



EC7A SERIES

10 WATT 2:1 INPUT RANGE

DC-DC CONVERTERS



FEATURES

- * 10W Isolated Output
- * DIP-24 / SMD Metal Package
- * Very High Efficiency up to 89%
- * 2:1 Input Range
- * Regulated Outputs
- * PI Input Filter
- * Continuous Short Circuit Protection
- * No Tantalum Capacitor Inside
- * CE Mark Meets 2004/108/EC
- * UL60950-1 Approval



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|---------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| EC7A-12S25 | 9-18 VDC | 2.5 VDC | 0 mA | 3000 mA | 40 mA | 735 mA | 85 | 3000uF |
| EC7A-12S33 | 9-18 VDC | 3.3 VDC | 0 mA | 3000 mA | 50 mA | 971 mA | 85 | 3000uF |
| EC7A-12S05 | 9-18 VDC | 5 VDC | 0 mA | 2000 mA | 60 mA | 947 mA | 88 | 2000uF |
| EC7A-12S12 | 9-18 VDC | 12 VDC | 0 mA | 835 mA | 40 mA | 949 mA | 88 | 835uF |
| EC7A-12S15 | 9-18 VDC | 15 VDC | 0 mA | 666 mA | 40 mA | 946 mA | 88 | 666uF |
| EC7A-12D12 | 9-18 VDC | ±12 VDC | 0 mA | ±416 mA | 30 mA | 956 mA | 87 | 416uF |
| EC7A-12D15 | 9-18 VDC | ±15 VDC | 0 mA | ±333 mA | 30 mA | 968 mA | 86 | 333uF |
| EC7A-24S25 | 18-36VDC | 2.5 VDC | 0 mA | 3000 mA | 30 mA | 368 mA | 85 | 3000uF |
| EC7A-24S33 | 18-36VDC | 3.3 VDC | 0 mA | 3000 mA | 30 mA | 480 mA | 86 | 3000uF |
| EC7A-24S05 | 18-36VDC | 5 VDC | 0 mA | 2000 mA | 30 mA | 473 mA | 88 | 2000uF |
| EC7A-24S12 | 18-36VDC | 12 VDC | 0 mA | 835 mA | 30 mA | 469 mA | 89 | 835uF |
| EC7A-24S15 | 18-36VDC | 15 VDC | 0 mA | 666 mA | 30 mA | 473 mA | 88 | 666uF |
| EC7A-24D12 | 18-36VDC | ±12 VDC | 0 mA | ±416 mA | 20 mA | 467 mA | 89 | 416uF |
| EC7A-24D15 | 18-36VDC | ±15 VDC | 0 mA | ±333 mA | 20 mA | 478 mA | 87 | 333uF |
| EC7A-48S25 | 36-75VDC | 2.5 VDC | 0 mA | 3000 mA | 15 mA | 184 mA | 85 | 3000uF |
| EC7A-48S33 | 36-75VDC | 3.3 VDC | 0 mA | 3000 mA | 15 mA | 243 mA | 85 | 3000uF |
| EC7A-48S05 | 36-75VDC | 5 VDC | 0 mA | 2000 mA | 15 mA | 237 mA | 88 | 2000uF |
| EC7A-48S12 | 36-75VDC | 12 VDC | 0 mA | 835 mA | 15 mA | 235 mA | 89 | 835uF |
| EC7A-48S15 | 36-75VDC | 15 VDC | 0 mA | 666 mA | 15 mA | 237 mA | 88 | 666uF |
| EC7A-48D12 | 36-75VDC | ±12 VDC | 0 mA | ±416 mA | 10 mA | 236 mA | 88 | 416uF |
| EC7A-48D15 | 36-75VDC | ±15 VDC | 0 mA | ±333 mA | 10 mA | 242 mA | 86 | 333uF |

NOTE: 1. Nominal Input Voltage 12, 24, 48VDC

SPECIFICATIONS

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

INPUT SPECIFICATIONS:

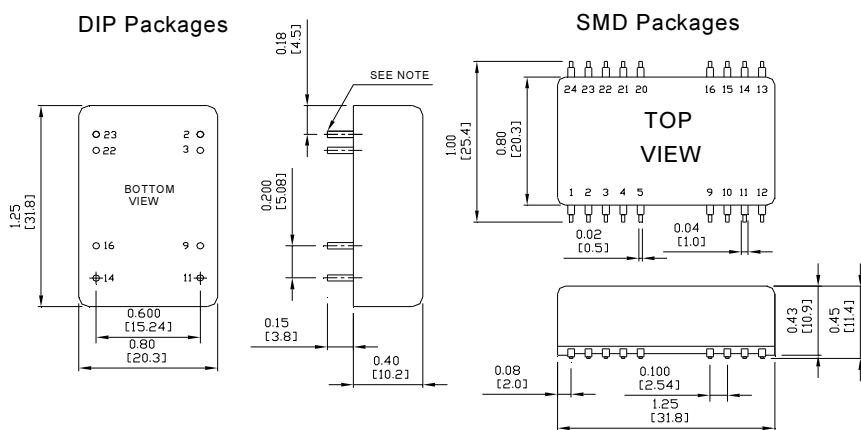
| | | |
|----------------------------------|------------------|-------------|
| Input Voltage Range | 12V | 9-18V |
| | 24V | 18-36V |
| | 48V | 36-75V |
| Input Surge Voltage (100ms max.) | 12V | 25Vdc max. |
| | 24V | 50Vdc max. |
| | 48V | 100Vdc max. |
| Under voltage lockout | 12Vin power up | 8.8V |
| | 12Vin power down | 8V |
| | 24Vin power up | 17V |
| | 24Vin power down | 16V |
| | 48Vin power up | 34V |
| | 48Vin power down | 32V |
| Input Filter | PI Type | |

OUTPUT SPECIFICATIONS:

| | | |
|---|------------------|------------------------------|
| Voltage Accuracy | ±1.5% max. | |
| Voltage Balance(Dual) | ±2.0% max. | |
| Transient Response: 75% - 100% Step Load Change | | |
| Error Band | ±5% Vout Nominal | |
| Recovery Time | < 300us | |
| Ripple & Noise, 20MHz BW | Single | 75mV pk-pk, max. |
| | Dual | 100mV pk-pk, max. |
| Temperature Coefficient | ±0.05%/°C | |
| Line Regulation (note1) | Single | ±0.2% max. |
| | Dual | ±0.5% max. |
| Load Regulation (note2) | Single | DIP±0.5% max., SMD±1.0% max. |
| | Dual | ±1.0% max. |
| Output Short Circuit Protection | Continuous | |
| Over voltage Protection (Zener Diode Clamp, Single Output Only) | | |
| 2.5V, 3.3V | 3.9Vdc typ. | |
| 5V | 6.2Vdc typ., 12V | |
| 15V | 18Vdc typ. | |
| Start up time | 24(48)S25(33) | 120ms typ. |
| | 24(48)S05(12) | 60ms typ. |
| | Others | 8ms typ. |

Case A Dimensions:

NOTE: Pin Size is 0.02±0.002 Inch (0.5±0.05 mm) DIA
 All Dimensions In Inches (mm)
 Tolerances Inches: X.XX= ±0.02 , X.XXX= ±0.010
 Millimeters: X.X= ±0.5 , X.XX=±0.25



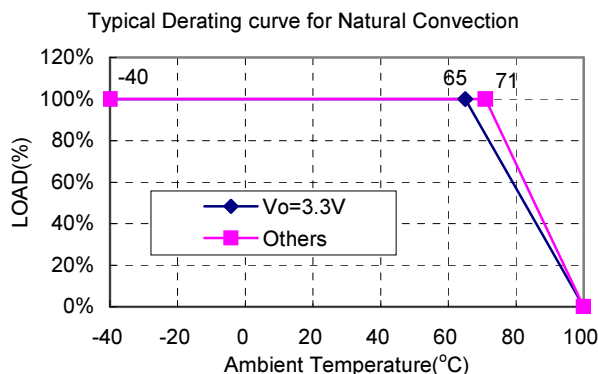
GENERAL SPECIFICATIONS:

| | | |
|-------------------------------|-----------------------------------|--|
| Efficiency | See Table | |
| Isolation Voltage | Input/Output | 1500VDC min. |
| Isolation Resistance | 10 ⁹ ohm min. | |
| Isolation Capacitance | 1000pF typ. | |
| Switching Frequency | 380KHz typ. | |
| Operating Ambient Temperature | -40°C to +85°C | |
| De-rating, Above 71°C | Linearly to Zero power at 100°C | |
| Case Temperature(note4) | 100°C max. | |
| Cooling | Natural Convection | |
| Storage Temperature | -40°C to +125°C | |
| Humidity | 95% RH max. Non condensing | |
| MTBF | MIL-STD-217F, GB, 25°C, Full Load | 1150K hrs |
| Dimensions | DIP | 1.25x0.80x0.40 inches(31.8x20.3x10.2 mm) |
| | SMD | 1.25x0.80x0.45 inches(31.8x20.3x11.4 mm) |

Case Material Black Coated Copper with Non-Conductive Base
 Weight 18.4g

NOTE:

1. Measured from high line to low line.
2. Measured from full load to 10% load.
3. Suffix "S" to the model number with SMD packages.
4. Maximum case temperature under any operating condition should not be exceeded 100°C.



| PIN CONNECTION | | | | |
|----------------|---------------|-----------|-------------|-----|
| Pin | Single Output | | Dual Output | |
| | DIP | SMD | DIP | SMD |
| 1,24 | NP | NC | NP | NC |
| 2,3 | -V Input | | -V Input | |
| 4,5 | NP | NC | NP | NC |
| 9 | NP | NC | Common | |
| 10 | NP | NC | NP | NC |
| 11 | NC | | -V Output | |
| 12 | NP | NC | NP | NC |
| 13 | NP | +V Output | NP | NC |
| 14 | +V Output | | +V Output | |
| 15 | NP | -V Output | NP | NC |
| 16 | -V Output | | Common | |
| 20,21 | NP | NC | NP | NC |
| 22,23 | +V Input | | +V Input | |

* NC-NO CONNECTION WITH PIN
 * NP-NO PIN

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