BRIGHTEK

BRIGHTEK (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 2.9t Series
- ► Ultraviolet (400-410nm)

Release Date: 02 June 2022 Version: A1.1

N0Q49S25Z

3535 2.9t Series

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RoHS Compliant

FEATURES:

- **Package:** Ceramic SMT Package with Silicon Lens
- **Forward Current:** 500-1250mA
- **Forward Voltage (typ.):** 3.6V
- **Radiant Power (typ.):** 860mW@500mA
- **Colour:** Ultraviolet (UV)
- **Peak Wavelength:** 400-410nm
- **Viewing angle:** 60°
- **Materials:**
  - Die: InGaN
  - Resin: Silicon (Water Clear)
  - L/T Finish: Gold Plated (Au)
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+105°C
- **Grouping parameters:**
  - Forward Voltage
  - Radiant Power
  - Peak Wavelength
- **Soldering methods:** Reflow
- **Moisture sensitive Level:** MSL2 according to J-STD020
- **Packing:** 12mm tape with max.500pcs/reel, ø180mm (7'')

APPLICATIONS:

- Industrial Curing
- Air Purifier
- Poster Printing Curing
- Counterfeit Money Detector
- Blood Detector
- Nail Curing
- Teeth Curing

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	1250	mA
Pulse Forward Current	I_{PF}	1500	mA
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	μA
Junction Temperature	T_j	130	°C
Electrostatic Discharge (HBM: MIL-STD-883 C 3B)	ESD	8000	V
Operating Temperature	T_{OPR}	-40~+105	°C
Storage Temperature	T_{STG}	-40~+105	°C
Soldering Temperature	T_{SOL}	260	°C
Thermal Resistance - Junction to Solder Point	R_{th}	10	°C/W

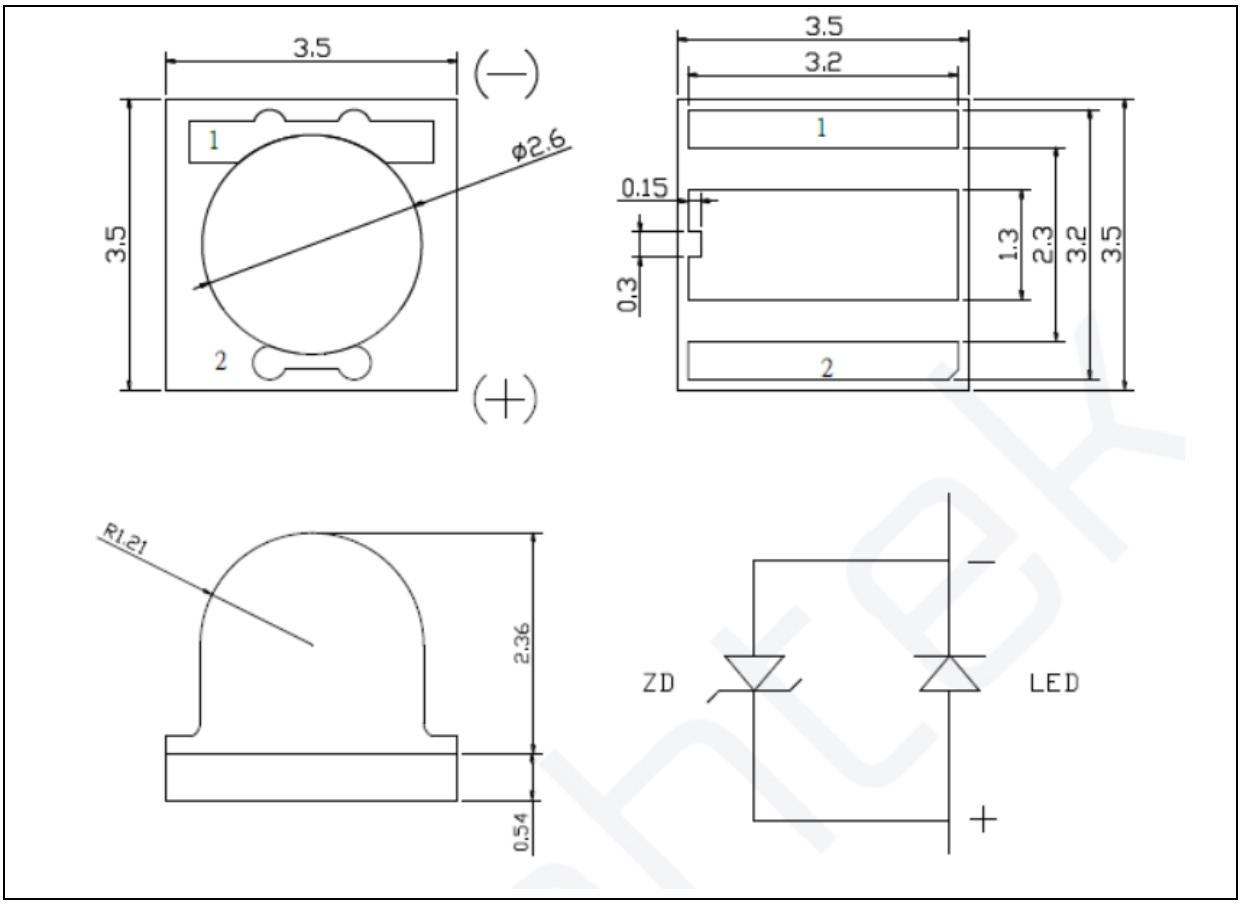
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	3.2	---	4.0	V	I_F=500mA
Radiant Power	P_O	740	---	980	mW	I_F=500mA
Peak Wavelength	λ_D	400	---	410	nm	I_F=500mA
Viewing Angle	$2\theta_{1/2}$	---	60	---	deg	I_F=500mA

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

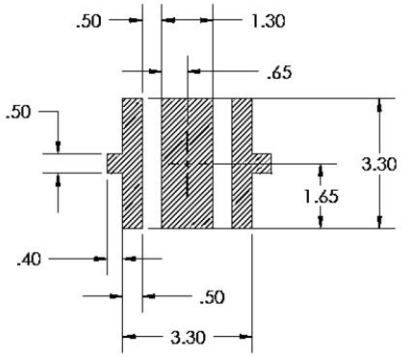
OUTLINE DIMENSION:

Package Dimension:

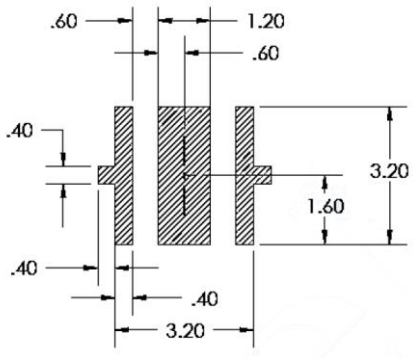


1. All dimensions are in millimetre (mm).
2. Tolerance ±0.13mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



Recommended PCB Solder Pad



Recommended Stencil Pattern

1. Dimensions are in millimetre (mm).
2. Tolerance ±0.12mm with angle tolerance ±0.5°.

BINNING GROUPS:

Forward Voltage Classifications (I_F = 500mA):

Code	Min.	Max.	Unit
V3234	3.2	3.4	V
V3436	3.4	3.6	
V3638	3.6	3.8	
V3840	3.8	4.0	

Radiant Power Classifications (I_F = 500mA):

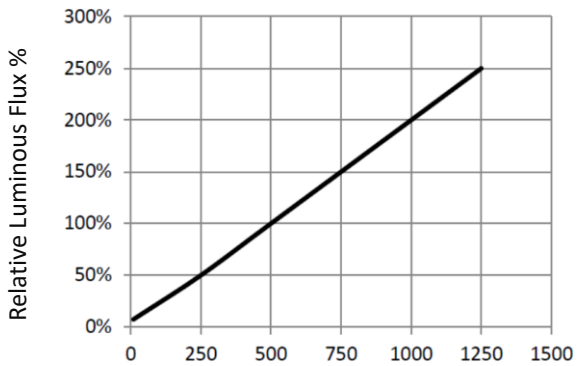
Code	Min.	Max.	Unit
U074	740	780	mW
U078	780	820	
U082	820	860	
U086	860	900	
U090	900	940	
U094	940	980	

Peak Wavelength Classifications (I_F = 500mA):

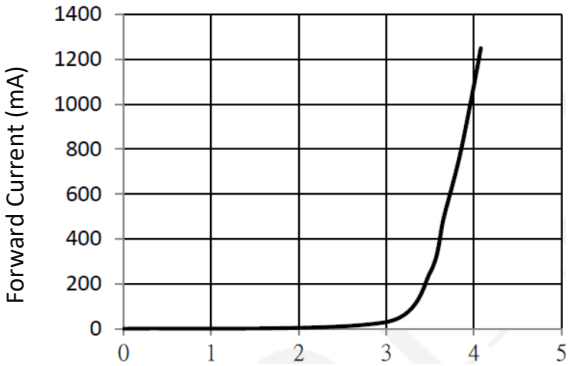
Code	Min.	Max.	Unit
Q8	400	405	nm
Q9	405	410	

ELECTRO-OPTICAL CHARACTERISTICS:

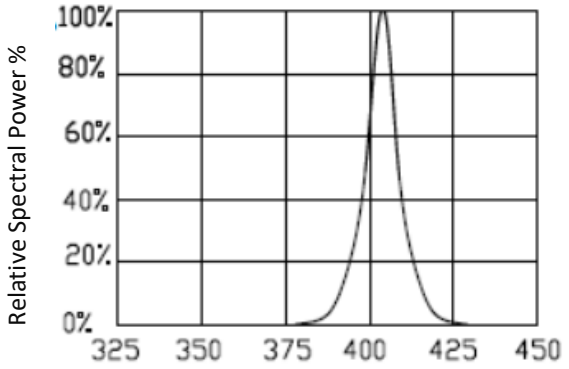
Relative Luminous Flux v.s. Forward Current



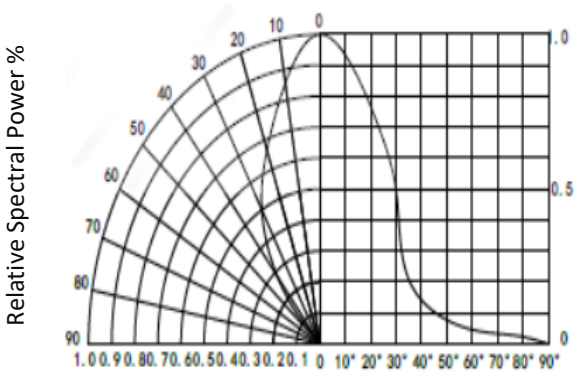
Forward Current v.s. Forward Voltage



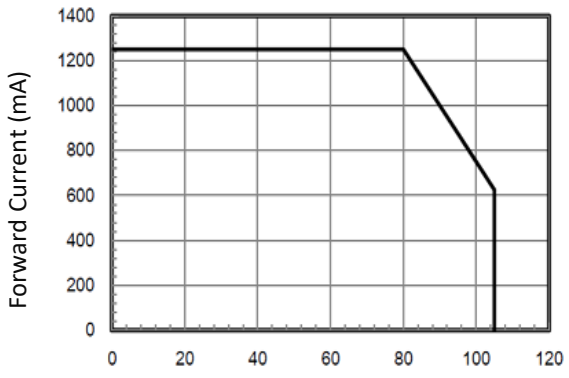
Relative Spectral Power v.s. Wavelength

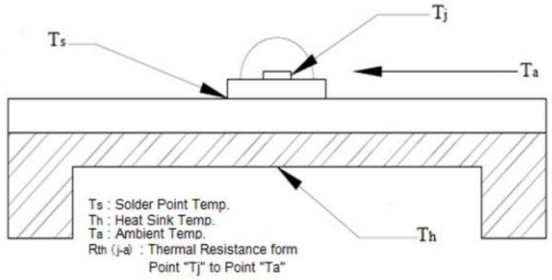


Directive Radiation



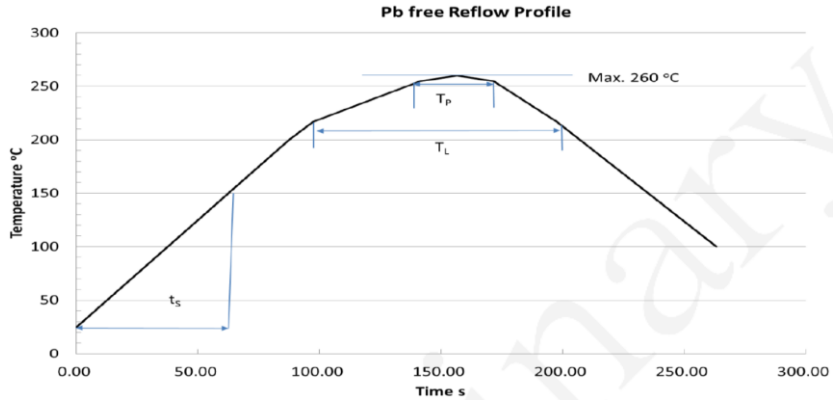
Forward Current Derating Curve





RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up Rate to Preheat (25°C to 150°C)			2	3	K/s
Time t_S (T_{Smin} to T_{smax})	t_S	60	100	120	s
Ramp-up Rate to Peak (T_{Smax} to T_P)			2	3	K/s
Liquidus Temperature	T_L		217		°C
Time above Liquidus temperature	t_L		80	100	s
Peak Temperature	T_P		245	260	°C
Time within 5 °C of the specified peaktemperature T_P - 5 K	t_P	10	20	30	s
Ramp-down Rate (T_P to 100 °C)			3	4	K/s
Time 25 °C to T_P				480	s

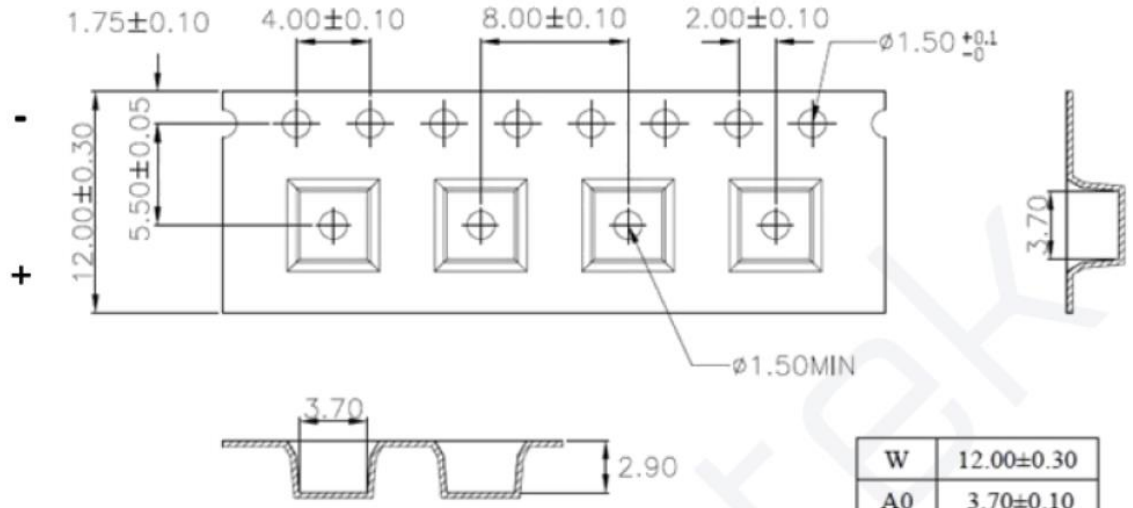
Note:

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

PACKING SPECIFICATION:

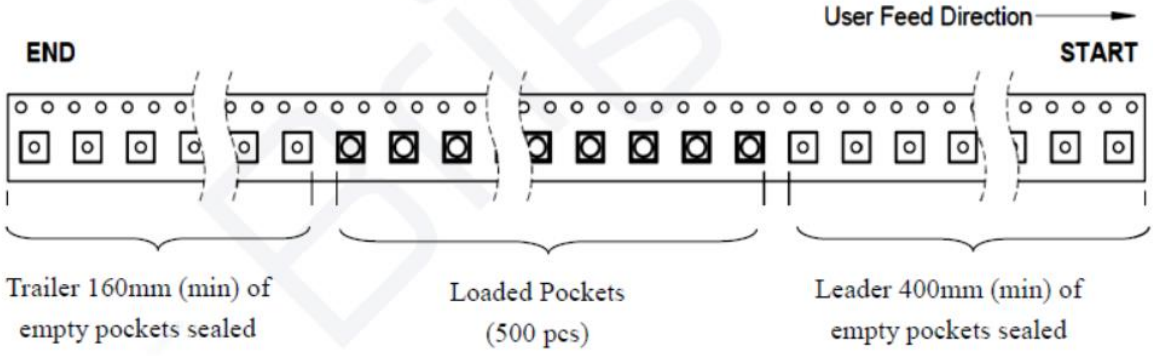
Reel Dimension:

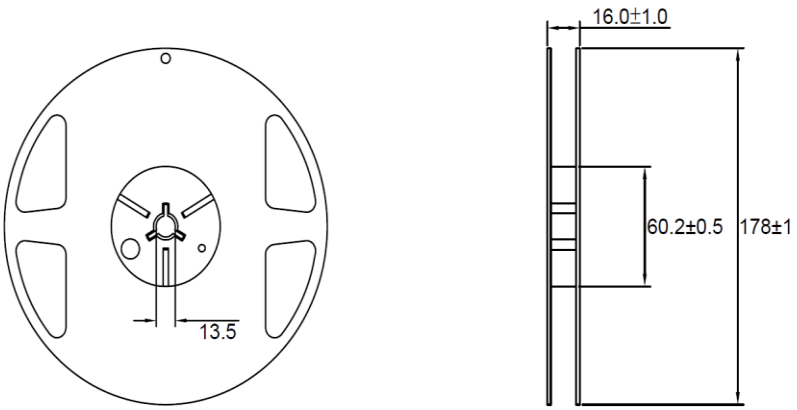
Maximum 500pcs/reel



W	12.00±0.30
A0	3.70±0.10
B0	3.70±0.10
K0	2.90±0.10

1. 10 sprocket hole pitch cumulative tolerance ±0.20.
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness : 0.30±0.05mm.





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 descanting agent <10% R.H. and apply baking.

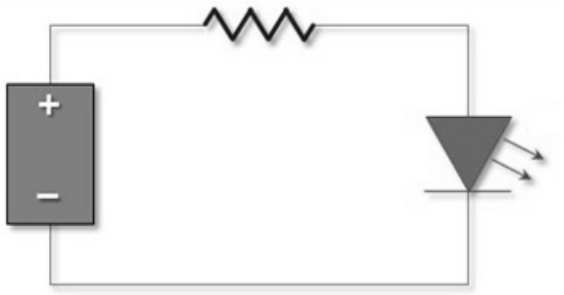
Baking:

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-electrosatic glove is recommended when handing 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.

Test Items and Reliability:

Test Item	Test Condition	Duration / Cycle	Failure Rate	Reference
Thermal Shock	-40°C 30mins ↓↑ 5mins 125°C 30mins	1000 cycles	0/77	AEC-Q101
High Temperature Storage	Ta=100°C	1000hrs	0/22	EIAJ ED-4701 200 201
Humidity Heat Storage	Ta=85°C RH=85%	1000hrs	0/22	EIAJ ED-4701 100 103
Low Temperature Storage	Ta=-40°C	1000hrs	0/22	EIAJ ED-4701 200 202
Life Test	Ta=25°C I_F=500mA	1000hrs	0/22	JESD22 A-108
High Humidity Heat Operation	85°C RH=85% I_F=500mA	1000hrs	0/22	JESD22 A-108
High Temperature Operation	Ta=85°C I_F=500mA	1000hrs	0/22	JESD22 A-108
ESD (HBM)	8KV at 1.5KΩ; 100pf	3 times	0/22	MIL-STD-883

Failure Criteria				
Item	Symbol	Condition	Criteria for Judgment	
			Min	Max
Forward Voltage	V_F	I_F=500mA	-	USL[1] x 1.1
Reverse Current	I_R	V_R=5V	-	100μA
Radiant Power	P_O	I_F=500mA	LSL[2] x 0.7	-

1. USL: Upper Specification Level.
2. LSL: Lower Specification Level.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	22/05/2020	Datasheet set-up.
A1.1	02/06/2022	New datasheet format.