



EC3SAW SERIES

3 WATT 4:1 INPUT DC-DC CONVERTERS



FEATURES

- * 3W Isolated Output
- * Compact SIP-8 Package
- * Efficiency to 85%
- * 4:1 Input Range
- * Regulated Outputs
- * Remote On/Off Control
- * 1500VDC Isolation
- * Continuous Short Circuit Protection
- * Input Under Voltage Protection
- * No Tantalum Capacitor Inside
- * CE Mark Meets 2014/30/EU
- * Safety Meets UL60950-1, EN60950-1, and IEC60950-1



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|---------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| EC3SAW-24S33P | 9-36 VDC | 3.3 VDC | 0 mA | 700 mA | 4 mA | 122 mA | 79 | 1800uF |
| EC3SAW-24S05P | 9-36 VDC | 5 VDC | 0 mA | 600 mA | 4 mA | 154 mA | 81 | 1000uF |
| EC3SAW-24S12P | 9-36 VDC | 12 VDC | 0 mA | 250 mA | 8 mA | 150 mA | 84 | 220uF |
| EC3SAW-24S15P | 9-36 VDC | 15 VDC | 0 mA | 200 mA | 12 mA | 150 mA | 84 | 120uF |
| EC3SAW-24D05P | 9-36 VDC | ±5 VDC | 0 mA | ±300 mA | 8 mA | 154 mA | 81 | 470uF |
| EC3SAW-24D12P | 9-36 VDC | ±12 VDC | 0 mA | ±125 mA | 12 mA | 150 mA | 84 | 100uF |
| EC3SAW-24D15P | 9-36 VDC | ±15 VDC | 0 mA | ±100 mA | 12 mA | 151 mA | 83 | 47uF |
| EC3SAW-48S33P | 18-75 VDC | 3.3 VDC | 0 mA | 700 mA | 3 mA | 61 mA | 79 | 1800uF |
| EC3SAW-48S05P | 18-75 VDC | 5 VDC | 0 mA | 600 mA | 3 mA | 76 mA | 82 | 1000uF |
| EC3SAW-48S12P | 18-75 VDC | 12 VDC | 0 mA | 250 mA | 5 mA | 74 mA | 85 | 220uF |
| EC3SAW-48S15P | 18-75 VDC | 15 VDC | 0 mA | 200 mA | 5 mA | 75 mA | 84 | 120uF |
| EC3SAW-48D05P | 18-75 VDC | ±5 VDC | 0 mA | ±300 mA | 5 mA | 76 mA | 82 | 470uF |
| EC3SAW-48D12P | 18-75 VDC | ±12 VDC | 0 mA | ±125 mA | 10 mA | 75 mA | 84 | 100uF |
| EC3SAW-48D15P | 18-75 VDC | ±15 VDC | 0 mA | ±100 mA | 10 mA | 75 mA | 83 | 47uF |

NOTE: 1. Nominal Input Voltage 24 or 48VDC

SPECIFICATIONS

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS:

Input Voltage Range 24VDC 9-36VDC
 48VDC 18-75VDC
 Input Surge Voltage (100ms max.) 24VDC 50VDC max.
 48VDC 100VDC max.

Under Voltage Protection:
 24Vin Power Up 7.5 VDC max.
 Power Down 6 VDC min.
 48Vin Power Up 15.5 VDC max.
 Power Down 12 VDC min.

Input Filter Capacitive
 Remote On/Off Control: (Referenced to -Vin)
 Module On Open Circuit
 Module Off 0 to < 1.2VDC
 Module Off (Input Idle Current) 1mA max.

OUTPUT SPECIFICATIONS:

Voltage Accuracy ±1.5% max.
 Voltage Balance (Dual) ±1.0% max.
 Cross Regulation (Dual)(note 4) ... Asymmetrical Load 25%/100% ±5.0% max.

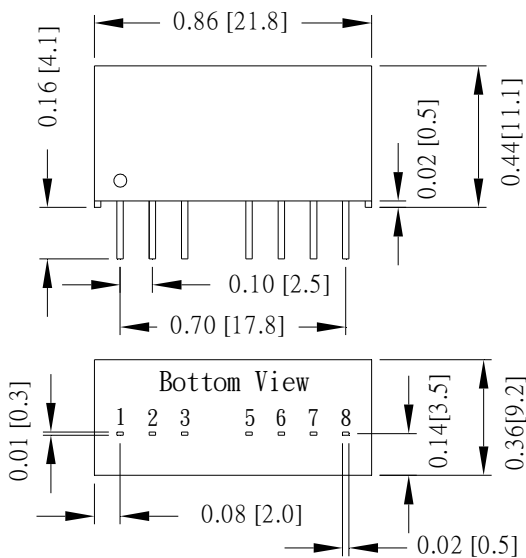
Transient Response: 25% Step Load Change
 Error Band ±6% Vout nominal
 Recovery Time < 500us

Ripple & Noise, 20MHz BW 50mV pk-pk max.
 Temperature Coefficient..... ±0.03%/°C
 Line Regulation (note 1) ±0.5% max.
 Load Regulation (note 2) Single ±0.5% max.
 Dual ±1.0% max.

Output Short Circuit Protection Continuous
 Start Up Time 5ms max.

CASE SIP-8:

All Dimensions In Inches(mm)
 Tolerances : Inches millimeters
 X.XX±0.02 X.X±0.5
 Pin ±0.002 ±0.05



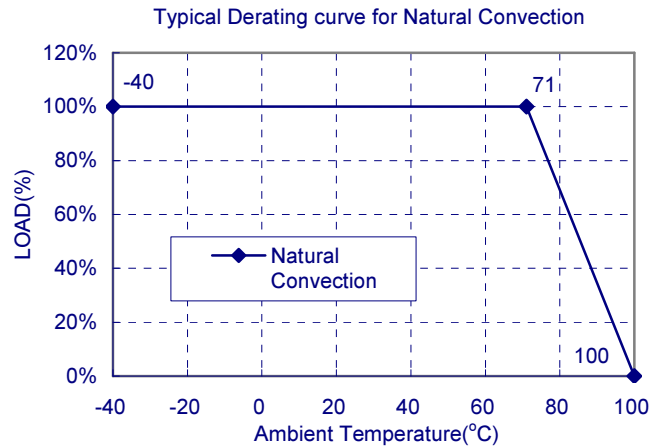
| PIN CONNECTION | | |
|----------------|--------|--------|
| Pin | Single | Dual |
| 1 | -Vin | -Vin |
| 2 | +Vin | +Vin |
| 3 | ON/OFF | ON/OFF |
| 5 | NC | NC |
| 6 | +Vo | +Vo |
| 7 | -Vo | Common |
| 8 | NC | -Vo |

GENERAL SPECIFICATIONS:

Efficiency See Table
 Isolation Voltage 1500VDC min.
 Isolation Resistance 10⁹ ohm min.
 Isolation Capacitance 500pF typ.
 Switching Frequency 100KHz min.
 Operating Ambient Temperature -40°C to +85°C
 De-rating, Above 71°C Linearly to Zero Power at 100°C
 Case Temperature (note 3) 100°C max.
 Cooling Natural Convection
 Storage Temperature -55°C to +125°C
 Humidity 95% RH max. Non-Condensing
 MTBF . MIL-HDBK-217F, GB, 25°C, Full Load .. Single ... 2800Khrs typ.
 Dual 2100Khrs typ.
 EMI Conductive EMI Meets EN55022 Class A & Class B (note5)
 Dimensions 0.86x0.36x0.44 inches(21.8x9.2x11.1 mm)
 Case Material Non-Conductive Black Plastic
 Weight 4.8g

NOTE:

1. Measured from high line to low line.
2. Measured from full load to 10% load.
3. Maximum case temperature under any operating condition should not be exceeded 100°C.
4. For asymmetric loading both channels must be at 25% load or more.
5. The EC3SAW series meet EN55022 Class A & Class B with external C-L filter before the input pins to the converter. (see application note)



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