

ST15 SERIES

15 Watts

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
- 2 Years Product Warranty



ELECTRICAL SPECIFICATIONS

Model No.	ST15-12-3.3S	ST15-12-5S	ST15-12-12S	ST15-12-15S	ST15-12-24S
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 / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA	24V / 625mA
Efficiency	77%	80%	82%	84%	84%

Model No.	ST15-24-3.3S	ST15-24-5S	ST15-24-12S	ST15-24-15S	ST15-24-24S
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 / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA	24V / 625mA
Efficiency	77%	82%	85%	86%	87%

Model No.	ST15-24F-3.3S	ST15-24F-5S	ST15-24F-12S	ST15-24F-15S
Input Voltage (V.DC.)	24V (10-40V)	24V (10-40V)	24V (10-40V)	24V (10-40V)
Output Voltage (V.DC.)	3.3V / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA
Efficiency	70%	76%	77%	75%

Model No.	ST15-48-3.3S	ST15-48-5S	ST15-48-12S	ST15-48-15S	ST15-48-24S
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 / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA	24V / 625mA
Efficiency	79%	83%	86%	87%	87%

Model No.	ST15-48F-3.3S	ST15-48F-5S	ST15-48F-12S	ST15-48F-15S
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	3.3V / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA
Efficiency	71%	78%	79%	79%

Model No. (Dual Output)	ST15-24F-5D	ST15-24F-12D	ST15-24F-15D
Input Voltage (V.DC.)	24V (10-40V)	24V (10-40V)	24V (10-40V)
Output Voltage (V.DC.)	±5V / ±1500mA	±12 / ±625mA	±15 / ±500mA
Efficiency	78%	79%	79%

Model No. (Dual Output)	ST15-48F-5D	ST15-48F-12D	ST15-48F-15D
Input Voltage (V.DC.)	48V (18-75V)	48V (18-75V)	48V (18-75V)
Output Voltage (V.DC.)	±5V / ±1500mA	±12 / ±625mA	±15 / ±500mA
Efficiency	78%	79%	79%

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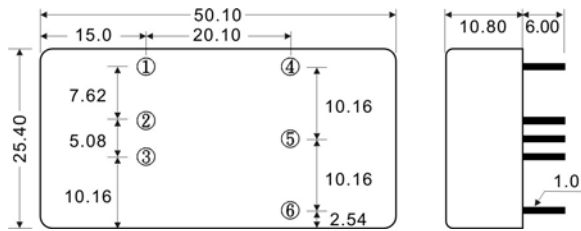
15 Watts

Model No. (Single Output)		ST15-12-3.3S ST15-24-3.3S ST15-24F-3.3S ST15-48-3.3S ST15-48F-3.3S	ST15-12-5S ST15-24-5S ST15-24F-5S ST15-48-5S ST15-48F-5S	ST15-12-12S ST15-24-12S ST15-24F-12S ST15-48-12S ST15-48F-12S	ST15-12-15S ST15-24-15S ST15-24F-15S ST15-48-15S ST15-48F-15S	ST15-12-24S ST15-24-24S ST15-48-24S
Max Output Wattage (W)		9.9W	15W	15W	15W	15W
Input	Input Filter	π type				
Output	Voltage (V.DC.)	3.3	5	12	15	24
	Voltage Accuracy	$\pm 2\%$				
	Current (mA) max	3000	3000	1250	1000	625
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$				
	Load Regulation (10-100%) (typ.)	$\pm 1\%$				
	Minimum Load	3%	3%	0%	0%	0%
	Ripple	$< 0.2\% V_{out} + 40mV \text{ max (Vp-p)}$				
	Noise	$< 0.5\% V_{out} + 50mV \text{ max (Vp-p)}$				
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	$-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (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	$> 800,000 \text{ h @ } 25^{\circ}\text{C}$ (MIL-HDBK-217F)				
	Dimension (L x W x H)	$1.97 \times 1.0 \times 0.425$ Inches ($50.1 \times 25.4 \times 10.8 \text{ mm}$) Tolerance $\pm 0.5 \text{ mm}$				
	Case Material	Nickel-Coated Copper with Non-conductive Base, Six-side Shielded				
	Weight	32 g				
Cooling Method		Free-air convection				
Safety	Agency Approvals	CE, UL				
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A				

Model No. (Dual Output)		ST15-12F-5D ST15-24F-5D ST15-48F-5D	ST15-12F-12D ST15-24F-12D ST15-48F-12D	ST15-12F-15D ST15-24F-15D ST15-48F-15D
Max Output Wattage (W)		15W		
Input	Input Filter	π type		
Output	Voltage (V.DC.)	± 5	± 12	± 15
	Voltage Accuracy	$\pm 2\%$		
	Current (mA) max	± 1500	± 625	± 500
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$		
	Load Regulation (10-100%)(Balance Load)	$\pm 1\%$		
	Minimum Load	3%		
	Ripple	$< 0.2\% V_{out} + 40mV \text{ max (Vp-p)}$		
	Noise	$< 0.5\% V_{out} + 50mV \text{ max (Vp-p)}$		
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	$-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (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	$> 800,000 \text{ h @ } 25^{\circ}\text{C}$ (MIL-HDBK-217F)		
	Dimension (L x W x H)	$1.97 \times 1.0 \times 0.425$ Inches ($50.1 \times 25.4 \times 10.8 \text{ mm}$) Tolerance $\pm 0.5 \text{ mm}$		
	Case Material	Nickel-Coated Copper with Non-conductive Base, Six-side Shielded		
	Weight	32 g		
Cooling Method		Free-air convection		
Safety	Agency Approvals	CE, UL		
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class A		

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

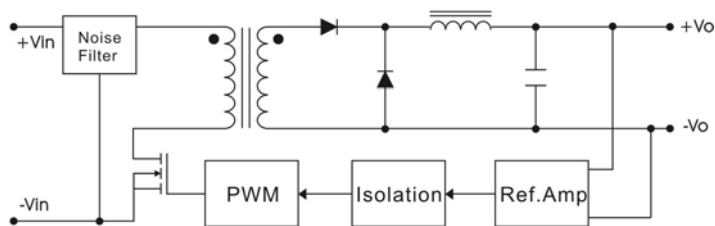
MECHANICAL DIMENSION (Top View)



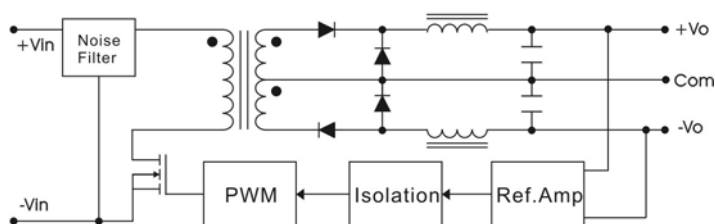
PIN#	Single	Dual
1	ON / OFF CTL (Optional)	ON / OFF CTL (Optional)
2	-DC IN	-DC IN
3	+DC IN	+DC IN
4	-DC OUT	-DC OUT
5	NO PIN	COMMON
6	+DC OUT	+DC OUT

BLOCK DIAGRAM

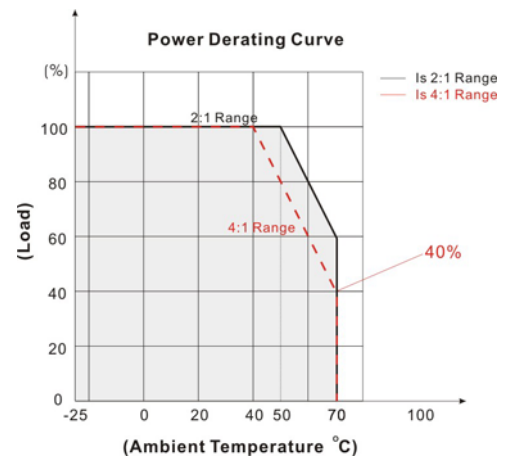
Single Output



Dual Outputs



DERATING



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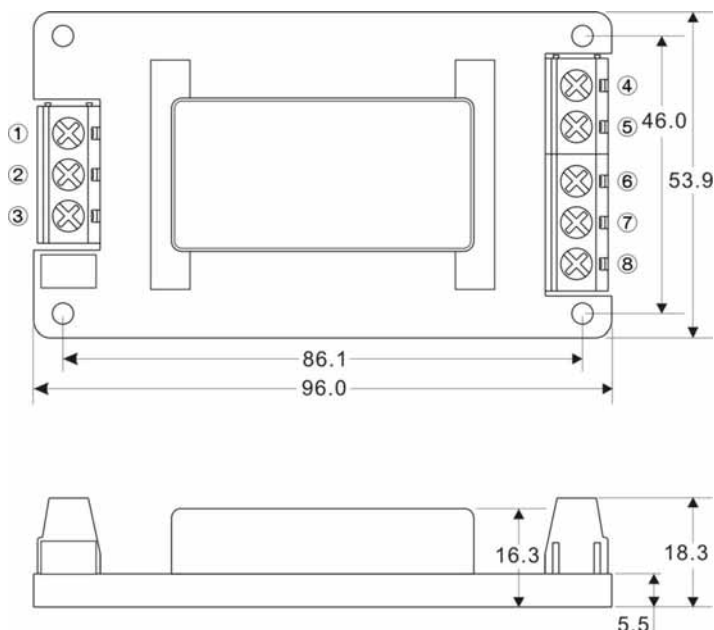
15 Watts

SCREW TERMINAL

ST15-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



ST15-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

