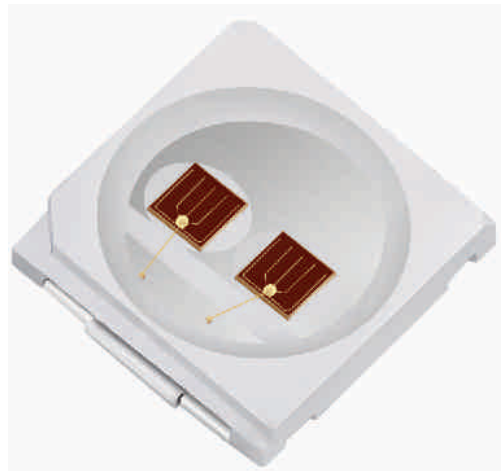


Middle Power LED  
3030

**302M** Series  
Infrared

For Horticulture Lighting



#### Features & Benefits

- 1.0 W class middle power LED
- Mold resin for high reliability
- Standard form factor for design flexibility (3.0 × 3.0 mm)

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## 1. Characteristics

### a) Absolute Maximum Rating

Item	Symbol	Rating	Unit	Condition
Ambient / Operating Temperature	$T_a$	-40 ~ +105	°C	-
Storage Temperature	$T_{stg}$	-40 ~ +105	°C	-
LED Junction Temperature	$T_j$	125	°C	-
Forward Current	$I_F$	300	mA	-
Pulse Forward Current	$I_{FP}$	600	mA	Duty 1/10, pulse width 10ms
Assembly Process Temperature	-	260 <10	°C s	-
ESD (HBM)	-	2	kV	-

### b) Electro-optical Characteristics ( $I_F = 300 \text{ mA}$ , $T_s = 25^\circ\text{C}$ )

Item	Unit	Rank	Min.	Typ.	Max.
Forward Voltage ( $V_F$ )	V	V0	1.8	2.0	2.2
Peak wavelength ( $\lambda_p$ )	nm	NR0	725	-	735
Yield Photon Flux (380-780nm)	$\mu\text{mol/s}$		-	1.31	-
Radiant Power	mW		-	220	-
Thermal Resistance (junction to solder point)	°C/W		-	33	-
Beam Angle	°		-	120	-

**Note:**

Ledstar maintains measurement tolerance of: Radiant Power =  $\pm 7\%$ , forward voltage =  $\pm 0.1 \text{ V}$ , Wavelength =  $\pm 2 \text{ nm}$

## 2. Product Code Information

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
L	D	R	-	3	0	3	0	T	T	A	F	7	3	0	-	V	0	N	R	0	H	0

Digit	PKG Information	Code	Specification
1 2 3	Ledstar Package Middle Power	LDR	
4 5 6 7	Package Model and Size	3030	3.0 x 3.0 x 0.65mm
8	Product Category	T	Top View
9	Bractek Type	T	PCT & Cu
10	Version	A	
11	Color	F	Infrared
12 13 14	Wavelength Typical (nm)	730	725~735
15 16	Forward Voltage (V)	V0	1.8~2.2 Bin Code: A0 1.8~2.0 A1 1.8~1.9 A2 1.9~2.0 B0 2.0~2.2 B1 2.0~2.1 B2 2.1~2.2
17 18 19	Peak Wavelength (nm)	NR0 NR2 NR3	NR2 NR3 725~730 730~735
20 21	Radiant Power (mW)	H0 HU HV	HU HV 200~220 220~240

a) Voltage Bins ( $I_F = 300 \text{ mA}$ ,  $T_s = 25 \text{ °C}$ )

Product Code	Voltage Rank	Voltage Bin	Voltage Range (V)
LDR-3030TTAF730-V0NR0H0	V0	A0	A1 1.8 ~ 1.9
			A2 1.9 ~ 2.0
		B0	B1 2.0 ~ 2.1
			B2 2.1 ~ 2.2

b) Wavelength Bins ( $I_F = 300 \text{ mA}$ ,  $T_s = 25 \text{ °C}$ )

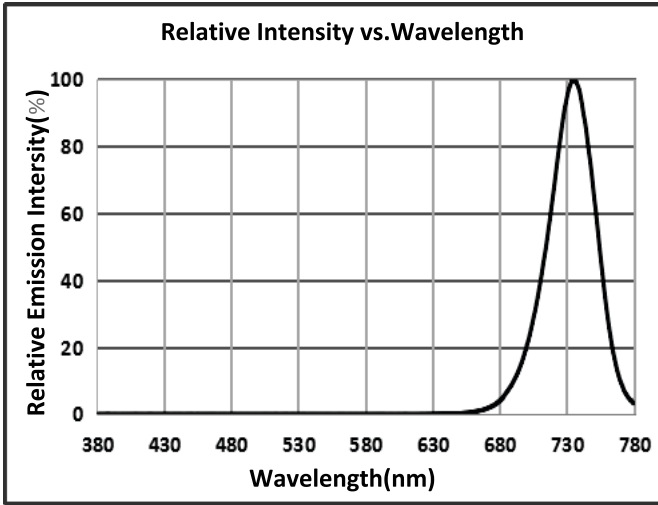
Product Code	Wavelength Rank	Wavelength Bin	Wavelength Range (nm)
LDR-3030TTAF730-V0NR0H0	NR0	NR2	725 ~ 730
		NR3	730 ~ 735

c) Radiant Power Bins ( $I_F = 300 \text{ mA}$ ,  $T_s = 25 \text{ °C}$ )

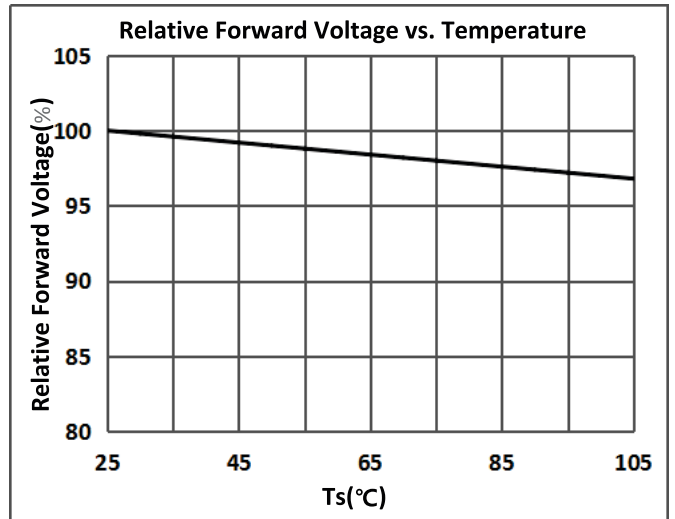
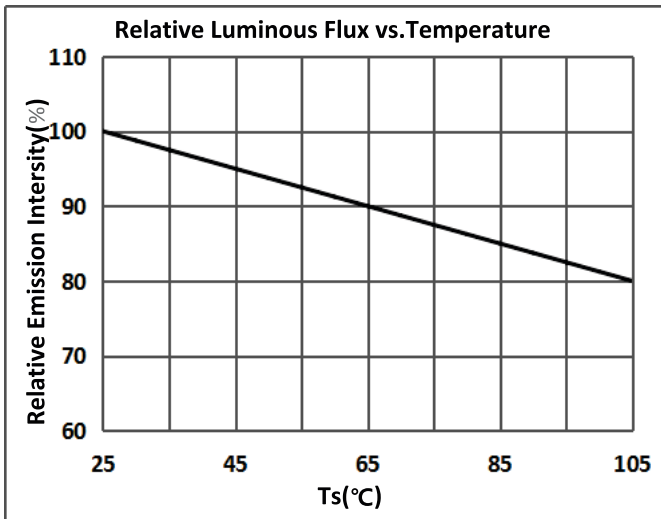
Product Code	PowerRank	PowerBin	Power Range (mW)	YPFRange(380- 780nm) ( $\mu\text{mol/s}$ )
LDR-3030TTAF730-V0NR0H0	H0	HU	200 ~ 220	1.2 ~ 1.4
		HV	220 ~ 240	1.2 ~ 1.4

3. Typical Characteristics Graphs

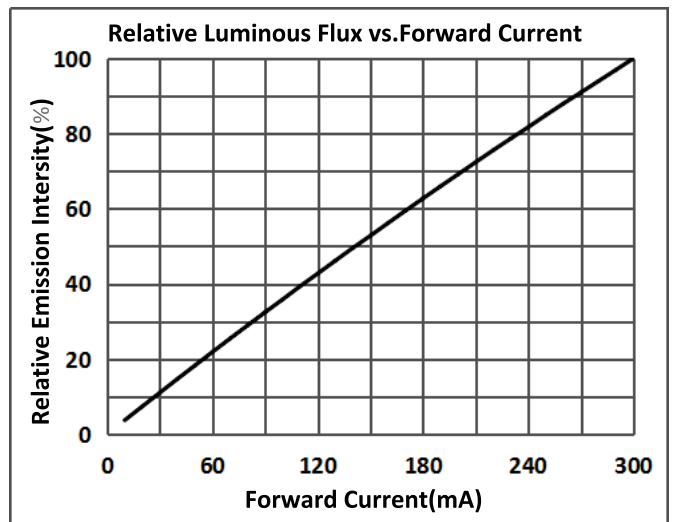
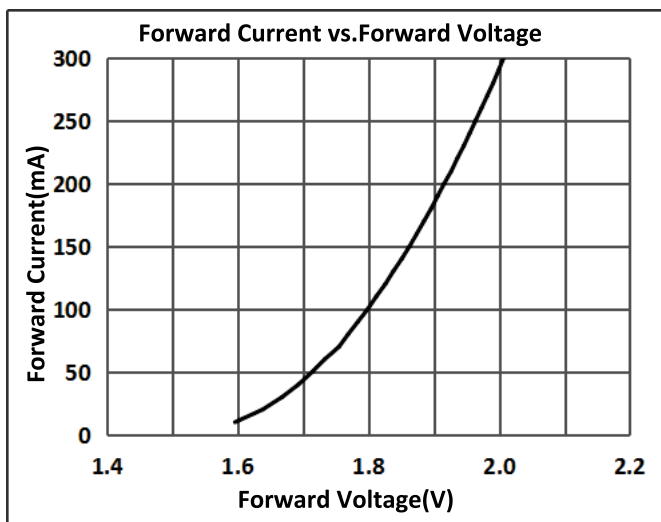
a) Spectrum Distribution ( $I_f = 300 \text{ mA}$ ,  $T_s = 25^\circ\text{C}$ )



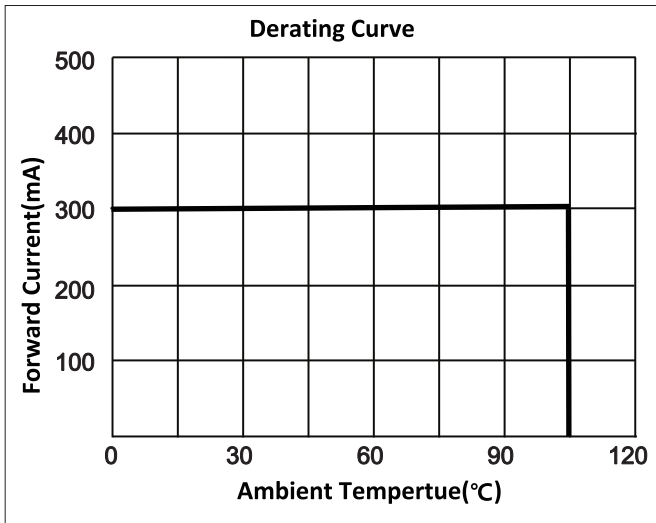
b) Temperature Characteristics ( $I_f = 300 \text{ mA}$ )



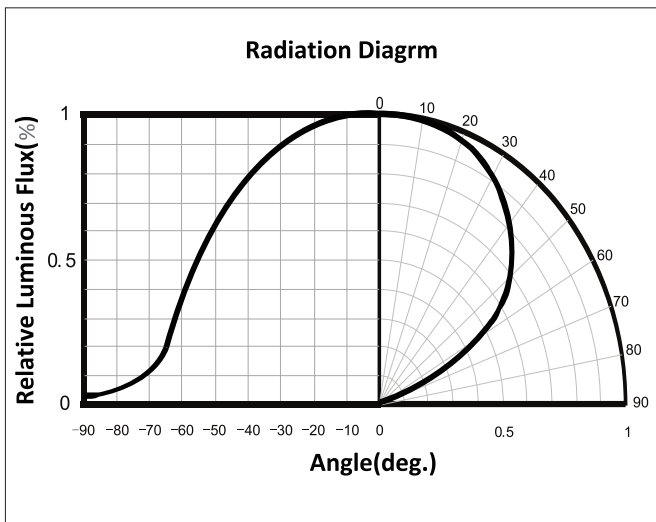
c) Forward Current Characteristics ( $T_s = 25^\circ\text{C}$ )



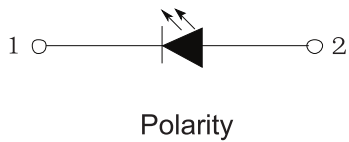
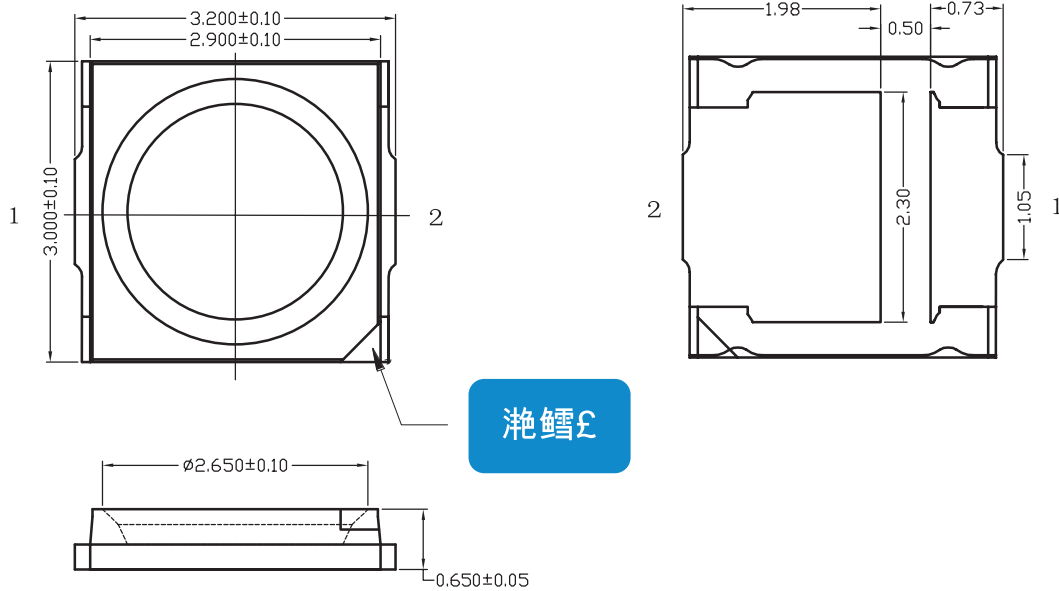
e) Derating Curve



f) Beam Angle Characteristics ( $T_s = 25^\circ\text{C}$ ,  $I_f = 300\text{ mA}$ )



#### 4. Outline Drawing & Dimension



#### Notes:

$T_s$  point and measurement method:

- ① Measure one point at the anode pad, if necessary remove PSR of PCB to reach  $T_s$  point.
- ② All pads must be soldered to the PCB to dissipate heat properly, otherwise the LED can be damaged.

#### Precautions:

- 1) Pressure on the LEDs will influence to the reliability of the LEDs. Precautions should be taken to avoid strong pressure on the LEDs. Do not put stress on the LEDs during heating.
- 2) Re-soldering should not be done after the LEDs have been soldered. If re-soldering is unavoidable, LED's characteristics should be carefully checked before and after such repair.
- 3) Do not stack assembled PCBs together. Since materials of LEDs is soft, abrasion between two PCB assembled with LED might cause catastrophic failure of the LEDs.



## 5. Reliability Test Items & Conditions

### a) Test Items

Test Item	Test Condition	Test Hour / Cycle	Sample No.
Room Temperature Life Test	25°C, DC 300 mA	1000 h	22
High Temperature Life Test	85°C, DC 300 mA	1000 h	22
High Temperature Humidity Life Test	85°C, 85 % RH, DC 300 mA	1000 h	22
Low Temperature Life Test	-40°C, DC 300 mA	1000 h	22
Powered Temperature Cycle Test	-40 °C ~ 85°C, each 10 min, On/Off 5min , Temp. Change Time 20min, DC 300 mA	100 cycles	22
Thermal Cycle	-40°C / 15 min ↔ 105°C / 15 min → Hot plate 180°C	100 cycles	100
High Temperature Storage	105°C	1000 h	22
Low Temperature Storage	-40°C	1000 h	22

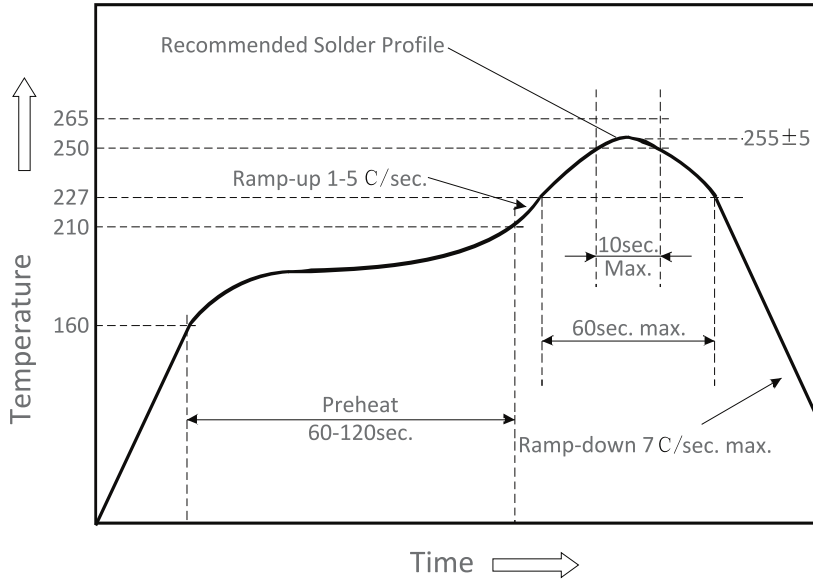
### b) Criteria for Judging the Damage

Item	Symbol	Test Condition (Ts = 25°C)	Limit	
			Min	Max
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 300 mA	Init. Value * 0.9	Init. Value * 1.1
Luminous Flux	Φ <sub>v</sub>	I <sub>F</sub> = 300 mA	Init. Value * 0.7	Init. Value * 1.1

## 6. Soldering Conditions

### a) Reflow Conditions (Pb free)

Reflow frequency: 2 times max.



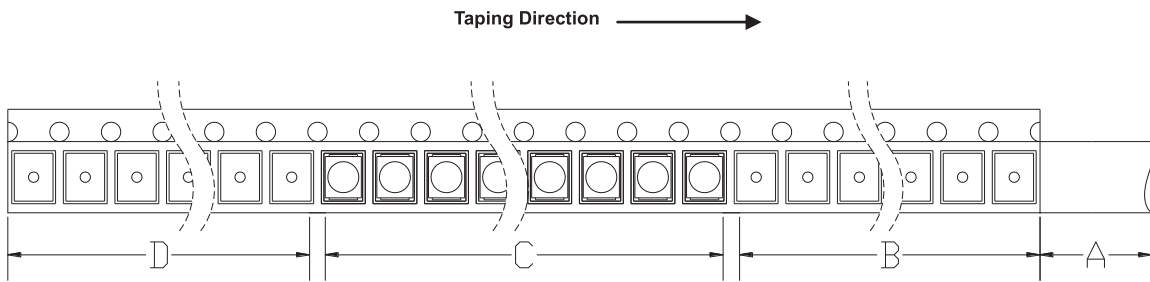
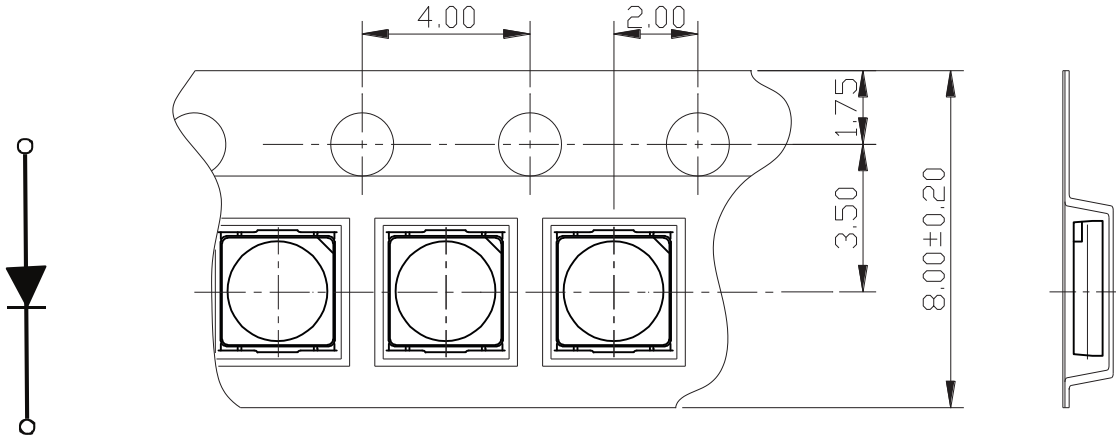
### b) Manual Soldering Conditions

Not more than 5 seconds @ max. 300°C, under soldering iron.

7. Tape & Reel

a) Taping Dimension

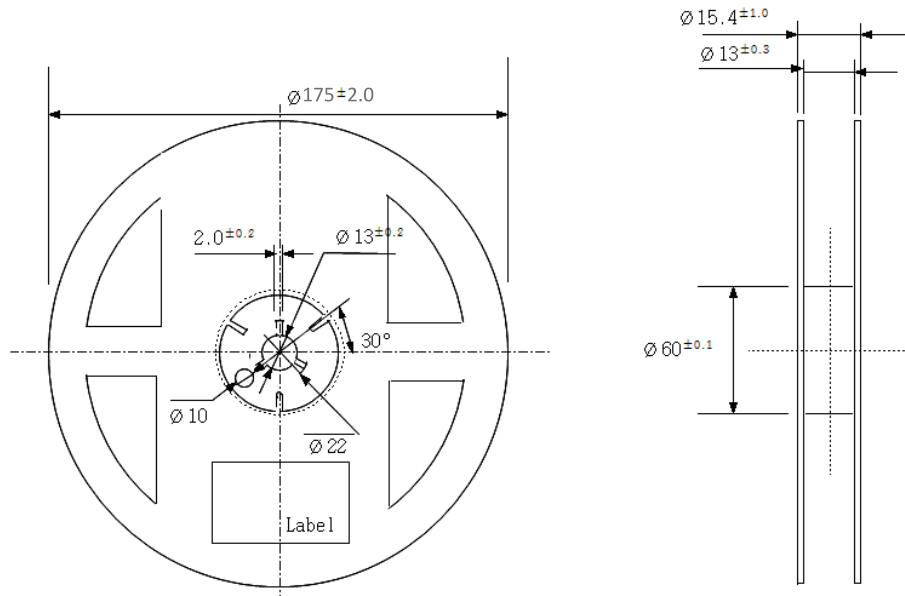
(unit: mm)



A: Top Cover Tape, 300mm; B: Leader, Empty, 200mm; C: 40 Lamps Loaded, 400mm; D: Trailer, Empty, 200mm.

b) Reel Dimension

(unit: mm)



**Notes:**

- 1) Quantity: The quantity/reel is 4,000 pcs
- 2) Cumulative Tolerance: Cumulative tolerance / 10 pitches is  $\pm 0.2$  mm
- 3) Adhesion Strength of Cover Tape: Adhesion strength is 0.1-0.7 N when the cover tape is turned off from the carrier tape at  $10^\circ$  angle to the carrier tape
- 4) Packaging: P/N, Manufacturing data code no. and quantity are indicated on the aluminum packing bag

## 8. Label Structure

### a) Label Structure



Note: Denoted bin code and product code above is only an example (see description on page 5)

### b) Label Explanation

Part No.:Product Code

IF:Testing Current

VF:Forward Voltage Range

Flux:Luminous Flux Range

WLD(WLP):Wavelength Range

Date:Packing Date

Bin Code:Rank

C/N:Internal Identification Code

Remark:Special Remark

QTY:Quantity

Lot No.:Production batch Number



### luminum Vinyl Packing Bag

Part No.:LDR-3030TTAF730(3030 红外光)  
IF:300mA Bin Code:B0-NR3-HU  
VF:2.0-2.2V C/N:10300339  
Flux:200-220mW Remark:  
WLP:730-735nm QTY:4000pcs  
Date:20200615 Lot No.:LDR20060025

**OPTIMUM**  
DIODES



CAUTION  
THIS BAG  
MOISTURE  
SENSITIVE

注意

1. 建議本封裝有儲存條件：5°C~30°C。
2. 袋子開封後，元件需經進行如下處理：
  - a. 24小時內完成焊接工作。
  - b. 儲存低於30%RH。
3. 假如不符合2a或2b的條件，則元件
4. 需元件預烘，烘烤條件為：10°C±

CAUTION:

1. Recommended storage condition:  
At 5°C~30°C and relative humidity
2. After this bag is opened, devices that w  
or equivalent soldering process must b
  - a. Completed within 24 hours.
  - b. Stored at less than 30% RH.
3. Devices require baking before mountin  
2a or 2b is not met.

- d. Mounted within 24 hours (1 day) at an assembly line with a
- e. Stored at <10 % RH.

\*Note 1, 2: IPC/JEDEC J-STD-033A, Recommended Equivalent

Package Type and Body Thickness	Moisture Sensitivity Level	40%	50%
Body Thickness <2.1mm	Level 2a	∞	∞
		∞	∞
		∞	∞

Repack unused devices with anti-moisture packing, fold to clos