

LT1 □ 51 A Series Colored Diffusion Chip LED Devices

Model No.

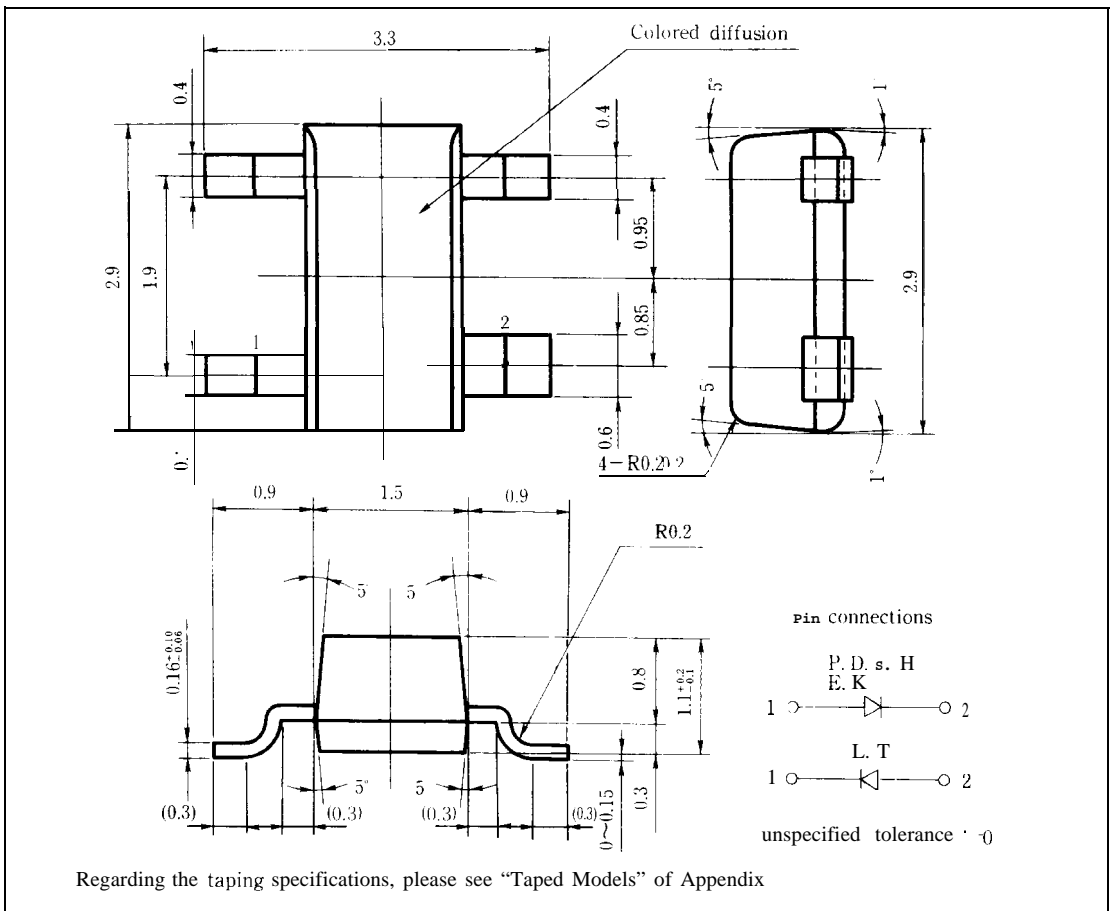
LT1L51A Red (High-luminosity)	GaAlAs/GaAs
LT1 T51A Red (High-luminosity)	GaAlAs/GaAs
LT1P51A Red	GaP
LT1D51A Red	GaAsP/GaP
LT1S51A Sunset orange	GaAsP/GaP
LT1H51A Yellow	GaAsP/GaP
LT1E51A Yellow-green	GaP
LT1K51A Green	GaP

Features

1. Radiation size 1.5 × 2.9mm
2. Colored diffusion lens type
3. Taped models : Tape width 8mm, 3,000 pcs/reel

Outline Dimensions

(Unit: mm)



LTI □ 51A

■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	LT1L51A	LT1T51A	LT1P51A	LT1D51A	LT1H51A	Unit	
					LT1S51A	LT1E51A		
						LT1K51A		
Power dissipation	P	110	66	23	84	50	mW	
Continuous forward current	I _F	50	30	10	30	20	mA	
*1 Peak forward current	I _{FM}	300	50	50	50	50	mA	
Derating factor	DC	—	0.67	0.40	0.13	0.40	0.27	mA/°C
	Pulse	—	4.00	0.67	0.67	0.67	0.67	mA/°C
Reverse voltage	V _R	5	5	5	5	5	v	
Operating temperature	T _{opr}	-25 to +85						°C
Storage temperature	T _{stg}	-25 to +100						°C

*1 Duty ratio = 1/10, Pulse width = 0.1ms

Duty ratio = 1/16, Pulse width ≤ 1ms for LT1L51A

LT1L51A (Red) / LT1T51A (Red)

■ Electro-optical Characteristics

(Ta = 25°C)

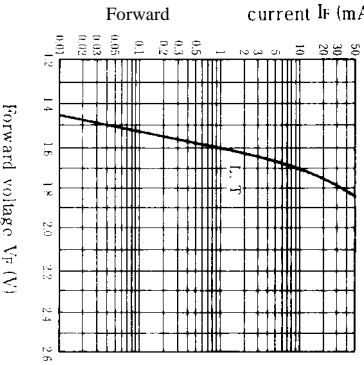
Parameter	Symbol	Model No.	Conditions	MIN.	11P.	MAX.	Unit
Forward voltage	V _F	LT1L51A	I _F = 20mA	—	1.75	2.2	V
		LT1T51A	I _F = 20mA	—	1.75	2.2	
*2 Luminous intensity	I _v	LT1L51A	I _F = 20mA	6.0	15	—	mcd
		LT1T51A	I _F = 20mA	4.5	9.0	—	
Peak emission wavelength	λ _p	LT1L51A	I _F = 20mA	—	660	—	nm
		LT1T51A	I _F = 20mA	—	650	—	
Spectrum radiation bandwidth	Δλ	LT1L51A	I _F = 20mA	—	20	—	nm
		LT1T51A	I _F = 20mA	—	20	—	
Reverse current	I _R	LT1L51A	V _R = 4V	—	—	10	μA
		LT1T51A	V _R = 4V	—	—	10	
Terminal capacitance	C _t	LT1L51A	V = 0V, f = 1MHz	—	30	—	pF
		LT1T51A	V = 0V, f = 1MHz	—	20	—	
Response frequency	f _c	LT1L51A	I _F = 20mA	—	8	—	MHz
		LT1T51A	I _F = 20mA	—	8	—	

*2 Tolerance: ±30%

■ Characteristics Diagrams

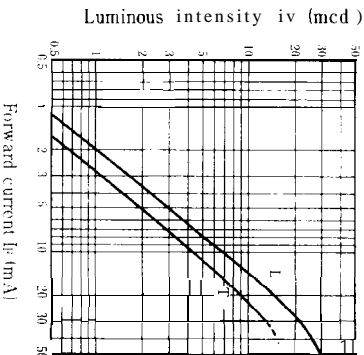
F Forward Current vs. Forward Voltage

(Ta = 25°C)

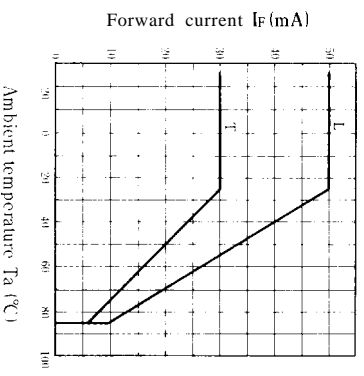


Luminous Intensity vs Forward Current

(Ta = 25°C)

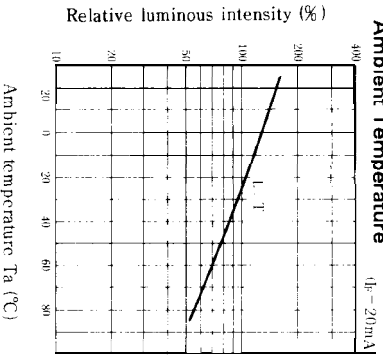


Forward Current Derating Curve



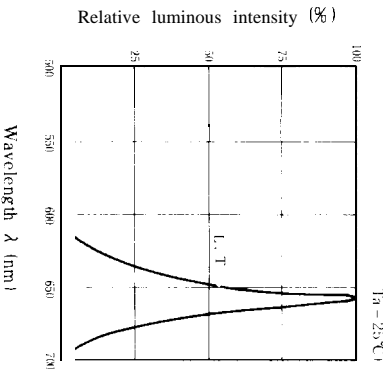
Relative Luminous Intensity vs Ambient Temperature

(I_F = 20mA)



Spectrum Distribution

(Ta = 25°C)



LT1 P51 A (Red) / LT1 D51A (Red)

■ Electro-optical Characteristics

(Ta=25°C)

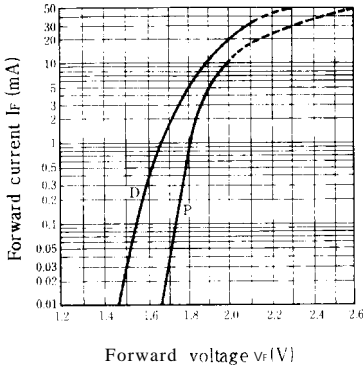
Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	V _F	LT1P51A	I _F = 5mA	-	1.9	2.3	V
		LT1D51A	I _F = 20mA	-	2.0	2.8	
※2 Luminous intensity	I _v	LT1P51A	I _F = 5mA	0.3	1.1	-	mcd
		LT1D51A	I _F = 20mA	2.2	8.4	-	
Peak emission wavelength	λ _p	LT1P51 A	I _F = 5mA	-	695	-	nm
		LT1D51A	I _F = 20mA	-	635	-	
Spectrum radiation bandwidth	Δλ	LT1P51A	I _F = 5mA	-	100	-	nm
		LT1D51A	I _F = 20mA	-	35	-	
Reverse current	I _R	LT1P51A	V _R = 4V	-	-	10	μA
		LT1D51A	V _R = 4V	-	-	10	
Terminal capacitance	C _t	LT1P51A	V = 0V f = 1 MHz	-	55	-	pF
		LT1D51A	V = 0V f = 1 MHz	-	20	-	
Response frequency	f _c	LT1P51A	-	-	4	-	MHz
		LT1D51A	-	-	4	-	

※2 Tolerance: ±30%

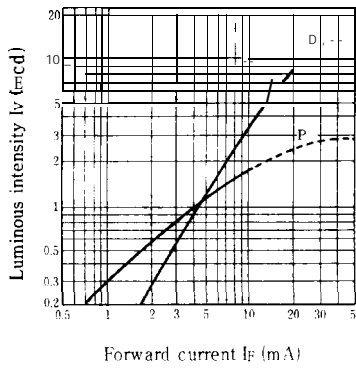
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■ Characteristics Diagrams

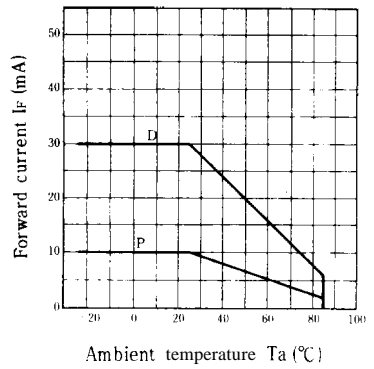
Forward Current vs. Forward Voltage (Ta = 25°C)



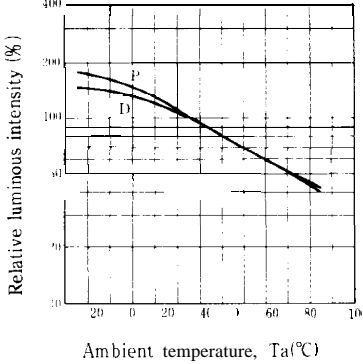
Luminous Intensity vs. Forward Current (Ta = 25°C)



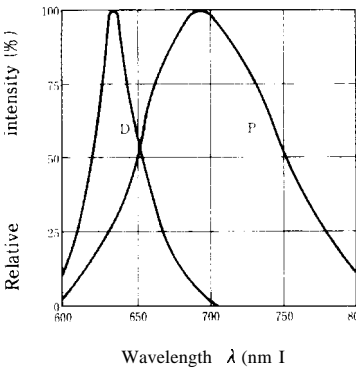
Forward Current Derating Curve



Relative Luminous Intensity vs. Ambient Temperature (I_F = 5mA / I_F = 20mA)



Spectrum Distribution (Ta = 25°C)



LT1 S51A (Sunset orange) / LT1 H51A (Yellow)

■ **Electro-optical** Characteristics

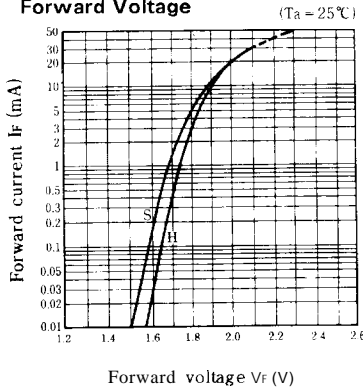
(Ta = 25°C)

Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	V _F	LT1S51A	I _F = 20mA	—	2.0	2.8	V
		LT1H51A	I _F = 10mA	—	1.9	2.5	
※2 Luminous intensity	I _v	LT1S51A	I _F = 20mA	1.9	6.8	—	mcd
		LT1H51A	I _F = 10mA	0.9	3.3	—	
Peak emission wavelength	λ _p	LT1S51A	I _F = 20mA	—	610	—	‘m
		LT1H51A	I _F = 10mA	—	585	—	
Spectrum radiation bandwidth	Δλ	LT1S51A	I _F = 20mA	—	35	—	‘m
		LT1H51A	I _F = 10mA	—	30	—	
Reverse current	I _R	LT1S51A	V _R = 4V	—	—	10	μA
		LT1H51A	V _R = 4V	—	—	10	
Terminal capacitance	C _t	LT1S51A	V = 0V f = 1MHz	—	15	—	pF
		LT1H51A	V = 0V f = 1 MHz	—	35	—	
Response frequency	f _c	LT1S51A	—	—	4	—	‘Hz
		LT1H51A	—	—	4	—	

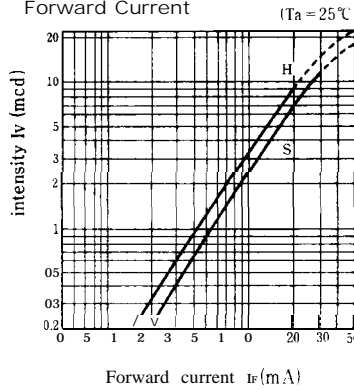
※2 Tolerance: ±30%

■ **Characteristics Diagrams**

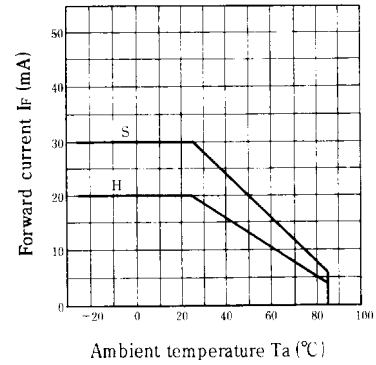
Forward Current vs. Forward Voltage



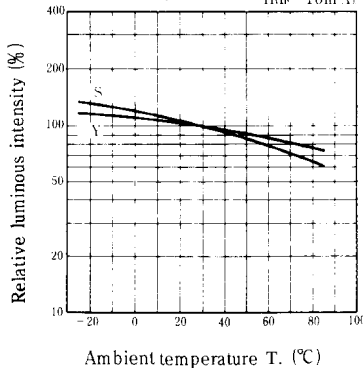
Luminous Intensity vs. Forward Current



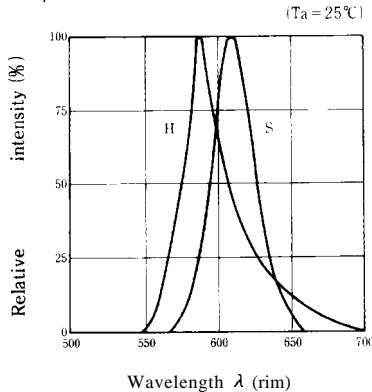
Forward Current Derating Curve



Relative Luminous Intensity vs. Ambient Temperature



Spectrum Distribution



LT1 E51 A (Yellow-green) / LT1 K51A (Green)

■ **Electro-optical** Characteristics

($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Model No.	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	V_F	LT1E51A	$I_F = 10\text{mA}$	—	1.95	2.5	V
		LT1K51A	$I_F = 10\text{mA}$	—	1.95	2.5	
※2 Luminous intensity	I_v	LT1E51A	$I_F = 10\text{mA}$	1.2	3.6	—	mcd
		LT1K51A	$I_F = 10\text{mA}$	0.9	1.7	—	
Peak emission wavelength	λ_p	LT1E51A	$I_F = 10\text{mA}$	—	565	—	'm
		LT1K51A	$I_F = 10\text{mA}$	—	555	—	
Spectrum radiation bandwidth	$\Delta\lambda$	LT1E51A	$I_F = 10\text{mA}$	—	30	—	'm
		LT1K51A	$I_F = 10\text{mA}$	—	25	—	
Reverse current	I_R	LT1E51A	$V_R = 4\text{V}$	—	—	10	μA
		LT1K51A	$V_R = 4\text{V}$	—	—	10	
Terminal capacitance	C_t	LT1E51A	$V = 0\text{V}$ $f = 1\text{MHz}$	—	35	—	pF
		LT1K51A	$V = 0\text{V}$ $f = 1\text{MHz}$	—	40	—	
Response frequency	f_c	LT1E51A	—	—	4	—	MHz
		LT1K51A	—	—	4	—	

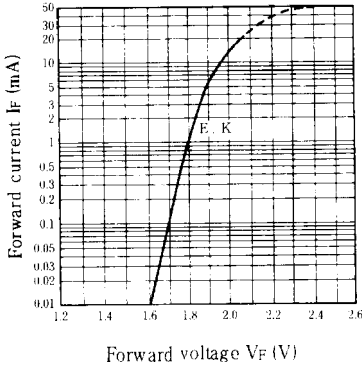
※2 Tolerance: $\pm 30\%$

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■ Characteristics Diagrams

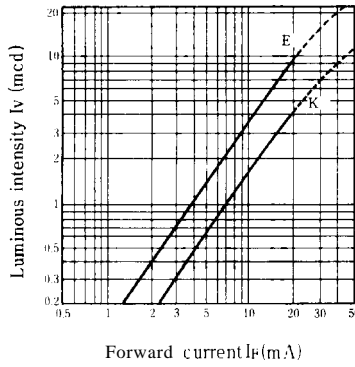
Forward Current vs. Forward Voltage

($T_a = 25^\circ\text{C}$)

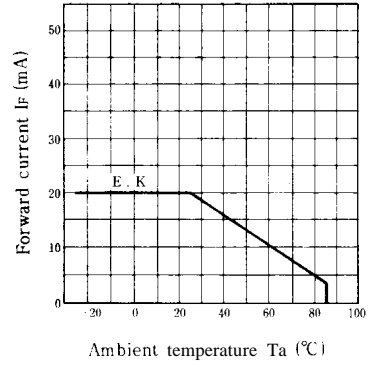


Luminous Intensity vs. Forward Current

($T_a = 25^\circ\text{C}$)

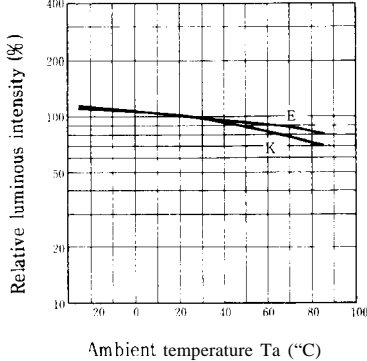


Forward Current Derating Curve



Relative Luminous Intensity vs. Ambient Temperature

($I_F = 10\text{mA}$)



Spectrum Distribution

($T_a = 25^\circ\text{C}$)

