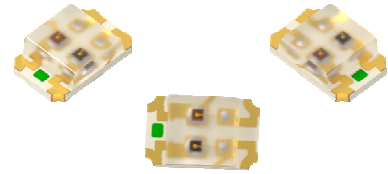


APHBM2012LQBDSURKC 2.0 x 1.25 mm SMD Chip LED Lamp



DESCRIPTIONS

- The Blue source color devices are made with InGaN Light Emitting Diode
- The Hyper Red source color devices are made with AlGaInP on GaAs substrate Light Emitting Diode
- 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

- 2.0 mm x 1.25 mm SMD LED, 0.45 mm max. thickness
- Low power consumption
- Wide viewing angle
- Ideal for backlight and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Halogen-free
- RoHS compliant

APPLICATIONS

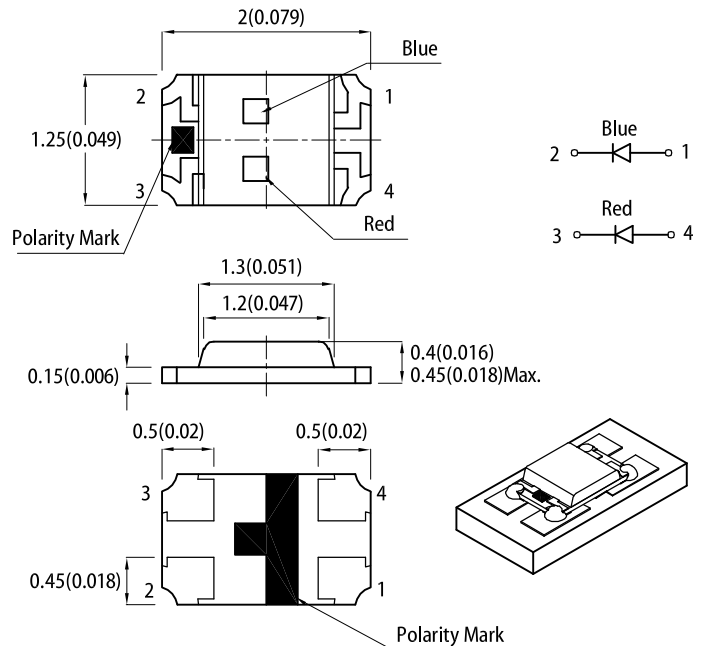
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

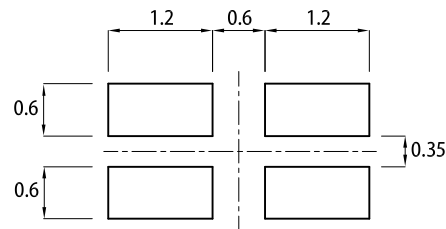


PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.1(0.004") 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 (Material)	Lens Type	Iv (mcd) @ 2mA ^[2]		Viewing Angle ^[1]
			Min.	Typ.	2θ1/2
APHBM2012LQBDSURKC	Blue (InGaN)	Water Clear	6	12	120°
			*6	*12	
	Hyper Red (AlGaInP)		15	30	
			*6	*15	

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%.
 * Luminous intensity value is traceable to CIE127-2007 standards.

ELECTRICAL / OPTICAL CHARACTERISTICS at $T_A=25^\circ\text{C}$

Parameter	Symbol	Emitting Color	Value			Unit
			Min.	Typ.	Max.	
Wavelength at Peak Emission $I_F = 2\text{mA}$	λ_{peak}	Blue Hyper Red	-	460 645	-	nm
Dominant Wavelength $I_F = 2\text{mA}$	λ_{dom} ^[1]	Blue Hyper Red	-	465 630	-	nm
Spectral Bandwidth at 50% Φ REL MAX $I_F = 2\text{mA}$	$\Delta\lambda$	Blue Hyper Red	-	25 28	-	nm
Capacitance	C	Blue Hyper Red	-	100 35	-	pF
Forward Voltage $I_F = 2\text{mA}$	V_F ^[2]	Blue Hyper Red	2.2 1.5	2.65 1.75	3.0 2.1	V
Reverse Current ($V_R = 5\text{V}$)	I_R	Blue Hyper Red	-	-	50 10	μA
Temperature Coefficient of λ_{peak} $I_F = 2\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	$\text{TC}_{\lambda_{\text{peak}}}$	Blue Hyper Red	-	0.04 0.14	-	$\text{nm}/^\circ\text{C}$
Temperature Coefficient of λ_{dom} $I_F = 2\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	$\text{TC}_{\lambda_{\text{dom}}}$	Blue Hyper Red	-	0.03 0.05	-	$\text{nm}/^\circ\text{C}$
Temperature Coefficient of V_F $I_F = 2\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	TC_V	Blue Hyper Red	-	-3 -1.9	-	$\text{mV}/^\circ\text{C}$

Notes:

- The dominant wavelength (λ_d) above is the setup value of the sorting machine. (Tolerance $\lambda_d : \pm 1\text{nm}$.)
- Forward voltage: $\pm 0.1\text{V}$.
- Wavelength value is traceable to CIE127-2007 standards.
- Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

ABSOLUTE MAXIMUM RATINGS at $T_A=25^\circ\text{C}$

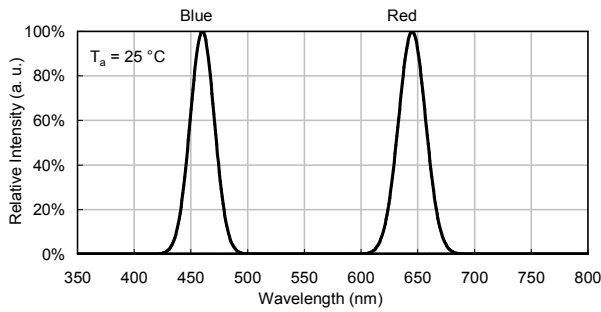
Parameter	Symbol	Value		Unit
		Blue	Hyper Red	
Power Dissipation	P_D	120	75	mW
Reverse Voltage	V_R	5	5	V
Junction Temperature	T_j	115	115	$^\circ\text{C}$
Operating Temperature	T_{op}	-40 to +85		$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to +85		$^\circ\text{C}$
DC Forward Current	I_F	30	30	mA
Peak Forward Current	I_{FM} ^[1]	150	185	mA
Electrostatic Discharge Threshold (HBM)	-	250	3000	V
Thermal Resistance (Junction / Ambient)	$R_{\text{th JA}}$ ^[2]	710	750	$^\circ\text{C}/\text{W}$
Thermal Resistance (Junction / Solder point)	$R_{\text{th JS}}$ ^[2]	540	620	$^\circ\text{C}/\text{W}$

Notes:

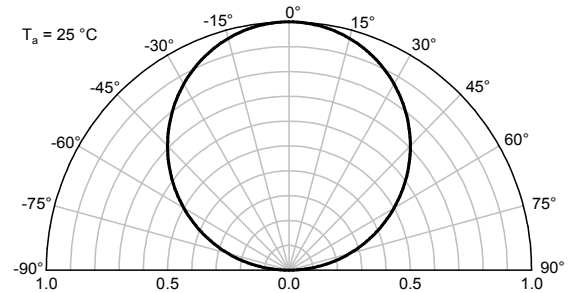
- 1/10 Duty Cycle, 0.1ms Pulse Width.
- $R_{\text{th JA}}$, $R_{\text{th JS}}$ Results from mounting on PC board FR4 (pad size $\geq 16\text{mm}^2$ per pad).
- Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref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

TECHNICAL DATA

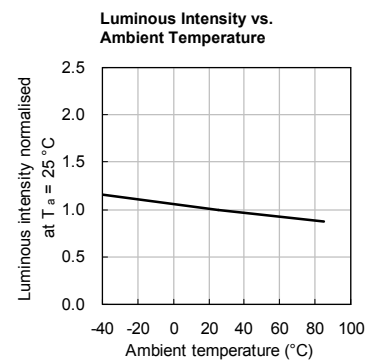
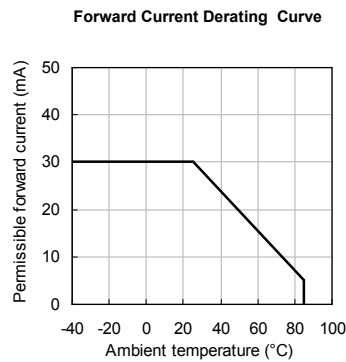
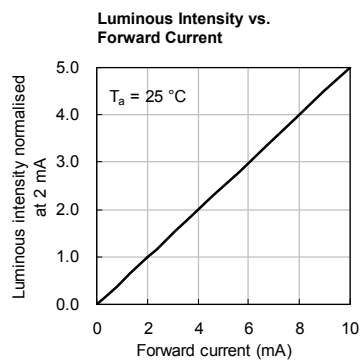
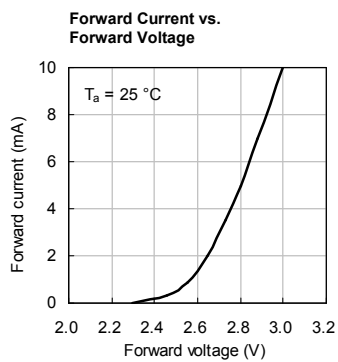
RELATIVE INTENSITY vs. WAVELENGTH



SPATIAL DISTRIBUTION



BLUE



HYPER RED

