



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



- ▶ CSP CHIP LED
- ▶ 0808 0.28t Series
- ▶ Cool White (6000K)

NOW53S65



Release Date: 27 September 2021 Version: A1.1



0808 0.28t Series



FEATURES:

- **Package:** Ceramic High Power CSP Package
- **Forward Current:** 200~400mA
- **Forward Voltage (typ.):** 3.0V
- **Luminous Flux (typ.):** 68lm@200mA
- **Colour:** Cool White
- **CCT/Colour Temperature (typ.):** 6000K
- **Viewing angle:** 120°
- **Materials:**
 - Die: Flip-Chip InGaN
 - Resin: Silicon (Yellow Diffused)
 - L/T Finish: Au plated
- **Operating Temperature:** -40~+125°C
- **Storage Temperature:** -40~+125°C
- **Grouping parameters:**
 - Forward Voltage
 - Luminous Flux
 - CIE Chromaticity
- **Soldering Method:** IR Reflow
- **Recommended Soldering Paste:** SAC305
- **Preconditioning:** MSL2 according to J-STD020
- **Packing:** Adhesive sheet with min.2000pcs/sheet

APPLICATIONS:

- Decorative Lighting
- Portable Lighting
- Outdoor Lighting
- Commercial Lighting
- Indoor Lighting
- Industrial Lighting

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I _F	400	mA
Peak Pulsed Current *	I _{PF}	600	mA
Power Dissipation	P _D	1.34	W
Reverse Voltage	V _R	5	V
Junction Temperature	T _J	150	°C
Operating Temperature	T _{OPR}	-40~+125	°C
Storage Temperature	T _{STG}	-40~+125	°C
Colour Rendering Index / Ra	CRI	80	---

* 1/10 duty cycle @1KHz

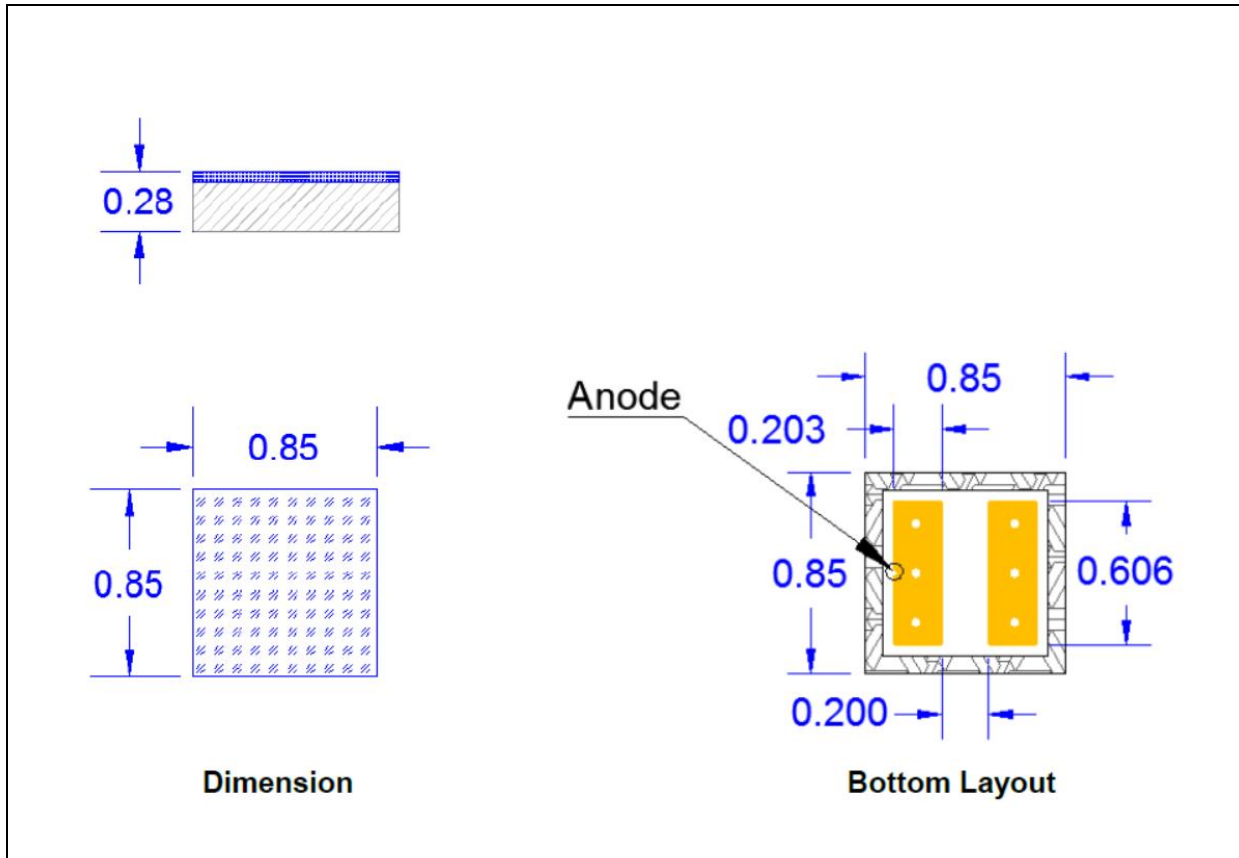
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V _F	2.9	3.0	3.2	V	I _F =200mA
Luminous Flux	Φ _V	64	68	72	lm	I _F =200mA
Chromaticity Coordinates	X	0.3365	---	0.3582	---	I _F =200mA
	Y	0.3245	---	0.3905		
CCT	---	---	6000	---	K	I _F =200mA
Viewing Angle	2θ _{1/2}	---	120	---	deg	I _F =200mA

1. Luminous flux (Φ_V) ±7%, Forward Voltage (V_F) ±0.05V, Viewing angle(2θ_{1/2}) ±10°, CRI ±2

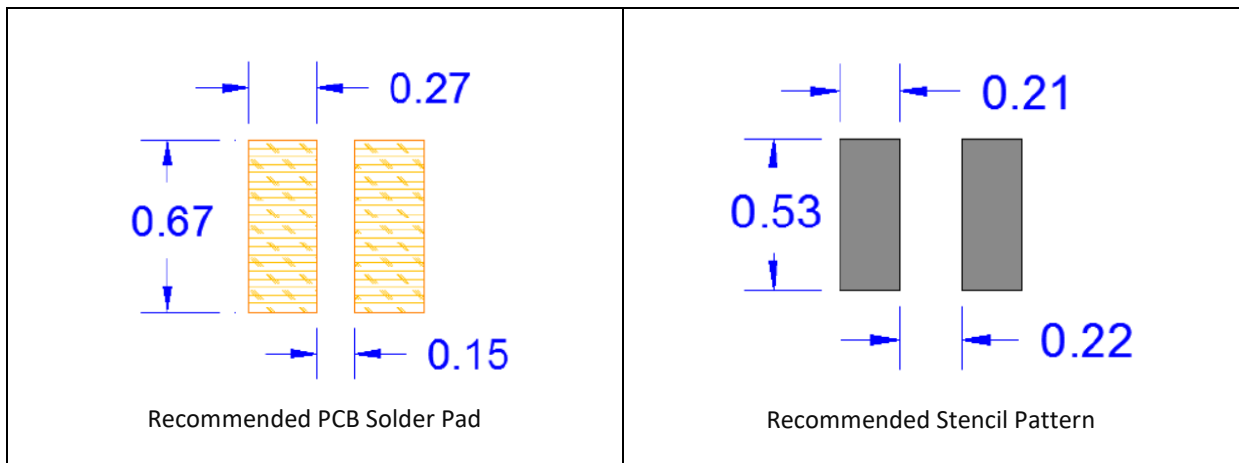
OUTLINE DIMENSION:

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 $\pm 0.5^\circ$.

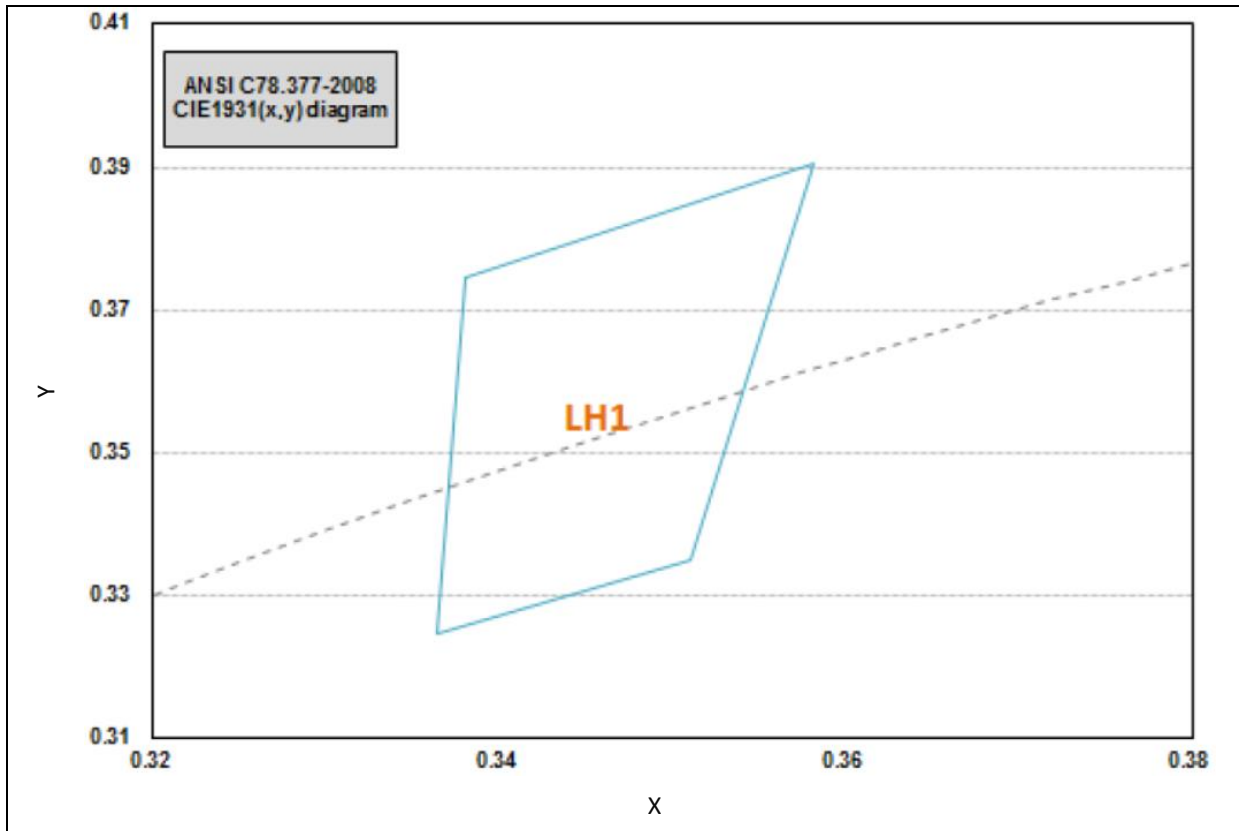
BINNING GROUPS:

 Forward Voltage Classifications ($I_F = 200\text{mA}$):

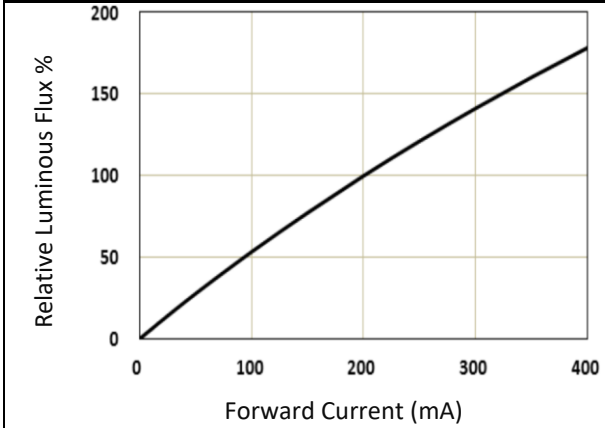
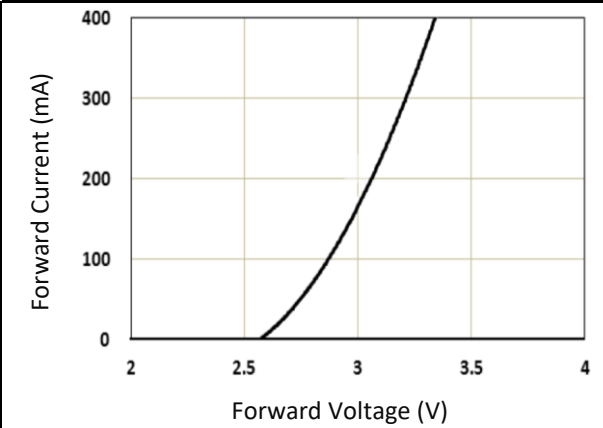
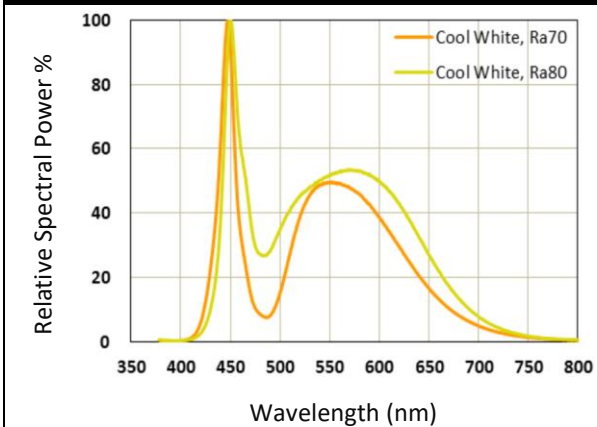
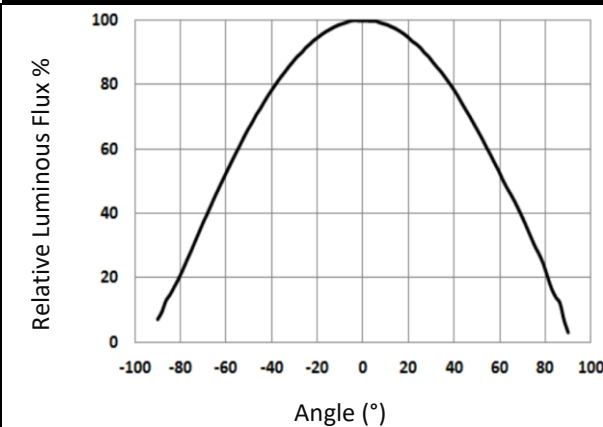
Code	Min.	Max.	Unit
A9	2.9	3.0	V
AA	3.0	3.1	
AB	3.1	3.2	

 Luminous Flux Classifications ($I_F = 200\text{mA}$):

Code	Min.	Max.	Unit
BD2	64	66	lm
BD3	66	68	
BD4	68	70	
BD5	70	72	

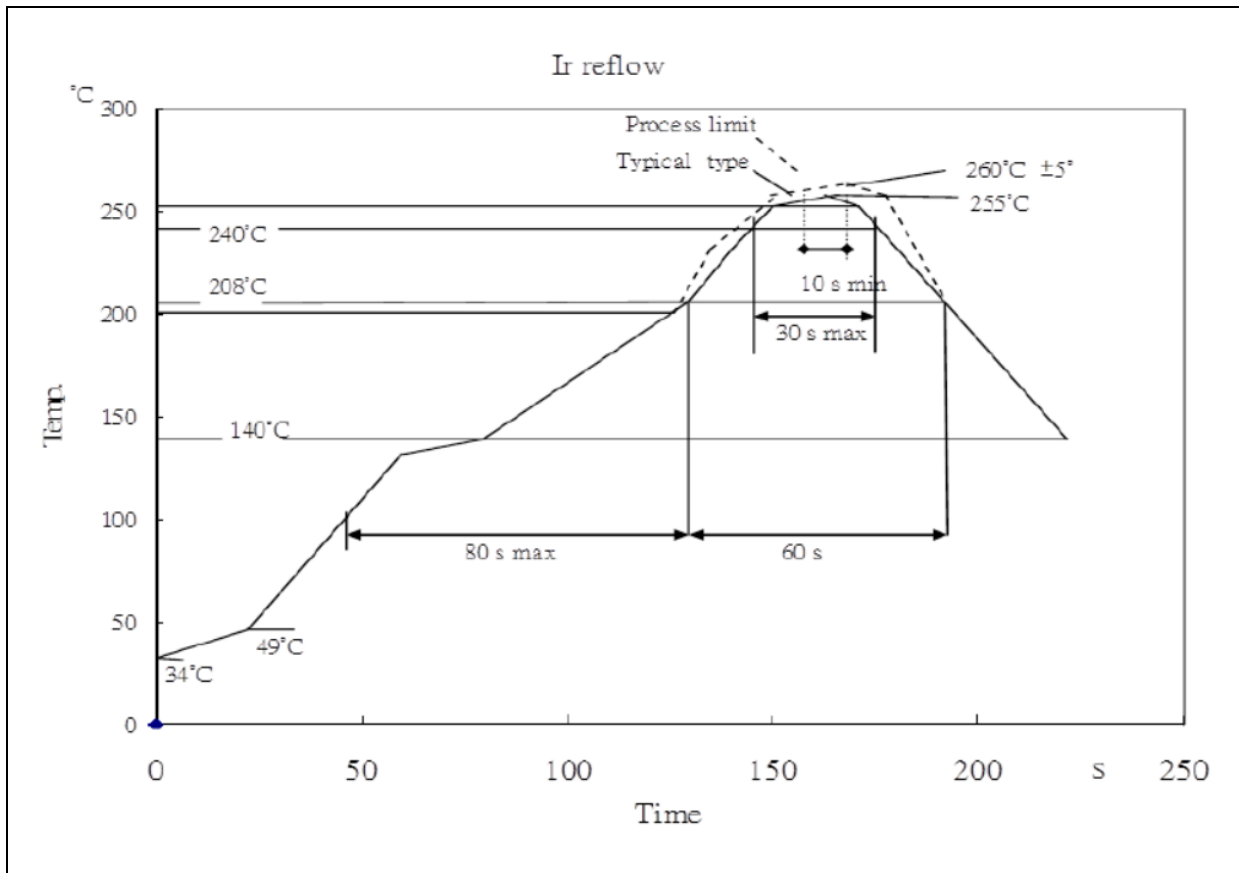
CIE CHROMATICITY DIAGRAM:

 Chromaticity Coordinates Classifications ($I_F = 200\text{mA}$):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
LH1	0.3381	0.3745	0.3365	0.3245	0.3511	0.3349	0.3582	0.3905

ELECTRO-OPTICAL CHARACTERISTICS:
Relative Luminous Flux v.s. Forward Current

Forward Current v.s. Forward Voltage

Relative Spectral Power v.s. Wavelength

Directive Radiation


RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



Note:

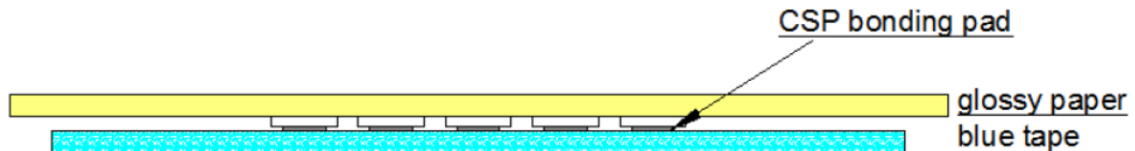
1. Maxima reflow soldering: 1 time.
2. The recommended reflow temperature is 240°C. The maximum soldering temperature should be limited to 260°C.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

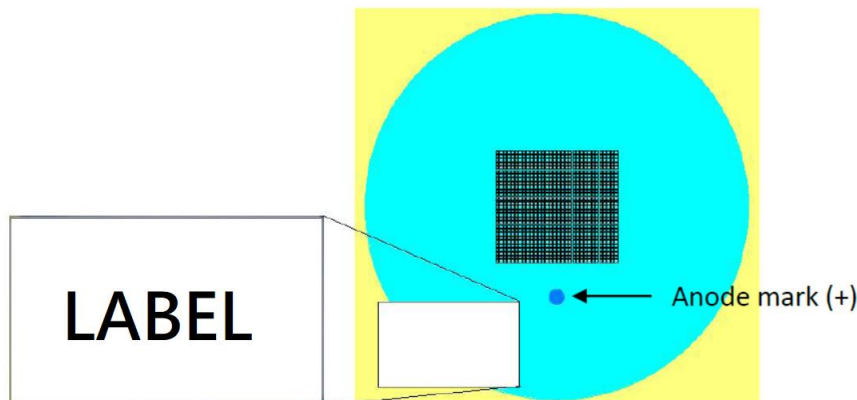
Adhesive Sheet Dimension:

Min.2000pcs/reel

1. CSP LEDs are placed on the blue adhesive tape and the bonding pads facing down (i.e., Bonding pad is adhered to the tape) and covered with a glossy paper as below figure.



2. CSP LEDs array must be placed within the center of the blue adhesive tape and the bar code label is located on the back of the blue tape at the left lower corner as below figure.



Item	Dimension
Blue adhesive tape	215 mm X 210 mm (± 10 mm)
Backing glossy paper	$\Phi 204$ mm (± 10 mm)
Label location on blue tape	Lower left corner; 75 mm X 45 mm (± 10 mm)

3. The sheet (blue adhesion tape & glossy paper) must be packed in an anti-electrostatic bag and paper box for shipment.
4. The ESD attention label is stamped on bag.
5. Each box and each sheet should be labeled with information describing its content.

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 before use.

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.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	14/10/2020	Datasheet set-up.
A1.1	27/09/2021	New datasheet format.