

KEY FEATURES

- Power Module for PCB Mountable
- 2:1 & 4:1 Wide Input Range
- Regulated Output
- Low Ripple and Noise
- Screw Terminal For Optional
- Remote ON/OFF Control (Optional)
- Standard 2" x 1" Package and Pinout
- CE, UL Approval
- 3-Years Product Warranty


ELECTRICAL SPECIFICATIONS

| Model No. (Single Output) | ST10-12-3.3S | ST10-12-5S | ST10-12-12S | ST10-12-15S | ST10-12-24S |
|-----------------------------|---------------|-------------|-------------|-------------|-------------|
| Input Voltage (V.DC.) | 12V (9-18V) | 12V (9-18V) | 12V (9-18V) | 12V (9-18V) | 12V (9-18V) |
| Output Voltage (V.DC.) | 3.3V / 2000mA | 5V / 2000mA | 12V / 830mA | 15V / 670mA | 24V / 420mA |
| Efficiency | 71% | 77% | 79% | 79% | 81% |

| Model No. (Single Output) | ST10-24-3.3S | ST10-24-5S | ST10-24-12S | ST10-24-15S | ST10-24-24S |
|-----------------------------|---------------|--------------|--------------|--------------|--------------|
| Input Voltage (V.DC.) | 24V (18-36V) | 24V (18-36V) | 24V (18-36V) | 24V (18-36V) | 24V (18-36V) |
| Output Voltage (V.DC.) | 3.3V / 2000mA | 5V / 2000mA | 12V / 830mA | 15V / 670mA | 24V / 420mA |
| Efficiency | 71% | 77% | 79% | 79% | 84% |

| Model No. (Single Output) | ST10-24F-3.3S | ST10-24F-5S | ST10-24F-12S | ST10-24F-15S |
|-----------------------------|---------------|--------------|--------------|--------------|
| Input Voltage (V.DC.) | 24V (10-40V) | 24V (10-40V) | 24V (10-40V) | 24V (10-40V) |
| Output Voltage (V.DC.) | 3.3V / 2000mA | 5V / 2000mA | 12V / 830mA | 15V / 670mA |
| Efficiency | 71% | 77% | 79% | 79% |

| Model No. (Single Output) | ST10-48-3.3S | ST10-48-5S | ST10-48-12S | ST10-48-15S | ST10-48-24S |
|-----------------------------|---------------|--------------|--------------|--------------|--------------|
| Input Voltage (V.DC.) | 48V (36-75V) | 48V (36-75V) | 48V (36-75V) | 48V (36-75V) | 48V (36-75V) |
| Output Voltage (V.DC.) | 3.3V / 2000mA | 5V / 2000mA | 12V / 830mA | 15V / 670mA | 24V / 420mA |
| Efficiency | 71% | 79% | 80% | 80% | 84% |

| Model No. (Single Output) | ST10-48F-3.3S | ST10-48F-5S | ST10-48F-12S | ST10-48F-15S |
|-----------------------------|---------------|--------------|--------------|--------------|
| Input Voltage (V.DC.) | 48V (18-75V) | 48V (18-75V) | 48V (18-75V) | 48V (18-75V) |
| Output Voltage (V.DC.) | 3.3V / 2000mA | 5V / 2000mA | 12V / 830mA | 15V / 670mA |
| Efficiency | 71% | 79% | 80% | 80% |

| Model No. (Dual Output) | ST10-24F-5D | ST10-24F-12D | ST10-24F-15D |
|---------------------------|---------------|--------------|--------------|
| Input Voltage (V.DC.) | 24V (10-40V) | 24V (10-40V) | 24V (10-40V) |
| Output Voltage (V.DC.) | ±5V / ±1000mA | ±12 / ±415mA | ±15 / ±333mA |
| Efficiency | 75% | 75% | 75% |

| Model No. (Dual Output) | ST10-48F-5D | ST10-48F-12D | ST10-48F-15D |
|---------------------------|---------------|--------------|--------------|
| Input Voltage (V.DC.) | 48V (18-75V) | 48V (18-75V) | 48V (18-75V) |
| Output Voltage (V.DC.) | ±5V / ±1000mA | ±12 / ±415mA | ±15 / ±333mA |
| Efficiency | 75% | 77% | 77% |

ST10 SERIES
10 Watts

| | | | | | | |
|---------------------------|--|--|---|---|---|-----|
| Model No. (Single Output) | ST10-12-3.3S ST10-24-3.3S ST10-24F-3.3S ST10-48-3.3S ST10-48F-3.3S | ST10-12-5S ST10-24-5S ST10-24F-5S ST10-48-5S ST10-48F-5S | ST10-12-12S ST10-24-12S ST10-24F-12S ST10-48-12S ST10-48F-12S | ST10-12-15S ST10-24-15S ST10-24F-15S ST10-48-15S ST10-48F-15S | ST10-12-24S ST10-24-24S ST10-48-24S | |
| Max Output Wattage (W) | 6.6W | 10W | 10W | 10W | 10W | |
| Input | Input Filter | π type | | | | |
| Output | Voltage (V.DC.) | 3.3 | 5 | 12 | 15 | 24 |
| | Voltage Accuracy | $\pm 2\%$ | | | | |
| | Current (mA) max | 2000 | 2000 | 830 | 670 | 420 |
| | Line Regulation (LL-HL) (typ.) | $\pm 0.5\%$ | | | | |
| | Load Regulation (10-100%) (typ.) | $\pm 1\%$ | | | | |
| | Minimum Load | 3% | 3% | 0% | 0% | 0% |
| | Ripple | $< 0.2\% V_{out} + 40mV$ max (Vp-p) | | | | |
| | Noise | $< 0.5\% V_{out} + 50mV$ max (Vp-p) | | | | |
| Switching Frequency | 300KHz | | | | | |
| Protection | Over Power Protection | Works over 120% of rating and recovers automatically. | | | | |
| | Over Voltage Protection | Zener diode clamp | | | | |
| | Short Circuit Protection | Current limit, auto-recovery | | | | |
| Isolation | Voltage | 1600 VDC. | | | | |
| | Resistance | 10^8 ohms | | | | |
| | Capacitance | 1000 pF | | | | |
| Environment | Operating Temperature | 2:1 Range: $-25^{\circ}C \dots +70^{\circ}C$ (at Full Load) | | 4:1 Range: $-25^{\circ}C \dots +70^{\circ}C$ (with derating) | | |
| | Storage Temperature | $-55^{\circ}C \dots +105^{\circ}C$ | | | | |
| | Case Temperature | $+100^{\circ}C$ max. | | | | |
| | Temperature Coefficient | $\pm 0.02\%$ Per $^{\circ}C$ | | | | |
| | Humidity | 95% RH | | | | |
| Physical | MTBF | $> 800,000$ h @ $25^{\circ}C$ (MIL-HDBK-217F) | | | | |
| | Dimension (L x W x H) | 1.97 x 1.0 x 0.425 Inches (50.1 x 25.4 x 10.8 mm) Tolerance ± 0.5 mm | | | | |
| | Case Material | Five-side shielded Aluminum with Non-Conductive base, Black Anodize | | | | |
| | Weight | 32 g | | | | |
| Safety | Agency Approvals | CE, UL | | | | |
| | EMC | EMI (Conducted & Radiated Emission) EN 55022 class A | | | | |

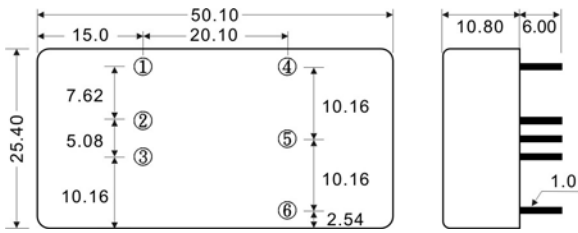
 I.All specifications valid at normal input voltage, full load and $+25^{\circ}C$ after warm-up time unless otherwise stated.

 II.Ripple & Noise are measured at 20MHz of bandwidth with 0.1 μ F & 47 μ F parallel capacitor.

| | | | | |
|-------------------------|---|--|------------------------------|--|
| Model No. (Dual Output) | ST10-24F-5D ST10-48F-5D | ST10-24F-12D ST10-48F-12D | ST10-24F-15D ST10-48F-15D | |
| Max Output Wattage (W) | 10W | | | |
| Input | Input Filter | π type | | |
| Output | Voltage (V.DC.) | ± 5 | ± 12 | ± 15 |
| | Voltage Accuracy | $\pm 2\%$ | | |
| | Current (mA) max | ± 1000 | ± 415 | ± 333 |
| | Line Regulation (LL-HL) (typ.) | $\pm 0.5\%$ | | |
| | Load Regulation (10-100%)(Balance Load) | $\pm 1\%$ | | |
| | Minimum Load | 3% | | |
| | Ripple | $< 0.2\% V_{out} + 40mV$ max (Vp-p) | | |
| | Noise | $< 0.5\% V_{out} + 50mV$ max (Vp-p) | | |
| Switching Frequency | 300KHz | | | |
| Protection | Over Power Protection | Works over 120% of rating and recovers automatically. | | |
| | Over Voltage Protection | Zener diode clamp | | |
| | Short Circuit Protection | Current limit, auto-recovery | | |
| Isolation | Voltage | 1600 VDC. | | |
| | Resistance | 10^8 ohms | | |
| | Capacitance | 1000 pF | | |
| Environment | Operating Temperature | 2:1 Range: $-25^{\circ}C \dots +70^{\circ}C$ (at Full Load) | | 4:1 Range: $-25^{\circ}C \dots +70^{\circ}C$ (with derating) |
| | Storage Temperature | $-55^{\circ}C \dots +105^{\circ}C$ | | |
| | Case Temperature | $+100^{\circ}C$ max. | | |
| | Temperature Coefficient | $\pm 0.02\%$ Per $^{\circ}C$ | | |
| | Humidity | 95% RH | | |
| Physical | MTBF | $> 800,000$ h @ $25^{\circ}C$ (MIL-HDBK-217F) | | |
| | Dimension (L x W x H) | 1.97 x 1.0 x 0.425 Inches (50.1 x 25.4 x 10.8 mm) Tolerance ± 0.5 mm | | |
| | Case Material | Five-side shielded Aluminum with Non-Conductive base, Black Anodize | | |
| | Weight | 32 g | | |
| Safety | Agency Approvals | CE, UL | | |
| | EMC | EMI (Conducted & Radiated Emission) | | EN 55022 class A |

 I.All specifications valid at normal input voltage, full load and $+25^{\circ}C$ after warm-up time unless otherwise stated.

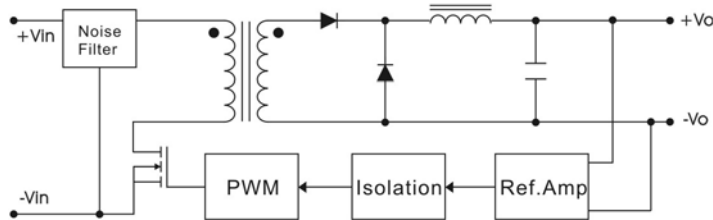
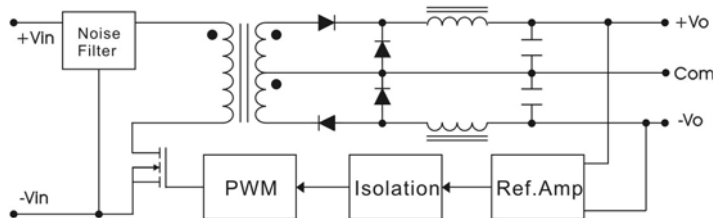
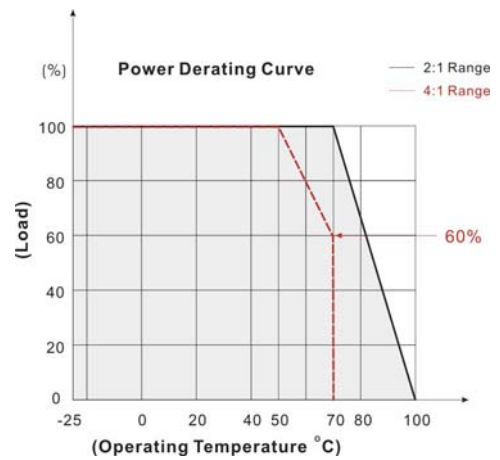
 II.Ripple & Noise are measured at 20MHz of bandwidth with 0.1 μ F & 47 μ F parallel capacitor.

MECHANICAL DIMENSION (Top View)


| PIN# | Single | Dual |
|------|-------------------------|-------------------------|
| 1 | ON / OFF CTL (Optional) | ON / OFF CTL (Optional) |
| 2 | -DC IN | -DC IN |
| 3 | +DC IN | +DC IN |
| 4 | -DC OUT | -DC OUT |
| 5 | NO PIN | COMMON |
| 6 | +DC OUT | +DC OUT |

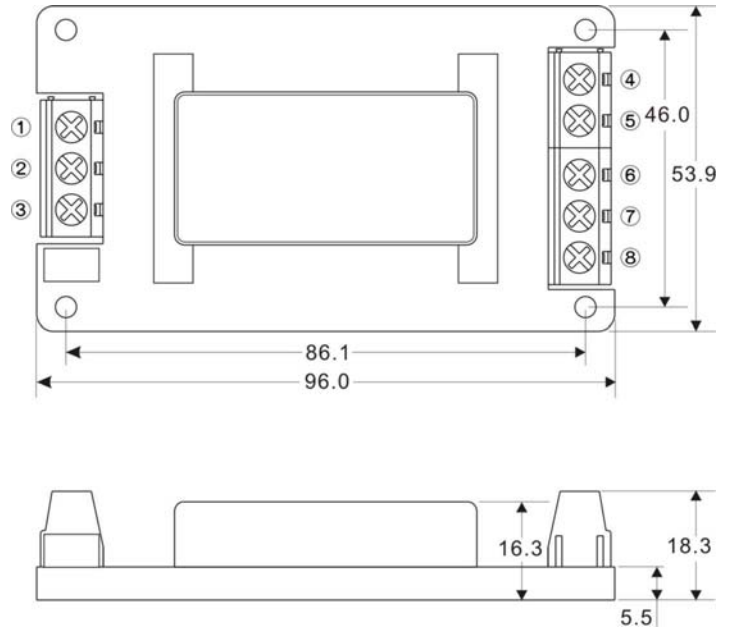
Remote On/Off Control

Control Pin is NOT available for standard ST10 models
 Add suffix -R for models with Control Pin

BLOCK DIAGRAM
Single Output

Dual Outputs

DERATING


ST10 SERIES
10 Watts
SCREW TERMINAL
ST10-A2


| PIN# | Single | Dual |
|------|------------|------------|
| 1 | CTRL | CTRL |
| 2 | -DC IN | -DC IN |
| 3 | +DC IN | +DC IN |
| 4. | -DC OUT | -DC OUT |
| 5 | NO CONNECT | NO CONNECT |
| 6 | NO CONNECT | COMMON |
| 7 | NO CONNECT | NO CONNECT |
| 8 | +DC OUT | +DC OUT |


ST10-A5


| PIN# | Single | Dual |
|------|------------|------------|
| 1 | CTRL | CTRL |
| 2 | -DC IN | -DC IN |
| 3 | +DC IN | +DC IN |
| 4. | -DC OUT | -DC OUT |
| 5 | NO CONNECT | NO CONNECT |
| 6 | NO CONNECT | COMMON |
| 7 | NO CONNECT | NO CONNECT |
| 8 | +DC OUT | +DC OUT |

