

## Process/Engineering Change Notification Form

Please address your comments, if any, to your sales contact or quality assurance manager at Kingbright.

|                                |                               |
|--------------------------------|-------------------------------|
| Notification Number:S202609001 | Issue Date:2026-09-01         |
| Author:Ziven Ni                | Issued By: SMD Technical Dept |

| Product Types:                     | Old P/N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | New P/N        |        |       |      |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|-------|------|-------|--|--|-------|------|------|-------|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|------|------|
|                                    | APTD1608-MTS73                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | APTD1608-MTS73 |        |       |      |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
| Change Category:                   | Bin code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |        |       |      |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
| Change Description:                | Bin code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |        |       |      |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
| Reason for Change:                 | The ZC bin code will be added after this period.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |        |       |      |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
| Anticipated impact of change:      | The X bin code will be removed, and the ZC bin code will be added after this period.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                |        |       |      |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
|                                    | <table border="1"><thead><tr><th colspan="3">Before</th><th colspan="3">After</th></tr><tr><th>Code.</th><th>Min.</th><th>Max.</th><th>Code.</th><th>Min.</th><th>Max.</th></tr></thead><tbody><tr><td>X</td><td>1900</td><td>2300</td><td>Y</td><td>2300</td><td>2700</td></tr><tr><td>Y</td><td>2300</td><td>2700</td><td>Z</td><td>2700</td><td>3100</td></tr><tr><td>Z</td><td>2700</td><td>3100</td><td>ZA</td><td>3100</td><td>3600</td></tr><tr><td>ZA</td><td>3100</td><td>3600</td><td>ZB</td><td>3600</td><td>4200</td></tr><tr><td>ZB</td><td>3600</td><td>4200</td><td>ZC</td><td>4200</td><td>5000</td></tr></tbody></table> |                | Before |       |      | After |  |  | Code. | Min. | Max. | Code. | Min. | Max. | X | 1900 | 2300 | Y | 2300 | 2700 | Y | 2300 | 2700 | Z | 2700 | 3100 | Z | 2700 | 3100 | ZA | 3100 | 3600 | ZA | 3100 | 3600 | ZB | 3600 | 4200 | ZB | 3600 | 4200 | ZC | 4200 | 5000 |
|                                    | Before                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |        | After |      |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
|                                    | Code.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Min.           | Max.   | Code. | Min. | Max.  |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
|                                    | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1900           | 2300   | Y     | 2300 | 2700  |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
|                                    | Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2300           | 2700   | Z     | 2700 | 3100  |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
| Z                                  | 2700                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3100           | ZA     | 3100  | 3600 |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
| ZA                                 | 3100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3600           | ZB     | 3600  | 4200 |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
| ZB                                 | 3600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4200           | ZC     | 4200  | 5000 |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
| Disposition of Old Product:        | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |        |       |      |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
| Identification of Changed Product: | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |        |       |      |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |
| Proposed First Ship Date:          | October 1, 2026                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |        |       |      |       |  |  |       |      |      |       |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |

|                                  |                                  |                        |
|----------------------------------|----------------------------------|------------------------|
| Approved By: <u>Benson Huang</u> | Title: <u>Sr Quality manager</u> | Date: <u>2026/9/01</u> |
|----------------------------------|----------------------------------|------------------------|

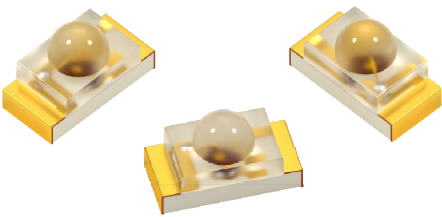
Notification Number:S202609001

## Acknowledgement of Receipt of Notice

Company Name: \_\_\_\_\_

Name(please print): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



APTD1608-MTS73  
1.6 x 0.8 mm SMD Chip LED Lamp

DESCRIPTIONS

- The Hyper Red device is based on light emitting diode chip made from AlGaInP
- Electrostatic discharge and power surge could damage the LEDs
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs
- All devices, equipments and machineries must be electrically grounded

FEATURES

- 1.6 mm x 0.8 mm SMD LED, 0.95 mm thickness
- Low power consumption
- Ideal for backlight and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Halogen-free
- RoHS compliant

APPLICATIONS

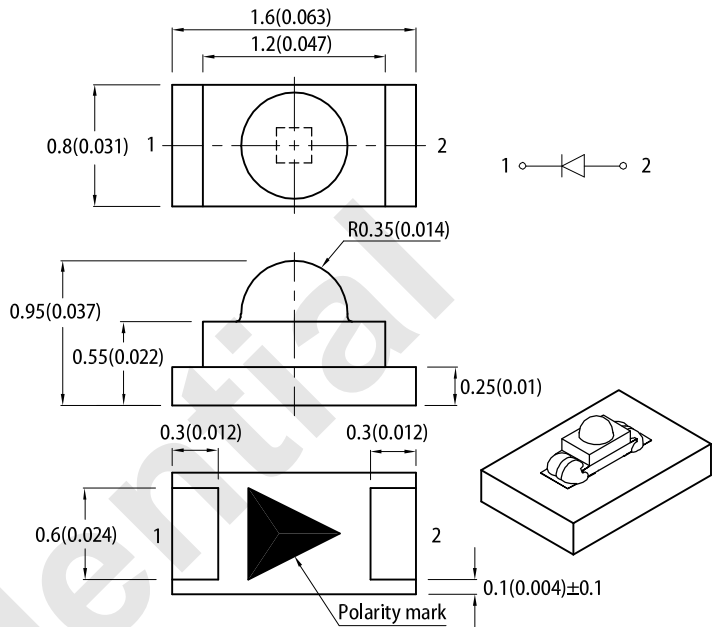
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

ATTENTION

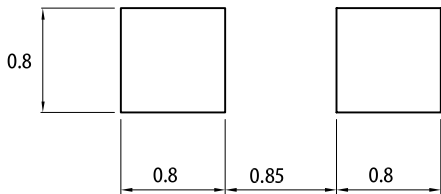
Observe precautions for handling electrostatic discharge sensitive devices



PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN  
(units : mm; tolerance : ± 0.1)



- Notes:
1. All dimensions are in millimeters (inches).
  2. Tolerance is ±0.15(0.006") unless otherwise noted.
  3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
  4. The device has a single mounting surface. The device must be mounted according to the specifications.

SELECTION GUIDE

| Part Number    | Emitting Color<br>(Material) | Lens Type   | Iv (mcd) @ 20mA <sup>[2]</sup> |      |      | Viewing Angle <sup>[1]</sup> |
|----------------|------------------------------|-------------|--------------------------------|------|------|------------------------------|
|                |                              |             | Code.                          | Min. | Max. | 2θ1/2                        |
| APTD1608-MTS73 | ■ Hyper Red (AlGaInP)        | Water Clear | Y                              | 2300 | 2700 | 60°                          |
|                |                              |             | Z                              | 2700 | 3100 |                              |
|                |                              |             | ZA                             | 3100 | 3600 |                              |
|                |                              |             | ZB                             | 3600 | 4200 |                              |
|                |                              |             | ZC                             | 4200 | 5000 |                              |

- Notes:
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
  2. Luminous intensity / luminous flux: +/-15%.
  3. LEDs will be provided from the listed bin codes. The bins delivered to the customer will be at Kingbright's discretion.

**ELECTRICAL / OPTICAL CHARACTERISTICS at T<sub>A</sub>=25°C**

| Parameter                                                                                     | Symbol                                           | Emitting Color | Value |      | Unit  |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------|----------------|-------|------|-------|
|                                                                                               |                                                  |                | Typ.  | Max. |       |
| Wavelength at Peak Emission I <sub>F</sub> = 20mA                                             | $\lambda_{\text{peak}}$                          | Hyper Red      | 640   | -    | nm    |
| Dominant Wavelength I <sub>F</sub> = 20mA                                                     | $\lambda_{\text{dom}}$ <sup>[1]</sup>            | Hyper Red      | 625   | -    | nm    |
| Spectral Bandwidth at 50% $\Phi$ REL MAX<br>I <sub>F</sub> = 20mA                             | $\Delta\lambda$                                  | Hyper Red      | 20    | -    | nm    |
| Forward Voltage I <sub>F</sub> = 20mA                                                         | V <sub>F</sub> <sup>[2]</sup>                    | Hyper Red      | 2.2   | 2.8  | V     |
| Reverse Current (V <sub>R</sub> = 5V)                                                         | I <sub>R</sub>                                   | Hyper Red      | -     | 10   | μA    |
| Temperature Coefficient of $\lambda_{\text{peak}}$<br>I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C | TC <sub><math>\lambda_{\text{peak}}</math></sub> | Hyper Red      | 0.13  | -    | nm/°C |
| Temperature Coefficient of $\lambda_{\text{dom}}$<br>I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C  | TC <sub><math>\lambda_{\text{dom}}</math></sub>  | Hyper Red      | 0.06  | -    | nm/°C |
| Temperature Coefficient of V <sub>F</sub><br>I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C          | TC <sub>V</sub>                                  | Hyper Red      | -2.0  | -    | mV/°C |

**Notes:**

1. The dominant wavelength ( $\lambda_d$ ) above is the setup value of the sorting machine. (Tolerance  $\lambda_d$  : ±1nm. )
2. Forward voltage: ±0.1V.
3. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

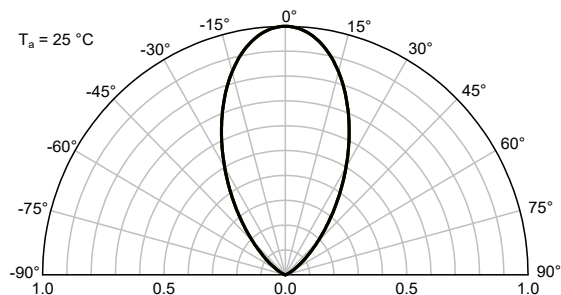
**ABSOLUTE MAXIMUM RATINGS at T<sub>A</sub>=25°C**

| Parameter                                    | Symbol                            | Value      | Unit |
|----------------------------------------------|-----------------------------------|------------|------|
| Power Dissipation                            | P <sub>D</sub>                    | 84         | mW   |
| Reverse Voltage                              | V <sub>R</sub>                    | 5          | V    |
| Junction Temperature                         | T <sub>j</sub>                    | 115        | °C   |
| Operating Temperature                        | T <sub>op</sub>                   | -40 to +85 | °C   |
| Storage Temperature                          | T <sub>stg</sub>                  | -40 to +85 | °C   |
| DC Forward Current                           | I <sub>F</sub>                    | 30         | mA   |
| Peak Forward Current                         | I <sub>FP</sub> <sup>[1]</sup>    | 150        | mA   |
| Electrostatic Discharge Threshold (HBM)      | -                                 | 3000       | V    |
| Thermal Resistance (Junction / Ambient)      | R <sub>th JA</sub> <sup>[2]</sup> | 470        | °C/W |
| Thermal Resistance (Junction / Solder point) | R <sub>th JS</sub> <sup>[2]</sup> | 360        | °C/W |

**Notes:**

1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. R<sub>th JA</sub>, R<sub>th JS</sub> Results from mounting on PC board FR4 (pad size ≥ 16 mm<sup>2</sup> per pad).
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

### RELATIVE INTENSITY vs. WAVELENGTH



**Forward Current vs. Forward Voltage**

$T_a = 25\text{ }^{\circ}\text{C}$

Forward current (mA)

Forward voltage (V)

**Luminous Intensity vs. Forward Current**

$T_a = 25\text{ }^{\circ}\text{C}$

Luminous intensity normalised at 20 mA

Forward current (mA)

**Forward Current Derating Curve**

Permissible forward current (mA)

Ambient temperature ( $^{\circ}\text{C}$ )

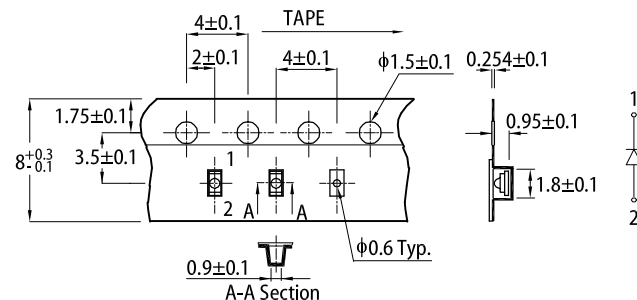
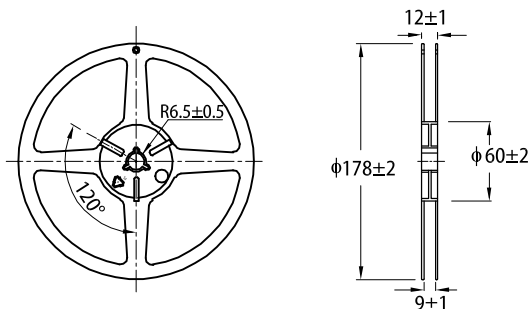
**Luminous Intensity vs. Ambient Temperature**

$T_a = 25\text{ }^{\circ}\text{C}$

Luminous intensity normalised at  $T_a = 25\text{ }^{\circ}\text{C}$

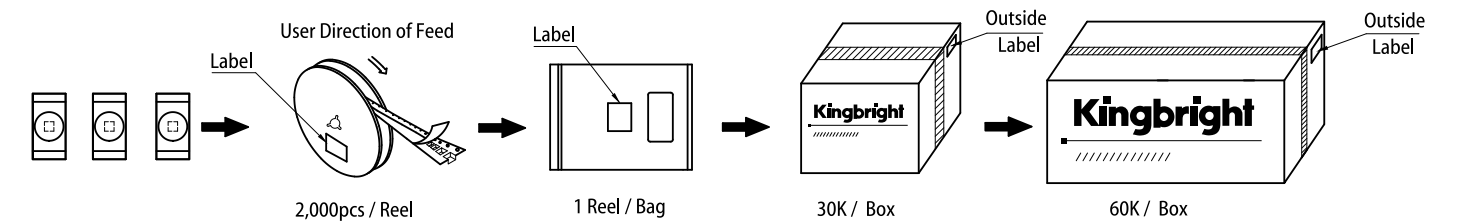
Ambient temperature ( $^{\circ}\text{C}$ )

### TAPE SPECIFICATIONS (units : mm)

**REEL DIMENSION** (units : mm)

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PACKING & LABEL SPECIFICATIONS



PRECAUTIONARY NOTES

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
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