



BRIGHTTEK

BRIGHTTEK (EUROPE) LIMITED

Brighten up The World With LED!



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

PRODUCT DATASHEET



- ▶ Ceramic High Power
- ▶ 3535 1.84t Series
- ▶ Ultraviolet UVC (260~280nm)

N0Q52S02Z-260270

N0Q52S02Z-270280



Release Date: 19 October 2021 Version: A1.3



3535 1.84t Series

3535 1.84t Series

RoHS
Compliant



FEATURES:

- **Package:** Ceramic SMT Package with Glass Lens
- **Forward Current:** 100mA
- **Forward Voltage (typ.):** 6V
- **Radiant Power (typ.):** 12mW@100mA
- **Colour:** Ultraviolet C (UVC)
- **Peak Wavelength:** 260~280nm
- **Viewing angle:** 120°
- **Materials:**
 - Die: AlGaIn Flip Chip
 - Resin: Glass (Water Clear)
- **Operating Temperature:** -30~+60°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
 - Forward Voltage
 - Radiant Power
 - Peak Wavelength
- **Soldering methods:** IR Reflow
- **Moisture Sensitive Level:** MSL 2 according to J-STD020
- **Packing:** 12mm tape with min.100pcs/reel, ø180mm (7")

APPLICATIONS:

- Sterilization
- Air Purifier
- Blood Detector
- Skin Therapy
- Dermatology
- Water Purifier
- Disinfection



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CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I _F	150	mA
Power Dissipation	P _D	1.1	W
Junction Temperature	T _J	85	°C
Thermal Resistance	R _{th}	17	°C/W
Operating Temperature	T _{OPR}	-30~+60	°C
Storage Temperature	T _{STG}	-40~+100	°C

Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V _F	5.0	6.0	7.0	V	I _F =100mA
Radiant Power	P _O	5	9	15	mW	I _F =100mA
Peak Wavelength	λ _D	260	270	280	nm	I _F =100mA
Viewing Angle	2θ _{1/2}	---	120	---	deg	I _F =100mA

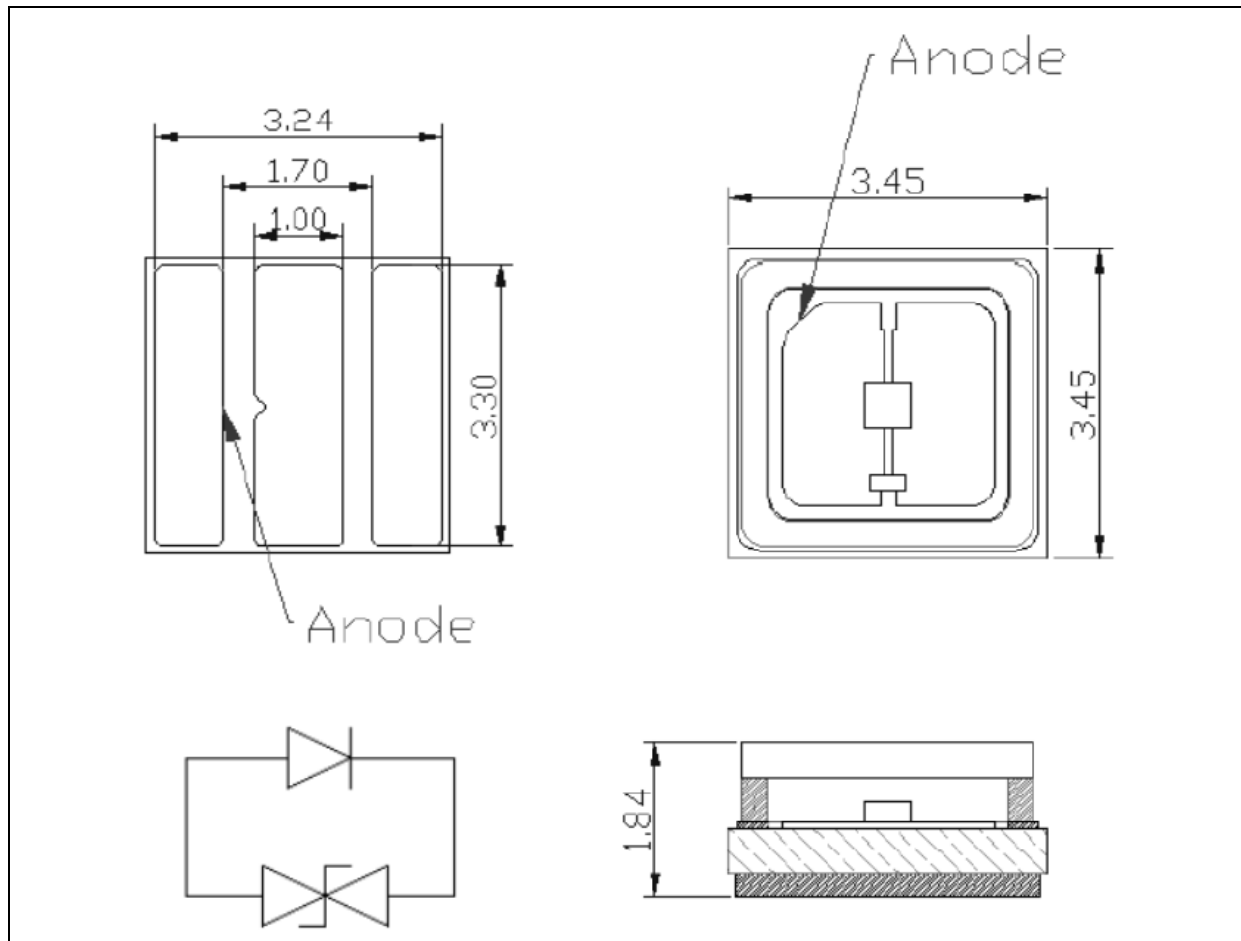
1. Radiant power (Φ_V) ±7%, Forward Voltage (V_F) ±0.05V, Viewing angle(2θ_{1/2}) ±10°, Peak wavelength (λ_D) ±1nm.



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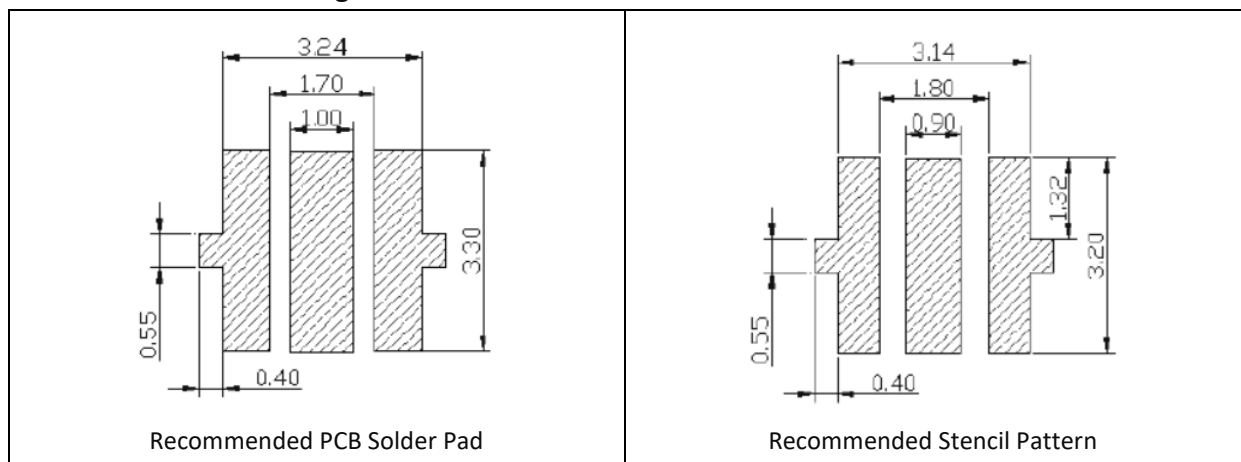
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.13\text{mm}$, unless otherwise noted.

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance $\pm 0.12\text{mm}$ with angle tolerance $\pm 0.5^\circ$.



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BINNING GROUPS:

Forward Voltage Classifications ($I_F = 100\text{mA}$):

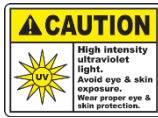
Code	Min.	Max.	Unit
JD	5.2	5.6	V
JE	5.6	6.0	
JF	6.0	6.4	
JG	6.4	6.8	

Radiant Power Classifications ($I_F = 100\text{mA}$):

Code	Min.	Max.	Unit
X02	5	10	mW
X03	10	15	

Peak Wavelength Classifications ($I_F = 100\text{mA}$):

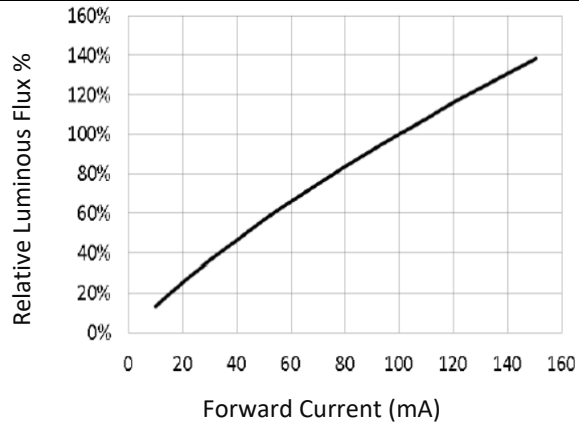
Code	Min.	Max.	Unit
265	260	270	nm
275	270	280	



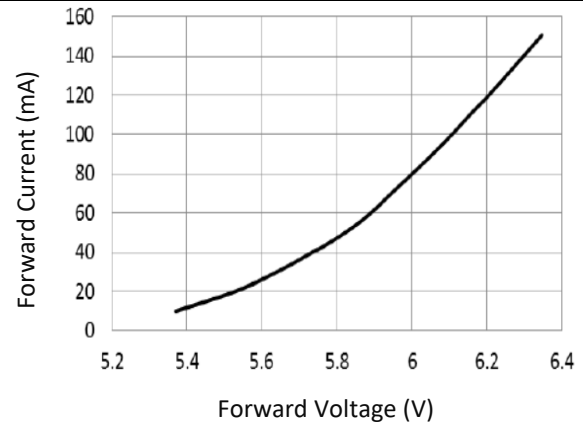
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ELECTRO-OPTICAL CHARACTERISTICS:

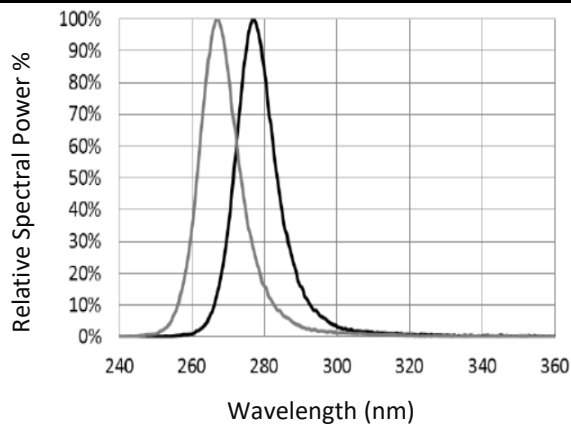
Relative Luminous Flux v.s. Forward Current



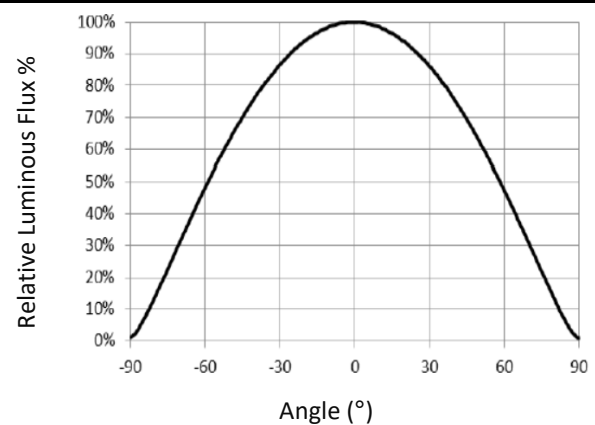
Forward Current v.s. Forward Voltage

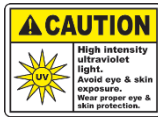


Relative Spectral Power v.s. Wavelength



Directive Radiation





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Reliability Tests:

Test Item	Test Condition	Test Period	Ac/Re
Room Temperature Operating Life (RTOL)	$I_F=100\text{mA DC}$	1000hrs	0/1
Wet High Temperature Operating Life (WHTOL)	$T_A=60^\circ\text{C}$; 90% Humidity; $I_F=100\text{mA DC}$	1000hrs	0/1
Thermal Cycle	-40°C 30mins $+125^\circ\text{C}$ 30mins	1000 cycle	0/1
Reflow Soldering	$T_{\text{max.}}=260^\circ\text{C}$	3 times	0/1

Notes:

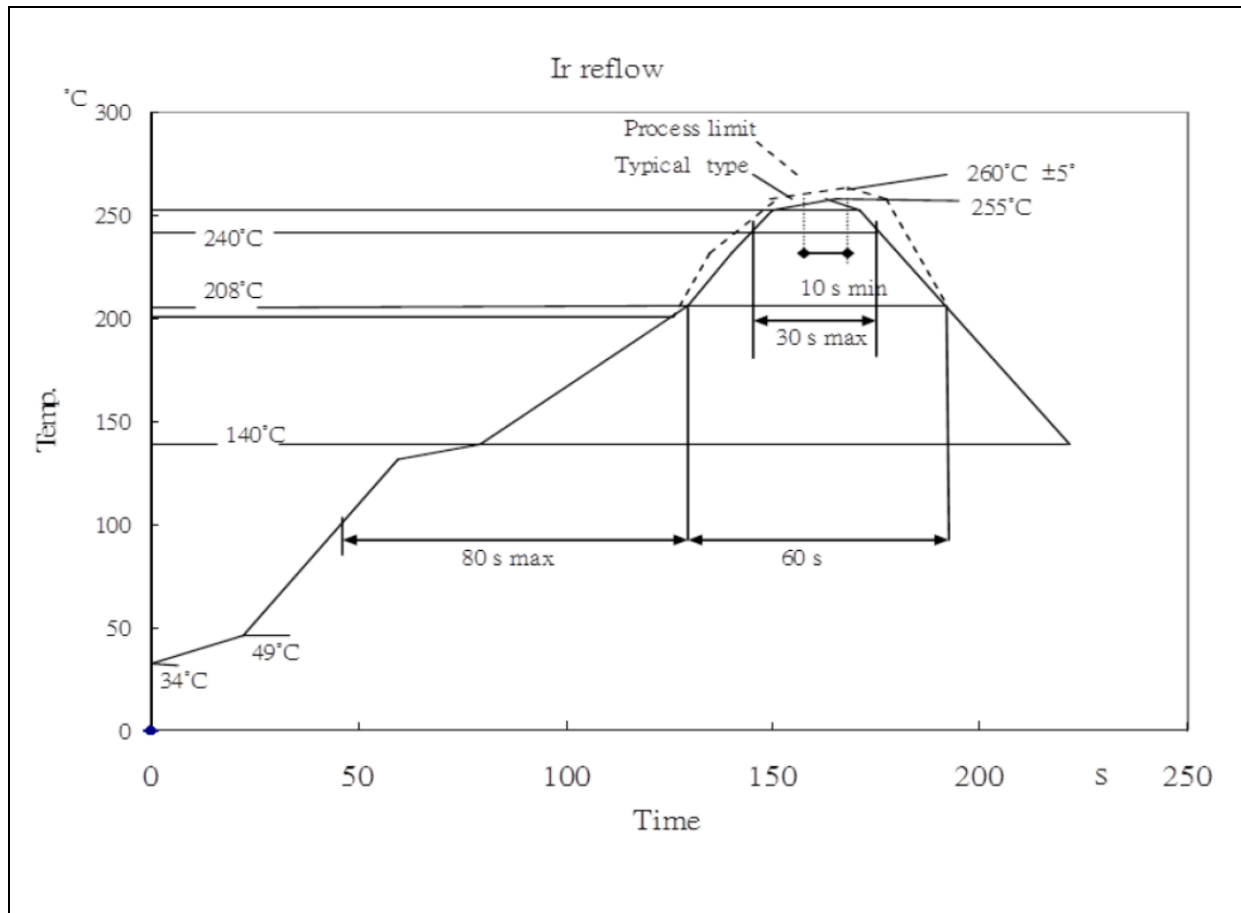
- No catastrophic (LED Fail)
 - Radiant flux maintenance > 50%
 - Change in VF < 10%
 - No corrosion
 - Moisture Sensitivity Level 2 (IPC/JEDEC J-STD-020)
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RECOMMENDED SOLDERING PROFILE:

IR Reflow Lead-free Solder:



Note:

1. Recommend reflow temperature 240°C. The maximum soldering temperature should be limited to 260°C.
2. Maximum reflow soldering: 1 time.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

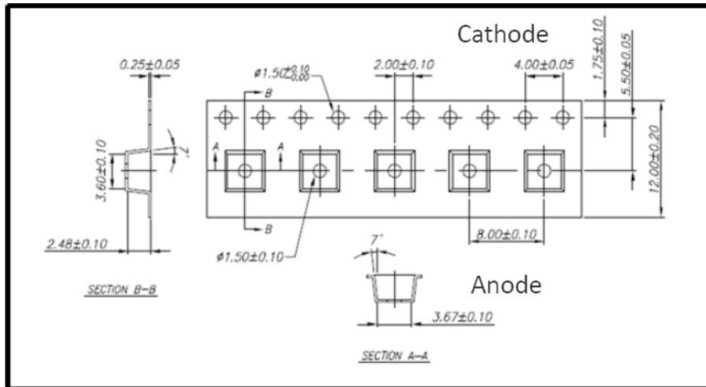


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PACKING SPECIFICATION:

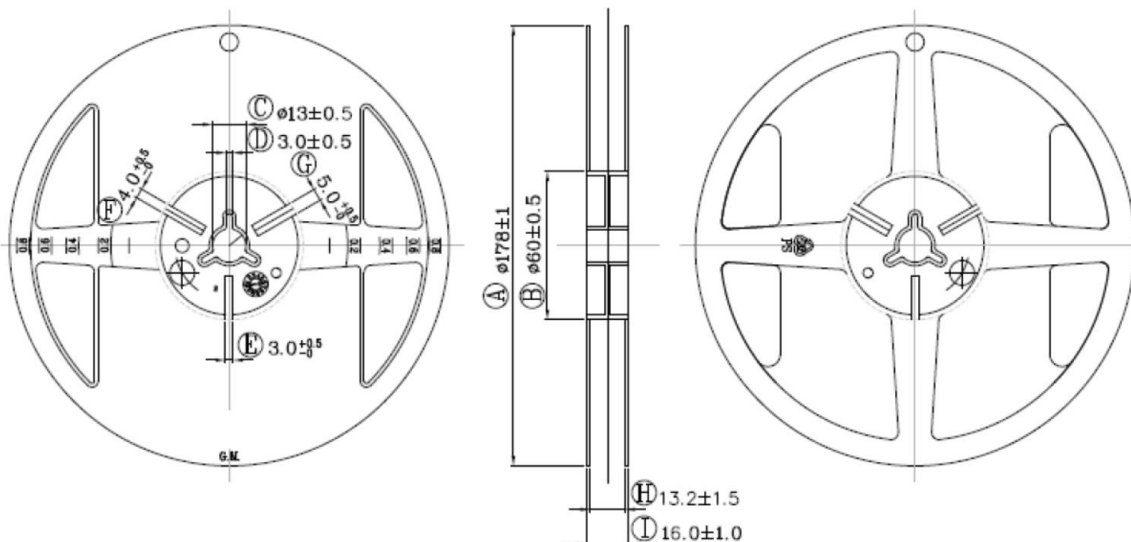
Reel Dimension:

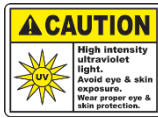
Min.100pcs/reel



Item	Specification	Tol.(+/-)
W	12.00	±0.20
E	1.75	±0.10
F	5.50	±0.05
D0	1.50	+0.10,-0
D1	1.50	±0.10
P0	4.00	±0.05
P1	8.00	±0.10
P1	2.00	±0.10
P0 x 10	40.00	±0.20

t	0.25	±0.05
A0	3.67	±0.10
B0	3.60	±0.10
K0	2.48	±0.10





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PRECAUTIONS OF USE:

Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 months at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with desiccating agent <10% R.H. and apply baking.

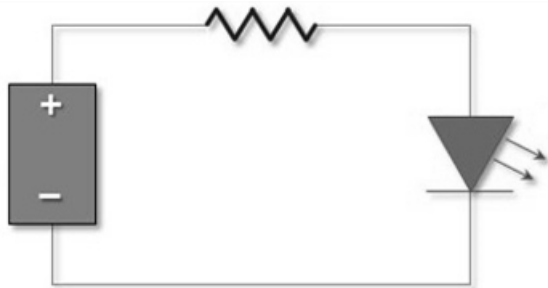
Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs. The suggested baking conditions are as followings:

- 60±3°C x 24hrs and <5%RH, taped / reel package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

Testing Circuit:



Must apply resistor(s) for protection (over current proof).

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrostatic glove is recommended when handling the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.



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REVISION RECORD:

Version	Date	Summary of Revision
A1.0	12/09/2020	Datasheet set-up.
A1.1	13/10/2020	Revise product solder pad and height.
A1.2	31/10/2020	Add reliability test items.
A1.3	19/10/2021	Revise voltage and radiant power bin range.