



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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   	<h2 style="margin:0;">SEMICONDUCTOR PRODUCT</h2> <h3 style="margin:0;">LN21RUQ</h3>
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TYPE	Red Light Emitting Diode																		
MATERIAL	GaAlAs																		
APPLICATION	Indicators																		
OUTLINE																			
CONNECTION																			
ABSOLUTE MAXIMUM RATINGS	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">P_D</td> <td style="text-align: center;">*IFP</td> <td style="text-align: center;">IFDC</td> <td style="text-align: center;">VR</td> <td style="text-align: center;">T_{opr}</td> <td style="text-align: center;">T_{stg}</td> </tr> <tr> <td style="text-align: center;">70</td> <td style="text-align: center;">150</td> <td style="text-align: center;">30</td> <td style="text-align: center;">3</td> <td style="text-align: center;">-25~+85</td> <td style="text-align: center;">-30~+100</td> </tr> <tr> <td style="text-align: center;">mW</td> <td style="text-align: center;">mA</td> <td style="text-align: center;">mA</td> <td style="text-align: center;">V</td> <td style="text-align: center;">°C</td> <td style="text-align: center;">°C</td> </tr> </table> <p style="text-align: center; margin-top: 5px;">$T_a = 25 \pm 3^\circ C$</p>	P_D	*IFP	IFDC	VR	T _{opr}	T _{stg}	70	150	30	3	-25~+85	-30~+100	mW	mA	mA	V	°C	°C
P_D	*IFP	IFDC	VR	T _{opr}	T _{stg}														
70	150	30	3	-25~+85	-30~+100														
mW	mA	mA	V	°C	°C														

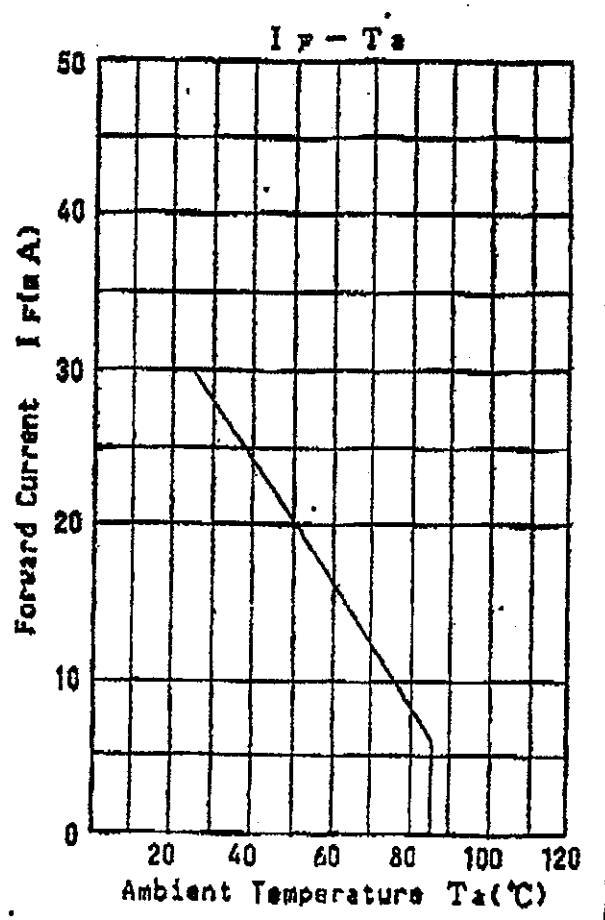
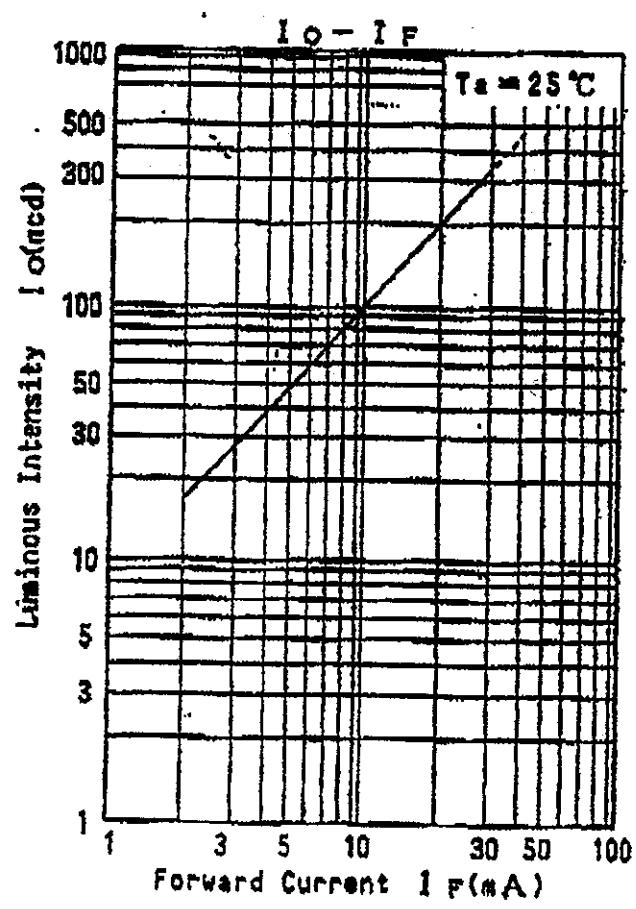
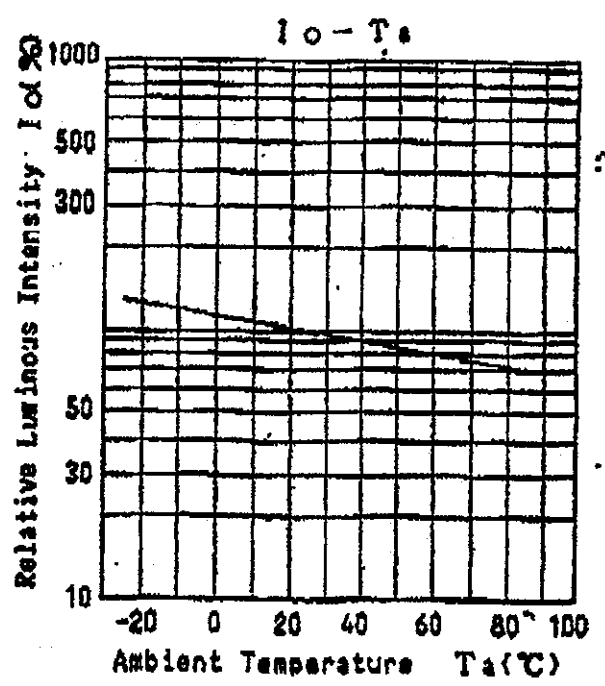
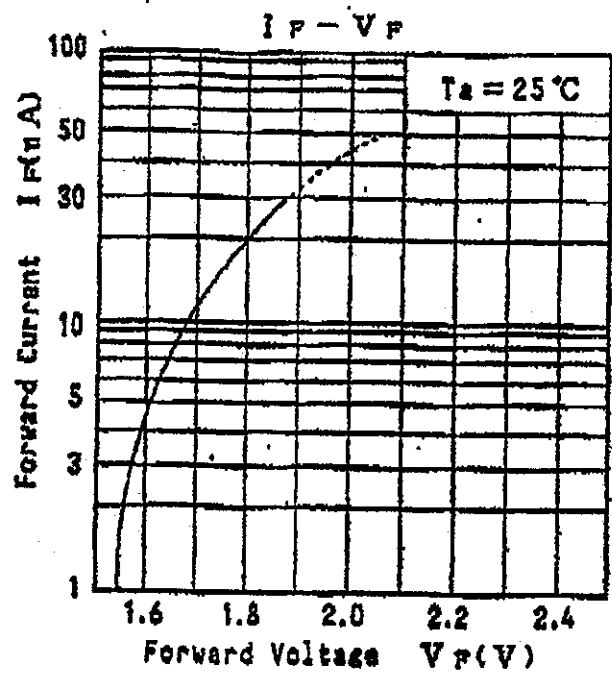
Test Specification

	Condition	Typ	Limit		Unit
			Min	Max	
VF	IF=20mA	1.8		2.6	V
IR	VR=3V			100	μA
I _o	IF=20mA DC	200	120		mcd
λ _p	IF=20mA DC	660			nm
Δλ	IF=20mA DC	20			nm

*1 The condition of IFP is duty 10%, Pulse width 1msec.
 *2 Lead material and surface treatment : Fe type + solder dipping

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LN21RUQ



LN21RUQ RELIABILITY TEST DATA

TEST CONDITION AND RESULT

TEST ITEM	TEST CONDITION	RESULTS
Consecutive operating life test	IF DC max, $T_a=25^{\circ}\text{C}$, $t=1,000\text{h}$	0/100
High temperature storage life test	T_{stg} max, $t=1,000\text{h}$	0/100
Low temperature storage life test	T_{stg} min, $t=1,000\text{h}$	0/100
Tropical life test	$T_a=60^{\circ}\text{C}$, $\text{RH} \geq 90\%$, $t=1,000\text{h}$	0/100
Soldering test	$T_a=230 \pm 5^{\circ}\text{C}$, $t=5\text{sec}$, 1cycle, flux	0/50
Soldering heat test	$T_a=280 \pm 5^{\circ}\text{C}$, $t=10\text{sec}$, 1cycle	0/100
Temperature cycle test (gaseous phase)	T_{stg} min $\sim 25^{\circ}\text{C}$ (30min) $\sim 5\text{min}$ $\sim T_{stg}$ max $\sim 25^{\circ}\text{C}$ (30min) $\sim 5\text{min}$) X 10 cycles	0/100
Thermal shock test (liquid phase)	T_{stg} max $\sim 0^{\circ}\text{C}$ (5min) $\sim 5\text{min}$) X 10 cycles	0/100
Fall test	Maple Wood $h=75\text{cm}$, 3 cycles	0/50
Terminal strength test	$W=1\text{Kg}$, $t=30\text{sec}$	0/50
Lead Bending	$W=0.5\text{Kg}$, 2 cycles	0/50

ITEM	SYMBOL	CONDITIONS	LIMIT	UNIT
Forward Voltage	V_F	Same as the specification	Upper $\times 1.2$	V
Reverse Leakage Current	IR	Same as the specification	Upper $\times 2.0$	μA
Luminous Intensity	I_o	Same as the specification	Min $\times 70$	%

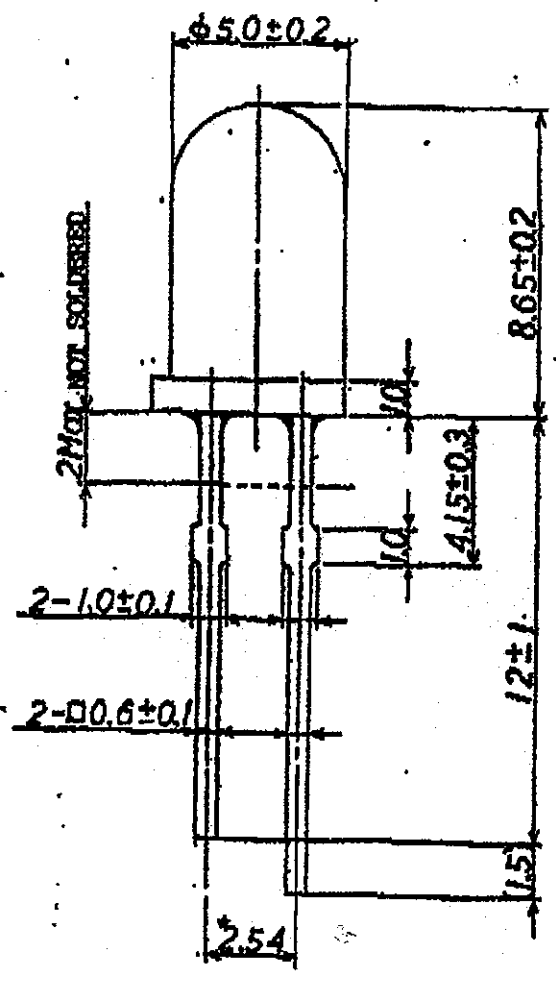
* note : Operating Life Stability $\geq 50\%$

* Assurance for LED

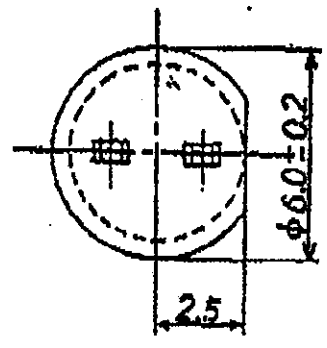
Assurance for LED within each condition is mentioned above.

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LN21RUQ



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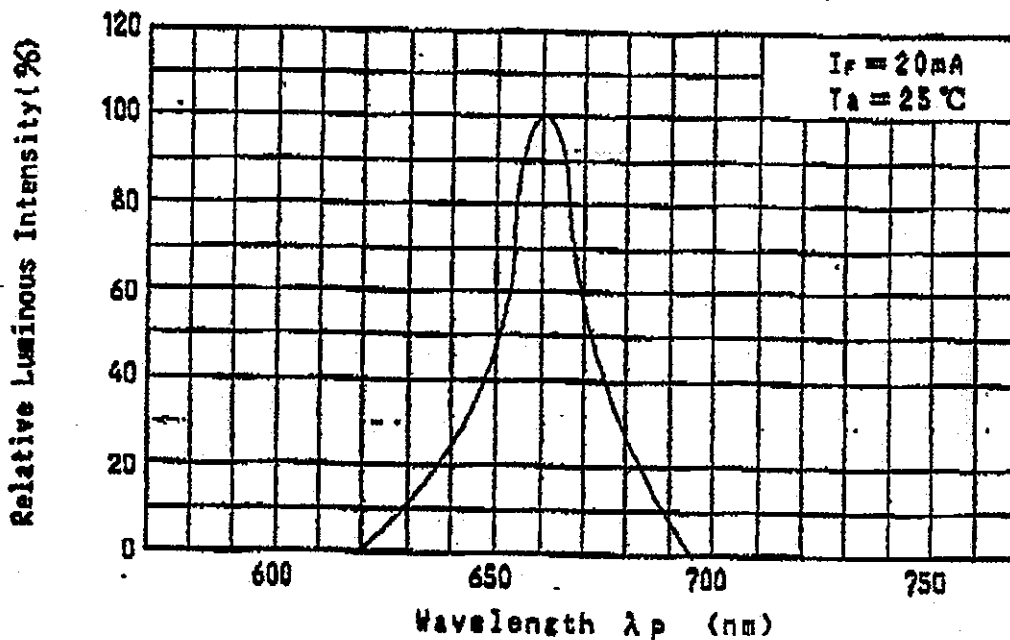
1: Anode
 2: Cathode

* Lead wire dimension.
 (The bottom of lead)

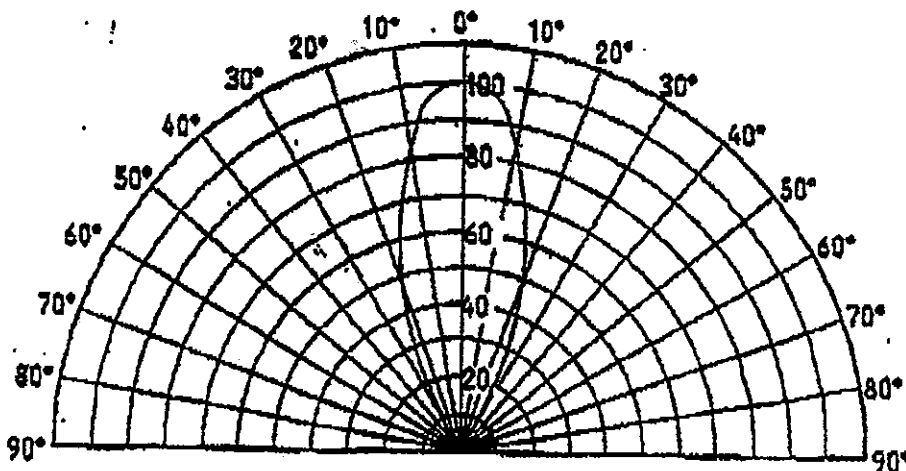
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LN21RU0

Relative Luminous Intensity Wavelength Characteristics



Directive Characteristics



3. Electro-optical characteristics (Note 2)

Parameter	Symbol	Condition	Min	Typ	Max	U
Threshold current	I_{th}	CW	20	40	65	
Operating current	I_{op}	$P_o=3mW$	30	50	75	
Operating voltage	V_{op}	$P_o=3mW$	-	1.75	2.5	
Wavelength	λ_L	(Note 3) $P_o=3mW$	775	790	810	
Radiation angle	Parallel	$\theta_{ }$ (Note 4) $P_o=3mW$	8	11	16	
	Perpendicular	θ_{\perp} (Note 4) $P_o=3mW$	20	33	45	
Differential efficiency	η	(Note 3) $2mW/(I(3mW)-I(1mW))$	0.1	0.4	0.7	π
PIN dark current	I_d	$V_r(PIN)=30V$	-	-	0.1	
PIN photo-current	I_p	$P_o=3mW$ $V_r(PIN)=5V$	0.2	0.6	1.0	
Emission point angle accuracy	X direction	θ_x $P_o=3mW$	-	-	± 2	
	Y direction	θ_y $P_o=3mW$	-	-	± 3	
Oscillation mode	Single transverse mode					

(Note 2) Initial value

(Note 3) Sampling inspection by lot

(Note 4) Angle of 50% peak intensity (FWHM)