



# 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
- \* Safety Meets IEC/EN/UL 62368-1



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) (note4) ... 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 (note1) ..... ±0.5% max.

Load Regulation (note2) ..... Single ..... ±0.5% max.  
 ..... Dual ..... ±1.0% max.

Output Short Circuit Protection ..... Continuous

Start up Time ..... 5ms max.

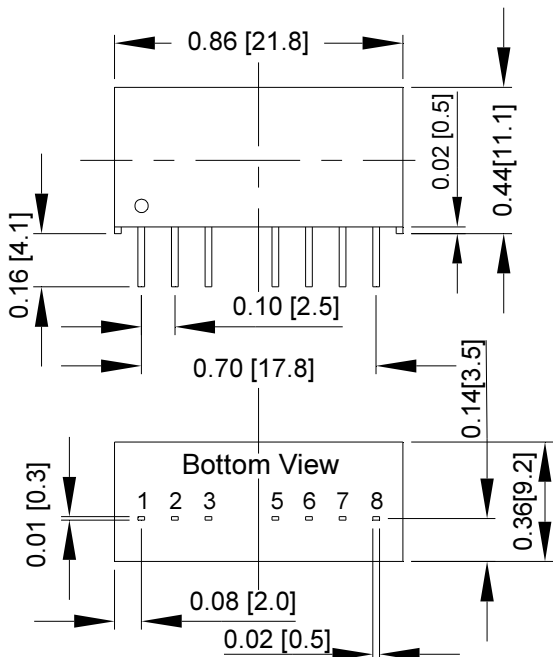
## GENERAL SPECIFICATIONS:

Efficiency ..... See Table  
 Isolation Voltage ..... 1500VDC min.  
 Isolation Resistance ..... 10<sup>9</sup> 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 (note3) ..... 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 EN55032 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

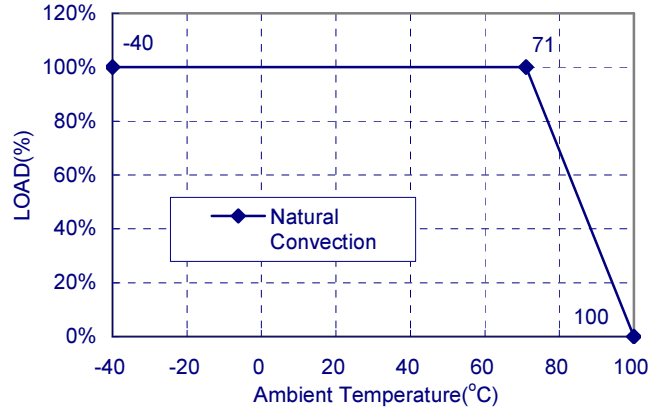
## NOTE:

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 EN55032 Class A & Class B with external C-L filter before the input pins to the converter. (see application note)

## CASE SIP-8:



Typical Derating curve for Natural Convection



PIN CONNECTION		
Pin	Single	Dual
1	-V Input	-V Input
2	+V Input	+V Input
3	On/Off	On/Off
5	NC	NC
6	+V Output	+V Output
7	-V Output	Common
8	NC	-V Output

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