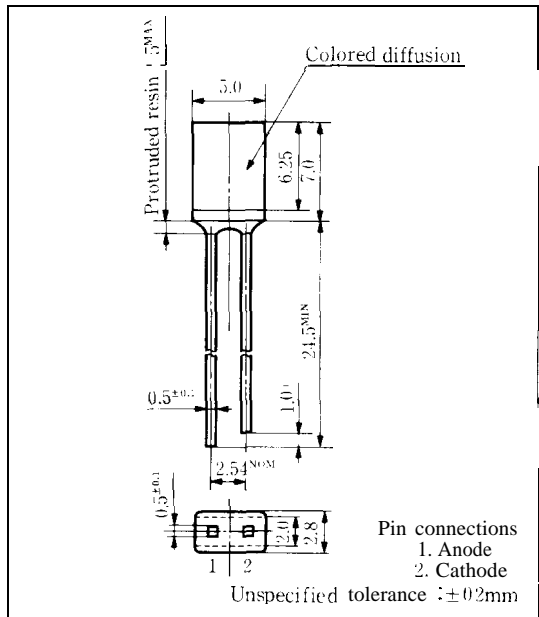# GL8□□21 Series   Rectangle Type LED Lamps

■ Model No.

GL8UR21 Red (Super- luminosity   GaAlAs/GaAlAs
GL8LR21 Red (High-luminosity)   GaAlAs/GaAs
GL8TR21 Red (High -luminosity}   GaAlAs/GaAs
GL8PR21 R e d   GaP
GL8Hf)21 Red   GaAsP/GaP
GL8HS21 Sunset orange   GaAsP/GaP
GL8HY21 Yellow   GaAsP/GaP
GL8EG21 Yellow-green   GaP
GL8KG21 Green   GaP

■ Features

1. 2.0mm × 5.0mm rectangle type all resin mold
2. Colored diffusion lens type

■ Outline Dimensions   (['nit: mm)

Pin connections
1. Anode
2. Cathode
Unspecified tolerance :±02mm

■ Absolute Maximum Ratings

$(Ta = 25℃)$

Parameter		Symbol	GL8UR21 GL8TR21	GL8LR21	GL8PR21	GL8HD21 GL8HS21 GL8HY21	GL8EG21 GL8KG21	Unit
Power dissipation		P	75	110	23	84	84	mW
Continuous forward current		I_F	30	50	10	30	30	mA
※1 Peak forward current		I_{FM}	50	300	50	50	50	mA
Derating factor	DC	—	0.40	0.67	0.13	040	0.40	mA/℃
	Pulse		0.67	4.00	0.67	0.67	0.67	mA/℃
Reverse voltage		V_R	4	5	5	5	5	V
Operating temperature		T_{opr}	−25 to +85					‘c
Storage temperature		T_{stg}	−25 to +100					‘c
※2 Soldering temperature		T_{sol}	260(within 5 seconds]					‘c

※1 Duty ratio =1/10, Pulse width = 0.1ms
    Duty ratio =1/16 Pulse width ≦ 1ms for GL8LR21 anti GL8TR21
※2 At the position of 1.6mm from the bottom face of resin package

GL8UR21 (Red)

■ Electro-optical Characteristics

$(Ta = 25℃)$
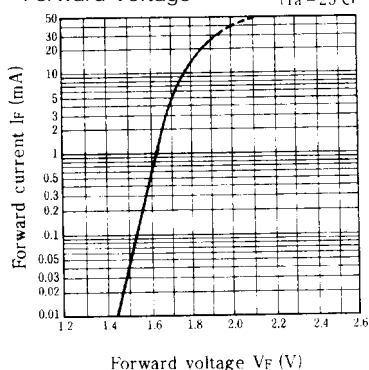
Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	V_F	GL8UR21	$I_F = 20mA$		1.85	2.5	V
※3 Luminous intensity	I_V	GL8UR21	$I_F = 20mA$	6.0	16	—	mcd
Peak emission wavelength	λ_p	GL8UR21	$I_F = 20mA$	—	660	—	nm
Spectrum radiation bandwidth	$\Delta\lambda$	GL8UR21	$I_F = 20mA$	—	20	—	nm
Reverse current	I_R	GL8UR21	$V_R = 3V$	—	—	100	μA
Terminal capacitance	C_t	GL8UR21	$V = OV$ $f = 1$ MHz	—	25	—	pF
Response frequency	f_c	GL8UR21	—		8	—	MHz

※3 Tolerance: ±30%

■ Characteristics Diagrams

Forward Current vs. Forward Voltage $(Ta = 25℃)$

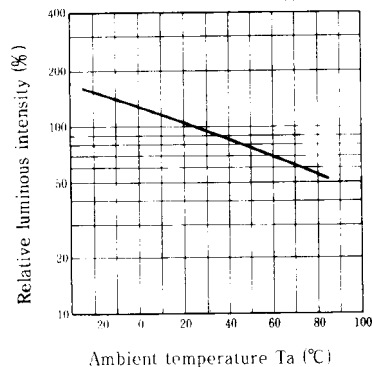**Luminous Intensity vs. Forward Current** $(Ta = 25℃)$
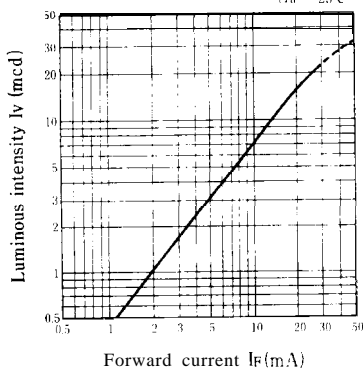
Forward Current Derating Curve
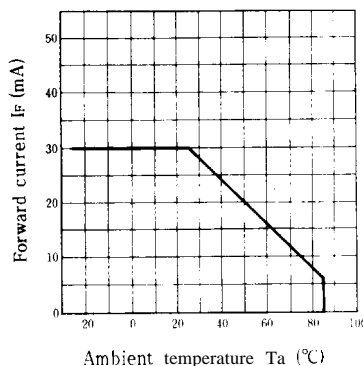
Relative Luminous Intensity vs. Ambient Temperature $(I_F = 20mA)$

Spectrum Distribution $(Ta = 25℃)$
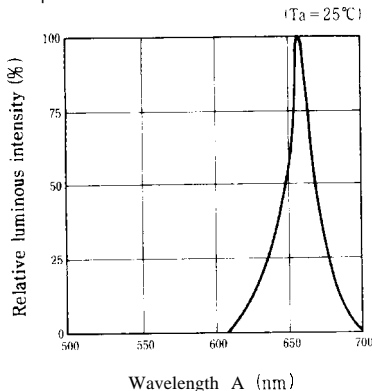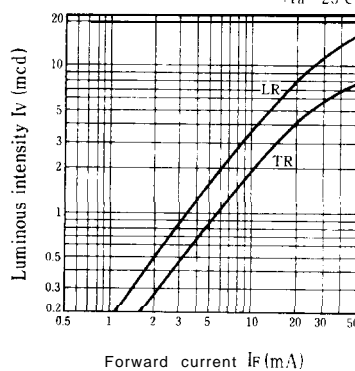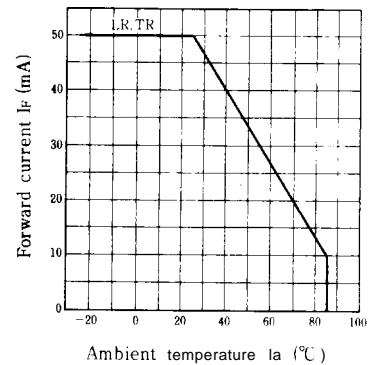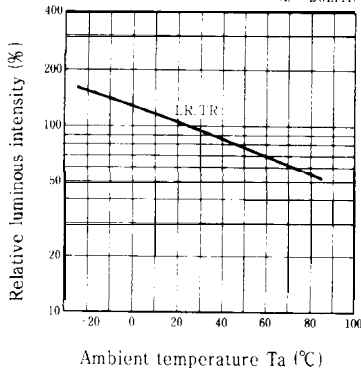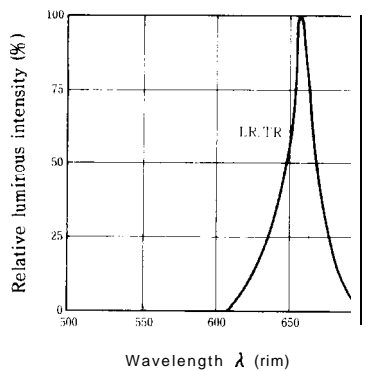
GL8LR21 (Red) / GL8TR21 (Red)
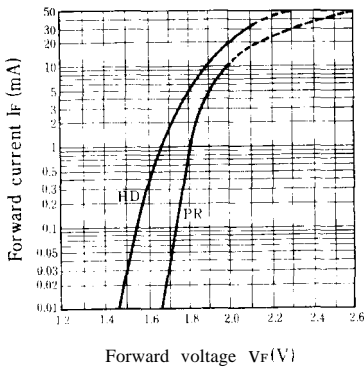
■ Electro-optical Characteristics

(Ta = 25℃)

Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	V_F	GL8LR21	$I_F = 20mA$	—	1.75	2.2	V
		GL8TR21	$I_F = 20mA$		1.75	2.2	
※3 Luminous intensity	I_V	GL8LR21	$I_F = 20mA$	3.0	8.0	—	mcd
		GL8TR21	$I_F = 20mA$	1.5	4.0	—	
Peak emission wavelength	λ_p	GL8LR21	$I_F = 20mA$	—	660	—	
		GL8TR21	$I_F = 20mA$		660	—	'm
Spectrum radiation bandwidth	$\Delta\lambda$	GL8LR21	$I_F = 20mA$	—	20	—	
		GL8TR21	$I_F = 20mA$	—	20	—	'm
Reverse current	I_R	GL8LR21	$V_R = 4V$		—	10	
		GL8TR21	$V_R = 4V$			10	μA
Terminal capacitance	C_t	GL8LR21	$V = 0V \quad f = 1MHz$	—	30	—	
		GL8TR21	$V = 0V \quad f = 1 MHz$	—	30	—	pF
Response frequency	f_c	GL8LR21	—			8	
		GL8TR21	—	—	8	—	'Hz

※3 **Tolerance:** ±30%

■ Characteristics Diagrams

Forward Current vs. Forward Voltage

Forward voltage V_F (V)

Luminous Intensity vs. Forward Current

Forward current I_F (mA)

Forward Current Derating Curve

Ambient temperature Ia (℃)

Relative Luminous Intensity vs. Ambient Temperature

Ambient temperature Ta (℃)

Spectrum Distribution

Wavelength λ (rim)

GL8PR21 (Red) / GL8HD21 (Red)

■ Electro-optical Characteristics

(Ta≒25℃)

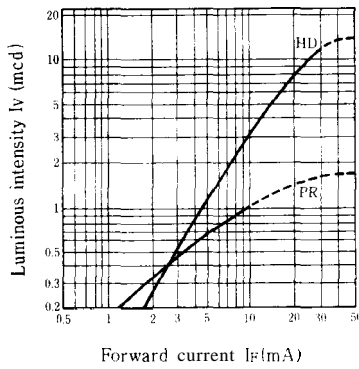| Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	V_F	GL8PR21	$I_F = 5mA$	—	1.9	2.3	V
		GL8HD21	$I_F = 20mA$		2.0	2.8	
※3 Luminous intensity	I_V	GL8PR21	$I_F = 5mA$	0.30	0.70	—	mcd
		GL8HD21	$I_F = 20mA$	3.0	8.0		
Peak emission wavelength	λ_p	GL8PR21	$I_F = 5mA$	—	695	—	'm
		GL8HD21	$I_F = 20mA$	—	635	—	
Spectrum radiation bandwidth	$\Delta\lambda$	GL8PR21	$I_F = 5mA$	—	100	—	'm
		GL8HD21	$I_F = 20mA$	—	35	—	
Reverse current	I_R	GL8PR21	$V_R = 4V$	—	—	10	μA
		GL8HD21	$V_R = 4V$	—	—	10	
Terminal capacitance	C_t	GL8PR21	$V = 0V$ $f = 1$ MHz	—	55	—	pF
		GL8HD21	$V = 0V$ $f = 1$ MHz	—	20	—	
Response frequency	f_c	GL8PR21	-		4	—	MHz
		GL8HD21	-		4	—	

※3 Tolerance: ±30%

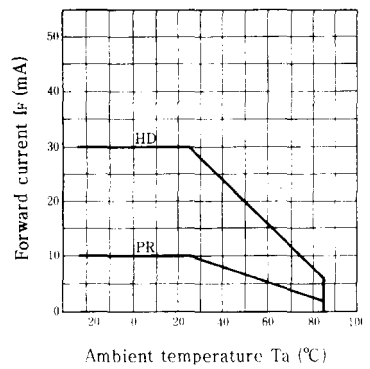## ■ Characteristics Diagrams
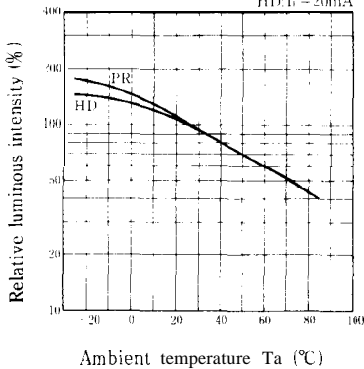
Forward Current vs. Forward Voltage (Ta=25℃)
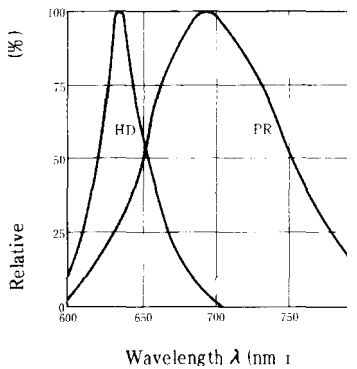
Luminous Intensity vs. Forward Current (Ta=25℃)

Forward Current Derating Curve

Relative Luminous Intensity vs. Ambient Temperature (PR:I_F=5mA, HD:I_F=20mA)

Spectrum Distribution (Ta=25℃)

SHARP

3

GL8HS21 (Sunset orange) / GL8HY21 (Yellow)

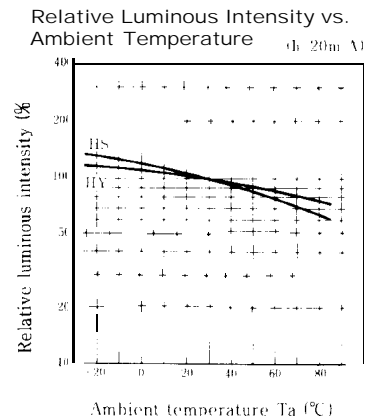### ■ Electro-optical Characteristics   (Ta = 25℃)

Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	V_F	GL8HS21	$I_F = 20$ mA		2.0	2.8	V
		GL8HY21	$I_F = 20$ mA		2.0	2.8	
※3 Luminous intensity	I_V	GL8HS21	$I_F = 20$ mA	3.0	8.0	−	'cd
		GL8HY21	$I_F = 20$ mA	3.0	8.0	−	
Peak emission wavelength	λ_p	GL8HS21	$I_F = 20$ mA		610	−	nm
		GL8HY21	$I_F = 20$ mA		585	−	
Spectrum radiation bandwidth	$\Delta\lambda$	GL8HS21	$I_F = 20$ mA	−	35		'm
		GL8HY21	$I_F = 20$ mA		30	−	
Reverse current	I_R	GL8HS21	$V_R = 4$ V	−,		10	μA
		GL8HY21	$V_R = 4$ V		−	10	
Terminal capacitance	C_t	GL8HS21	$V = 0$V $f = 1$ MHz	−	15		pF
		GL8HY21	$V = 0$V $f = 1$ MHz	−	35	−	
Response frequency	f_c	GL8HS21	−		4	−	'Hz
		GL8HY21	−	−	4	−	

※3 Tolerance ±30%

■ Characteristics Diagrams

Forward Current vs. Forward Voltage

Luminous Intensity vs. Forward Current

Forward Current Derating Curve

Relative Luminous Intensity vs. Ambient Temperature

Spectrum Distribution

SHARP
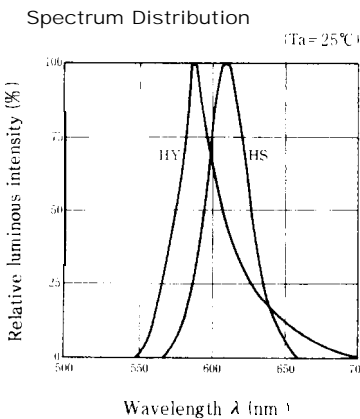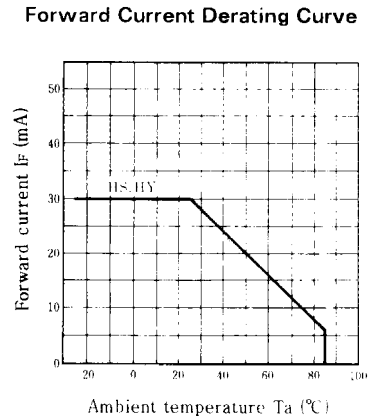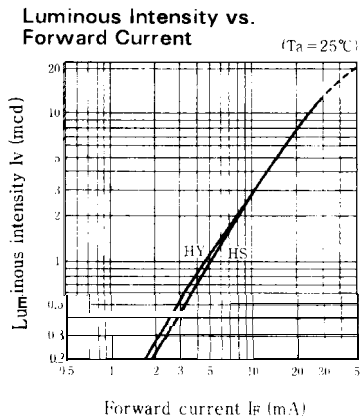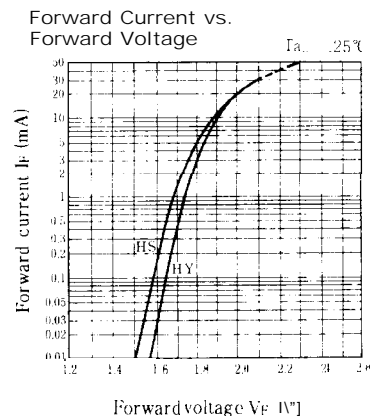
GL8EG21 (Yellow-green) / GL8KG21 (Green)

■ Electro-optical Characteristics

(Ta＝25℃)

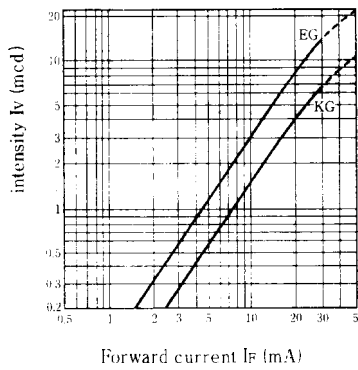| Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	
Forward voltage	V_F	GL8EG21	$I_F=20mA$	—	2.1	2.8	V
		GL8KG21	$I_F=20mA$	—	2.1	2.8	
※3 Luminous intensity	I_v	GL8EG21	$I_F=20mA$	4.0	8.0	--	mcd
		GL8KG21	$I_F=20mA$	1.6	4.0	—	
Peak emission wavelength	λ_p	GL8EG21	$I_F=20mA$	—	565	—	nm
		GL8KG21	$I_F=20mA$	—	555	—	
Spectrum radiation bandwidth	$\Delta\lambda$	GL8EG21	$I_F=20mA$	—	30	—	nm
		GL8KG21	$I_F=20mA$	.	25	--	
Reverse current	I_R	GL8EG21	$V_R=4V$	—	—	10	μA
		GL8KG21	$V_R=4V$	..	—	10	
Terminal capacitance	C_t	GL8EG21	$V=0V$ $f=1$ MHz	—	35	—	pF
		GL8KG21	$V=0V$ $f=1$ MHz	—	40	—	
Response frequency	f_c	GL8EG21		—	4	—	MHz
		GL8KG21					

※3 Tolerance: ±30%

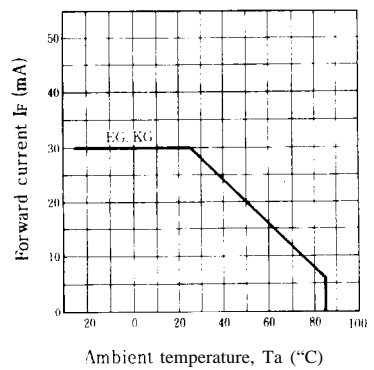### ■ Characteristics Diagrams

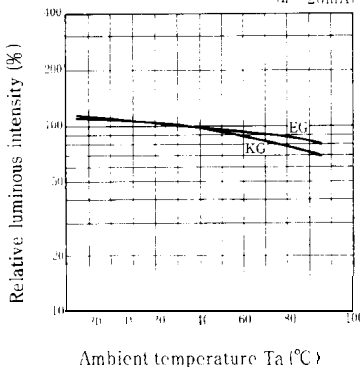#### Forward Current vs. Forward Voltage
(Ta＝25℃)

Luminous Intensity vs. Forward Current
(Ta＝25℃)

Forward Current Derating Curve

Relative Luminous Intensity vs. Ambient Temperature
(I₁＝20mA)

Spectrum Distribution
(Ta＝25℃)

SHARP