

Datalink DLT210x-D Datasheet



Features :

- High speed signal transmission (25 Mbps, NRZ signal)
- Input TTL compatible
- +3~+5V power source

Typical Applications :

- DVD Player
- Audio equipment
- PC, Notebook
- Sound card

Table of Contents

Introduction	3
Product Information.....	3
Package Dimensions.....	4
Pin Dimension of DLT210x-D Series.....	5
Device Selection Guide	5
Absolute Maximum Ratings(Ta = 25°C)	5
Electro-Optical Characteristics	6
Reliability Test Items.....	6
Measuring Method	7
Precautions for Using Method.....	8
Package Information.....	9
Material Description.....	10
Caution.....	11
Revision History	12
About Edison Opto	12

Introduction

The light transmitting unit is a standard-package product and opto-electric component packaged with LED and drive IC. The function of unit changes the electric signal into light signal and be transmitted by plastic fiber.

The unit is operated at single+3V~ +5V and the input signal is TTL compatible. The DLT210x-D has a maximum operating speed of 25 Mbps. The light signal is coupled into plastic fiber by connector. The unit has high performance at low dissipation current, steady light output and efficient light coupling.

Product Information

Product Name	Order Code
DLT2100-D	
DLT2101-D	
DLT2102-D	
DLT2103-D	
DLT2104-D	
DLT2105-D	
DLT2106-D	
DLT2107-D	
DLT2108-D	
DLT210B-D	
DLT210D-D	
DLT210H-D	8DLT21000000000A
DLT210M-D	
DLT210M-S	
DLT210L-D	
DLT210J-D	
DLT210P-D	
DLT210N-D	
DLT210G-D	
DLT2109-D	
DLT210D-D	
DLT210T-D	

Package Dimensions

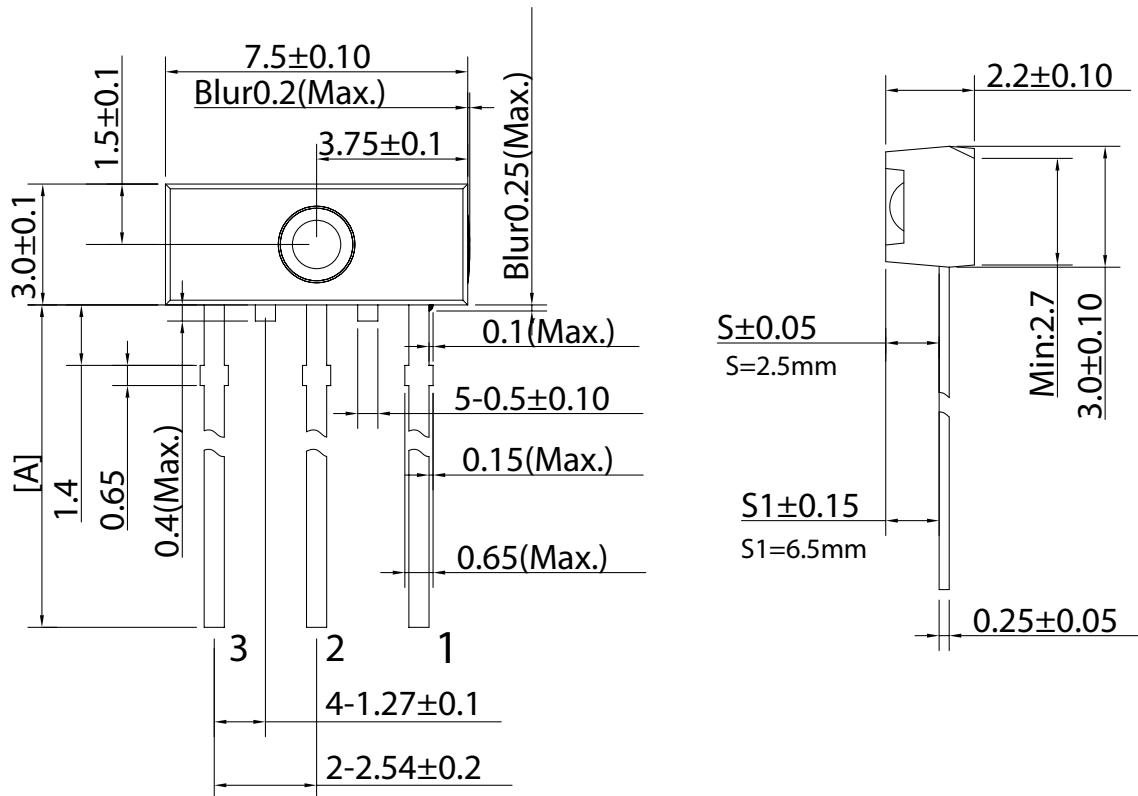


Figure 1. DLT210x-D package dimensions

Notes:

1. All dimensions are in millimeters.
2. General Tolerance: ± 0.1 mm
- 3.[A] Dimension greater than 10mm: ± 0.5 mm
- 4.[A] Dimension is less than or equal to 10mm: ± 0.2 mm

Pin Function

1. GND
2. Vcc
3. Vin

Pin Dimension of DLT210x-D Series

Product number	[A] Length	Product number	[A] Length
DLT2100-D	8.6mm	DLT2106-D	6.25mm
DLT2101-D	3.25mm	DLT2107-D	11.5mm
DLT2102-D	15mm	DLT2108-D	10.5mm
DLT2103-D	5.9mm	DLT210B-D	16mm
DLT2104-D	8.3mm	DLT210D-D	9.7mm
DLT2105-D	8.0mm	DLT210M-D	7.45mm
DLT210M-S	7.6mm	DLT210P-D	5.5mm
DLT210L-D	9.16mm	DLT210N-D	7.05mm
DLT210J-D	6.3mm	DLT210G-D	6.9mm
DLT2109-D	5.2mm	DLT210N-E	9.7mm
DLT210T-D	13mm		

Device Selection Guide

Chip		Operating Voltage (Vcc)	Dissipation Current(mA)	Fiber Coupling Light Input (dBm)		
IC Material	PD λ_p (nm)		Typ.	Min.	Typ.	Max.
Si	650	2.7~5.5	4.0	-21	--	-15

Absolute Maximum Ratings(Ta = 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	-0.5 to 7	V
DC Input Voltage	V _{in}	-0.5 to Vcc+0.5	V
Power Dissipation	P	120	mW
Storage Temperature	T _{stg}	-30 to 80	°C
Operating Temperature	T _{opr}	-20 to 70	°C
Soldering Temperature	T _{sol}	*260	°C

Note: * Soldering time ≤5s / 2 times.

Electro-Optical Characteristics

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V_{cc}	-	2.7	-	5.5	V
Peak Emission Wavelength	λ_p	-	640	-	670	nm
Transfer Speed	-	NRZ signal	-	-	25	Mbps
Transmission Distance	-	Using APF	0.2	-	20	m
Pulse Width Distortion	Δ_{tw}	25 Mbps NRZ Signal	-11	-	11	ns
Fiber Coupling Light Output	P_f	*1	-21	-	-15	dBm
Dissipation Current	I_{cc}	*2	-	4.0	10	mA
High Level Input Voltage	V_{IH}	-	2.0	-	-	V
Low Level Input Voltage	V_{IL}	-	-	-	0.8	V
Rise Time	t_r	*3	-	-	30	ns
Fall Time	t_f	*3	-	-	30	ns
Low -> High propagation delaytime	t_{PLH}	*3	-	-	100	ns
High-> Low propagation delaytime	t_{PHL}	*3	-	-	100	ns
Jitter time	Δ_{ij}	*3	-	1.5	10	ns

Note:

* Light output after APF should satisfy P_f range.

The DLT210x-D light transmitting unit satisfies EIAJ CP-1201 digital audio interface standard.

Reliability Test Items

The following table describes operating life, mechanical, and environmental tests performed on DLT210x-D series package.

No.	Item	Test Condition	Test Hour/Cycle	Sample	Number (n), Failure (c)
1	Dip Soldering Heat	260°C±5°C	10 sec./2 times	22	n=22, c=0
2	High temp. & Hum. storage	Ta=40°C, 90%RH	500	22	n=22, c=0
3	High temp. storage	Ta=80°C	500	22	n=22, c=0
4	Low Temp. storage	Ta=-30°C	500	22	n=22, c=0
5	Temp. cycling	-30°C ~ 80°C (30min) (30min)	20	22	n=22, c=0
6	High Temp. Operation life	Ta=60°C, Vcc=5V ON	500	22	n=22, c=0

Notes:

I_{cc} (dissipation current): CURRENT ATTENUATE DIFFERENCE < 20%

P_f (fiber coupling light output): BRIGHTNESS ATTENUATE DIFFERENCE < 20%

T_{PLH} (propagation L -> H delay time): DELAY TIME DIFFERENCE < 20%

T_{PHL} (propagation H -> L delay time): DELAY TIME DIFFERENCE < 20%

T_r (rise time): TIME DIFFERENCE < 20%

T_f (fall time): TIME DIFFERENCE < 20%

Measuring Method

*1. Measuring method of optical output coupling fiber

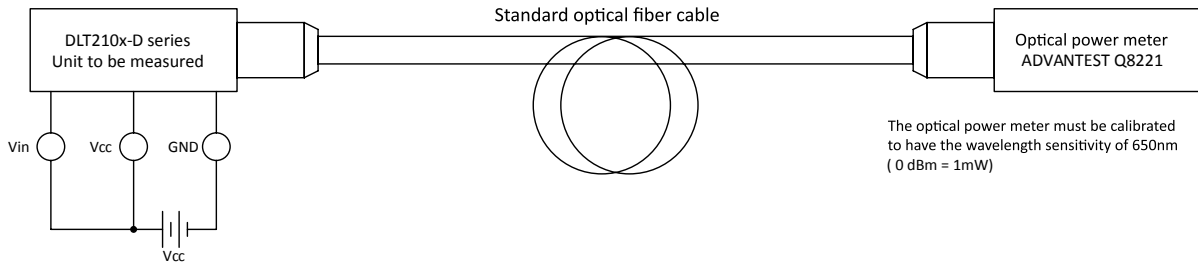


Figure 2. DLT210x-D measuring method of optical output coupling fiber

*2. Input voltage/power dissipation measuring method

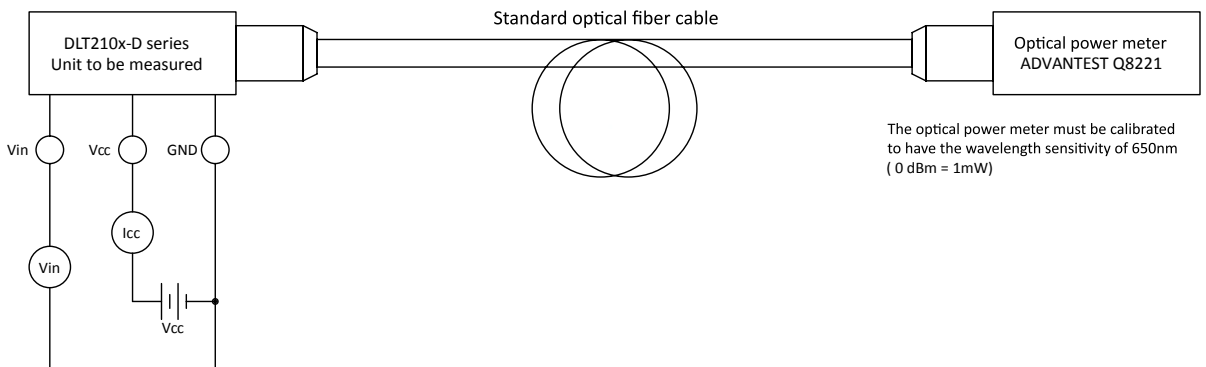


Figure 3. DLT210x-D input voltage/power dissipation measuring method

*3. Pulse response and jitter measuring method

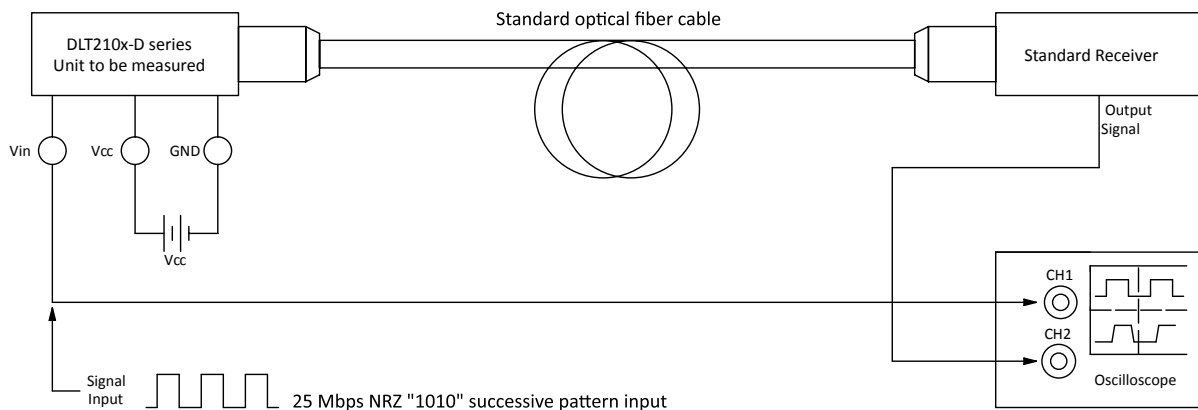
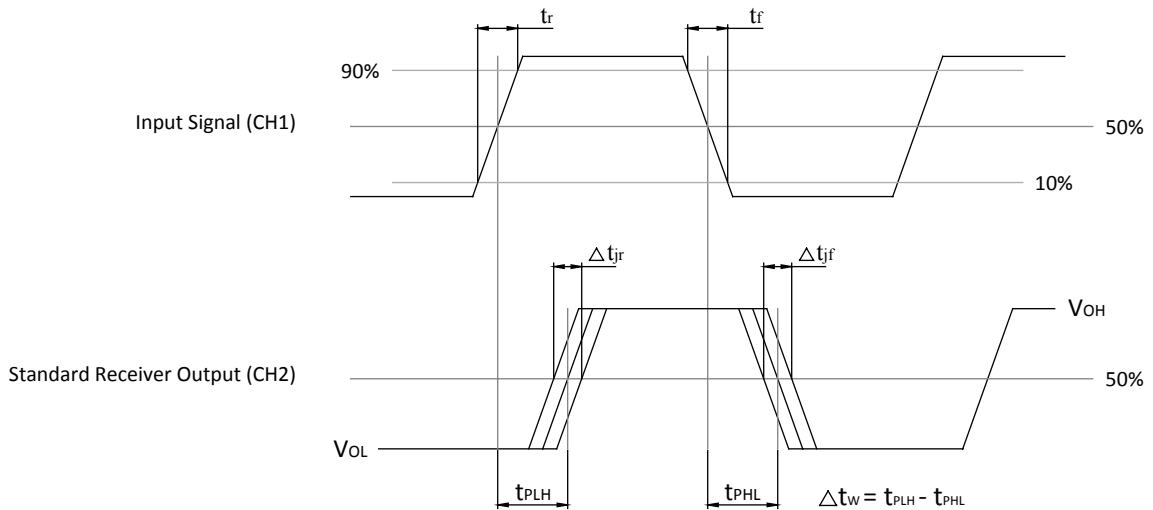


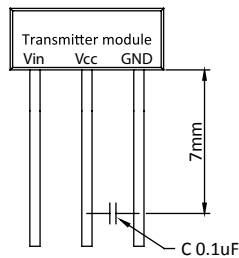
Figure 4. DLT210x-D pulse response and jitter measuring method

NOTE: Input Signal



Precautions for Using Method

1. Connect a by-pass capacitor (0.1 uF) close to the DLT210x-D within 7 mm of the unit lead frame.



2. Take proper electrostatic-discharge (ESD) precautions while handling these devices. These devices are sensitive to ESD.
3. Please follow the conditions described in the diagram below.

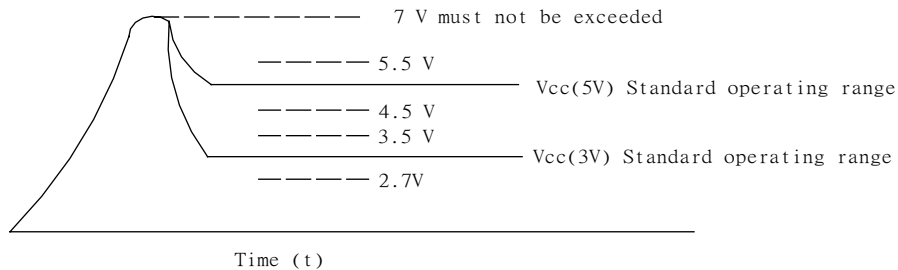


Figure 5. DLT210x-D precautions for using method

Package Information

Part No.	Item	Quantity	Total	Size (long * width * high)
[A] Length \geq 10mm	Anti-ESD bag	500 pcs/bag	500 pcs	15 * 15 mm
	Inner box	8 bags/inner box	4000 pcs	240 * 170 * 90 mm
	Outer box	10 inner boxes/outer box	40000 pcs	488 * 261 * 364 mm
[A] Length < 10mm	Anti-ESD bag	1000 pcs/bag	1000 pcs	15 * 15 mm
	Inner box	8 bags/inner box	8000 pcs	240 * 170 * 90 mm
	Outer box	10 inner boxes/outer box	80000 pcs	488 * 261 * 364 mm

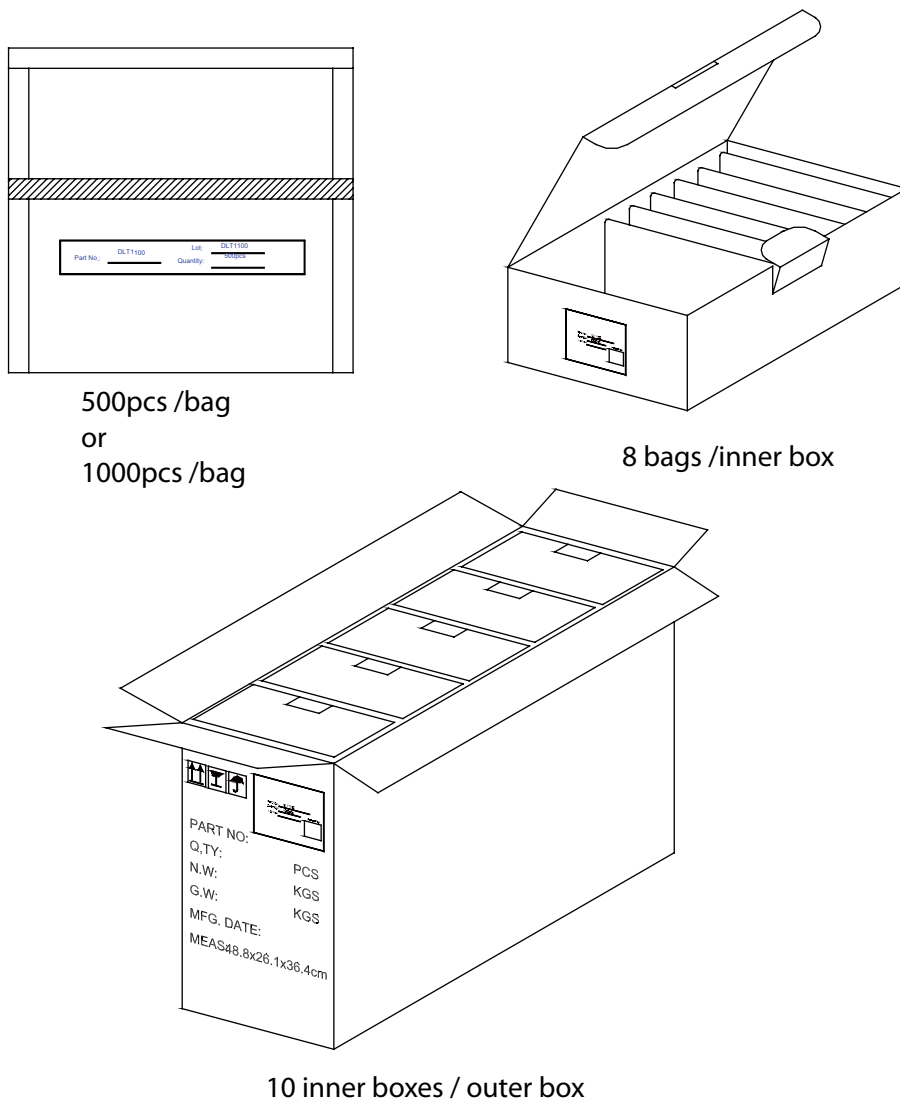
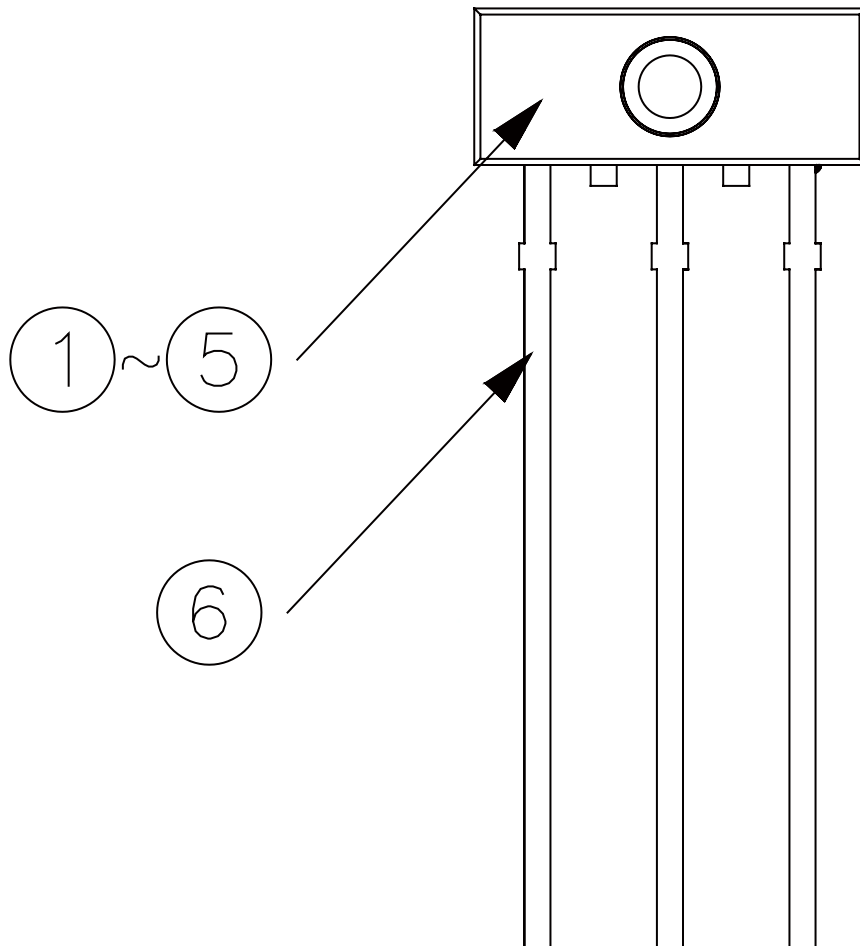


Figure 6. DLT210x-D product packaging information

Material Description



Item	Name	Material	Finish
1	LED	AlGaInP	-
2	IC	Si	-
3	Silver Paste	Ag+Epoxy	-
4	Gold Wire	Au	-
5	Mold Compound	Epoxy	-
6	Lead Frame	Phosphor Bronze	Tin

Caution

1. This document and attached devices, which will be used for production acceptance standard, are prepared by Edison Opto Corporation . If there is any production issue or question, please feel free to contact with Edison Opto Corporation.
2. This product is designed for ordinary electronic applications, such as electrical appliances, audio-visual equipment, communications devices and so on. Hence, it is advisable that the devices should not be used in medical instruments, surgical implants, aerospace machinery, nuclear power control system and the like.
3. Edison reserves the right to improve the device performances without prior notice.
4. ESD protection closing $\geq 2KV$.
5. Unauthorized duplication, reproduction, use or disclosure of this document will be deemed as infringement.

Revision History

Versions	Description	Release Date
1	Established a datasheet	2011/12/29
2	Modified Package Dimensions	2012/02/20
3	“EIAJ CP-1201”->“JEITA CP-1212”	2012/03/28
4	Modified Electro-Optical Characteristics Modified Order Code Add Product number DLT210M-D	2016/05/11
5	Add Pin Dimenisons	2016/08/30
6	Add Package Dimensions Value	2017/09/04
7	Revise Package Dimensions	2017/10/31
8	Revise Package Information	2018/04/09
9	Revise the Product Information Revise the Pin Dimension of DLT210x-D Series Revise the Package Dimensions	2019/08/22

About Edison Opto

Edison Opto is a leading manufacturer of high power LED and a solution provider experienced in LDMS. LDMS is an integrated program derived from the four essential technologies in LED lighting applications- Thermal Management, Electrical Scheme, Mechanical Refinement, Optical Optimization, to provide customer with various LED components and modules. More Information about the company and our products can be found at www.edison-opto.com

Copyright©2019 Edison Opto. All rights reserved. No part of publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photo copy, recording or any other information storage and retrieval system, without prior permission in writing from the publisher. The information in this publication are subject to change without notice.

www.edison-opto.com

For general assistance please contact:
service@edison-opto.com.tw

For technical assistance please contact:
LED.Detective@edison-opto.com.tw