

## 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	74%	80%	81%	82%	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	74%	81%	84%	85%	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	67%	75%	75%	75%

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	76%	81%	84%	84%	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	66%	75%	77%	75%

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	$\pi$ 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	$< 0.2\% V_{out} + 40\text{mV max (Vp-p)}$				
	Noise	$< 0.5\% V_{out} + 50\text{mV max (Vp-p)}$				
Protection	Switching Frequency	300KHz				
	Over Power Protection	Works over 120% of rating and recovers automatically.				
	Over Voltage Protection	Zener diode clamp				
Isolation	Short Circuit Protection	Current limit, auto-recovery				
	Voltage	1600 VDC.				
	Resistance	$10^8$ ohms				
Environment	Capacitance	1000 pF				
	Operating Temperature	2:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (at Full Load) 4:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (with derating)				
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$				
	Case Temperature	$+100^{\circ}\text{C max.}$				
	Temperature Coefficient	$\pm 0.02\%$ Per $^{\circ}\text{C}$				
	Humidity	95% RH				
Physical	MTBF	$> 800,000$ h @ $25^{\circ}\text{C}$ (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 $\pm 0.5$ mm				
	Case Material	Five-side shielded Aluminum with Non-Conductive base, Black Anodize				
	Weight	32 g				
Safety	Cooling Method	Free-air convection				
	Agency Approvals	CE, UL				
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A				

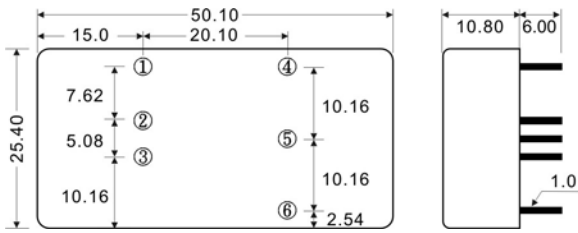
 I.All specifications valid at normal input voltage, full load and  $+25^{\circ}\text{C}$  after warm-up time unless otherwise stated.

 II.Ripple & Noise are measured at 20MHz of bandwidth with 0.1 $\mu\text{F}$  & 47 $\mu\text{F}$  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	$\pi$ type		
Output	Voltage (V.DC.)	$\pm 5$	$\pm 12$	$\pm 15$
	Voltage Accuracy	$\pm 2\%$		
	Current (mA) max	$\pm 1000$	$\pm 415$	$\pm 333$
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$		
	Load Regulation (10-100%)(Balance Load)	$\pm 1\%$		
	Minimum Load	3%		
	Ripple	$< 0.2\% V_{out} + 40\text{mV max (Vp-p)}$		
	Noise	$< 0.5\% V_{out} + 50\text{mV max (Vp-p)}$		
Protection	Switching Frequency	300KHz		
	Over Power Protection	Works over 120% of rating and recovers automatically.		
	Over Voltage Protection	Zener diode clamp		
Isolation	Short Circuit Protection	Current limit, auto-recovery		
	Voltage	1600 VDC.		
	Resistance	$10^8$ ohms		
Environment	Capacitance	1000 pF		
	Operating Temperature	2:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (at Full Load) 4:1 Range: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (with derating)		
	Storage Temperature	$-55^{\circ}\text{C} \dots +105^{\circ}\text{C}$		
	Case Temperature	$+100^{\circ}\text{C max.}$		
	Temperature Coefficient	$\pm 0.02\%$ Per $^{\circ}\text{C}$		
	Humidity	95% RH		
Physical	MTBF	$> 800,000$ h @ $25^{\circ}\text{C}$ (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 $\pm 0.5$ mm		
	Case Material	Five-side shielded Aluminum with Non-Conductive base, Black Anodize		
	Weight	32 g		
Safety	Cooling Method	Free-air convection		
	Agency Approvals	CE, UL		
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A		

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

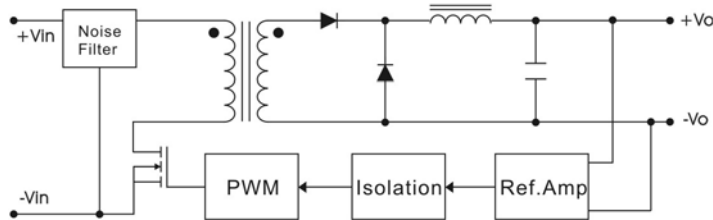
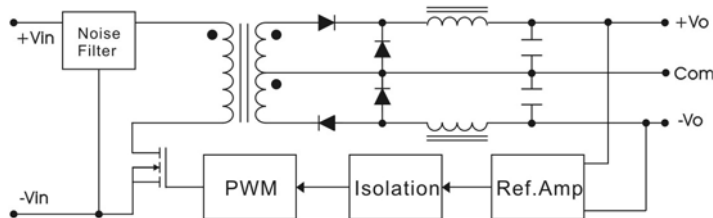
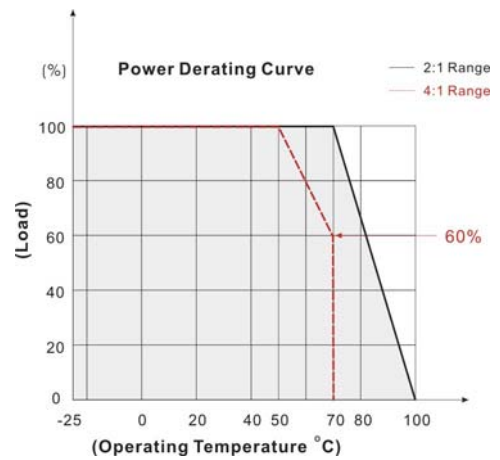
 II.Ripple & Noise are measured at 20MHz of bandwidth with 0.1 $\mu\text{F}$  & 47 $\mu\text{F}$  parallel capacitor.

**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

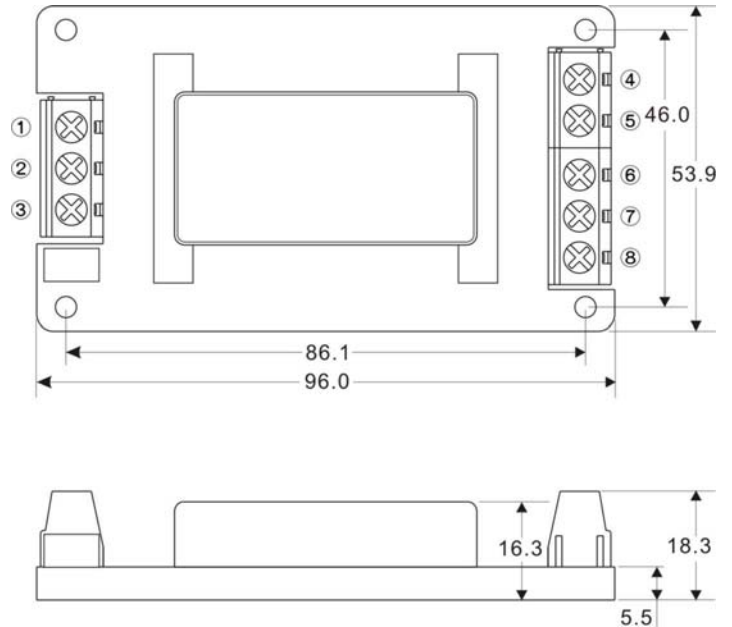
**Remote On/Off Control**

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

