

# Datasheet

## 350W Single Output DC-DC Converter

## SD-350 series



### ■ Features :

- 2:1 wide input range
- Protections: Short circuit / Overload / Over voltage / Over temperature
- 1500VDC I/O isolation
- Forced air cooling by built-in DC Fan
- 100% full load burn-in test
- 24V and 48V input voltage design refer to LVD
- 2 years warranty

**CB** (for D type only) **CE**

### SPECIFICATION

MODEL		678-3638	491-245	183-938	678-3631		678-3644	183-922	678-3647
OUTPUT	DC VOLTAGE	5V	12V	24V	48V	5V	12V	24V	48V
	RATED CURRENT	57A	27.5A	14.6A	7.3A	60A	27.5A	14.6A	7.3A
	CURRENT RANGE	0 ~ 57A	0 ~ 27.5A	0 ~ 14.6A	0 ~ 7.3A	0 ~ 60A	0 ~ 27.5A	0 ~ 14.6A	0 ~ 7.3A
	RATED POWER	285W	330W	350.4W	350.4W	300W	330W	350.4W	350.4W
	RIPPLE & NOISE (max.) Note.2	100mVp-p	120mVp-p	150mVp-p	200mVp-p	100mVp-p	120mVp-p	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	4.5 ~ 5.5VDC	11 ~ 16VDC	23 ~ 30VDC	43 ~ 53VDC	4.5 ~ 5.5VDC	11 ~ 16VDC	23 ~ 30VDC	43 ~ 53VDC
	VOLTAGE TOLERANCE Note.3	2.0%	1.0%	1.0%	1.0%	2.0%	1.0%	1.0%	1.0%
	LINE REGULATION	0.5%	0.3%	0.2%	0.2%	0.5%	0.3%	0.2%	0.2%
	LOAD REGULATION	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
INPUT	SETUP, RISE TIME	300ms, 50ms at full load							
	VOLTAGE RANGE	B:19 ~ 36VDC		C:36 ~ 72VDC		D:72 ~ 144VDC			
	EFFICIENCY (Typ.)	74%	80%	80%	84%	76%	81%	81%	82%
	DC CURRENT (Typ.)	14.4A/24V	16A/24V	17.6A/24V	17.6A/24V	7.6A/48V	8.8A/48V	9.0A/48V	9.0A/48V
	INRUSH CURRENT (Typ.)	C:45A/48VDC D:45A/96VDC							
PROTECTION	OVERLOAD	105 ~ 135% rated output power							
		Protection type : Shut down o/p voltage, re-power on to recover							
	OVER VOLTAGE	5.75 ~ 6.75V	16.8 ~ 20V	31.5 ~ 37.5V	53 ~ 65V	5.75 ~ 6.75V	16.8 ~ 20V	31.5 ~ 37.5V	53 ~ 65V
		Protection type : Shut down o/p voltage, re-power on to recover							
ENVIRONMENT	OVER TEMPERATURE	95°C 5°C (TSW1) detect on main power transistor							
		Protection type : Shut down o/p voltage, recovers automatically after temperature goes down							
	WORKING TEMP.	-20 ~ +60°C (Refer to output load derating curve)							
	WORKING HUMIDITY	20 ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH							
SAFETY & EMC (Note 4)	TEMP. COEFFICIENT	0.03%/°C (0 ~ 50°C)							
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes							
	SAFETY STANDARDS	IEC60950-1 CB approved by TUV (for D type only)							
	WITHSTAND VOLTAGE	I/P-O/P:1.5KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC							
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC							
OTHERS	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B							
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,6,8; ENV50204, light industry level, criteria A							
	MTBF	209.4K hrs min. MIL-HDBK-217F (25°C)							
	DIMENSION	215*115*50mm (L*W*H)							
NOTE	PACKING	1.1Kg; 12pcs/14.4Kg/0.92CUFT							
		1. All parameters NOT specially mentioned are measured at 24,48,96VDC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.							


**■ Features :**

- 2:1 wide input range
- Protections: Short circuit / Overload / Over voltage / Over temperature
- 1500VDC I/O isolation
- Forced air cooling by built-in DC Fan
- 100% full load burn-in test
- 24V(B) and 48V(C) input voltage design refer to LVD
- 2 years warranty

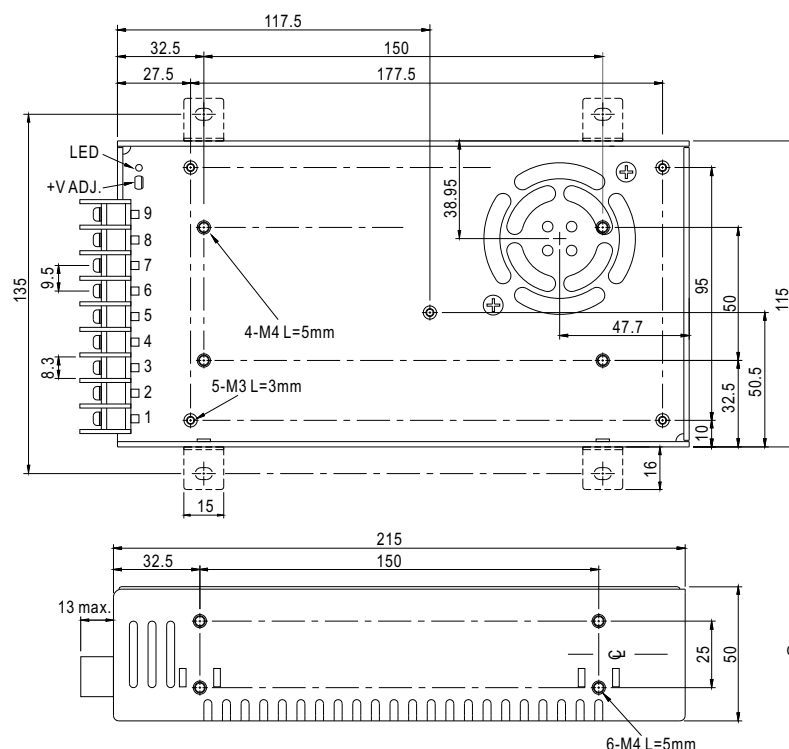
**CB** (for D type only) **CE**
**SPECIFICATION**

MODEL		678-3650		183-916	678-3653
OUTPUT	DC VOLTAGE	5V	12V	24V	48V
	RATED CURRENT	60A	29.2A	14.6A	7.3A
	CURRENT RANGE	0 ~ 60A	0 ~ 29.2A	0 ~ 14.6A	0 ~ 7.3A
	RATED POWER	300W	350.4W	350.4W	350.4W
	RIPPLE & NOISE (max.) <small>Note.2</small>	100mVp-p	120mVp-p	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	4.5 ~ 5.5VDC	11 ~ 16VDC	23 ~ 30VDC	43 ~ 53VDC
	VOLTAGE TOLERANCE <small>Note.3</small>	2.0%	1.0%	1.0%	1.0%
	LINE REGULATION	0.5%	0.3%	0.2%	0.2%
	LOAD REGULATION	1.0%	1.0%	1.0%	1.0%
SETUP, RISE TIME	300ms, 50ms at full load				
INPUT	VOLTAGE RANGE	B:19 ~ 36VDC    C:36 ~ 72VDC    D:72 ~ 144VDC			
	EFFICIENCY (Typ.)	78%	83%	87%	89%
	DC CURRENT (Typ.)	6A/96V	6A/96V	6A/96V	6A/96V
	INRUSH CURRENT (Typ.)	C:45A/48VDC    D:45A/96VDC			
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Shut down o/p voltage, re-power on to recover			
	OVER VOLTAGE	5.75 ~ 6.75V	16.8 ~ 20V	31.5 ~ 37.5V	53 ~ 65V
	OVER TEMPERATURE	75℃   5℃ (TSW1) detect on main power transistor Protection type : Shut down o/p voltage, recovers automatically after temperature goes down			
	WORKING TEMP.	-20 ~ +60℃ (Refer to output load derating curve)			
ENVIRONMENT	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH			
	TEMP. COEFFICIENT	0.03%/℃ (0 ~ 50℃)			
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes			
	SAFETY STANDARDS	IEC60950-1 CB approved by TUV (for D type only)			
SAFETY & EMC <small>(Note 4)</small>	WITHSTAND VOLTAGE	I/P-O/P:1.5KVAC   I/P-FG:1.5KVAC   O/P-FG:0.5KVAC			
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC			
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B			
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,6,8; ENV50204, light industry level, criteria A			
OTHERS	MTBF	209.4K hrs min.   MIL-HDBK-217F (25℃)			
	DIMENSION	215*115*50mm (L*W*H)			
	PACKING	1.1Kg; 12pcs/14.4Kg/0.92CUFT			
NOTE	1. All parameters NOT specially mentioned are measured at 24,48,96VDC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.				

File Name:SD-350-SPEC 2007-10-25

## Mechanical Specification

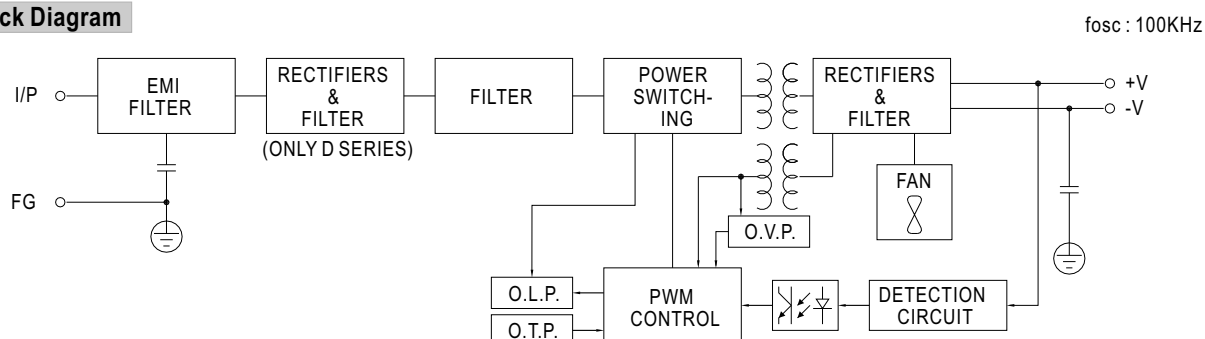
Case No. 912A Unit:mm



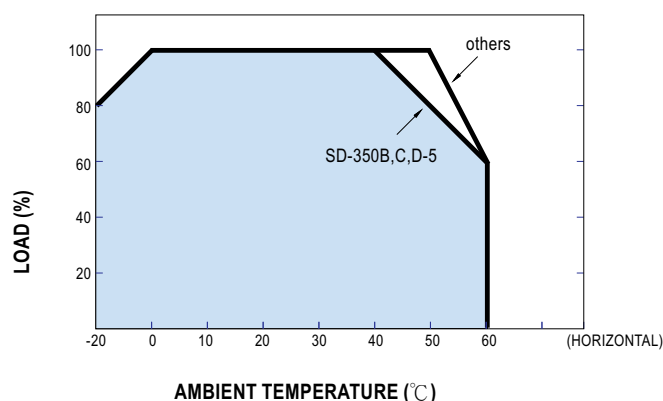
Terminal pin number assignment :

Pin No.	Assignment	Pin No.	Assignment
1	DC INPUT V+	4,5,6	DC OUTPUT V-
2	DC INPUT V-	7,8,9	DC OUTPUT V+
3	FG $\perp$		

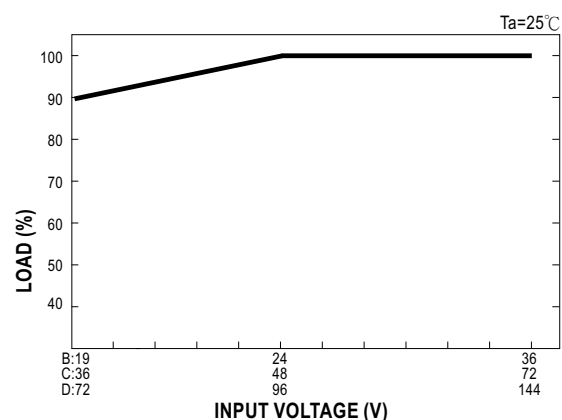
## Block Diagram



## Derating Curve



## Static Characteristics



File Name:SD-350-SPEC 2007-10-25