GL9n 030/
GL8□ 030 Series

**8.0mm Character Height
Numeric LEDs**

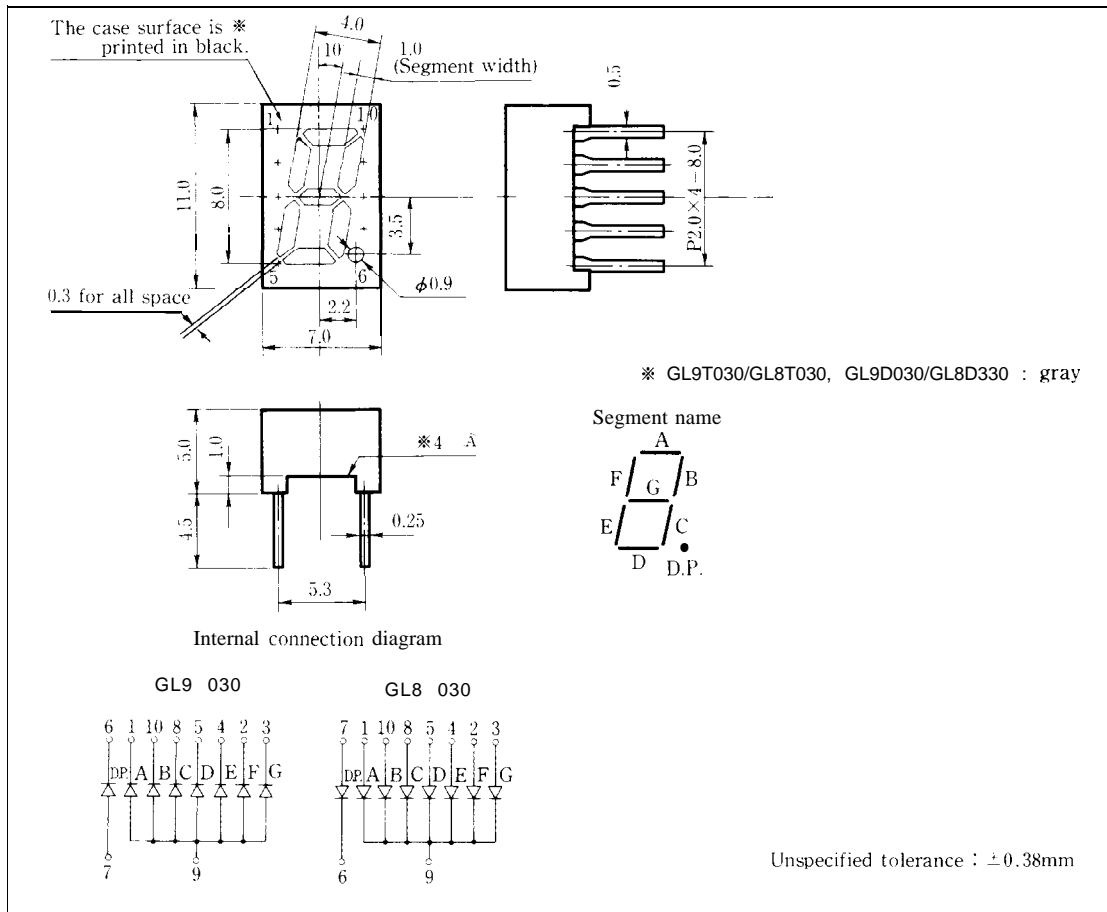## ■ Model No.

GL9T030/GL8T030	Red (High-luminosity)	GaAlAs/GaAs
GL9P030/GL8P030	Red	GaP
GL9D030/GL8D030	Red	GaAsP/GaP
GL9S030/GL8S030	Sunset orange	GaAsP/GaP
GL9H030/GL8H030	Yellow	GaAsP/GaP
GL9E030/GL8E030	Yellow-green	GaP
GL9K030/GL8K030	Green	GaP

■ Features

1. Character height : 8.0mm
2. 1 digit
3. Case mold type
4. Small package
5. Diamond cut type segments

■ Outline Dimensions

(Unit: mm)

※ GL9T030/GL8T030, GL9D030/GL8D330 : gray

Segment name

Internal connection diagram

GL9 030   GL8 030

Unspecified tolerance : ±0.38mm

SHARP

GL9□030 / GL8□030

■ Absolute Maximum Ratings

(Ta = 25℃)

Parameter			Symbol	GL9T030 GL8T030	GL9P030 GL8P030	GL9D030 GL8D030	GL9S030 GL8S030 GL9H030 GL8H030	GL9E030 GL8E030 GL9K030 GL8K030	Unit
Power dissipation	※1 Per digit		P	308	175	322	350	263	mW
Continuous forward current	※1 Per digit		I_F	140	70	140	140	105	mA
	※2		I_F	20	10	20	20	15	mA
※3 Peak forward current	※2		I_{FM}	100	50	50	50	50	mA
Derating factor	※2	DC	−	0.36	0.18	0,36	0.36	0.27	mA/℃
		Pulse	−	1.82	0.91	0.91	0.91	0,91	mA/℃
Reverse voltage	Per segment		V_R	5	5	5	5	5	v
	Per decimal point		V_R	5	5	5	5	5	v
Operating temperature			T_{opr}	−30 to +70					"c
Storage temperature			T_{stg}	−40 to +80					"c
※4 Soldering temperature			T_{sol}	260 (within 5 seconds)					'c

※1 Per digit: 7 segments
※2 Per segment, or per decimal point
※3 Duty ratio= 1/10, Pulse width =0.1ms
※4 At the position of 2.6 mm from Ⓐ level of outline dimensions

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GL9T030/GL8T030(Red)
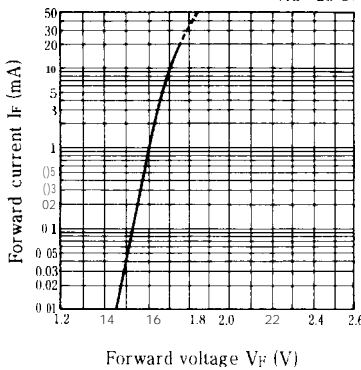
■ Electro-optical Characteristics

$(Ta=25℃)$

Parameter		Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	Per segment	V_F	GL9T030i'GL8T030	$I_F=10mA$	—	1.7	2.2	V
	Per decimal point		GL9T030/GL8T030	$I_F=10mA$	—	1.7	2.2	V
※5 Luminous intensity	Per segment	I_V	GL9T030/GL8T030	$I_F=10mA$	1.3	**4.0**	–	mcd
	Per decimal point		GL9T030/GL8T030	$I_F=10mA$	**0.5**	1.5	–	mcd
※2 Peak emission wavelength		λ_p	GL9T030/GL8T030	$I_F=10mA$	—	660	—	nm
※2 Spectrum radiation bandwidth		$\Delta\lambda$	GL9T030/GL8T030	$I_F=10mA$	—	20	—	nm
Reverse current	Per segment	I_R	GL9T030/GL8T030	$V_R=4V$	—	—	10	μA
	Per decimal point		GL9T030/GL8T030	$V_R=4V$	—	—	**10**	μA
※2 Response frequency		f_c	GL9T030/GL8T030	–	—	8	–	MHz

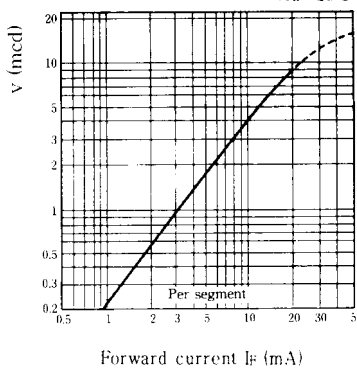※2 Per segment, or per decimal point
※5 Tolerance: $\pm30\%$

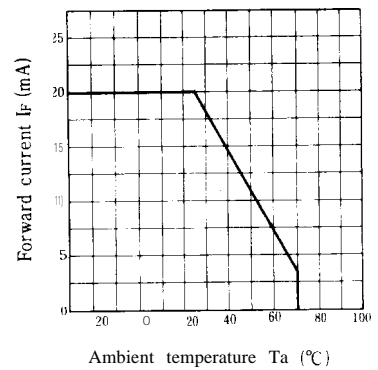### ■ Characteristics Diagrams

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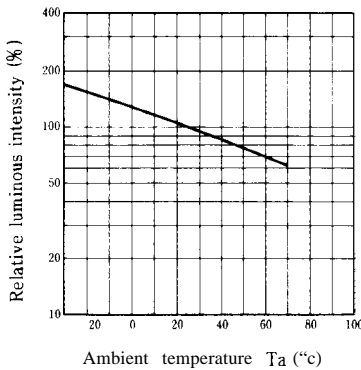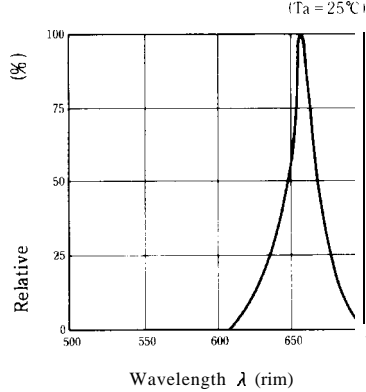

Luminous Intensity vs. Forward Current $(Ta=25℃)$

Forward Current Derating Curve

Relative Luminous Intensity vs. Ambient Temperature $(I_1=10mA)$

Spectrum Distribution $(Ta=25℃)$

SHARP

GL9P030/GL8P030(Red) ,GL9D030/GL8D030(Red)

■ Electro-optical Characteristics　　　　　　　　　　　　　　(Ta =25°C)

| Parameter		Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	Per segment	V_F	GL9P030/GL8P030	$I_F = 5mA$		1.9	2.5	v
			GL9D030/GL8D030	$I_F = 10mA$	−	1.85	2.3	
	Per decimal point		GL9P030/GL8P030	$I_F = 5mA$	−	1.9	2.5	v
			GL9D030/GL8D030	$I_F = 10mA$	−	1.85	2.3	
※5 Luminous intensity	Per segment	I_V	GL9P030/GL8P030	$I_F = 5mA$	0.3	1.0	−	mcd
			GL9D030/GL8D030	$I_F = 10mA$	0.6	1.5	−	
	Per decimal point		GL9P030/GL8P030	$I_F = 5mA$	0.08	0.25	−	mcd
			GL9D030/GL8D030	$I_F = 10mA$	0.15	0.40	−	
※2 Peak emission wavelength		λ_p	GL9P030/GL8P030	$I_F = 5mA$	−	695	−	'm
			GL9D030/GL8D030	$I_F = 10mA$		635	−	
※2 Spectrum radiation bandwidth		$\Delta\lambda$	GL9P030/GL8P030	$I_F = 5mA$	−	100	−	'm
			GL9D030/GL8D030	$I_F = 10mA$		35	−	
Reverse current	Per segment	I_R	GL9P030/GL8P030	$V_R = 4V$	−	−	10	μ A
			GL9D030/GL8D030	$V_R = 4V$	−	−	10	
	Per decimal point		GL9P030/GL8P030	$V_R = 4V$	−		10	μ A
			GL9D030/GL8D030	$V_R = 4V$	−	−	10	
※2 Response frequency		f_C	GL9P030/GL8P030	−		4	−	MHz
			GL9D030/GL8D030	−	−	A		

※2 Per segment, or per decimal point
※5 Tolerance: ±30%

■ Characteristics Diagrams
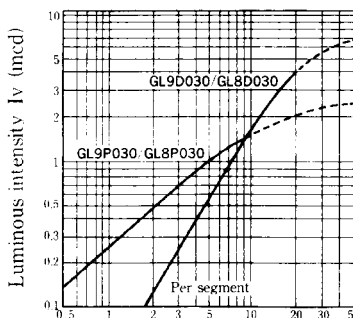
Forward Current vs. Forward Voltage　　(Ta = 25°C)
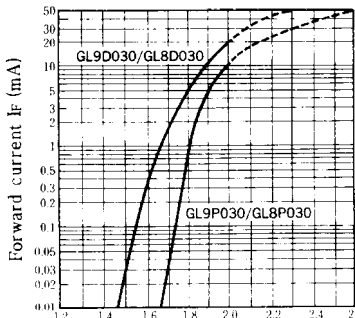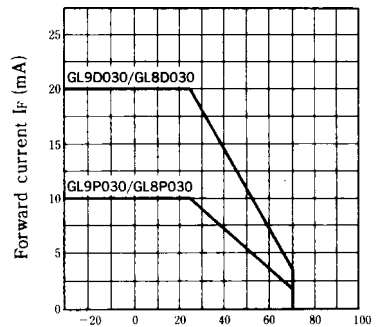

Forward voltage V_F(V)

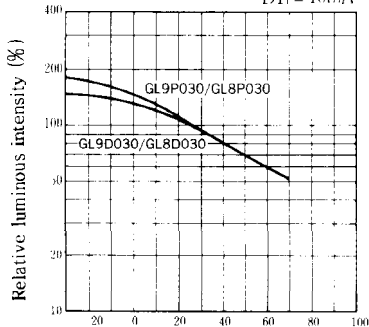**Luminous Intensity vs. Forward Current**　　(Ta = 25°C)

Forward current I_F (mA)

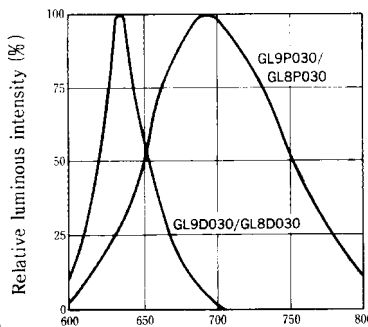**Forward Current Derating Curve**

Ambient temperature Ta (°C)

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Relative Luminous Intensity vs. Ambient Temperature, P I_1 = 5mA D I_1 = 10mA

Ambient temperature Ta (°C)

Spectrum Distribution　　(Ta = 25°C)

Wavelength λ (Tim)

SHARP

GL9S030/GL8S030(Sunset orange) ,GL9H030/GL8H030(Yellow)

■ Electro-optical Characteristics
(Ta = 25℃)

Parameter		Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	Per segment	V_F	GL9S030/GL8S030	$I_F = 10mA$		1.9	2.5	V
			GL9H030/GL8H030	$I_F = 10mA$	—	1.9	2.5	
	Per decimal point		GL9S030/GL8S030	$I_F = 10mA$	—	1.9	2.5	V
			GL9H030/GL8H030	$I_F = 10mA$	—	1.9	2.5	
※5 Luminous intensity	Per segment	I_V	GL9S030/GL8S030	$I_F = 10mA$	0.6	1.5	—	mcd
			GL9H030/GL8H030	$I_F = 10mA$	0.78	2.60	—	
	Per decimal point		GL9S030/GL8S030	$I_F = 10mA$	0.15	0.40	—	mcd
			GL9H030/GL8H030	$I_F = 10mA$	0.30	0.90	—	
※2 Peak emission wavelength		λ_p	GL9S030/GL8S030	$I_F = 10mA$	—	610	—	'm
			GL9H030/GL8H030	$I_F = 10mA$	—	585	—	
※2 Spectrum radiation bandwidth		$\Delta\lambda$	GL9S030/GL8S030	$I_F = 10mA$	—	35	—	'm
			GL9H030/GL8H030	$I_F = 10mA$	—	30	—	
Reverse current	Per segment	I_R	GL9S030/GL8S030	$V_R = 4V$	—		10	μA
			GL9H030/GL8H030	$V_R = 4V$	—		10	
	Per decimal point		GL9S030/GL8S030	$V_R = 4V$	—		10	μA
			GL9H030/GL8H030	$V_R = 4V$	—		10	
※2 Response frequency		f_c	GL9S030/GL8S030	—	—	4	—	MHz
			GL9H030/GL8H030	—	—	4	—	

※2 Per segment, or **per decimal point**
※5 **Tolerance:** $\pm 30\%$

■ Characteristics Diagrams

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

Forward voltage V_F (V)

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

Forward current I_F (mA)

Forward Current Derating Curve

Ambient temperature Ta(℃)

Relative Luminous Intensity vs. Ambient Temperature , $I_F = 10mA$

Ambient temperature Ta(℃)

Spectrum Distribution
(Ta = 25℃)

Wavelength λ (nm)
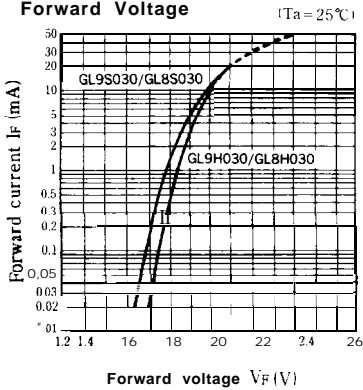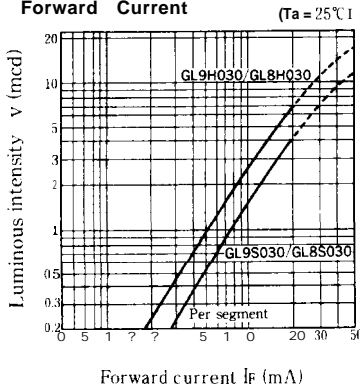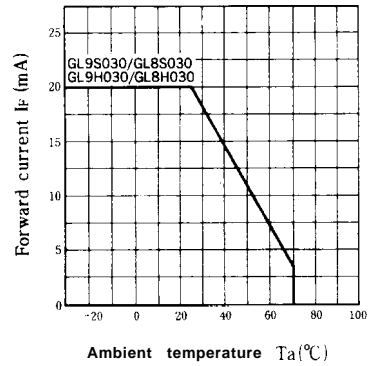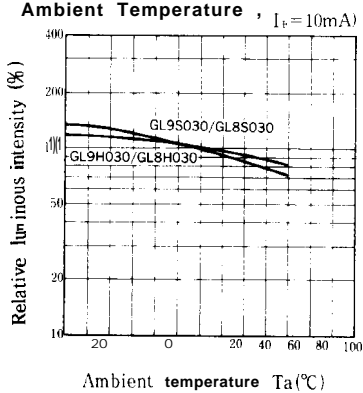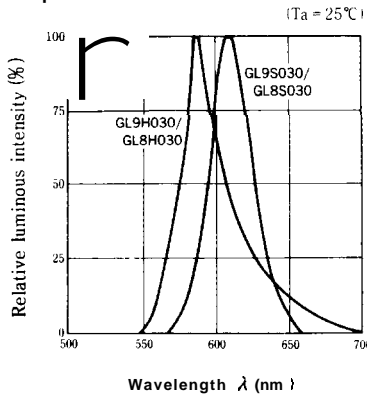
GL9E030/GL8E030(Yellow-green) , GL9K030/GL8K030 (Green)

■ Electro-optical Characteristics

(Ta=25"C)

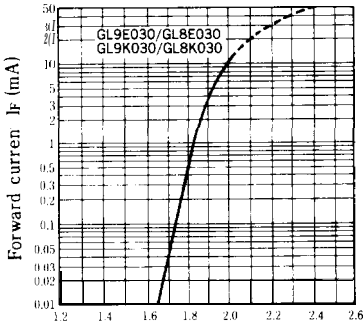| Parameter		Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	Per segment	V_F	GL9E030/GL8E030	$I_F = 10$mA	—	2.0	2.5	V
			GL9K030/GL8K030	$I_F = 10$mA	—	2.0	2.5	
	I'er decimal point		GL9E030/'GL8E030	$I_F = 10$mA	—	2.0	2.5	V
			GL9K030/GL8K030	$I_F = 10$mA	—	2.0	2.5	
※5 Luminous intensity	Per segment	I_V	GL9E030/GL8E030	$I_F = 10$mA	1.0	2.5	—	mcd
			GL9K030/GL8K030	$I_F = 10$mA	0.63	1.56	—	
	Per decimal point		GL9E030/GL8E030	$I_F = 10$mA	0.25	0.60	—	mcd
			GL9K030/GL8K030	$I_F = 10$mA	0.15	0.40	—	
※2 Peak emission wavelength		λ_p	GL9E030/GL8E030	$I_F = 10$mA	—	565	—	'm
			GL9K030/GL8K030	$I_F = 10$mA	—	555	—	
※2 Spectrum radiation bandwidth		$\Delta\lambda$	GL9E030/GL8E030	$I_F = 10$mA	—	30	—	' m
			GL9K030/GL8K030	$I_F = 10$mA	—	30	—	
Reverse current	Per segment	I_R	GL9E030/GL8E030	$V_R = 4$V	—		10	μA
			GL9K030/GL8K030	$V_R = 4$V	—	—	10	
	Per decimal point		GL9E030/GL8E030	$V_R = 4$V	—	—	10	μA
			GL9K030/GL8K030	$V_R = 4$V	—	—	10	
※2 Response frequency		f_c	GL9E030/GL8E030	—	—	4	—	MHz
			GL9K030/GL8K030	—	—	A	—	

※2 Per segment, or per decimal point
※5 Tolerance: ±30%

■ Characteristics Diagrams

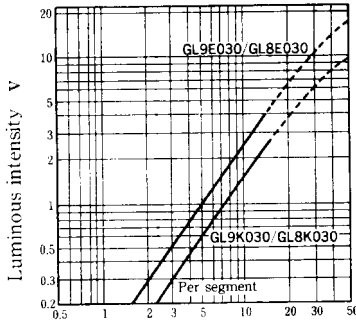**5**

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

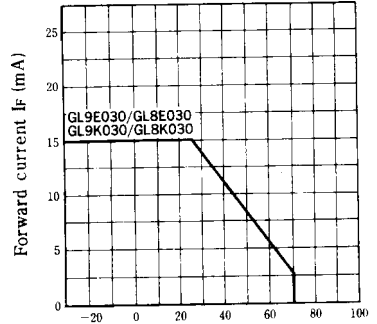Forward voltage V_F (V)

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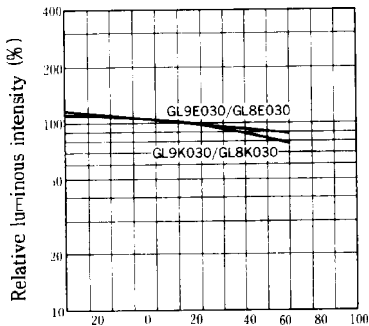

Forward current I_F (mA)

Forward Current Derating Curve

Ambient temperature Ta(℃)

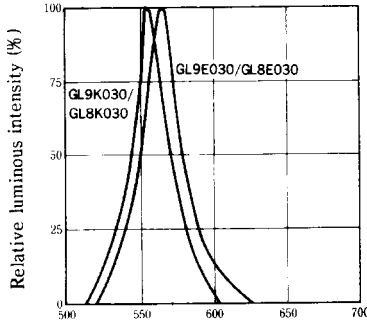**Relative Luminous Intensity vs. Ambient Temperature** ($I_i = 10$mA)

Ambient temperature Ta (℃)

Spectrum Distribution (Ta = 25℃)

Wavelength λ (nm)

SHARP