



# EC2SA Series

2 WATTS - DC/DC SINGLE & MULTIPLE OUTPUT

### FEATURES

- Industry Standard SIP and SMD Packages
- Input range
- Single and Multiple Outputs
- Efficiency up to 83%
- 1500VDC Isolation
- Low Cost
- Regulated Outputs
- Low Ripple and Noise
- Remote On/Off control
- Short circuit protection



### SPECIFICATIONS

| INPUT                      |                                               |                          |
|----------------------------|-----------------------------------------------|--------------------------|
| DC input voltage range     | 5V                                            | 4.5-9V                   |
|                            | 12V                                           | 9-18V                    |
|                            | 24V                                           | 8-36V                    |
|                            | 48V                                           | 36-75V                   |
| Input filter               | Capacitive                                    |                          |
| Remote on/off control      | Module On                                     | < 1.2VDC or Open Circuit |
|                            | Module Off                                    | 5.5...15VDC              |
|                            | Module Off (input idle current                | 1mA max.                 |
| Isolation voltage          | 1500 VDC min                                  |                          |
| Isolation resistance       | 10^9 Ohms min                                 |                          |
| OUTPUT                     |                                               |                          |
| Output voltage             | See table                                     |                          |
| Output current             | See table                                     |                          |
| Voltage accuracy           | ±1.5.0% max.                                  |                          |
| Voltage balance            | ±1.0% max. Dual                               |                          |
| Cross regulation (Note1)   | Asymmetrical load 25%/100%<br>±5.0% max. Dual |                          |
| Transient Response         | 25% Step Load Change                          |                          |
|                            | Error Band                                    | ±6% Vout nominal         |
|                            | Recovery Time                                 | < 500us                  |
| Ripple and noise, 20MHz BW | 75mV p-p max                                  |                          |
| Temperature coefficient    | ±0.03%/C max                                  |                          |
| Short circuit protection   | Momentary 1sec max                            |                          |
| Line regulation (Note2)    | ±0.5% max                                     |                          |
| Load regulation (Note3)    | ±0.5% max, Single                             |                          |
|                            | ±1.0% max, Dual                               |                          |
| Efficiency                 | See table                                     |                          |
| Switching frequency        | 100kHz                                        |                          |
| Short circuit protection   | Continuous                                    |                          |

| ENVIRONMENTAL                       |                              |
|-------------------------------------|------------------------------|
| Operating ambient temperature range |                              |
| De-rating                           | See curve                    |
| Case temperature (Note4)            | +100°C max                   |
| Cooling                             | Natural convection           |
| Storage temperature range           | -55°C to +125°C              |
| Humidity                            | 95% RH max. Non condensing   |
| MTBF                                | MIL-STD-217F,GB 1.7Mhrs min  |
| MECHANICAL                          |                              |
| Dimensions                          | 21.8 x 9.2 x 11.1mm          |
| Weight                              | 4.8g                         |
| Case material                       | Non-conductive black plastic |

- NOTE :**
1. For asymmetric loading, Both channels must be at 25% load or more.
  2. Measured From High Line to Low Line
  3. Measured From Full Load to 10% Load
  4. Maximum case temperature under any operating condition should not exceed 100°C.

### PIN CONNECTION

| PIN | SINGLE OUPUT | MULTIPLE OUTPUT |
|-----|--------------|-----------------|
| 1   | -V Input     | -V Input        |
| 2   | +V Input     | +V Input        |
| 3   | CTRL         | CTRL            |
| 5   | NC           | NC              |
| 6   | +V Output    | +V Output       |
| 7   | -V Output    | Common          |
| 8   | NC           | -V Output       |

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SELECTION TABLE

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT |         | INPUT CURRENT |           | % EFF. | CASE  |
|--------------|---------------|----------------|----------------|---------|---------------|-----------|--------|-------|
|              |               |                | MIN.           | MAX.    | NO LOAD       | FULL LOAD |        |       |
| EC2SA-05S33  | 4.5-9.0 VDC   | 3.3VDC         | 0 mA           | 500 mA  |               | 458 mA    | 72     | SIP-8 |
| EC2SA-05S05  |               | 5VDC           | 0 mA           | 400 mA  |               | 526 mA    | 76     |       |
| EC2SA-05S12  |               | 12VDC          | 0 mA           | 167 mA  |               | 507 mA    | 79     |       |
| EC2SA-05S15  |               | 15VDC          | 0 mA           | 134 mA  | 60 mA         | 503 mA    | 80     |       |
| EC2SA-05D05  |               | ±5VDC          | ±0 mA          | ±200 mA |               | 526 mA    | 76     |       |
| EC2SA-05D12  |               | ±12VDC         | ±0 mA          | ±83 mA  |               | 498 mA    | 80     |       |
| EC2SA-05D15  |               | ±15VDC         | ±0 mA          | ±67 mA  |               | 503 mA    | 80     |       |
| EC2SA-12S33  |               | 3.3VDC         | 0 mA           | 500 mA  |               | 186 mA    | 74     |       |
| EC2SA-12S05  | 9-18 VDC      | 5VDC           | 0 mA           | 400 mA  |               | 214 mA    | 78     | SIP-8 |
| EC2SA-12S12  |               | 12VDC          | 0 mA           | 167 mA  |               | 206 mA    | 81     |       |
| EC2SA-12S15  |               | 15VDC          | 0 mA           | 134 mA  | 30 mA         | 204 mA    | 82     |       |
| EC2SA-12D05  |               | ±5VDC          | ±0 mA          | 200 mA  |               | 208 mA    | 80     |       |
| EC2SA-12D12  |               | ±12VDC         | ±0 mA          | ±83 mA  |               | 202 mA    | 82     |       |
| EC2SA-12D15  |               | ±15VDC         | ±0 mA          | ±67 mA  |               | 204 mA    | 82     |       |
| EC2SA-24S33  |               | 3.3VDC         | 0 mA           | 500 mA  |               | 90 mA     | 76     |       |
| EC2SA-24S05  |               | 5VDC           | 0 mA           | 400 mA  |               | 107 mA    | 78     |       |
| EC2SA-24S12  | 18-36 VDC     | 12VDC          | 0 mA           | 167 mA  |               | 103 mA    | 81     | SIP-8 |
| EC2SA-24S15  |               | 15VDC          | 0 mA           | 134 mA  | 18 mA         | 102 mA    | 82     |       |
| EC2SA-24D05  |               | ±5VDC          | ±0 mA          | ±200 mA |               | 107 mA    | 78     |       |
| EC2SA-24D12  |               | ±12VDC         | ±0 mA          | ±83 mA  |               | 102 mA    | 81     |       |
| EC2SA-24D15  |               | ±15VDC         | ±0 mA          | ±67 mA  |               | 102 mA    | 82     |       |
| EC2SA-48S33  |               | 3.3VDC         | 0 mA           | 500 mA  |               | 46 mA     | 74     |       |
| EC2SA-48S05  |               | 5VDC           | 0 mA           | 400 mA  |               | 53 mA     | 78     |       |
| EC2SA-48S12  |               | 12VDC          | 0 mA           | 167 mA  |               | 51 mA     | 82     |       |
| EC2SA-48S15  | 36-75 VDC     | 15VDC          | 0 mA           | 134 mA  | 9 mA          | 50 mA     | 83     | SIP-8 |
| EC2SA-48D05  |               | ±5VDC          | ±0 mA          | ±200 mA |               | 53 mA     | 78     |       |
| EC2SA-48D12  |               | ±12VDC         | ±0 mA          | ±83 mA  |               | 50 mA     | 83     |       |
| EC2SA-48D15  |               | ±15VDC         | ±0 mA          | ±67 mA  |               | 51 mA     | 82     |       |

NOTE: 1. Nominal Input Voltage 5, 12 or 24VDC

TECHNICAL ILLUSTRATION

