



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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■ Features :

- Universal AC input / Full range (up to 295VAC)
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Output voltage and constant current level adjustable
- Built-in active PFC function
- IP66 design for indoor or outdoor installations
- Class 2 power unit
- Cooling by free air convection
- 100% full load burn-in test
- High reliability
- Suitable for LED lighting and moving sign applications
- Compliance to worldwide safety regulations for lighting
- Suitable for dry / damp / wet locations
- 3 years warranty

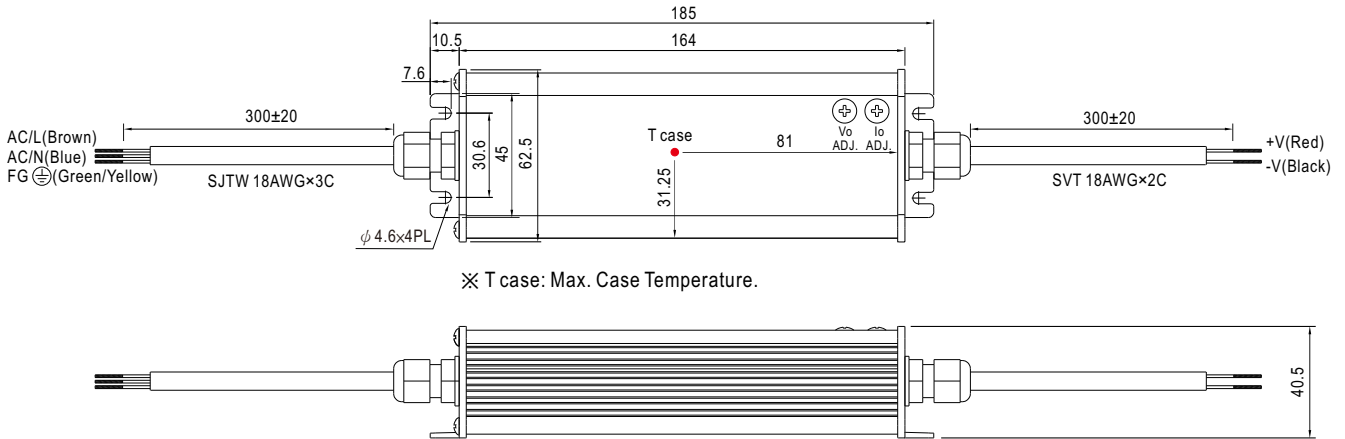


**SPECIFICATION**

MODEL		CEN-60-12	CEN-60-15	CEN-60-20	CEN-60-24	CEN-60-30	CEN-60-36	CEN-60-42	CEN-60-48	CEN-60-54	
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	30V	36V	42V	48V	54V	
	CONSTANT CURRENT REGION Note.5	9 ~ 12V	11.25 ~ 15V	15 ~ 20V	18 ~ 24V	22.5 ~ 30V	27 ~ 36V	31.5 ~ 42V	36 ~ 48V	40.5 ~ 54V	
	RATED CURRENT	5A	4A	3A	2.5A	2A	1.7A	1.45A	1.3A	1.15A	
	CURRENT RANGE	0 ~ 5A	0 ~ 4A	0 ~ 3A	0 ~ 2.5A	0 ~ 2A	0 ~ 1.7A	0 ~ 1.45A	0 ~ 1.3A	0 ~ 1.15A	
	RATED POWER	60W	60W	60W	60W	60W	61.2W	60.9W	62.4W	62.1W	
	RIPPLE & NOISE (max.) Note.2	2Vp-p	2.4Vp-p	1.8Vp-p	2.4Vp-p	3Vp-p	3.6Vp-p	4Vp-p	4.6Vp-p	5Vp-p	
	VOLTAGE ADJ. RANGE (SVR1)	10.8 ~ 13.5V	13.5 ~ 17V	17 ~ 22V	22 ~ 27V	27 ~ 33V	33 ~ 40V	37 ~ 46V	43 ~ 53V	49 ~ 58V	
	CURRENT ADJ. RANGE(SVR2)	3.75 ~ 5A	3 ~ 4A	2.3 ~ 3A	1.9 ~ 2.5A	1.5 ~ 2A	1.3 ~ 1.7A	1.1 ~ 1.45A	1 ~ 1.3A	0.9 ~ 1.15A	
	VOLTAGE TOLERANCE Note.3	±10%									
	LINE REGULATION	±3.0%									
LOAD REGULATION	±5.0%										
SETUP TIME	500ms / 230VAC 1200ms / 115VAC at full load										
INPUT	VOLTAGE RANGE Note.4	90 ~ 295VAC		127 ~ 417VDC							
	FREQUENCY RANGE	47 ~ 63Hz									
	POWER FACTOR (Typ.)	PF>0.97/115VAC, PF>0.95/230VAC, PF>0.9/277VAC at full load (Please refer to "Power Factor Characteristic" curve)									
	TOTAL HARMONIC DISTORTION	THD< 20% when output loading≥75% at 115VAC/230VAC input and output loading≥80% at 277VAC input									
	EFFICIENCY (Typ.)	86%	87%	88%	89%	90%	90%	90%	91%	91%	
	AC CURRENT (Typ.)	0.8A/115VAC	0.4A/230VAC	0.3A/277VAC							
	INRUSH CURRENT (Typ.)	COLD START 45A(twidth=85μs measured at 50% Ipeak) at 230VAC									
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	32 units (circuit breaker of type B) / 32 units (circuit breaker of type C) at 230VAC									
LEAKAGE CURRENT	<0.75mA / 240VAC										
PROTECTION	OVER CURRENT	95 ~ 110% Protection type : Constant current limiting, recovers automatically after fault condition is removed									
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed									
	OVER VOLTAGE	14.5 ~ 17V	17.5 ~ 21V	22.8 ~ 26V	28 ~ 34V	34 ~ 38V	41 ~ 46V	47 ~ 52V	54 ~ 60V	59 ~ 65V	
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover									
ENVIRONMENT	WORKING TEMP.	-30 ~ +70°C (Refer to "Derating Curve")									
	WORKING HUMIDITY	20 ~ 95% RH non-condensing									
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH									
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)									
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes									
SAFETY & EMC	SAFETY STANDARDS	UL879, UL8750, CSA C22.2 No. 207-M89, CSA C22.2 No. 250.0-08, TUV EN61347-1, EN61347-2-13, IP66, J61347-1, J61347-2-13, BIS IS15885(for 36V,48V,54V only), EAC TP TC 004, GB19510.1, GB19510.14 approved									
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC									
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C/ 70% RH									
	EMC EMISSION	Compliance to EN55015, EN61000-3-2 Class C (≥75% load) ; EN61000-3-3, GB17743 and GB17625.1, EAC TP TC 020									
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61547, light industry level (surge 4KV), criteria B, EAC TP TC 020									
OTHERS	MTBF	523.4Khrs min. MIL-HDBK-217F (25°C)									
	DIMENSION	185*62.5*40.5mm (L*W*H)									
	PACKING	0.6Kg;24pcs/15.4Kg/1.29CUFT									
NOTE	<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. Derating may be needed under low input voltage. Please check the static characteristics for more details.</li> <li>5. Please refer to "DRIVING METHODS OF LED MODULE".</li> <li>6. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.</li> <li>7. Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.</li> <li>8. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power supply can only be used behind a switch without permanently connected to the mains.</li> <li>9. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).</li> </ol>										

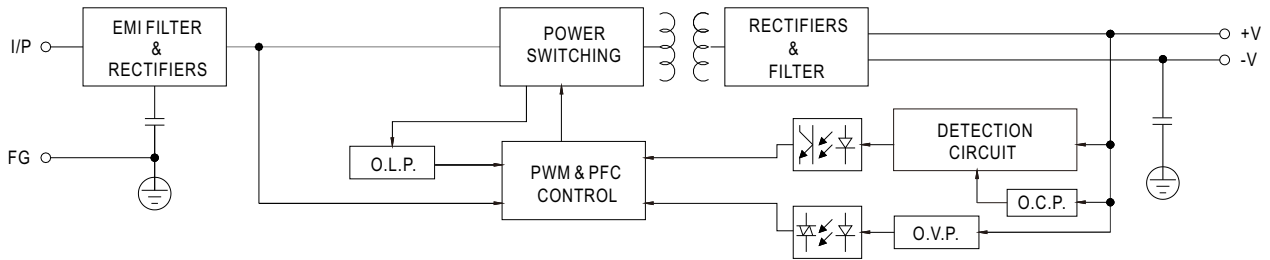
■ Mechanical Specification

Case No.993B Unit:mm

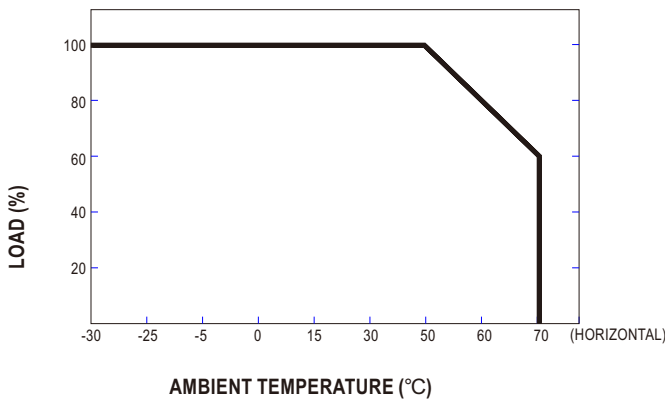


■ Block Diagram

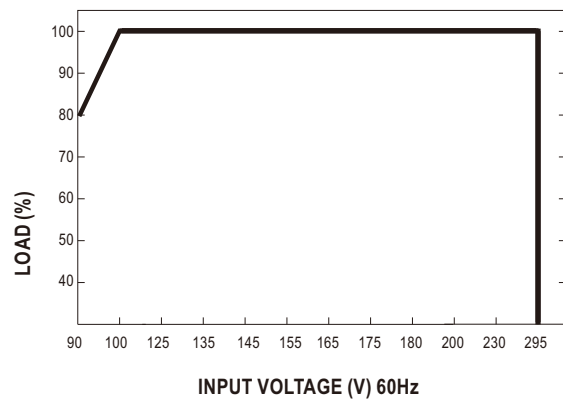
fosc : 50KHz(115VAC)  
75KHz(230VAC)



■ Derating Curve



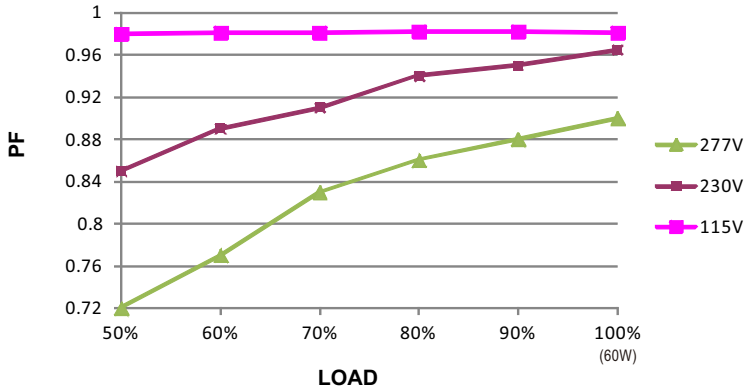
■ Static Characteristics





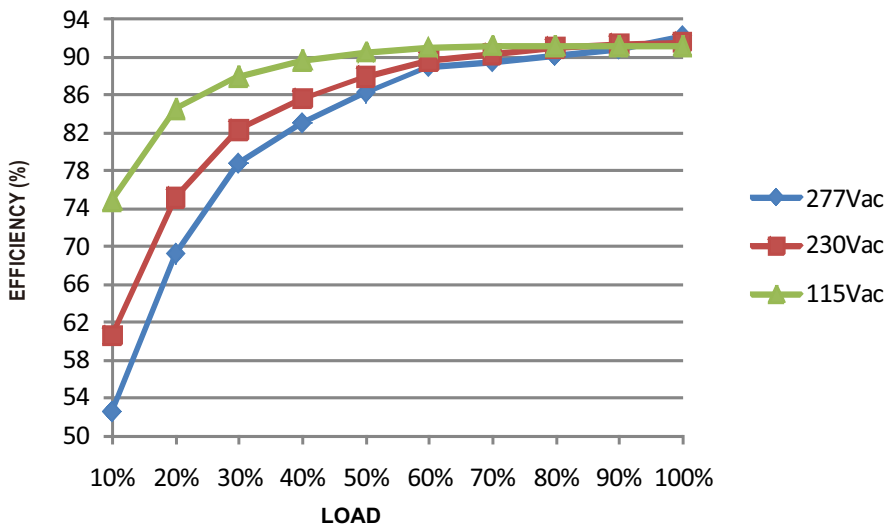
**Power Factor Characteristic**

**Constant Current Mode**



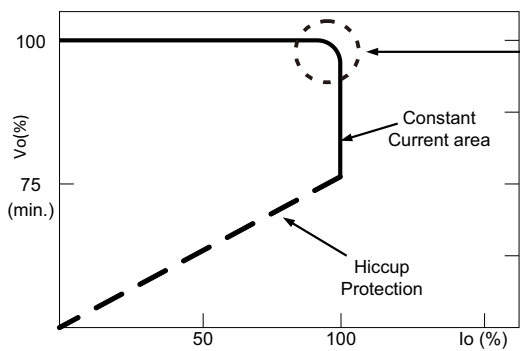
**EFFICIENCY vs LOAD (48V Model)**

CEN-60 series possess superior working efficiency that up to 91% can be reached in field applications.



**DRIVING METHODS OF LED MODULE**

This LED power supply is suggested to work in constant current mode area (CC) to drive the LEDs.



Typical LED power supply I-V curve

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems. Should there be any compatibility issues, please contact MEAN WELL.