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| MOONS' | RELEASE DEPARTMENT: | PAGE: |
| | R&D | 1 of 7 |
| TITLE: OD085N070DQ_DMX SPECIFICATIONS | | REVISION: A2 |

oc No.: MSSD-5136 A2

LED DRIVER SPECIFICATIONS

Part Description: Input: **20~60VDC**

Customer's Part Number:

MOONS' Part Number: **OD085N070DQ_DMX**

Customer:

Company:

Department:

Approved by:

Date:

EDITED:

DATE:

CHECKED:

DATE:

STANDARD:

DATE:

APPROVED:

DATE:

SHANGHAI MOONS' AUTOMATION CONTROL Co., LTD.

TBD

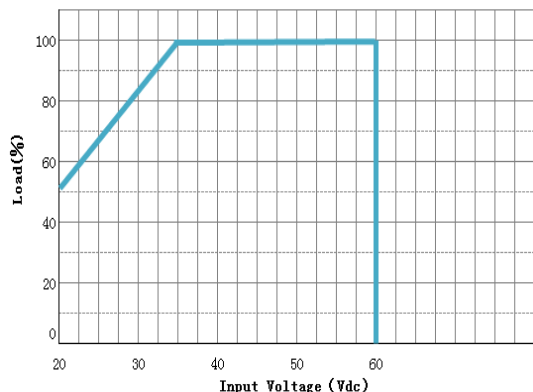
- Features
- ◆ Input voltage: 20-60Vdc
 - ◆ DMX/RDM Constant Current Driver.
 - ◆ High efficiency: up to 94% Typ.
 - ◆ Waterproof (IP20)
 - ◆ Power output 85W max (20V>Vin-Vout≥5V)
 - ◆ Constant Current / DMX Dimming
 - ◆ Output current can be set from 200~700mA
 - ◆ Protection: SCP, OTP,OPP

■ Specification

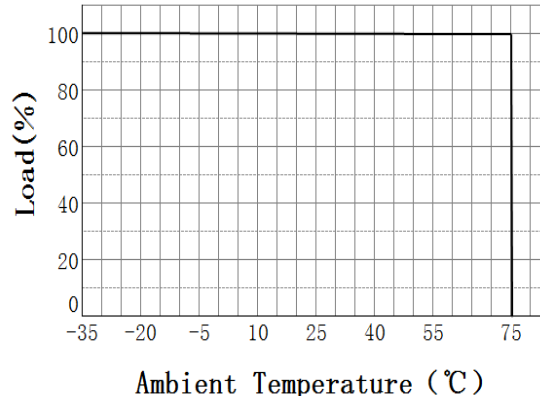
| Model | | | | | | |
|---|---|---|----------------------|---------------------|------------|---------------------|
| (OD085N070DQ_DMx) | | | | | | |
| Electrical Specification: | Maximum input voltage range | | | 20-60 | Vdc | |
| | Output voltage range | | | 8-52 | Vdc | |
| | Output Current | | | 200-700 | mA | |
| | Maxium output power | | | 85 | W | (5V≤Vin-Vo<20V) ① |
| | Effiency typical value (60Vdc/85W,full loaded②) | | | 94-96 | % | |
| | Start-up time | | | <0.5 | S | |
| | The maximum setup current precision | | | ±5 | % | |
| | Ripple current (full loaded) | | | 200 | mA | |
| | Dimming range | | | 0.1-100 | % | |
| Ambient Temperature | | | | -35 - 75 | ℃ | |
| | | | | | | |
| Type | Output Current (every channel) | Output Voltage (every channel) | Output Power (total) | Input Voltage (max) | Efficiency | Ambient Temperature |
| OD085N070DQ_DMx | 200mA | 52V | 41.60W | 60V | 0.9531 | 25℃ |
| | 250mA | 52V | 52.00W | 60V | 0.9549 | 25℃ |
| | 300mA | 52V | 62.40W | 60V | 0.9423 | 25℃ |
| | 350mA | 52V | 72.80W | 60V | 0.9382 | 25℃ |
| | 400mA | 52V | 83.20W | 60V | 0.9437 | 25℃ |
| | 450mA | 47V | 84.60W | 60V | 0.9369 | 25℃ |
| | 500mA | 42V | 84.00W | 60V | 0.9412 | 25℃ |
| | 550mA | 38V | 83.60W | 58V | 0.9314 | 25℃ |
| | 600mA | 35V | 84.00W | 55V | 0.9307 | 25℃ |
| | 650mA | 32V | 83.20W | 52V | 0.9218 | 25℃ |
| 700mA | 30V | 84.00W | 50V | 0.9174 | 25℃ | |
| | | | | | | |
| Output | Output voltage range (V) | 8-52 | | | | |
| | Output Current Range(mA) | 200-700 | | | | |
| | Rated Power (W) | 85(max) | | | | |
| | Ripple Current((Pk-AV) /A) | 10% max@ output 350~700mA CCM current conditions | | | | |
| | Current Tolerance③ | ±5% | | | | |
| | Line Regulation | ±1% | | | | |
| | Load Regulation | ±3% | | | | |
| | Setup, Rise Time | <1.0s measured at 60Vdc input at 80%~100% load conditions | | | | |
| Dimming Control | DIMMING FUNCTION | DMX Dimming / 0.1%lo~100%lo ref. Dimming module diagram and dimming cruve | | | | |
| Protection | Short Circuit protection | Power supply active control stop output, power supply shall be self-recovery when the fault is removed. | | | | |
| | Over Temperature protection | When the temperature of the inside PCB exceeds 120℃ ±10%, output current will be decreased to 50%. And it can not recover until the temperture drops to 70℃ ±10%. | | | | |
| | Over power protection | 1.Total power exceeds 95W, the output current of each channel will decrease to 50% about 20 seconds , and then increased to 85W gradually. 2.Total power exceeds 105W, the output current of each channel will decrease to 50% immediately, and then increased to 85W gradually. | | | | |
| Environment | Operating Temp. | -35 - 75℃ | | | | |
| | Operating Humidity | 20~95%RH, non-condensing | | | | |
| | Storage Temp., Humidity | -40~+85℃, 10-95%RH | | | | |
| | Vibration | 10~55Hz, 1~2G 12min/cycle, period for 72min each along X、Y、Z axes | | | | |
| EMC | EMC Emission | EN55015/FCC Part 15 Class B(with lamps and lanterns) | | | | |
| | EMC Immunity | EN61547 (Surge DM 0.5KV) | | | | |
| Others | Life time | >50000hours@Ta =75℃ @ 60Vdc input, full load | | | | |
| | MTBF | 250,000 hours, measured at full load, 25℃ ambient temperature MIL-HDBK-217F(25℃) | | | | |
| | Dimension | 188x23x14 mm (LxWxH) | | | | |
| | Weight | 100g | | | | |
| Note.1: 200mA-350mA, 4V≤Vin-Vo<20V; 350mA-700mA, 5V≤Vin-Vo<20V; Note.2: 52V*410mA *4CHS tatat output power is 85W Note.3: At Rated Current ,Includes set up tolerance, line regulation and load regulation. | | | | | | |

Curve

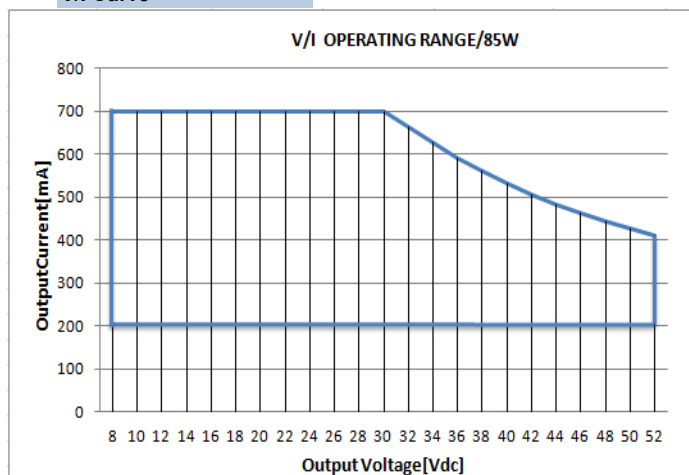
Derating Curve



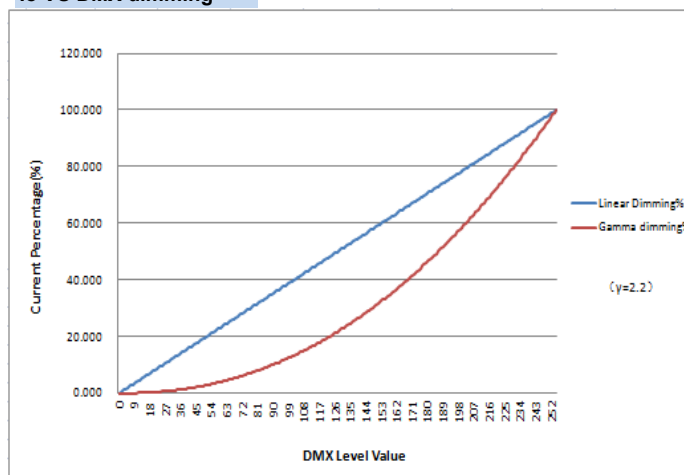
Derating Curve



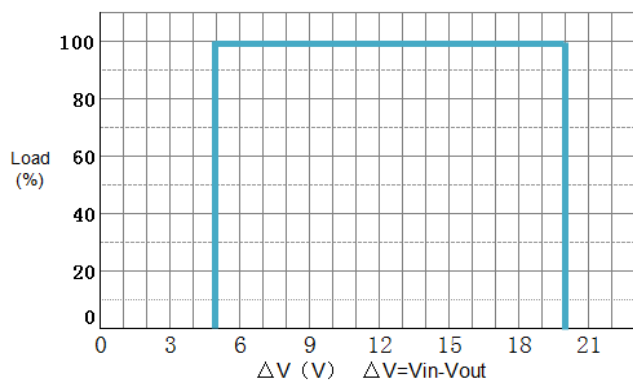
V/I Curve



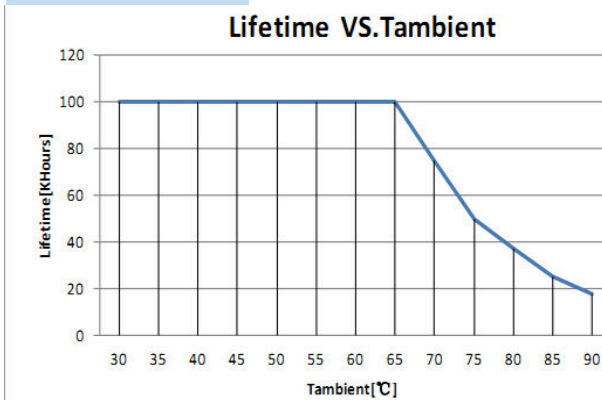
Io VS DMX dimming



ΔV Curve

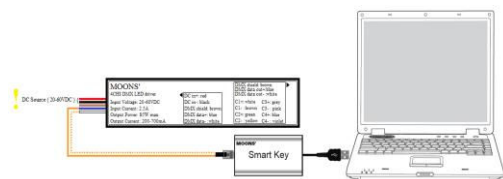


Lifetime VS Tambient



■ Application of introduction

1. Field Programmable Topology



• Max current setting

With the help of our Smartkey and Smart key software, you can set the current of the driver, each step is 1 mA. Please refer to specification of Smartkey.

• Dimming curve

Dimming curve contains Gamma curve and line curve, Can be selected according to the needs of the application.

• Minimum dimming level

when using DMX dimming function, can set the minimum dimming output current.

• Address and channel

This function of Smart key software is used in the DMX driver, this DMX driver does require this function.

• NTC throttling temperature

You can connect to the driver NTC1、NTC2 interface with a thermistor^①. When the temperature exceeds the point which can be set by Smartkey, the output current can be decreased automatically, but not less than 25%.

• Max dimming level

The maximum output current corresponding to the DMX dimming Level.

• The button of read and change

If you want to read the driver settings, press the read button. When setting the parameters of Smart key software, press the change button to save the parameters to the driver.

• Online Update

Use smart key to connect PC and the driver to update the firmware. Please refer to the specification of Smart key.

^①Recommended manufacture and type of the NTC

Manufacture: MURATA Type: NCP21WB473J03RA
Manufacture: VISHAY Type: NTC50805e4473JXT

2. Smart key software interface

The screenshot shows the MOON'S DMX software interface with the following sections:

- Base info settings** (selected tab):
 - Networking settings:**
 - 1. Network start address: 1
 - 2. Network 8 bits or 16 bits: 8 bits
 - 3. Footprint: 4
 - 4. Daisy-chain mode: Auto-addressing mode
 - 5. Daisy-chain mode 2: slave count: 1
 - 6. Group R channel mapping: 0
 - 7. Group G channel mapping: 1
 - 8. Group B channel mapping: 2
 - 9. Group W channel mapping: 3
 - Drive settings:**
 - 1. Current setting output 1: 200
 - 2. Current setting output 2: 200
 - 3. Current setting output 3: 200
 - 4. Current setting output 4: 200
 - Other settings:**
 - 1. Thermal throttling temperature: 0
 - 2. PRESCALE_R channel for default show 0-5: 1
 - 3. PRESCALE_G channel for default show 0-5: 1
 - 4. PRESCALE_B channel for default show 0-5: 1
 - 5. PRESCALE_W channel for default show 0-5: 1
 - 6. PRESCALE_RGBW channel for default show 6-8: 1
- Scene settings** (unselected tab):
 - Buttons: Default, Read, Write
 - Control settings:**
 - 1. Show index: 0
 - 2. Input time-out to show: 0
 - 3. Show running or stopped: Stopped
 - 4. Fade time scale: 1
 - 5. Wait time scale: 1
 - 6. Master dimmer value: 1
 - 7. Dimming curve: Gamma dimming
 - 8. Group R scaling: 1
 - 9. Group G scaling: 1
 - 10. Group B scaling: 1
 - 11. Group W scaling: 1

■ Application of introduction

• Supply Voltage

- DC constant voltage input so that the driver can be used with different numbers of LEDs and different sizes of product by scaling the power.voltage and dimensions of a separate DC power supply.
- 60VDC Input max
- Protection from damage by reverse polarity of supply voltage.
- Protection from damage if supply voltage is switched.(i.e. not smooth ramp up of supply voltage as typical from power supply switch on)
- Protection from damage by overvoltage transients and spikes to 0.5KV.

• Driver Outputs

- 4 channels
- 4 channels current source
- Fully adjustable driver current between 200mA and 700mA(via programming interface)
- Output current tolerance $\pm 5\%$
- It is desirable to have the ability to adjust each channels current separately(set via programming interface)
- Default driver current set to 350mA
- Difference between input and output voltage must be no more than 4V at 200mA~350mA and 5V at 350mA~ 700mA(LEDs total Vf+ cable losses + difference is the minimum PSU supply voltage to maintain stability)
- Short circuit protection of outputs
- Channels may be left open circuit when unused
- Total driver output power is 85 W
- Each channel must be able to power 700mA at full voltage until full power of the driver is reached.

• DMX Interface

- DMX 512-A interface protocol (E1.11-2004).
- DMX in with RDM (E1.20-20XX).
- RDM protocol to be implemented for addressing as a minimum.
- Data output to slave driver,1-25 slaves,proprietary protocols are acceptable.
- Slave driver to be set via programming interface if manual setting is required.
- On power up the output channels will remain in an off state by default(can be changed via programming interface).
- On power up with no DMX signal the output channels can be set to an adjustable level from 0-100%,DMX signal should override this (set via programming interface).
- It must be possible to set the footprint of the driver from 1-4 and map anychannels to these address positions(adjustable via programming in
- Total driver output power is 85 W
- RDM Identifier is 0x0303.
- Serial number range to be agreed with MOONS'.

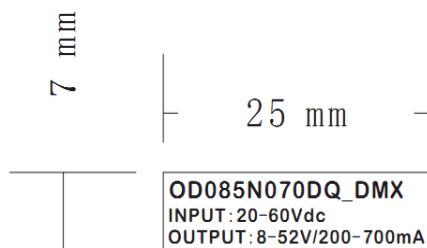
• Programming Interface

- A software interface is required to allow programming of driver variables as below ,this should be via the DMX interface so it can be programmed after installation in the product.
- Start address.
- Footprint and channel mapping.
- Master or Slave driver (if manual setting required).
- Power up off/on and level adjustment.
- Gamma or linear dimming curve.
- Show programming (desirable).
- fast/slow display adjustment (desirable).
- Driver current (individual channel adjustment desirable).

• Dimming performance

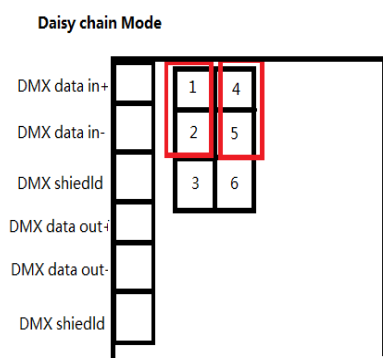
- The driver is predominately used in products that project light onto surfaces and not for direct viewing of the LED's.
- The quality of dimming change at very low levels is not of high importance.
- When fixed at any dimmed level flicker should not be seen.
- Dimming curve should default to Gamma but be adjustable to Linear via programming interface.

Label

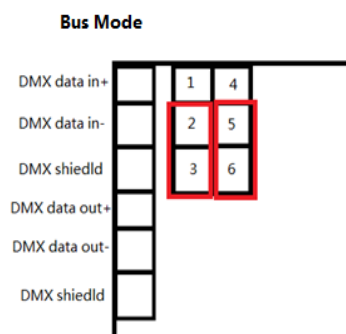


Mode selection

1、Daisy chain
Mode (Auto
Addressing)

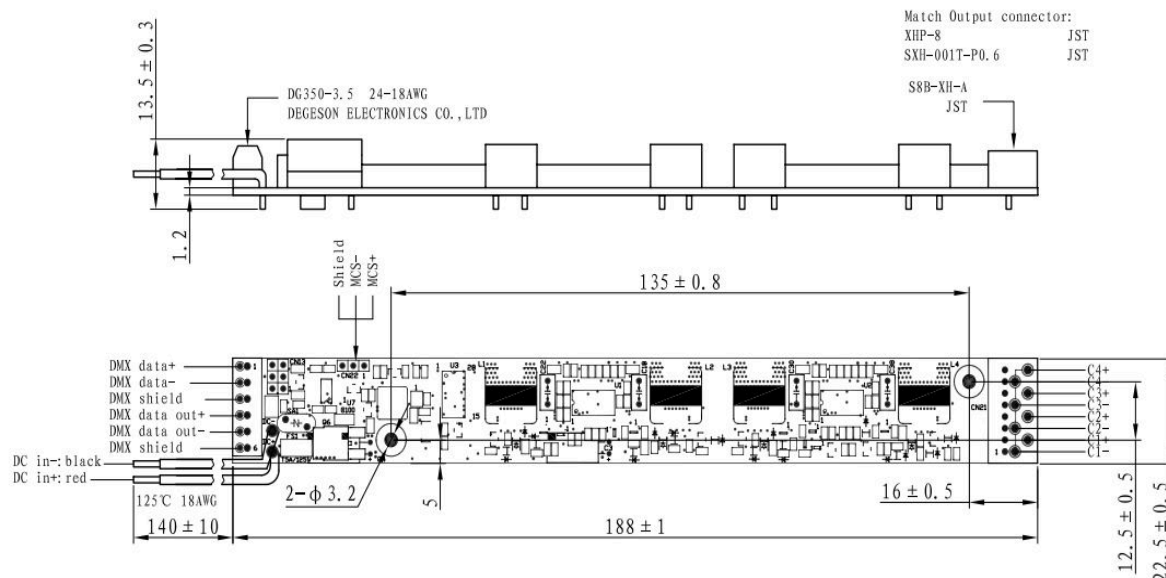


2、BUS Mode



Mechanical Specification

Dimensions(Unit:mm)



RoHS Compliance:

Our products comply with the European Directive 2002/95/EC, calling for the elimination of lead and other hazardous substances from electronic products.