EC5SBW SERIES
30 WATT 4:1 INPUT
DC-DC CONVERTERS

FEATURES



* 30W Isolated Output
* 1”x1”x0.4” Shielded Metal Case
* Very High Efficiency Up to 90%
* Low No Load Power Consumption
* 4:1 Input Range
* Regulated Outputs
* Fixed Switching Frequency
* Input Under Voltage Protection
* Over Current Protection
* Remote On/Off
* Continuous Short Circuit Protection
* Without Tantalum Capacitors 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.		CAPACITIVE LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD	(2)	(3)	
EC5SBW-24S33	9-36 VDC	3.3 VDC	0 mA	7500 mA	10 mA	1172 mA	88	88	7500uF
EC5SBW-24S05	9-36 VDC	5 VDC	0 mA	6000 mA	10 mA	1389 mA	89	90	6000uF
EC5SBW-24S12	9-36 VDC	12 VDC	0 mA	2500 mA	10 mA	1404 mA	89	89	2500uF
EC5SBW-24S15	9-36 VDC	15 VDC	0 mA	2000 mA	10 mA	1404 mA	89	89	2000uF
EC5SBW-24D12	9-36 VDC	±12 VDC	0 mA	±1250 mA	10 mA	1404 mA	88	88	1250uF
EC5SBW-24D15	9-36 VDC	±15 VDC	0 mA	±1000 mA	10 mA	1404 mA	88	88	1000uF
EC5SBW-48S33	18-75 VDC	3.3 VDC	0 mA	7500 mA	8 mA	586 mA	88	88	7500uF
EC5SBW-48S05	18-75 VDC	5 VDC	0 mA	6000 mA	8 mA	694 mA	90	90	6000uF
EC5SBW-48S12	18-75 VDC	12 VDC	0 mA	2500 mA	8 mA	694 mA	90	89	2500uF
EC5SBW-48S15	18-75 VDC	15 VDC	0 mA	2000 mA	8 mA	702 mA	90	89	2000uF
EC5SBW-48D12	18-75 VDC	±12 VDC	0 mA	±1250 mA	8 mA	710 mA	89	88	1250uF
EC5SBW-48D15	18-75 VDC	±15 VDC	0 mA	±1000 mA	8 mA	702 mA	89	89	1000uF

NOTE:

1. Nominal Input Voltage 24 or 48 VDC
2. Measure at 12VDC for 24 Vin, 24VDC for 48 Vin
3. Measure at Nominal Input Voltage

SPECIFICATIONS

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

INPUT SPECIFICATIONS:

Input Voltage Range ..... 24V ..... 9 – 36V
48V ..... 18 – 75V
Input Surge Voltage (100ms max.) ..... 24V ..... 50Vdc max.
48V ..... 100Vdc max.
Under Voltage Lockout ..... 24Vin power up ..... 8.8V typ.
24Vin power down ..... 8.0V typ.
48Vin power up ..... 17V typ.
48Vin power down ..... 16V typ.
Input Filter ..... Pi Type
Positive Logic Remote on/off Control (note4):
Logic Compatibility ..... CMOS or Open Collector TTL, ref. to –Vin
Module On ..... >+3.5 to 75VDC or Open Circuit
Module Off ..... 0 to <1.2VDC

OUTPUT SPECIFICATIONS:

Voltage Accuracy ..... ±1.5% max.
Voltage Balance (Dual) ..... ±1.5% max.
Transient Response: 75% - 100% Step Load Change.
Error Band ..... ±5% Vout Nominal, Recovery Time ..... < 250μs
Ripple & Noise, 20MHz BW(note3)
Vo=3.3 & 5V ..... 75mVpk-pk max.
Vo=12 & 15V ..... 100mVpk-pk max.
Temperature Coefficient ..... ±0.03%/°C max.
Short Circuit Protection ..... Continuous
Line Regulation (note1) ..... Single ..... ±0.2% max.
Dual ..... ±0.5% max.
Load Regulation (note2) ..... Single ..... ±0.2% max.
Dual ..... ±1.0% max.
Over Voltage Protection ..... Zener or TVS Clamp
External Trim Adj. Range (single output models only) ..... ±10%
Current Limit ..... 110% - 170% Nominal Output
Start up time ..... 20ms max.

GENERAL SPECIFICATIONS:

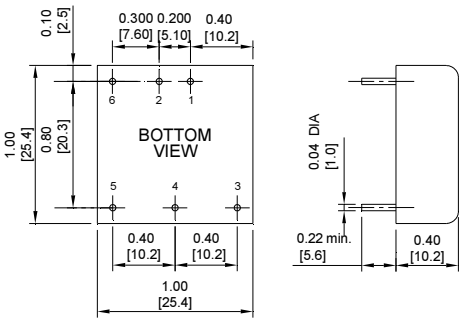
Efficiency ..... See Table
Isolation Voltage ..... 1500 VDC min.
Isolation Resistance ..... 10^9 Ohms min.
Isolation Capacitance..... 1500Pf typ.
Switching Frequency ..... Vo=3.3 & 5V ..... 270KHz typ.
Others ..... 330KHz typ.
Operating Ambient Temperature Range ..... -40℃ to +85℃
Derating, Above 55℃ (note7) ..... Linearly to Zero Power at +105℃
Case Temperature (note5) ..... 105℃
Cooling ..... Natural Convection
Storage Temperature Range ..... -55℃ to +125℃
Thermal Shutdown Case Temp. ..... 110℃ typ.
Humidity ..... 95% RH max. Non condensing
MTBF .... MIL-HDBK-217F, GB, 25℃, Full Load ... Others: 860Khrs typ.
Vo: 3.3V/5V : 1170Khrs typ.
Dimensions ..... 1.00x1.00x0.40 inches (25.4x25.4x10.2 mm)
Case Material ..... Black Coated Copper with Non-Conductive Base
Weight 18g

NOTE:

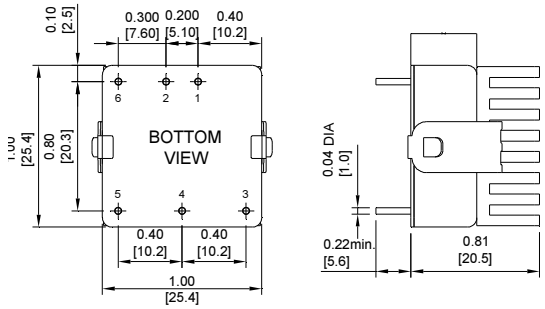
1. Measured from high line to low line.
2. Measured from full load to min. load.
3. The output ripple and noise is measured with 10Uf tantalum and 1Uf ceramic capacitor across output.
4. Suffix "N" to the model number with negative logic remote on/off
   Module on ..... 0 to <1.2VDC
   Module off ..... >3.5VDC to 75VDC or open circuit
5. Maximum case temperature under any operating condition should not be exceeded 105℃.
6. Suffix"+K-C087" type with heat sink.
7. Others model refer to application note.

SIZE SB Dimensions:

NOTE:Pin Size is 0.04±0.004 Inch (1.0±0.1 mm)DIA
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±0.04 , X.XXX= ±0.010
Millimeters: X.X= ±1.0 , X.XX=±0.25



Suffix "+K-C087" Type



PIN CONNECTION		
Pin	Single	Dual
1	+Input	+Input
2	-Input	-Input
3	+V Output	+V Output
4	Trim	Common
5	-V Output	-V Output
6	Remote	Remote

