

**ZB15 SERIES**
**15 Watts**
**KEY FEATURES**

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


**ELECTRICAL SPECIFICATIONS**

Model No.	ZB15-12-3.3S	ZB15-12-5S	ZB15-12-12S	ZB15-12-15S	ZB15-12-24S
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.	ZB15-24-3.3S	ZB15-24-5S	ZB15-24-12S	ZB15-24-15S	ZB15-24-24S
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.	ZB15-24F-3.3S	ZB15-24F-5S	ZB15-24F-12S	ZB15-24F-15S
Input Voltage (V.DC.)	24V (9-36V)	24V (9-36V)	24V (9-36V)	24V (9-36V)
Output Voltage (V.DC.)	3.3V / 3000mA	5V / 3000mA	12V / 1250mA	15V / 1000mA
Efficiency	70%	76%	77%	75%

Model No.	ZB15-48-3.3S	ZB15-48-5S	ZB15-48-12S	ZB15-48-15S	ZB15-48-24S
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.	ZB15-48F-3.3S	ZB15-48F-5S	ZB15-48F-12S	ZB15-48F-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 )	ZB15-12-5D	ZB15-12-12D	ZB15-12-15D
Input Voltage (V.DC.)	12V (9-18V)	12V (9-18V)	12V (9-18V)
Output Voltage (V.DC.)	±5V / ±1500mA	±12 / ±625mA	±15 / ±500mA
Efficiency	78%	79%	79%

Model No. ( Dual Output )	ZB15-24-5D	ZB15-24-12D	ZB15-24-15D
Input Voltage (V.DC.)	24V (18-36V)	24V (18-36V)	24V (18-36V)
Output Voltage (V.DC.)	±5V / ±1500mA	±12 / ±625mA	±15 / ±500mA
Efficiency	78%	79%	79%

Model No. ( Dual Output )	ZB15-48-5D	ZB15-48-12D	ZB15-48-15D
Input Voltage (V.DC.)	48V (36-75V)	48V (36-75V)	48V (36-75V)
Output Voltage (V.DC.)	±5V / ±1500mA	±12 / ±625mA	±15 / ±500mA
Efficiency	78%	79%	79%

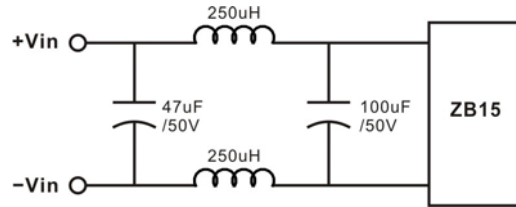
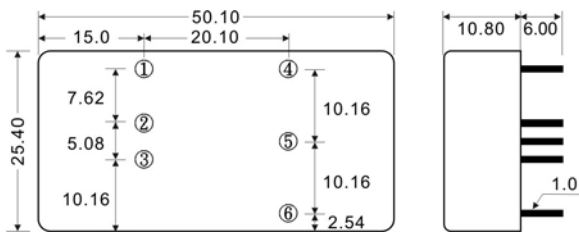
**ZB15 SERIES**
**15 Watts**

Model No.	( Single Output )	ZB15-12-3.3S ZB15-24-3.3S ZB15-24F-3.3S ZB15-48-3.3S ZB15-48F-3.3S	ZB15-12-5S ZB15-24-5S ZB15-24F-5S ZB15-48-5S ZB15-48F-5S	ZB15-12-12S ZB15-24-12S ZB15-24F-12S ZB15-48-12S ZB15-48F-12S	ZB15-12-15S ZB15-24-15S ZB15-24F-15S ZB15-48-15S ZB15-48F-15S	ZB15-12-24S ZB15-24-24S ZB15-48-24S
Max Output Wattage (W)		9.9W	15W	15W	15W	15W
Input	Input Filter	$\pi$ 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%	1%	1%	0%
	Ripple	$< 0.2\%$ Vout +40mV max (Vp-p)				
	Noise	$< 0.5\%$ Vout +50mV 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	$-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (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(except ZB15-12-3.3S/ZB15-12-5S/ZB15-12-12S/ZB15-12-15S/ZB15-12-24S)				
EMC	EMI (Conducted & Radiated Emission) (Note3)	EN 55022 class A				

Model No.	( Dual Output )	ZB15-12-5D ZB15-24-5D ZB15-48-5D	ZB15-12-12D ZB15-24-12D ZB15-48-12D	ZB15-12-15D ZB15-24-15D ZB15-48-15D
Max Output Wattage (W)		15W		
Input	Input Filter	$\pi$ type		
Output	Voltage (V.DC.)	$\pm 5$	$\pm 12$	$\pm 15$
	Voltage Accuracy	$\pm 2\%$		
	Current (mA) max	$\pm 1500$	$\pm 625$	$\pm 500$
	Line Regulation (LL-HL) (typ.)	$\pm 0.5\%$		
	Load Regulation (10-100%)(Balance Load)	$\pm 1\%$		
	Minimum Load	3%		
	Ripple	$< 0.2\%$ Vout +40mV max (Vp-p)		
	Noise	$< 0.5\%$ Vout +50mV 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	$-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (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		
EMC	EMI (Conducted & Radiated Emission) (Note3)	EN 55022 class A		

**Note:**

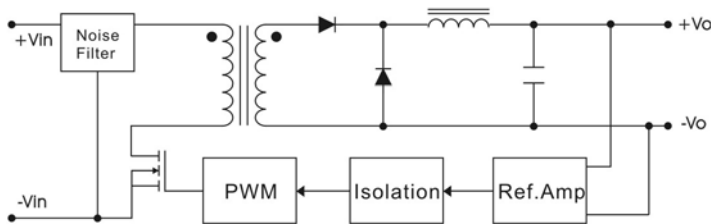
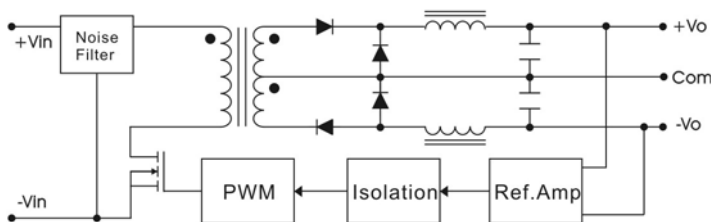
1. All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.
2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
3. For EMI test, Please refer to below.


**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 available for standard ZB15 models  
 Add suffix -N for models WITHOUT Control Pin

**BLOCK DIAGRAM**
**Single Output**

**Dual Outputs**

**DERATING**
