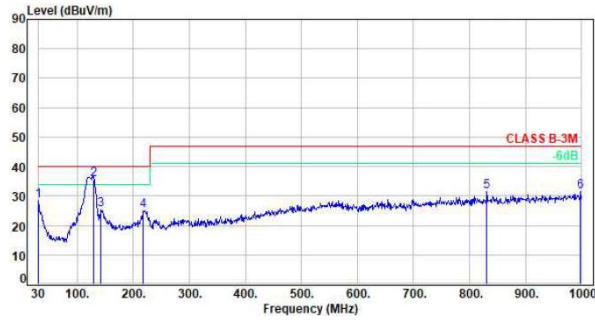


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EC2SAW8-48D05N

Horizontal





EC2SAW8 Series

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Radiation Emission Class B ($V_{in}=48V_{dc}$):



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EC2SAW8-48D05N

Horizontal