



FH1011

LED for Optical Fiber Application

Features

Package	φ 5 type, Water clear epoxy
Product features	<ul style="list-style-type: none"> •Emitted Color : Red •Flat Lenz Type •Radiant Intensity : 1.2 TYP. mW/sr ($I_F = 30\text{mA}$) •Position preciseness allows for integration with lens products. •No lead package •RoHS compliant
Peak Wavelength	660nm
Half Intensity Angle	88 deg.
Die materials	GaAlAs
Rank grouping parameter	Sorted by radiant intensity per rank taping
Soldering methods	TTW (Through The Wave) soldering and manual soldering ※Please refer to Soldering Conditions about soldering.
ESD	2kV (HBM)
Packing	Bulk : 200pcs(MIN.)

Recommended Applications

Optical Fibers


FH1011

LED for Optical Fiber Application

Absolute Maximum Ratings

(Ta=25°C, Except Topr and Tstg)

Item	Symbol	Absolute Maximum Ratings	Unit
Power Dissipation	Pd	140	mW
Forward Current	I _F	70	mA
Pulse Forward Current ※1	I _{FRM}	300	mA
Derating (Ta=25°C or higher)	ΔI _F	0.93	mA/°C
	ΔI _{FRM}	4	mA/°C
Reverse Voltage	V _R	4	V
Operating Temperature	T _{opr}	-30~+85	°C
Storage Temperature	T _{stg}	-30~+100	°C

※1 I_{FRM} Measurement condition : Pulse Width ≤ 1ms, Duty ≤ 1/20

Electro-Optical Characteristics

(Ta=25°C)

Item	Conditions	Symbol	Characteristics		Unit
Forward Voltage	I _F =30mA	V _F	TYP.	2.0	V
			MAX.	2.5	
Reverse Current	V _R =4V	I _R	MAX.	100	μA
Radiant Intensity	I _F =30mA	I _E	MIN.	0.6	mW/sr
			TYP.	1.2	
Total Output Power	I _F =30mA	P _o	TYP.	3.5	mW
Peak Wavelength	I _F =30mA	λ _p	TYP.	660	nm
Spectral Half-width	I _F =30mA	Δλ	TYP.	30	nm
Half Intensity Angle	I _F =30mA	2θ 1/2	TYP.	88	deg.
Cut-off Frequency	I _F =30mA _{DC} ±3mA, -3db from 0.1MHz	f _c	TYP.	7	MHz



Radiant Intensity Rank

(Ta=25°C)

Rank	I _E (mW/sr)		Condition
	MIN.	MAX.	
A	0.6	1.2	I _F = 30mA
B	0.84	1.68	
C	1.2	2.4	
D	1.68	3.36	
E	2.4	-	

Please contact our sales staff concerning rank designation.

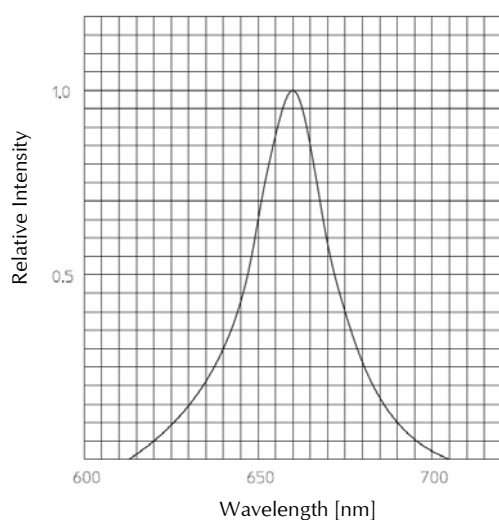


FH1011

LED for Optical Fiber Application

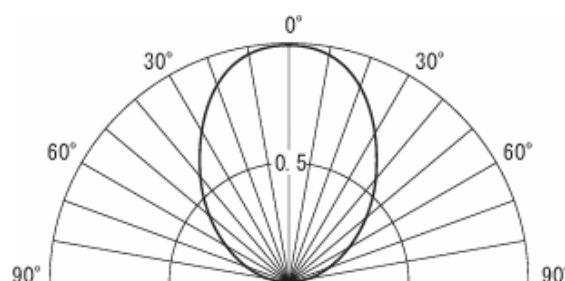
Technical Data

Spectral Distribution
Relative Intensity vs. Wavelength
Condition : $T_a = 25^\circ\text{C}$, $I_f = 50\text{mA}$

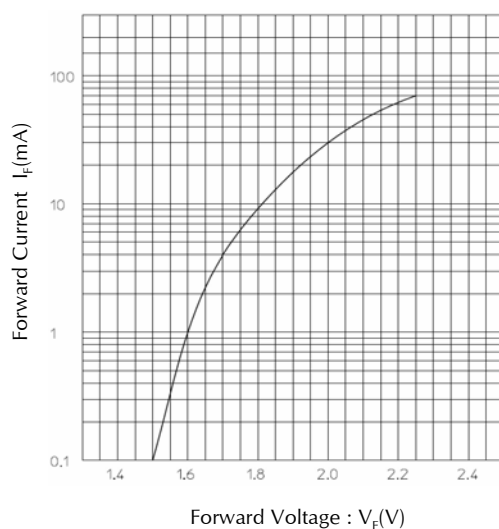


Spatial Distribution Example

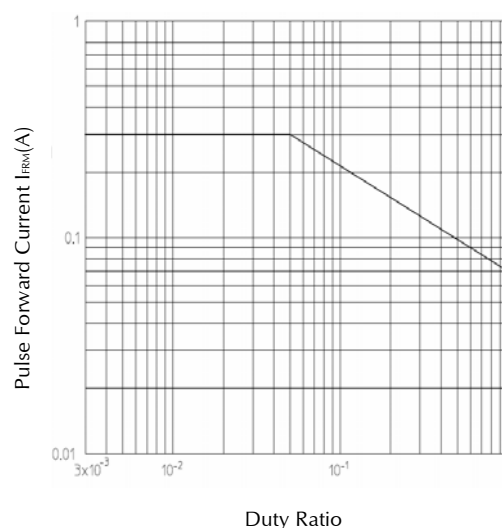
Condition : $T_a = 25^\circ\text{C}$



Forward Voltage vs. Forward Current
Condition : $T_a = 25^\circ\text{C}$



Duty Ratio vs. Pulse Forward Current
Condition : $T_a = 25^\circ\text{C}$, $t_w \leq 1\text{ms}$



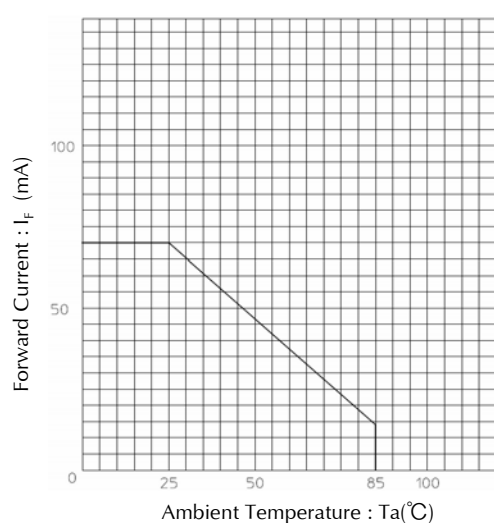


FH1011

LED for Optical Fiber Application

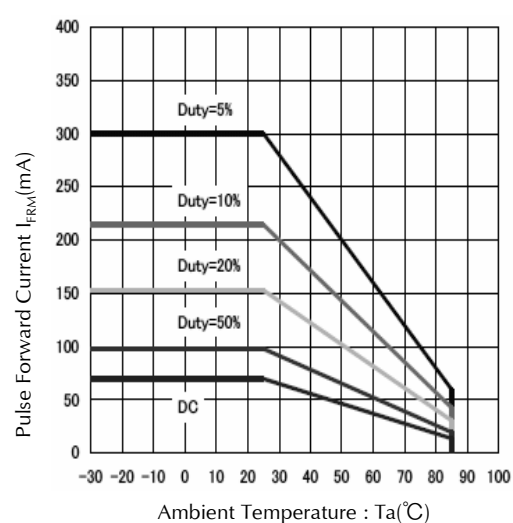
Technical Data

Ambient Temperature vs. Forward Current

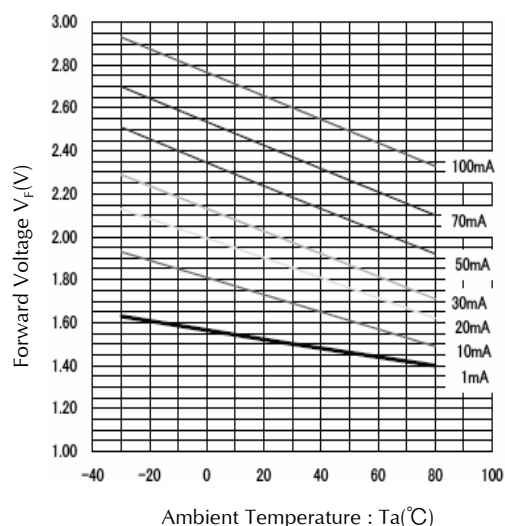


Ambient Temperature vs. Pulse Forward Current

Condition : $t_w \leq 1\text{ms}$, $f \geq 50\text{Hz}$

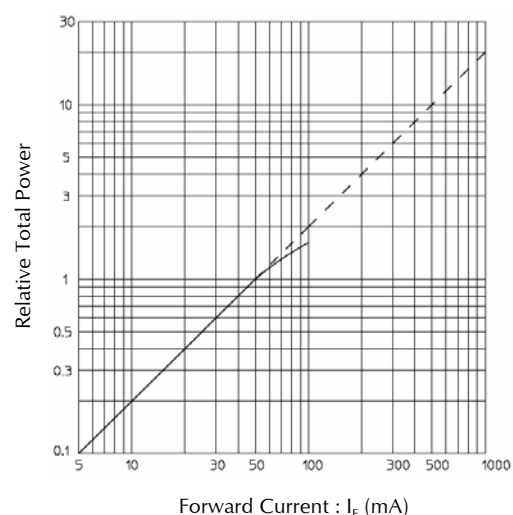


Ambient Temperature vs. Forward Voltage



Forward Current vs. Relative Total Power

Condition : - - Pulse, $t_w \leq 100\mu\text{s}$,
Duty $\leq 1/100$, $T_a = 25^{\circ}\text{C}$
--DC



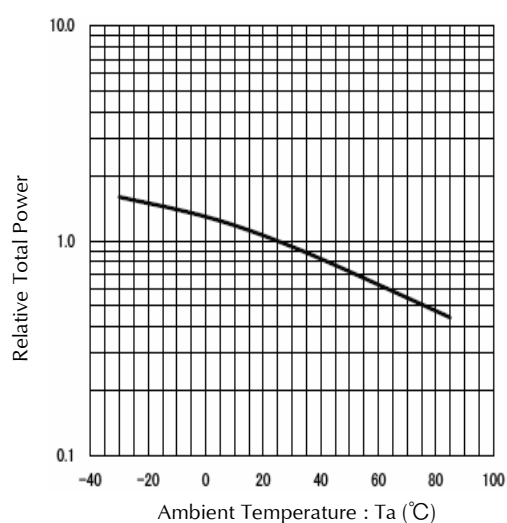


FH1011

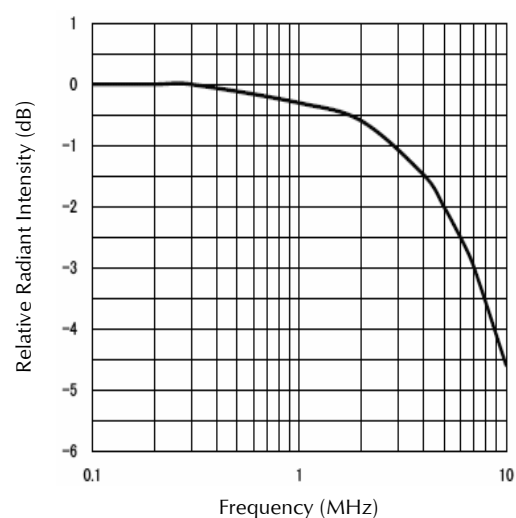
LED for Optical Fiber Application

Technical Data

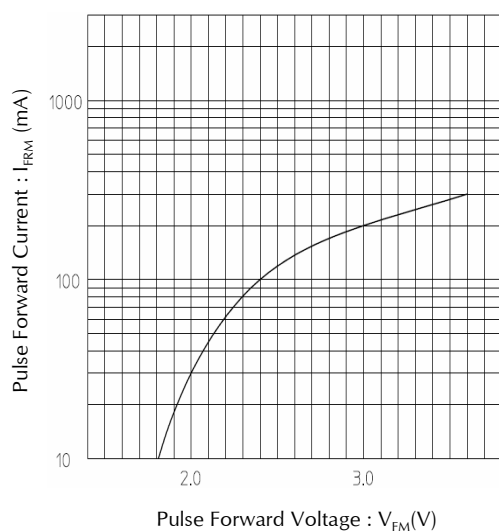
Ambient Temperature vs. Relative Total Power
Condition : $I_F = 10 \sim 30\text{mA}$



Frequency
Condition : $T_a = 25^\circ\text{C}$, $I_F = 30\text{mA}_{\text{DC}} \pm 3\text{mA}$

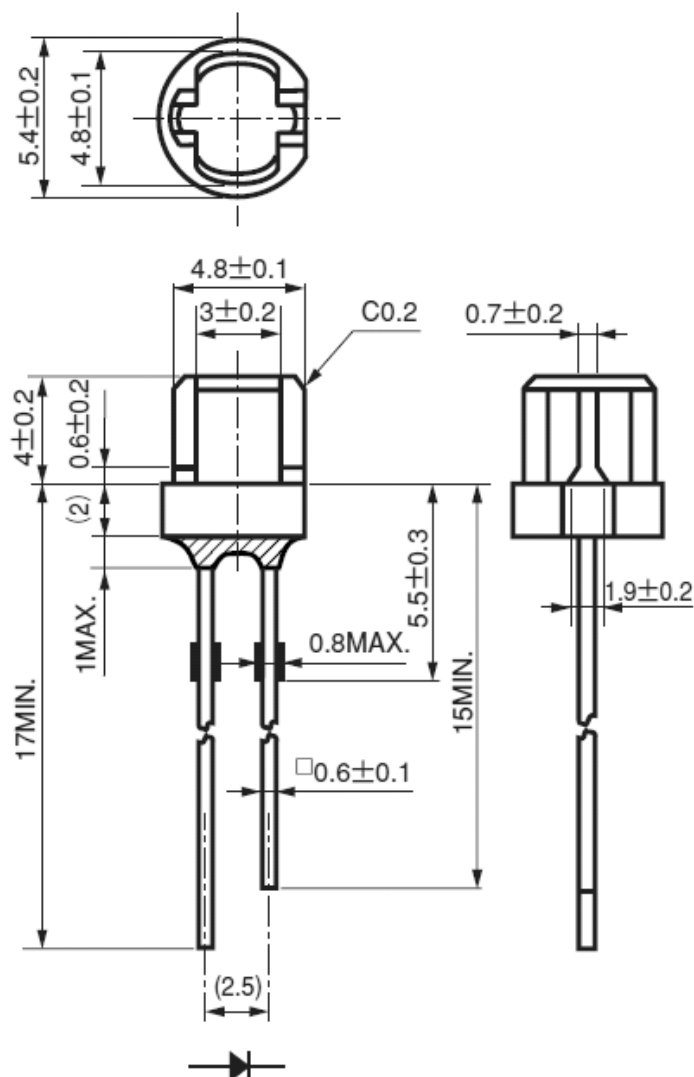


Pulse Forward Voltage vs. Pulse Forward Current
Condition : $T_a = 25^\circ\text{C}$, $t_w \leq 1\text{ms}$, Duty $\leq 1/20$



Package Dimensions

(Unit: mm)




FH1011

LED for Optical Fiber Application

Reliability Testing Result

Reliability Testing Result	Applicable Standard	Testing Conditions	Duration	Failure
Room Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 25°C, If = Maximum Rated Current	1,000 h	0/25
Resistance to Soldering Heat	EIAJ ED-4701/300(302)	260±5°C, 3mm from package base	10s	0/25
Temperature Cycling	EIAJ ED-4701/100(105)	Minimum Rated Storage Temperature(30min) ~Normal Temperature(15min) ~Maximum Rated Storage Temperature(30min) ~Normal Temperature(15min)	5 cycles	0/25
Wet High Temp. Storage Life	EIAJ ED-4701/100(103)	Ta = 60±2°C, RH = 90±5%	1,000 h	0/25
High Temp. Storage Life	EIAJ ED-4701/200(201)	Ta = Maximum Rated Storage Temperature	1,000 h	0/25
Low Temp. Storage Life	EIAJ ED-4701/200(202)	Ta = Minimum Rated Storage Temperature	1,000 h	0/25
Lead Tension	EIAJ ED-4701/400(401)	10N, 1time	10s	0/10
Vibration, Variable Frequency	EIAJ ED-4701/400(403)	98.1m/s ² (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction	2 h	0/10

Failure Criteria

Items	Symbols	Conditions	Failure criteria
Luminous Intensity	Iv	If Value of each product Luminous Intensity	Testing Min. Value < Spec. Min. Value x 0.5
Forward Voltage	V _F	If Value of each product Forward Voltage	Testing Max. Value ≥ Spec. Max. Value x 1.2
Reverse Current	I _R	V _R = Maximum Rated Reverse Voltage V	Testing Max. Value ≥ Spec. Max. Value x 2.5
Cosmetic Appearance	-	-	No notable, decoloration, deformation and cracking



Special Notice to Customers Using the Products and Technical Information Shown in This Data Sheet

- 1) The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.
- 2) For the purpose of product improvement, the specifications, characteristics and technical data described in the data sheets are subject to change without prior notice. Therefore it is recommended that the most updated specifications be used in your design.
- 3) When using the products described in the data sheets, please adhere to the maximum ratings for operating voltage, heat dissipation characteristics, and other precautions for use. We are not responsible for any damage which may occur if these specifications are exceeded.
- 4) The products described in the data sheets are made to be used in standard electronic applications such as office automation appliances, communication devices, audio visual, home appliances, and measuring instruments.
- 5) If the products in the data sheets are to be used for purposes other than the above which requires high level reliability and safety where failure and or malfunction of the product may cause death or other serious effects on the human body such as airplane, space activity, transportation, medical, nuclear), please contact our sales personnel.
- 6) In order to export the products or technologies described in this data sheet which are under the "Foreign Exchange and Foreign Trade Control Law," it is necessary to first obtain an export permit from the Japanese government.
- 7) No part of this data sheet may be reprinted or reproduced without prior written permission from Stanley Electric Co., Ltd.
- 8) The most updated edition of this data sheet can be obtained from the address below:
<http://www.stanley-components.com>