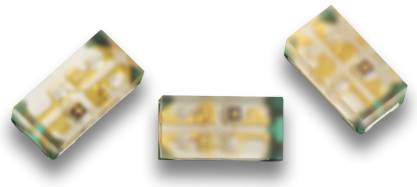
Kingbright



APHF1608SEEQBDZGKC

1.6 x 0.8 mm Full-Color Surface Mount LED

DESCRIPTIONS

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

- 1.6 x 0.8 mm SMD LED, 0.5 mm thickness
- Low power consumption
- Package in 8mm tape on 7" diameter reel, 4000 pcs / reel
- Can produce any color in visible spectrum, including white light
- Moisture sensitivity level: 3
- Halogen-free
- RoHS compliant

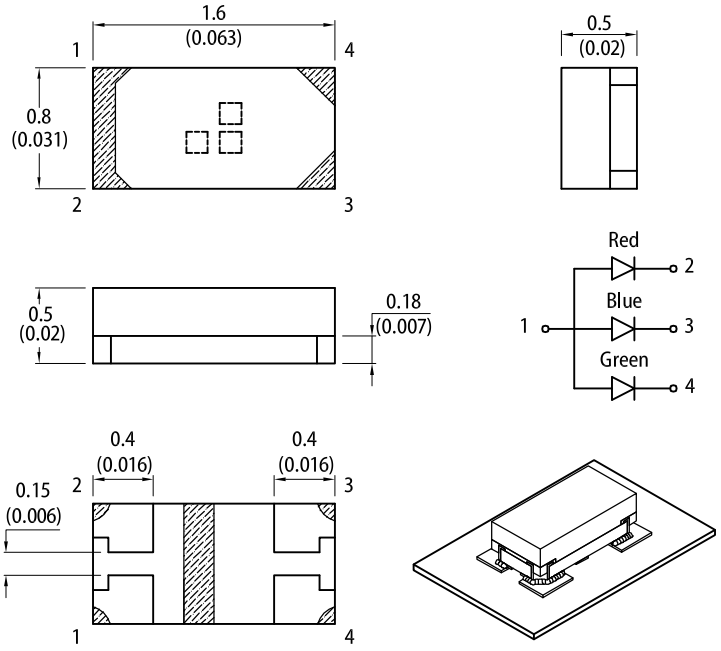
APPLICATIONS

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

ATTENTION

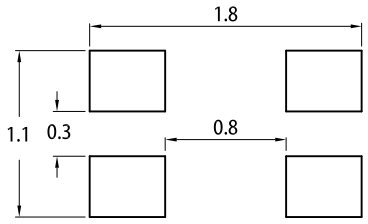
Observe precautions for handling electrostatic discharge sensitive devices

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 (Material)	Lens Type	Iv (mcd) @ 20mA [2]		Viewing Angle [1]
			Min.	Typ.	2θ1/2
APHF1608SEEQBDZGKC	Hyper Red (AlGaInP)	Water Clear	40	120	140°
	Blue (InGaN)		20	60	
	Green (InGaN)		200	480	

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

ELECTRICAL / OPTICAL CHARACTERISTICS at T_A=25°C

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I_F = 20mA	λ_{peak}	Hyper Red Blue Green	630 460 515	-	nm
Dominant Wavelength I_F = 20mA	λ_{dom} [1]	Hyper Red Blue Green	621 465 525	-	nm
Spectral Bandwidth at 50% Φ REL MAX I_F = 20mA	Δλ	Hyper Red Blue Green	20 25 35	-	nm
Capacitance	C	Hyper Red Blue Green	25 100 45	-	pF
Forward Voltage I_F = 20mA	V_F [2]	Hyper Red Blue Green	2 3.3 3.3	2.5 4.0 4.1	V
Reverse Current (V_R = 5V)	I_R	Hyper Red Blue Green	-	10 50 50	μA
Temperature Coefficient of λ_{peak} I_F = 20mA, -10°C ≤ T ≤ 85°C	$TC_{\lambda peak}$	Hyper Red Blue Green	0.13 0.04 0.05	-	nm/°C
Temperature Coefficient of λ_{dom} I_F = 20mA, -10°C ≤ T ≤ 85°C	$TC_{\lambda dom}$	Hyper Red Blue Green	0.06 0.03 0.03	-	nm/°C
Temperature Coefficient of V_F I_F = 20mA, -10°C ≤ T ≤ 85°C	TC_V	Hyper Red Blue Green	-1.9 -2.9 -2.9	-	mV/°C

Notes:
1. The dominant wavelength (λd) above is the setup value of the sorting machine. (Tolerance λd : ±1nm.)
2. Forward voltage: ±0.1V.
3. Wavelength value is traceable to CIE127-2007 standards.
4. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

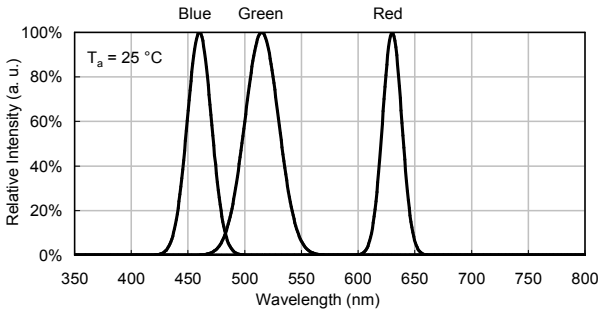
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

Parameter	Symbol	Value			Unit
		Hyper Red	Blue	Green	
Power Dissipation	P_D	75	80	82	mW
Reverse Voltage	V_R	5	5	5	V
Junction Temperature	T_j	115	115	115	°C
Operating Temperature	T_{op}	-40 to +85			°C
Storage Temperature	T_{stg}	-40 to +85			°C
DC Forward Current	I_F	30	20	20	mA
Peak Forward Current	I_{FM} [1]	195	100	100	mA
Electrostatic Discharge Threshold (HBM)	-	3000	250	450	V
Thermal Resistance (Junction / Ambient)	$R_{th\ JA}$ [2]	730	720	700	°C/W
Thermal Resistance (Junction / Solder point)	$R_{th\ JS}$ [2]	610	620	590	°C/W

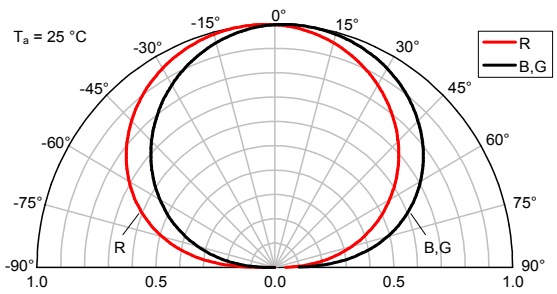
Notes:
1. 1/10 Duty Cycle , 0.1ms Pulse Width .
2. $R_{th\ JA}$,$R_{th\ JS}$ Results from mounting on PC board FR4 (pad size ≥ 16 mm^2 per pad).
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A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

TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

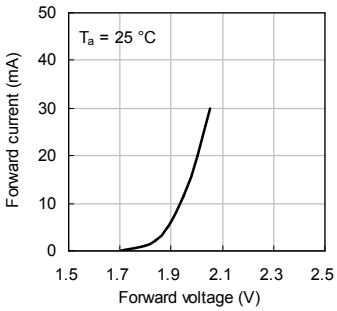


SPATIAL DISTRIBUTION

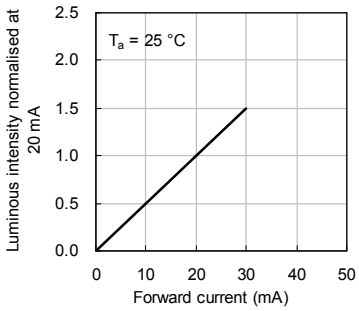


HYPER RED

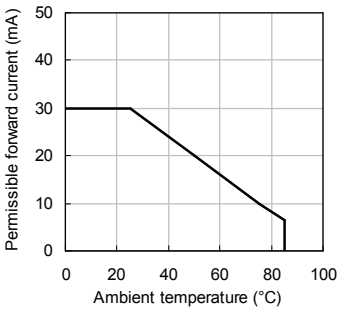
Forward Current vs. Forward Voltage



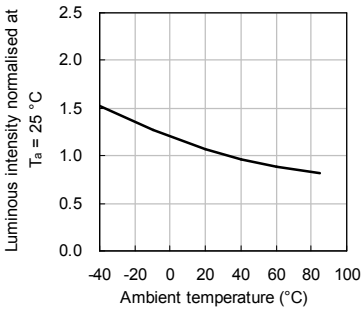
Luminous Intensity vs. Forward Current



Forward Current Derating Curve

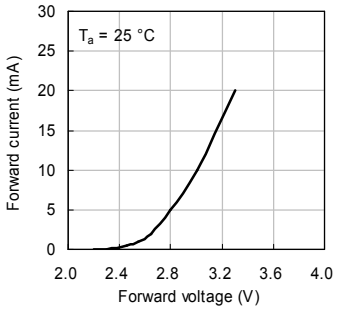


Luminous Intensity vs. Ambient Temperature

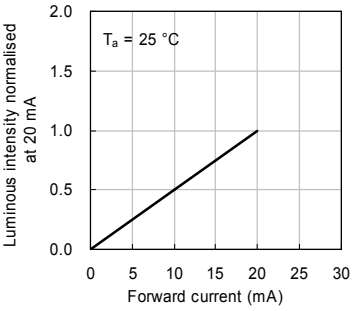


BLUE

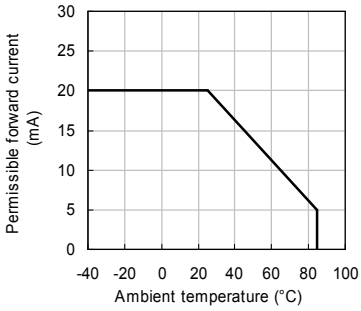
Forward Current vs. Forward Voltage



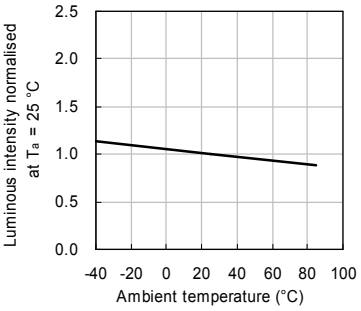
Luminous Intensity vs. Forward Current



Forward Current Derating Curve

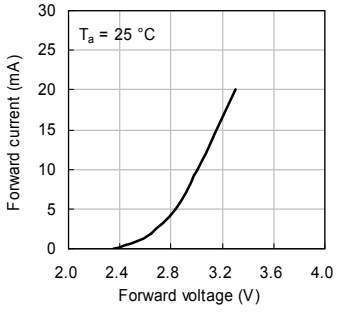


Luminous Intensity vs. Ambient Temperature

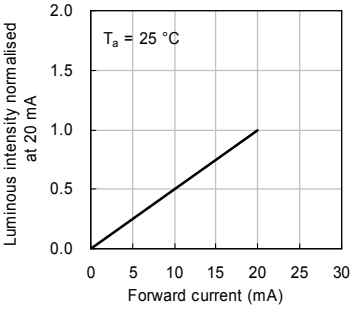


GREEN

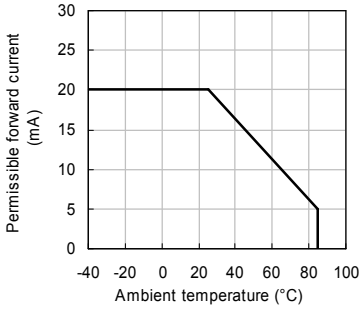
Forward Current vs. Forward Voltage



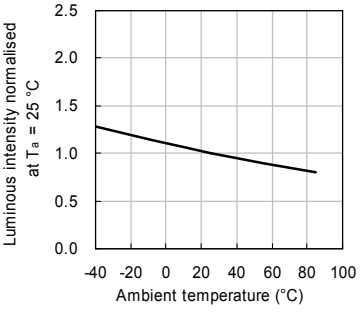
Luminous Intensity vs. Forward Current



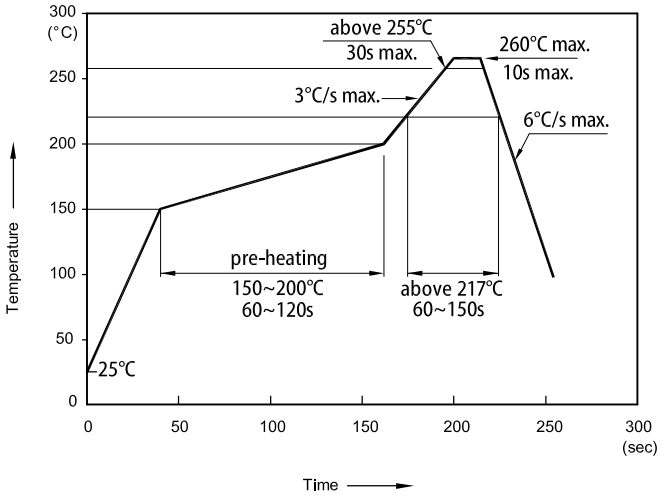
Forward Current Derating Curve



Luminous Intensity vs. Ambient Temperature

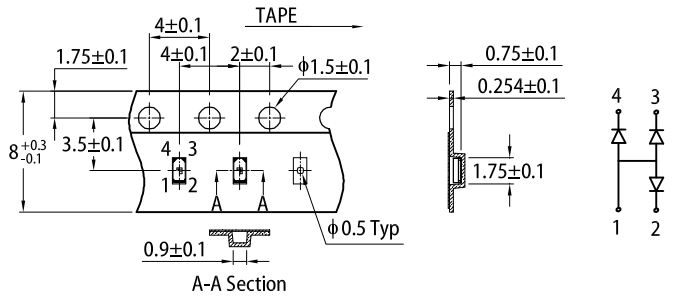


REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

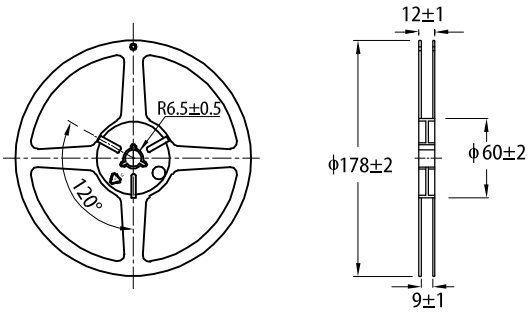


Notes:
1. Don't cause stress to the LEDs while it is exposed to high temperature.
2. The maximum number of reflow soldering passes is 2 times.
3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

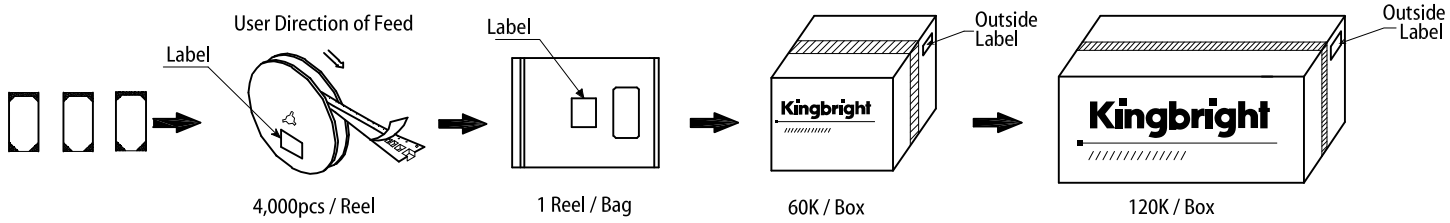
TAPE SPECIFICATIONS (units : mm)



REEL DIMENSION (units : mm)



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.
4. The information in this document applies to typical usage in consumer electronics applications. If customer's application has special reliability requirements or have life-threatening liabilities, such as automotive or medical usage, please consult with Kingbright representative for further assistance.
5. The contents and information of this document may not be reproduced or re-transmitted without permission by Kingbright.
6. All design applications should refer to Kingbright application notes available at https://www.KingbrightUSA.com/ApplicationNotes

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Standard LEDs - SMD ***category:***

Click to view products by Kingbright ***manufacturer:***

Other Similar products are found below :

LTST-C190KYKT LTST-C19GD2WT LTST-N683GBEW LTW-170ZDC LTW-M140SZS40 598-8110-100F 598-8170-100F 598-8610-202F 67-22VRVGC/TR8 AAAF5060QBFSEEZGS HLMA-QG00-S0021 HLMP-6305-L0011 ALMD-LB36-SV002 APT1608QGW 15-21UYC/S530-A3/TR8 EAST2012YA0 EASV1803BA0 LG M67K-H1J2-24-0-2-R18-Z LS A676-P2S1-1 SML310BATT86 SML-LX0606SISUGC/A SML-LXL1307SRC-TR SML-LXR851SIUPGUBC LT1ED53A FAT801-S AM27ZGC03 APB3025SGNC APFA3010SURKCGKQBDC APHK1608VGCA APT2012QGW LTST-C250KGKT LTW-010DCG LTW-020ZDCG LTW-21TS5 LTW-220DS5 LY L29K-H1J2-26 UYGT801-S 42-21UYC/S530-A3/TR8 LO T67F-V1AB-24-1 YGFR411-H 598-8330-117F SML-LX0402IC-TR CMDA20AYAA7D1S CMDA16AYDR7A1X 598-8040-100F 598-8070-100F 598-8140-100F 598-8610-200F EAST2012GA0 EAPL3527GA5