

# LT1 □ 11A Series Colored Diffusion Mini-mold LED Lamps

## Model No.

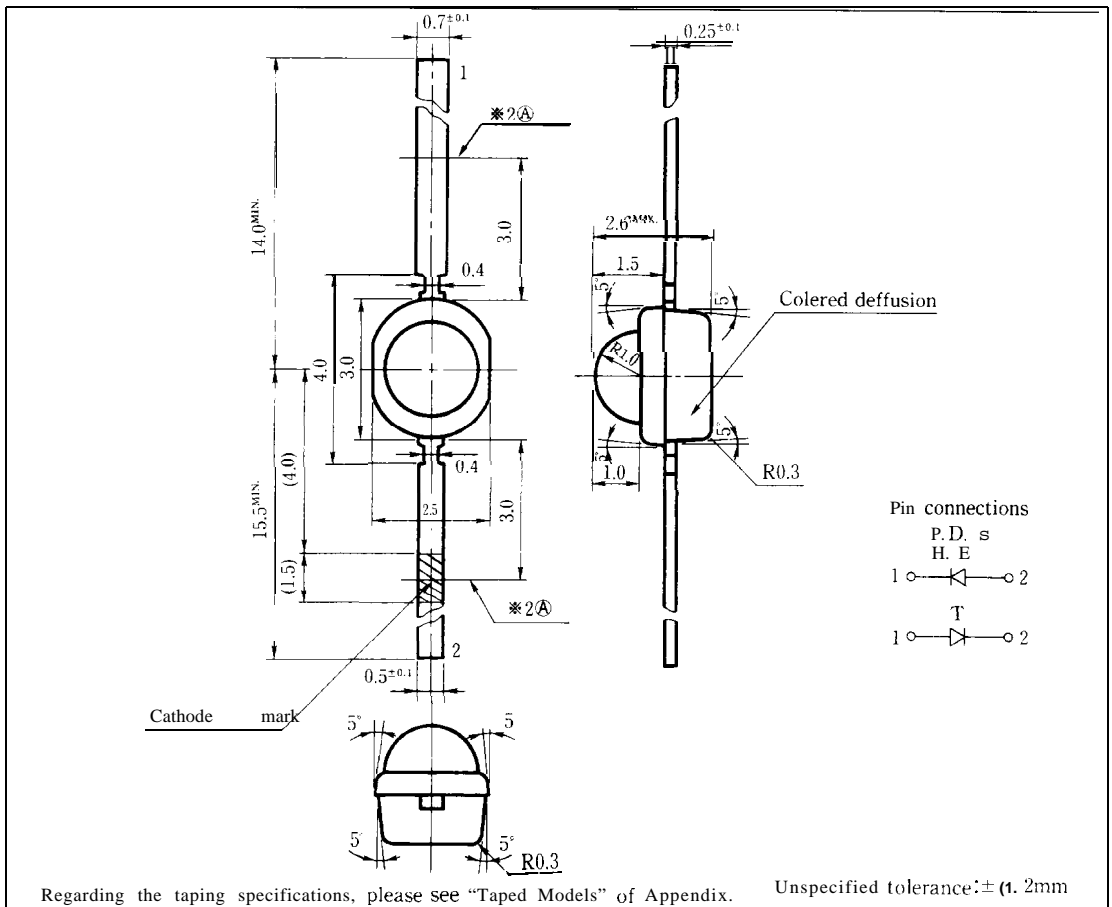
LT1T11 A Red (High-luminosity)	GaAlAs/GaAs
LT1P11 A Red	GaP
LT1D11 A Red	GaAsP/GaP
LT1S11A Sunset orange	GaAsP/GaP
LT1H11A Yellow	GaAsP/GaP
LT1E11 A Yellow-green	GaP

## Features

1.  $\phi$  2mm all resin mold
2. Colored diffusion lens type
3. Taped models : Tape width 8mm, 3,000 pcs/reel

## Outline Dimensions

(Unit: mm)



**SHARP**

## LT1011A

## ■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	LT1T11A	LT1P11A	LT1D11A	LT1H11A	Unit	
				LT1S11A	LT1E11A		
Power dissipation	P	66	23	84	50	mW	
Continuous forward current	I <sub>F</sub>	30	10	30	20	mA	
※1 Peak forward current	I <sub>FM</sub>	50	50	50	50	mA	
Derating factor	DC	—	0.40	0.13	0.40	0.27	mA/°C
	Pulse		0.67	0.67	0.67	0.67	mA/°C
Reverse voltage	V <sub>R</sub>	5	5	5	5	V	
Operating temperature	T <sub>opr</sub>	-2.5 to +85				°C	
Storage temperature	T <sub>stg</sub>	-25 to +100				°C	
※2 Soldering temperature	T <sub>sol</sub>	260 (within 5 seconds)				°C	

※1 Duty ratio = 1/10. Pulse width = 0.1ms

※2 At the (A) position of above outline dimensions

LTIT11 A (Red)

■ **Electro-optical** Characteristics

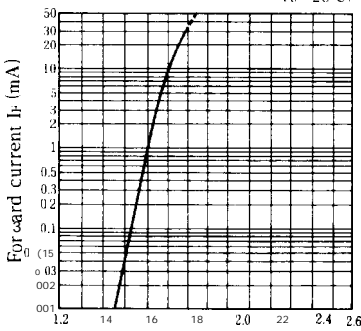
(Ta=25°C)

Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	$V_F$	LTIT11A	$I_F = 20\text{mA}$		1.75	2.2	V
※3 Luminous intensity	$I_v$	LTIT11A	$I_F = 20\text{mA}$	6.0	12	-	mcd
Peak emission wavelength	$\lambda_p$	LTIT11A	$I_F = 20\text{mA}$	-	660	-	nm
Spectrum radiation bandwidth	$\Delta\lambda$	LTIT11A	$I_F = 20\text{mA}$	-	20	-	nm
Reverse current	$I_R$	LTIT11A	$V_R = 4\text{V}$	-		10	$\mu\text{A}$
Terminal capacitance	$C_t$	LTIT11A	$V = 0\text{V}$ $f = 1\text{MHz}$	-	30	-	pF
Response frequency	$f_c$	LTIT11A	-		8	-	MHz

※3 Tolerance:  $\pm 30\%$

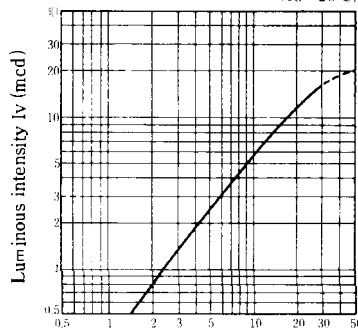
■ Characteristics Diagrams

Forward Current vs. Forward Voltage



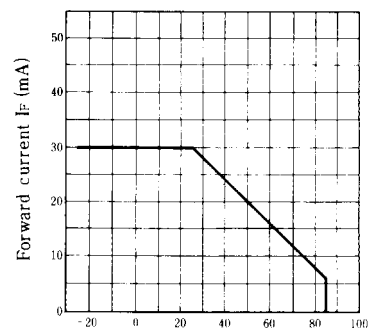
Forward voltage  $V_F$  (V)

Luminous Intensity vs. Forward Current



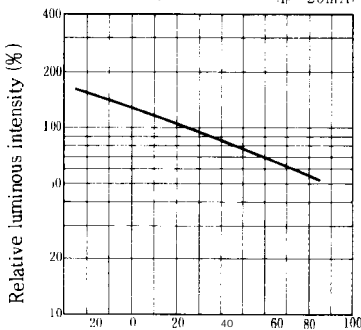
Forward current  $I_F$  (mA)

Forward Current Derating Curve



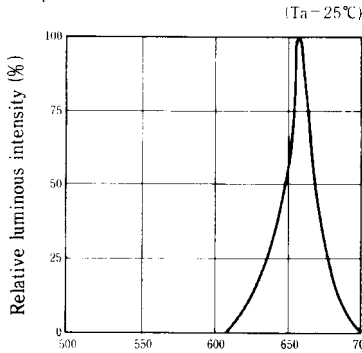
Ambient temperature  $T_a$  (°C)

Relative Luminous Intensity vs. Ambient Temperature



Ambient temperature  $T_a$  (°C)

Spectrum Distribution



Wavelength  $\lambda$  (nm)

LT1P11 A (Red) / LT1D11 A (Red)

■ Electro-optical Characteristics

(Ta = 25°C)

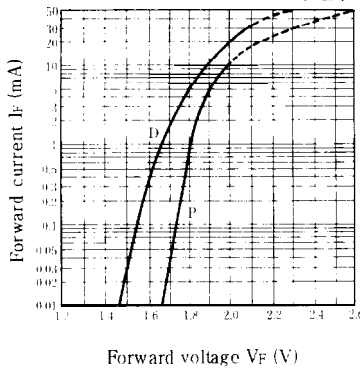
Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	V <sub>F</sub>	LT1P11A	I <sub>F</sub> = 5mA		1.9	2.3	V
		LT1D11A	I <sub>F</sub> = 20mA	-	2.0	2.8	
※3 Luminous intensity	I <sub>v</sub>	LT1P11A	I <sub>F</sub> = 5mA	1.0	2.6	-	mcd
		LT1D11A	I <sub>F</sub> = 20mA	4.2	8.8	-	
Peak emission wavelength	λ <sub>p</sub>	LT1P11A	I <sub>F</sub> = 5mA	-	695	-	nm
		LT1D11A	I <sub>F</sub> = 20mA	-	635	-	
Spectrum radiation bandwidth	Δλ	LT1P11A	I <sub>F</sub> = 5mA		100	-	°m
		LT1D11A	I <sub>F</sub> = 20mA	-	35	-	
Reverse current	I <sub>R</sub>	LT1P11A	V <sub>R</sub> = 4V		-	10	μA
		LT1D11A	V <sub>R</sub> = 4V	-	-	10	
Terminal capacitance	C <sub>t</sub>	LT1P11A	V = 0V f = 1 MHz	-	55	-	pF
		LT1D11A	V = 0V f = 1 MHz	-	20	-	
Response frequency	f <sub>c</sub>	LT1P11A	-	-	4	-	MHz
		LT1D11A	-	-	4	-	

※3 Tolerance: ±30%

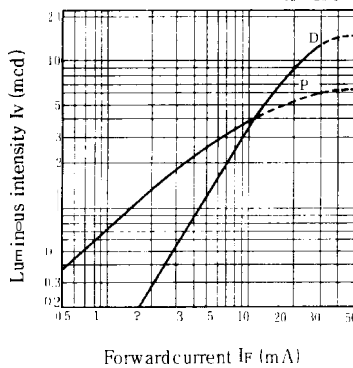
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■ Characteristics Diagrams

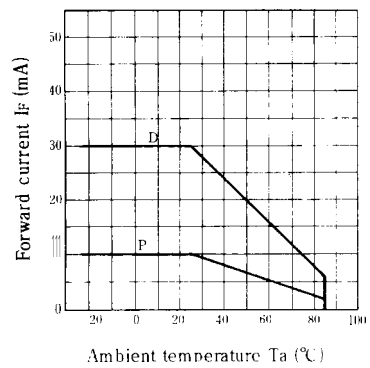
Forward Current vs. Forward Voltage (Ta = -25°C)



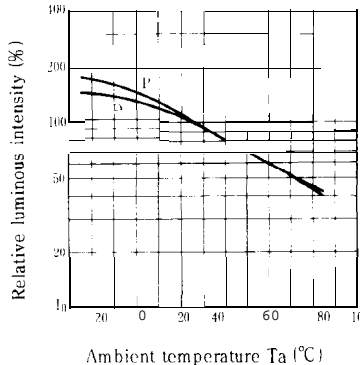
Luminous Intensity vs. Forward Current (Ta = 25°C)



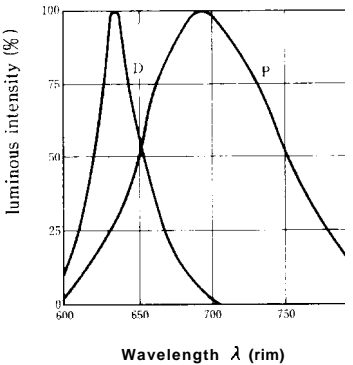
Forward Current Derating Curve (Ta = 25°C)



Relative Luminous Intensity vs. Ambient Temperature (I<sub>F</sub> = 5mA, I<sub>v</sub> = 20mcd)



Spectrum Distribution (Ta = 25°C)



LT1S11 A (Sunset orange) / LT1H11 A (Yellow)

■ **Electro-optical** Characteristics

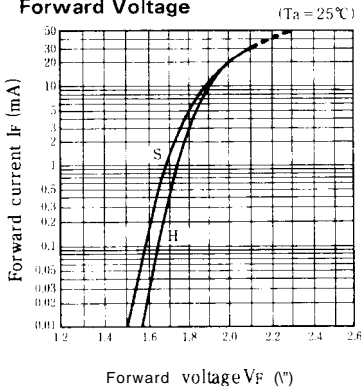
(Ta = 25°C)

Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX	Unit
Forward voltage	V <sub>F</sub>	LT1S11A	I <sub>F</sub> = 20mA		2.0	2.8	V
		LT1H11A	I <sub>F</sub> = 10mA	-	1.9	2.5	
※3 Luminous intensity	I <sub>v</sub>	LT1S11A	I <sub>F</sub> = 20mA	4.0	10	-	mcd
		LT1H11A	I <sub>F</sub> = 10mA	1.7	4.5	-	
Peak emission wavelength	λ <sub>p</sub>	LT1S11A	I <sub>F</sub> = 20mA	-	610	-	'm
		LT1H11A	I <sub>F</sub> = 10mA		585	-	
Spectrum radiation bandwidth	Δλ	LT1S11A	I <sub>F</sub> = 20mA	-	35	-	'm
		LT1H11A	I <sub>F</sub> = 10mA		30	-	
Reverse current	I <sub>R</sub>	LT1S11A	V <sub>R</sub> = 4V	-	-	10	μA
		LT1H11A	V <sub>R</sub> = 4V	-	-	10	
Terminal capacitance	C <sub>t</sub>	LT1S11A	V = 0V f = 1 MHz	-	15	-	pF
		LT1H11A	V = 0V f = 1 MHz	-	35	-	
Response frequency	f <sub>c</sub>	LT1S11A	-	-	4	-	'Hz
		LT1H11A	-	-	4	-	

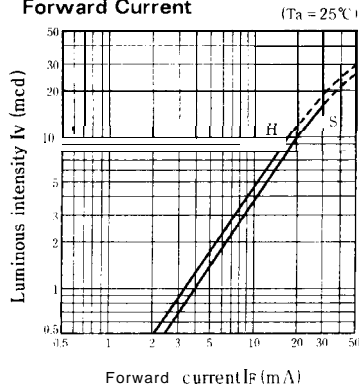
※3 Tolerance: ±30%

■ **Characteristics Diagrams**

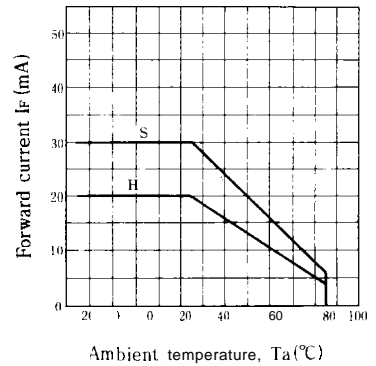
**Forward Current vs. Forward Voltage**



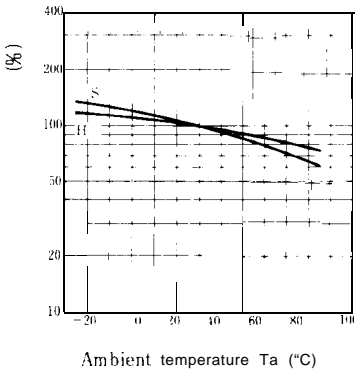
**Luminous Intensity vs. Forward Current**



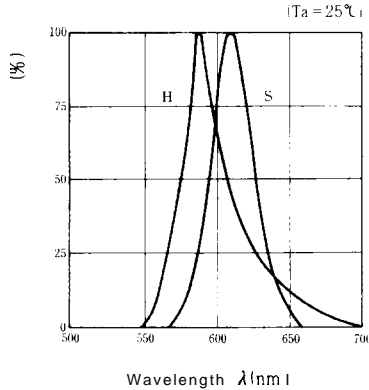
**Forward Current Derating Curve**



**Relative Luminous Intensity vs. Ambient Temperature**



**Spectrum Distribution**



LT1 EI 1 A (Yellow-green)

■ Electro-optical Characteristics

(Ta=25°C)

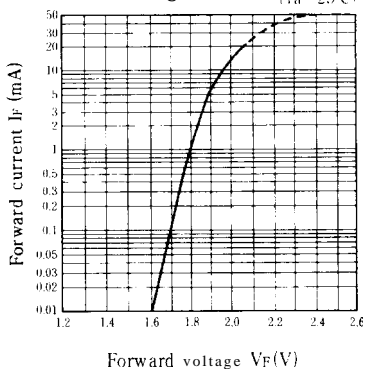
Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	$V_F$	LT1E11A	$I_F = 10\text{mA}$	—	1.95	2.5	V
*3 Luminous intensity	$I_V$	LT1E11A	$I_F = 10\text{mA}$	2.2	4.3	—	mcd
Peak emission wavelength	$\lambda_p$	LT1E11A	$I_F = 10\text{mA}$	—	565	—	nm
Spectrum radiation bandwidth	$\Delta\lambda$	LT1E11A	$I_F = 10\text{mA}$	—	30	—	nm
Reverse current	$I_R$	LT1E11A	$V_R = 4\text{V}$	—	—	10	$\mu\text{A}$
Terminal capacitance	$C_t$	LT1E11A	$V = 0\text{V}$ $f = 1\text{MHz}$	—	35	—	pF
Response frequency	$f_c$	LT1E11A	—	—	4	—	*HZ

\*3 Tolerance:  $\pm 30\%$

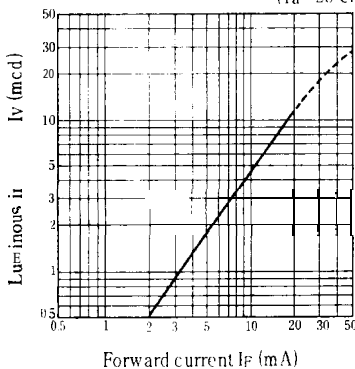
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■ Characteristics Diagrams

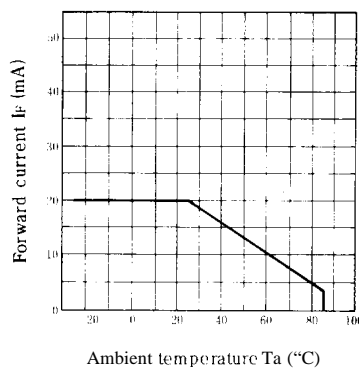
Forward Current vs. Forward Voltage (Ta = 25°C)



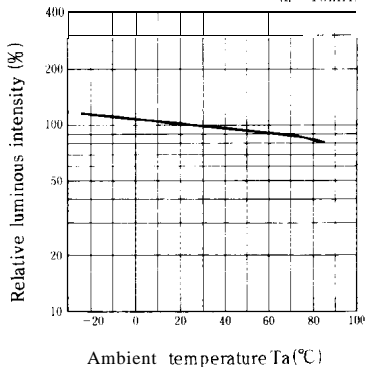
Luminous Intensity vs. Forward Current (Ta = 25°C)



Forward Current Derating Curve



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



Spectrum Distribution (Ta = 25°C)

