



**Pb-free**  
**HEAT**



# KR3302X

Single Color  $\phi$  3 Round Shape Type

## Features

Package	$\phi$ 3 Round shape type, Water Clear epoxy
Product features	<ul style="list-style-type: none"><li>• Outer Dimension <math>\phi</math> 3 Round shape type</li><li>• Operation temperature range. Storage Temperature : -30°C~100°C Operating Temperature : -30°C~85°C</li><li>• Lead-free soldering compatible</li><li>• RoHS compliant</li></ul>
Dominant wavelength	647 nm
Half Intensity Angle	40 deg.
Die materials	GaAlAs
Rank grouping parameter	Sorted by luminous intensity per rank taping
Soldering methods	TTW (Through The Wave) soldering and manual soldering
ESD	More than 2kV(HBM)
Packing	Bulk : 200pcs(MIN.)

## Recommended Applications

Amusement Equipment, Electric Household Appliances, OA/FA, Other General Applications



# KR3302X

Single Color  $\phi 3$  Round Shape Type

## Color and Luminous Intensity

(Ta=25°C)

Part No.	Material	Emitted Color	Lens Color		Dominant Wavelength $\lambda_d$ (nm)		Luminous Intensity $I_v$ (mcd)		
					TYP.	$I_F$	MIN.	TYP.	$I_F$
KR3302X	GaAlAs	Red	Water Clear	Clear	647	20	150	300	20

# Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings	Unit
Power Dissipation	$P_d$	125	mW
Forward Current	$I_F$	50	mA
Pulse Forward Current ※1	$I_{FRM}$	300	mA
Derating (Ta=25°C or higher)	$\Delta I_F$	0.67	mA/°C
Reverse Voltage	$V_R$	4	V
Operating Temperature	$T_{opr}$	-30~+85	°C
Storage Temperature	$T_{stg}$	-30~+100	°C

※1  $I_{FRM}$  Measurement condition : Pulse Width  $\leq 1ms$ ., Duty  $\leq 1/20$ .

# Electro-Optical Characteristics

(Ta=25°C)

Item	Conditions	Symbol	Characteristics		Unit
Forward Voltage	I <sub>F</sub> =20mA	V <sub>F</sub>	TYP.	1.8	V
			MAX.	2.5	
Reverse Current	V <sub>R</sub> =4V	I <sub>R</sub>	MAX.	100	μ A
Peak Wavelength	I <sub>F</sub> =20mA	λ <sub>p</sub>	TYP.	660	nm
Dominant Wavelength	I <sub>F</sub> =20mA	λ <sub>d</sub>	TYP.	647	nm
Spectral Line Half Width	I <sub>F</sub> =20mA	Δ λ	TYP.	25	nm
Half Intensity Angle	I <sub>F</sub> =20mA	2 θ 1/2	TYP.	40	deg.

# Luminous Intensity Rank

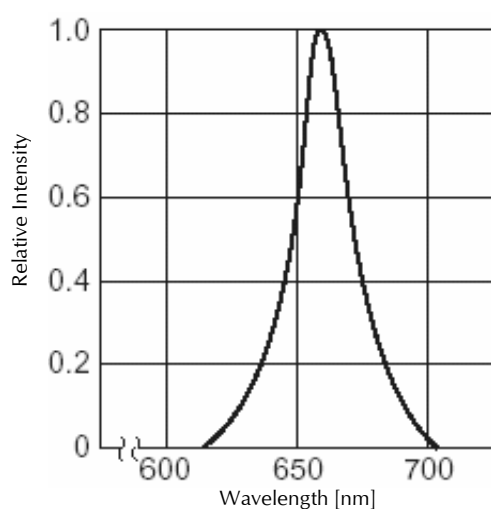
(Ta=25°C)

Rank	I <sub>V</sub> (mcd)		Condition
	MIN.	MAX.	
A	150	300	I <sub>F</sub> = 20mA
B	210	420	
C	300	600	
D	420	840	
E	600	-	

※ Please contact our sales staff concerning rank designation.

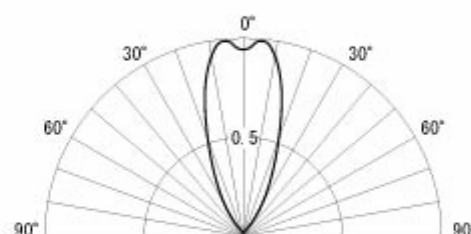
## Technical Data

**Spectral Distribution**  
Relative Intensity vs. Wavelength  
Condition :  $T_a = 25^\circ\text{C}$ ,  $I_F = 20\text{mA}$

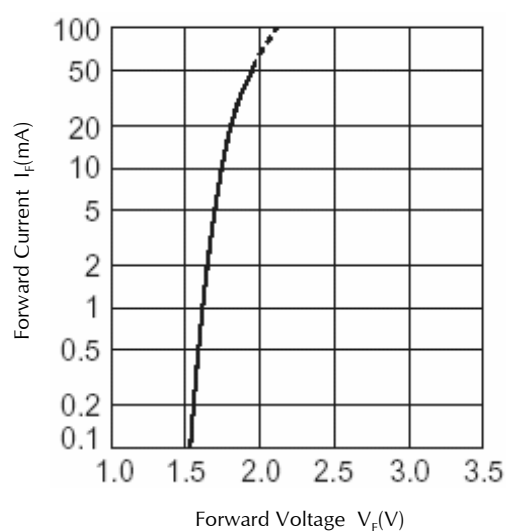


**Spatial Distribution Example**

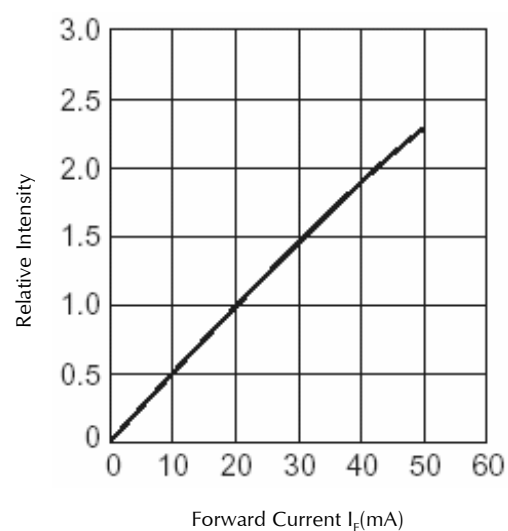
Condition :  $T_a = 25^\circ\text{C}$



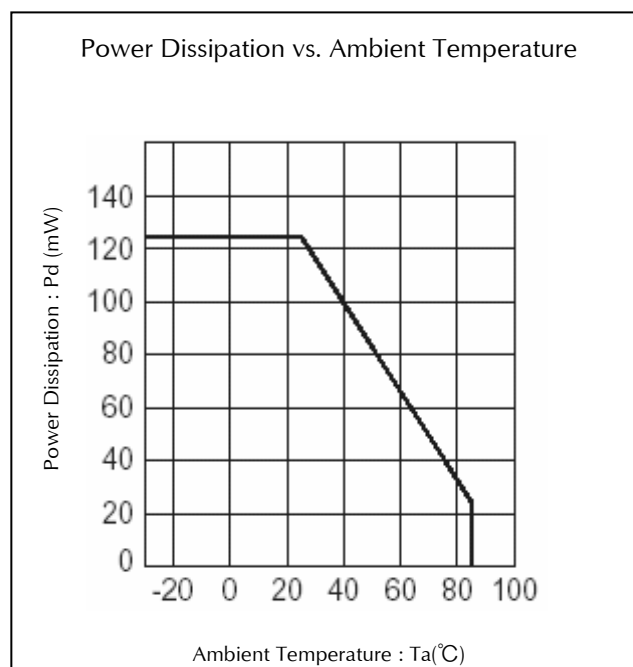
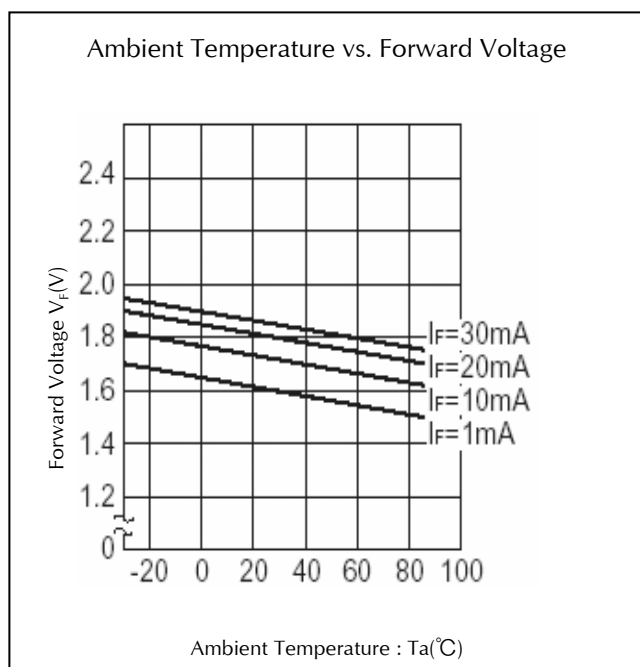
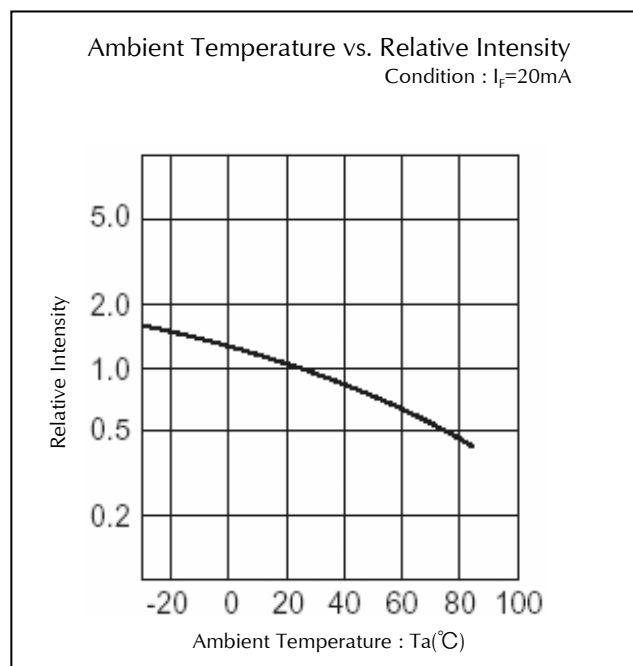
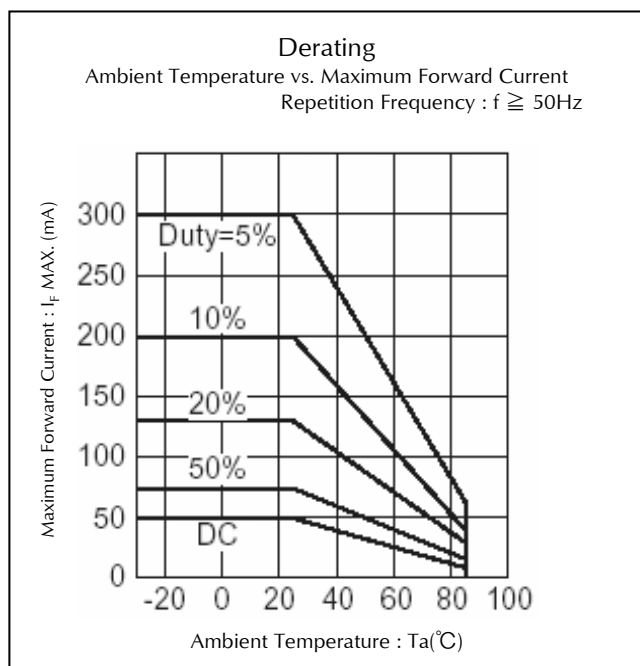
**Forward Voltage vs. Forward Current**  
Condition :  $T_a = 25^\circ\text{C}$



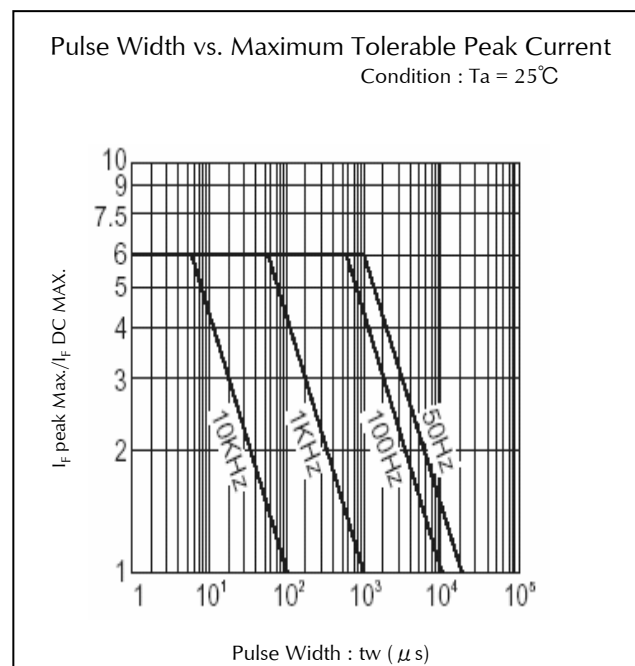
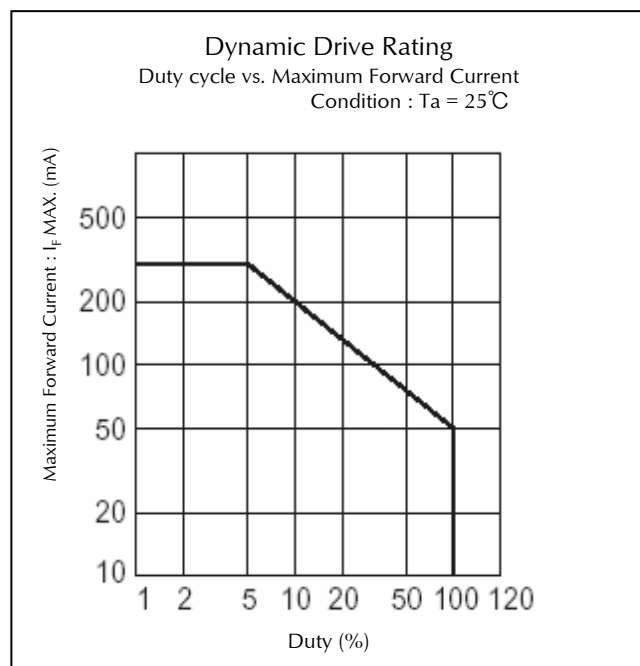
**Forward Current vs. Relative Intensity**  
Condition :  $T_a = 25^\circ\text{C}$



## Technical Data



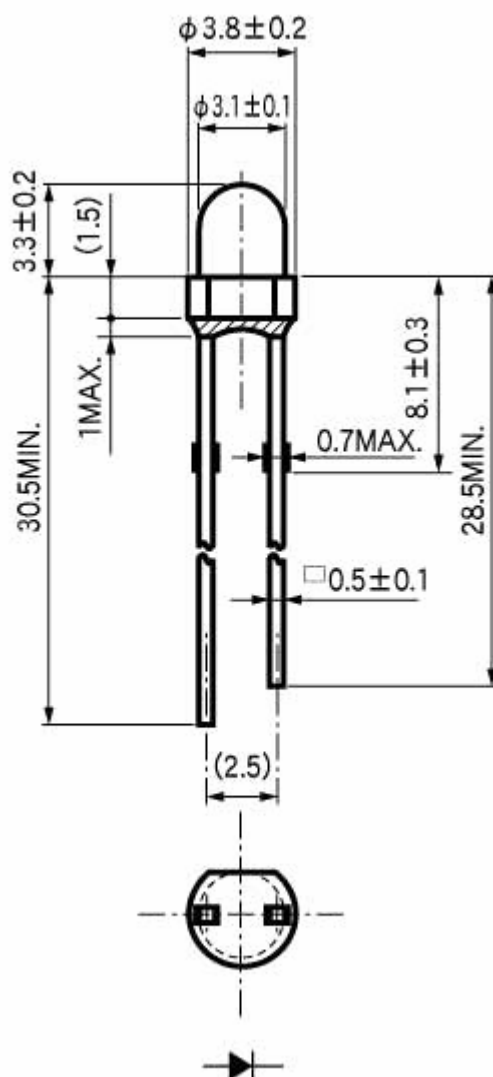
## Technical Data





## Package Dimensions

(Unit: mm)



## TTW (Through The Wave) soldering Conditions

Pre-heating	100 °C	(MAX.)
Solder Bath Temp.	265°C	(MAX.)
Dipping Time	5 s	(MAX.)

- 1) The dip soldering process shall be 2 times maximum.
  - 2) The product shall be cooled to room temp. before the second dipping process.
- ※The detail is described to LED and Photodetector handling precautions of home page:  
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

## Manual Soldering Conditions

Iron tip temp.	400°C	(MAX.)
Soldering time and frequency	3 s	(MAX.)
	2 times	(MAX.)

※The detail is described to LED and Photodetector handling precautions of home page:  
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

## Reliability Testing Result

Reliability Testing Result	Applicable Standard	Testing Conditions	Duration	Failure
Room Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 25°C, If = Maximum Rated Current	1,000 h	0/25
Resistance to Soldering Heat	EIAJ ED-4701/300(302)	260±5°C, 3mm from package base	10s	0/25
Temperature Cycling	EIAJ ED-4701/100(105)	Minimum Rated Storage Temperature(30min) ~Normal Temperature(15min) ~Maximum Rated Storage Temperature(30min) ~Normal Temperature(15min)	5 cycles	0/25
Wet High Temp. Storage Life	EIAJ ED-4701/100(103)	Ta = 60±2°C, RH = 90±5%	1,000 h	0/25
High Temp. Storage Life	EIAJ ED-4701/200(201)	Ta = Maximum Rated Storage Temperature	1,000 h	0/25
Low Temp. Storage Life	EIAJ ED-4701/200(202)	Ta = Minimum Rated Storage Temperature	1,000 h	0/25
Lead Tension	EIAJ ED-4701/400(401)	10N, 1time (□0.4 and Flat Package : 5N)	10s	0/10
Vibration, Variable Frequency	EIAJ ED-4701/400(403)	98.1m/s <sup>2</sup> (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction	2 h	0/10

## Failure Criteria

Items	Symbols	Conditions	Failure criteria
Luminous Intensity	Iv	If Value of each product Luminous Intensity	Testing Min. Value < Spec. Min. Value x 0.5
Forward Voltage	V <sub>F</sub>	If Value of each product Forward Voltage	Testing Max. Value ≥ Spec. Max. Value x 1.2
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = Maximum Rated Reverse Voltage V	Testing Max. Value ≥ Spec. Max. Value x 2.5
Cosmetic Appearance	-	-	Occurrence of notable decoloration, deformation and cracking

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