



ZORANTECH
卓然照明

60W DALI dimming constant voltage waterproof led driver



■ Features

- Constant Voltage (C.V.) output
- Built-in active PFC function, High efficiency up to 88%
- Input voltage/Full range(up to 305VAC)
- Protections:Short circuit/Over voltage/Over load/Over temperature
- THD≤10%, Dimming range:0-100% or 10-100%
- Comply with DALI V0 IEC60929 and DALI V1 V2 IEC62386 standards
- Noise free, flicker free, 5 years warranty
- OEM & ODM, no MOQ, Support customization

■ Applications

- LED outdoor lighting
- LED strip light
- LED kitchen light
- LED wall washer light
- LED underground light
- LED tunel light
- LED garden lights
- LED line light
- LED stage lights
- LED Spot light

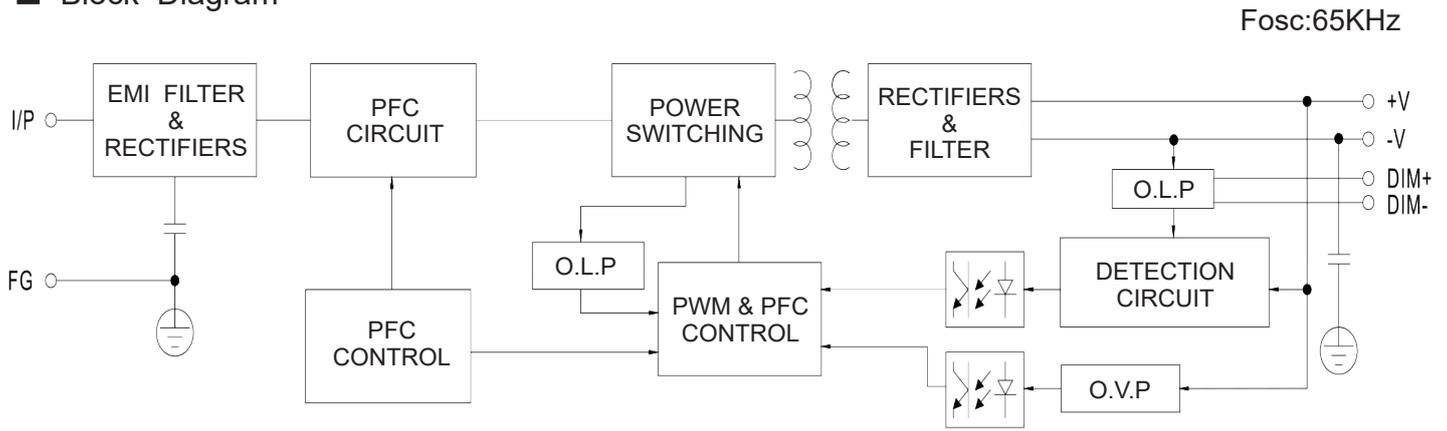
■ Description

The DALI constant voltage series produced by Zoran Technology is an AC-to-DC dimming driver.operates from 90~305VAC and offers models with different rated voltage ranging ~ between 12V/24V/36V/48V/54V/60V etc. Thanks to the high efficiency up to 88%, with the fanless design, the entire series is able to operate for -40~ +80 °C case temperature under free air convection. It can be widely matched with all European dimmers and lighting control systems, Australian mainstream dimmers and lighting control systems, such as: Philips, Osram, Lutron, Leviton and Tridonic dimmers and systems, flicker free,achieve perfect soft dimming.

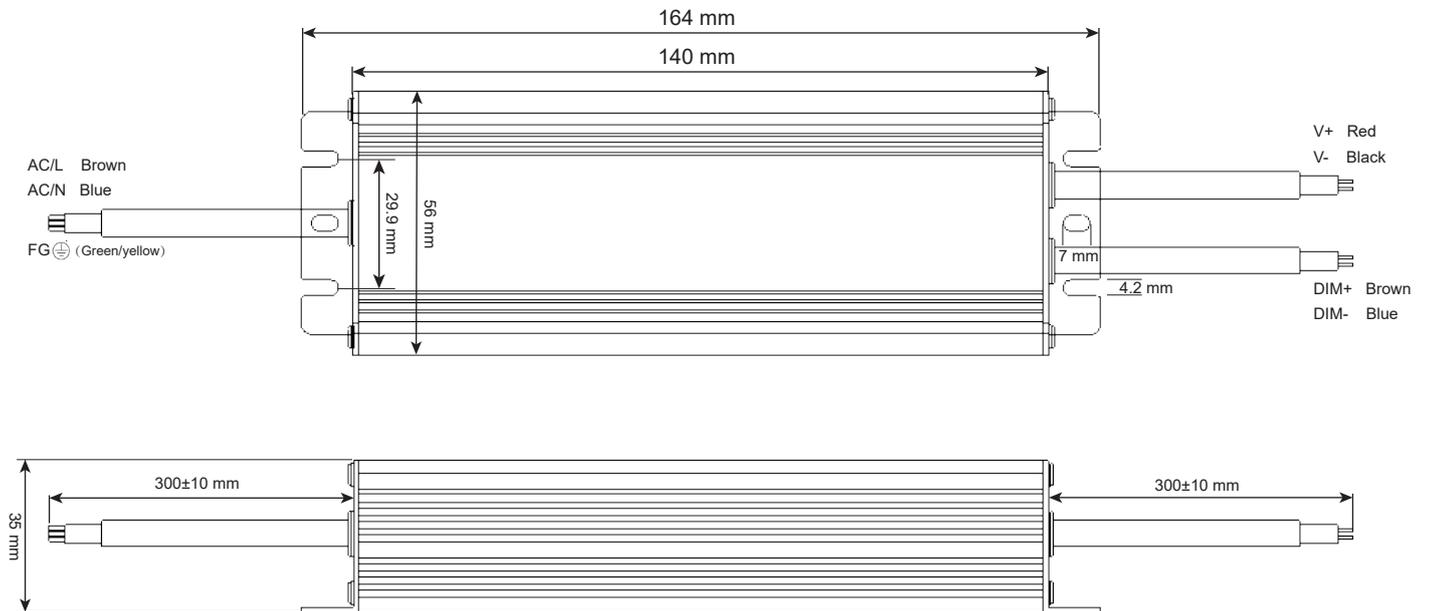
■ Electrical Specification

MODEL		ZR-HVM12ND-60W	ZR-HVM24ND-60W	ZR-HVM36ND-60W	ZR-HVM48ND-60W	ZR-HVM54ND-60W
Output	Output Voltage <small>Note.1</small>	12 VDC	24 VDC	36 VDC	48 VDC	54 VDC
	Output Current <small>Note.2</small>	5000 mA	2500 mA	1670 mA	1250 mA	1110 mA
	Rated Power	60 W	60 W	60 W	60 W	60 W
	Voltage Tolerance <small>Note.4</small>	±3%	±3%	±3%	±3%	±3%
	Auxiliary output(customizable)	12VDC	12VDC	12VDC	12VDC	12VDC
	Setup,Rise Time <small>Note.6</small>	500ms,100ms/115VAC 500ms,100ms/230VAC				
	Hold Up Time <small>(Typ.)</small>	10ms/115VAC 230VAC				
Input	Rate Voltage <small>Note.5</small>	90~265VAC OR 100-277VAC				
	Frequency Range	48-62Hz				
	Power Factor	PF≥0.98/115VAC PF≥0.96/230VAC PF≥0.95/265VAC at full load				
	THD	THD≤15%(Bipolar)				
	Full load Efficiency	≥85%	≥85%	≥86%	≥86%	≥88%
	AC Current <small>(Typ.)</small>	0.6A/115VAC 0.3A/230VAC 0.26A/265VAC				
	Input signal <small>(Typ.)</small>	DALI or PUSH dim				
	No-load power consumption	≤1.0W				
Protection	Over Current	95-108%				
		Protection type:Constant current limiting,recovers automatically after fault condition is removed				
	Over Load	≤120% Recovers automatically after fault condition is removed				
	Short Circuit	Hiccup Mode,Recovers automatically after fault condition is removed				
	Over Voltage	Protection type:Shut down O/P voltage,re-power on to recover				
Over Temperature	Shut down O/P voltage,re-power on to recover					
Environment	Working Temperature	Tcase=-40~+80 ℃ (Refer to "Derating curve")				
	Max Case Temperature	Tcase=+90 ℃				
	Working Humidity	20-95%RH non-condensing				
	Storage TEMP. Humidity	-40~+80 ℃ 10-95%RH				
	TEMP. Coefficient	±0.03%/ ℃ (0-50 ℃)				
Safety & EMC	Safe Standards	U8750,CSA C22.2 No.250.13-12;ENEC AS/NZS IEC EN61347-1;AS/NZS IEC EN61347-2-13 independent EN62348;GB19510.14 IP65 or IP67				
	DALI Standards	Compliance to IEC-62386-101,102,207(only to YD/ND series)				
	Withstand Voltage	I/P-O/P:3.75KVAC I/P-FG:2.0KVAC O/P-FG:1.0KVAC				
	Isolation Resistance	I/P-O/P,I/P-FG,O/P-FG:100M ohms/500VDC/25 ℃/70%RH				
	EMC Emission	Compliance to EN55015,EN61000-3-2 Class C(≥60% load);EN61000-3-3;GB17743;GB17625.1				
EMC Immunity	Compliance to EN61000-4-2,3,4,5,6,8,11;EN61547 heavy industry level(surge 4KV)					
Others	Dimension	L 164*W 56*H 35 mm				
	Weight	600g				
	Packing	30pcs/19Kg/ctn				
Note	<p>1.All parameters Not specially mentioned are measured at 230VAC input, rated load and 25 ℃ of ambient temperature.</p> <p>2.Ripple&Noise are measured at 20MHz of bandwidth by using a 12"twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.</p> <p>3.Tolerance: includes set up tolerance, line regulation and load regulation.</p> <p>4.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 manufactures must re-qualify EMC Directive on the complete installation again.</p> <p>5.Please refer to the product warranty on Zoran Technology website http://www.zorantech.com.</p> <p>6.If you need other special parameters, please contact our customer service for consultation!</p>					

■ Block Diagram

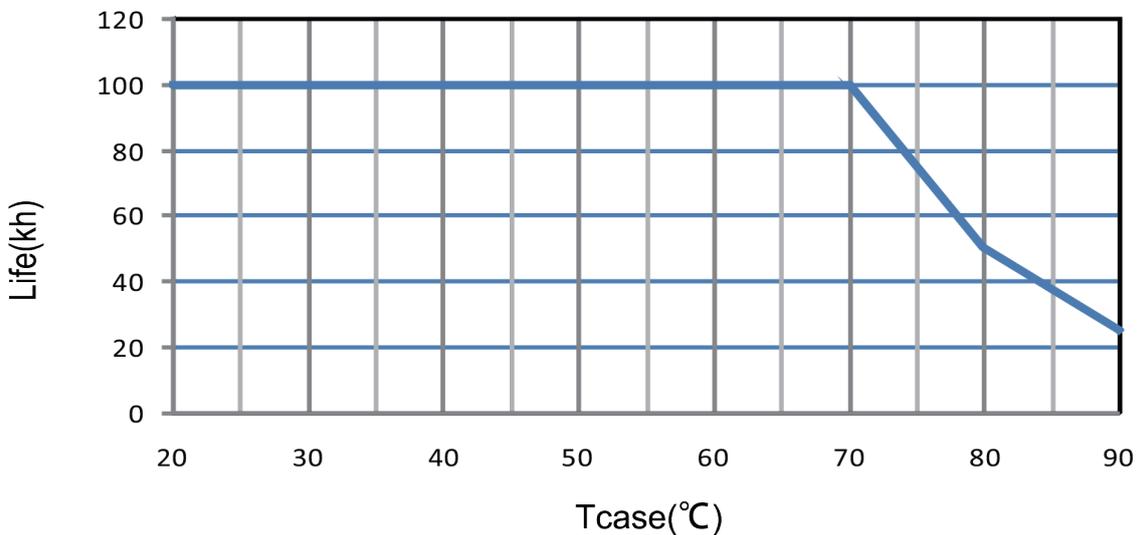


■ Mechanical Specification

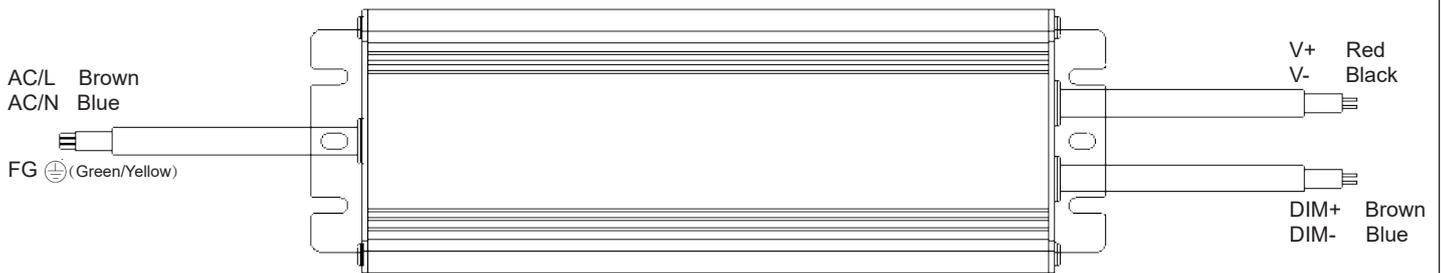


- ※ The yellow-green wire at the input is the ground (FG), the brown wire is the AC phase wire(L),and blue wire is the AC neutral wire (N);
- ※ The brown wire at the output is the positive dimming signal (DIM+) and the blue wire is the dimming signal negative (DIM-), the red wire is the positive output voltage(V+)and black wire is the negative output voltage(V-);
- ※ In addition, the length and thickness of the input and output lines can be customized according to customer requirements. Please contact Zoran Customer Service for details;

■ Life



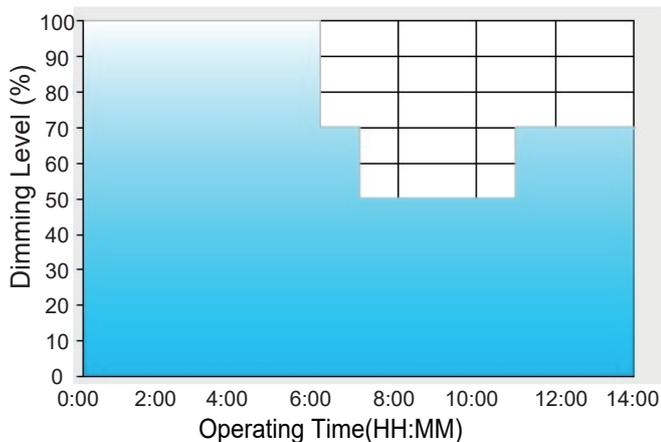
■ Dimming Operation



※ DALI Interface

- Add DALI signal between DA+ and DA- ;
- DALI protocol 16 groups and 64 addresses ;
- Can set any output current to boot ;

◎ D01-Type: the profile recommended for residential lighting



Set up for D01-Type in Smart time dimming software program:

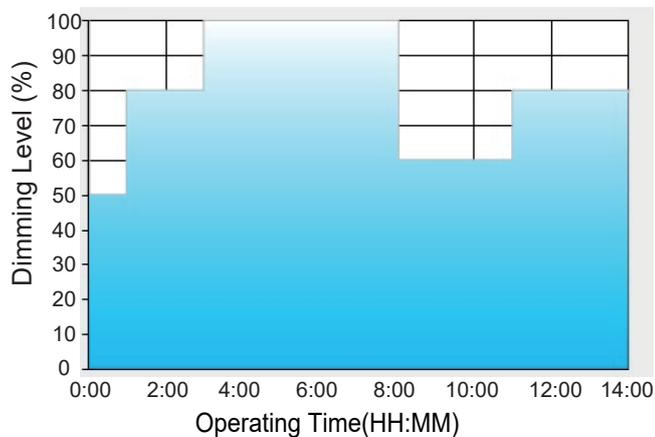
	T1	T2	T3	T4
TIME **	06:00	07:00	11:00	----
LEVEL **	100%	70%	50%	70%

** : Time matches Operating Time in the diagram whereas LEVEL matches Dimming level.

Example: If a residential lighting application adopts D01-Type, when turning on the power supply at 6:00pm, for instance:

- [1] The power supply will switch to the constant current level at 100% starting from 6:00pm.
 - [2] The power supply will switch to the constant current level at 70% in turn, starting from 0:00am, which is 06:00 after the power supply turns on.
 - [3] The power supply will switch to the constant current level at 50% in turn, starting from 1:00am, which is 07:00 after the power supply turns on.
 - [4] The power supply will switch to the constant current level at 70% in turn, starting from 5:00am, which is 11:00 after the power supply turns on.
- The constant current level remains till 8:00am, which is 14:00 after the power supply turns on.

◎ D02-Type: the profile recommended for street lighting



Set up for D02-Type in Smart time dimming software program:

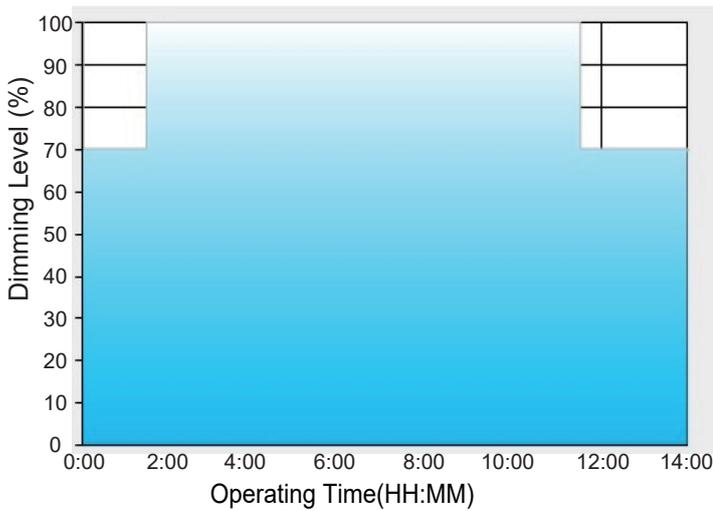
	T1	T2	T3	T4	T5
TIME **	01:00	03:00	08:00	11:00	----
LEVEL **	50%	80%	100%	60%	80%

** : Time matches Operating Time in the diagram whereas LEVEL matches Dimming level.

Example: If a street lighting application adopts D02-Type, when turning on the power supply at 5:00pm, for instance:

- [1] The power supply will switch to the constant current level at 50% starting from 5:00pm.
 - [2] The power supply will switch to the constant current level at 80% in turn, starting from 6:00pm, which is 01:00 after the power supply turns on.
 - [3] The power supply will switch to the constant current level at 100% in turn, starting from 8:00pm, which is 03:00 after the power supply turns on.
 - [4] The power supply will switch to the constant current level at 60% in turn, starting from 1:00am, which is 08:00 after the power supply turns on.
 - [5] The power supply will switch to the constant current level at 80% in turn, starting from 4:00am, which is 11:00 after the power supply turns on.
- The constant current level remains till 6:30am, which is 14:00 after the power supply turns on.

◎ D03-Type: the profile recommended for tunnel lighting:



Set up for D03-Type in Smart time dimming software program:

	T1	T2	T3
TIME **	01:30	11:00	----
LEVEL **	70%	100%	70%

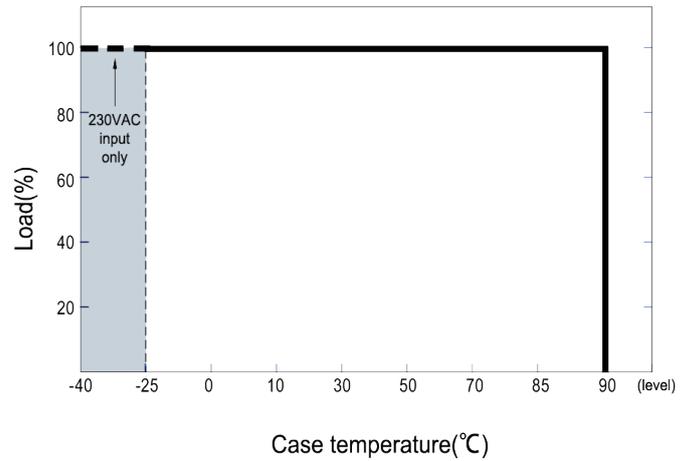
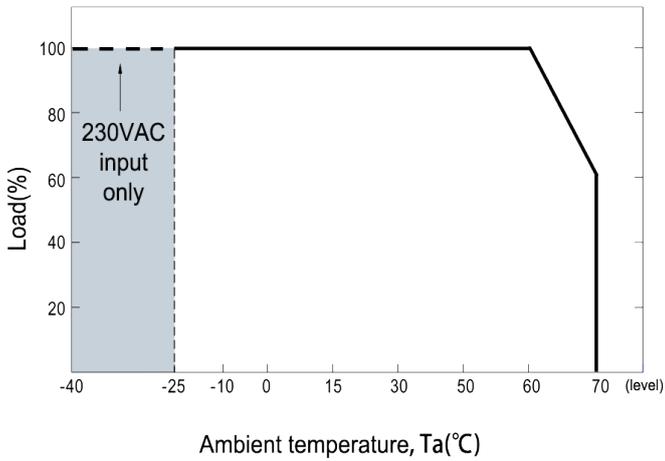
** : Time matches Operating Time in the diagram whereas LEVEL matches Dimming level.

Example: If a residential lighting application adopts D03-Type, when turning on the power supply at 4:30pm, for instance:

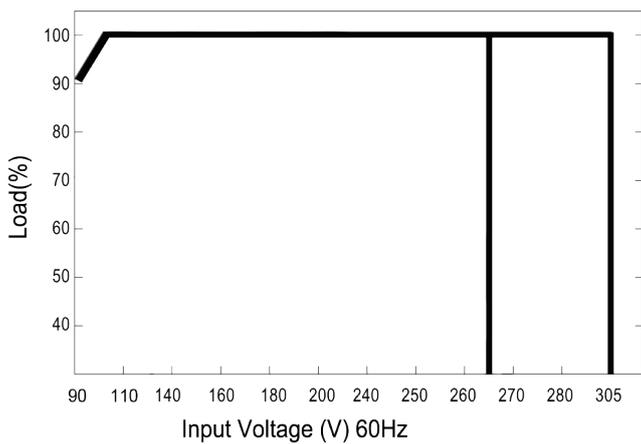
- [1] The power supply will switch to the constant current level at 70% starting from 4:30pm.
- [2] The power supply will switch to the constant current level at 100% in turn, starting from 6:00pm, which is 01:30 after the power supply turns on.
- [3] The power supply will switch to the constant current level at 70% in turn, starting from 5:00am, which is 11:00 after the power supply turns on. The constant current level remains till 6:30am, which is 14:00 after the power supply turns on.



■ Output load VS Temperature



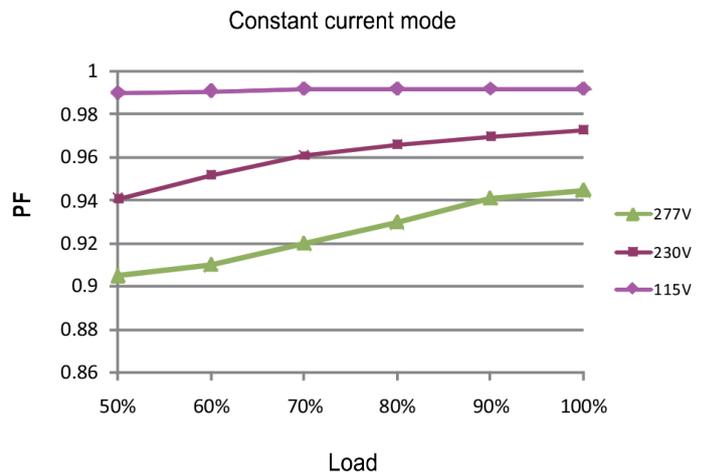
■ Static characteristic curve



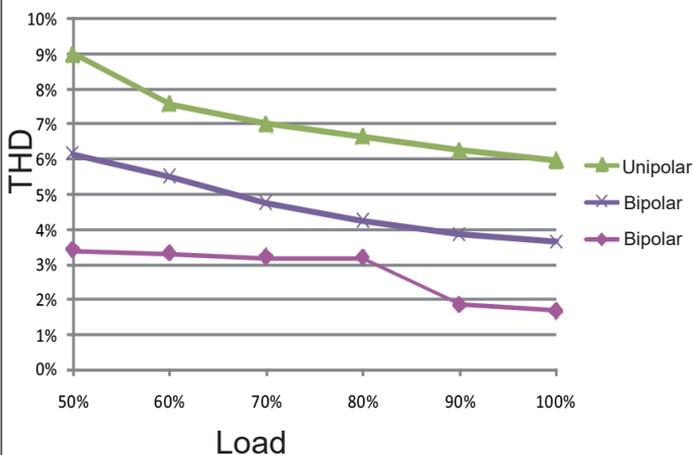
※ Derating output at low input voltage

■ PF characteristic curve

※ Tcase at 80°C



■ THD characteristic curve



■ Efficiency VS Load

