



Pb-free
HEAT

STANLEY

UW5805S

Φ5 Flush Mount Type White LED

Features

Package	Φ5 Flush Mount Type. Water clear resin
Product features	• Outer Dimension Φ5 Flush Mount Type. • Operation temperature range Storage Temperature : -40℃~100℃ Operating Temperature : -40℃~85℃ • Lead-free soldering compatible • RoHs compliant
Chromaticity coordinates	x = 0.31TYP., y = 0.32TYP. (Condition : I _F =20mA)
Spatial distribution	35 deg.
Die materials	InGaN
Rank grouping parameter	Sorted by luminous intensity rank and chromaticity rank
Soldering methods	TTW (Through The Wave) soldering and manual soldering
ESD	1kV (HBM)
Packing	Bulk : 200pcs(MIN.)

Recommended Applications

Amusement Equipment, Electric Household Appliances, Other General Applications



UW5805S

Φ5 Flush Mount Type White LED

Color and Luminous Intensity

(T_a=25℃)

Part No.	Material	Emitted Color	Lens Color	Luminous Intensity		
				I _v (mcd)		
				MIN.	TYP.	I _F
UW5805S	InGaN	White	Water Clear	1,000	2,000	20

Absolute Maximum Ratings

(T_a=25℃)

Item	Symbol	Absolute Maximum Ratings	Unit
Power Dissipation	P _d	107	mW
Forward Current	I _F	25	mA
Pulse Forward Current ※1	I _{FRM}	60	mA
Derating (T _a =25℃ or higher)	ΔI _F	0.33	mA/℃
Reverse Voltage	V _R	5	V
Operating Temperature	T _{opr}	-40~ +85	℃
Storage Temperature	T _{stg}	-40~ +100	℃

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

Electro-Optical Characteristics

(T_a=25℃)

Item	Condition	Symbol	Characteristics		Unit
Forward Voltage	I _F =20mA	V _F	TYP.	3.7	V
			MAX.	4.2	
Reverse Current	V _R =5V	I _R	MAX.	100	μA
Half Intensity Angle	I _F =20mA	2θ 1/2	TYP.	35	deg.
Chromaticity Coordinates	I _F =20mA	x	TYP.	0.31	-
		y	TYP.	0.32	-

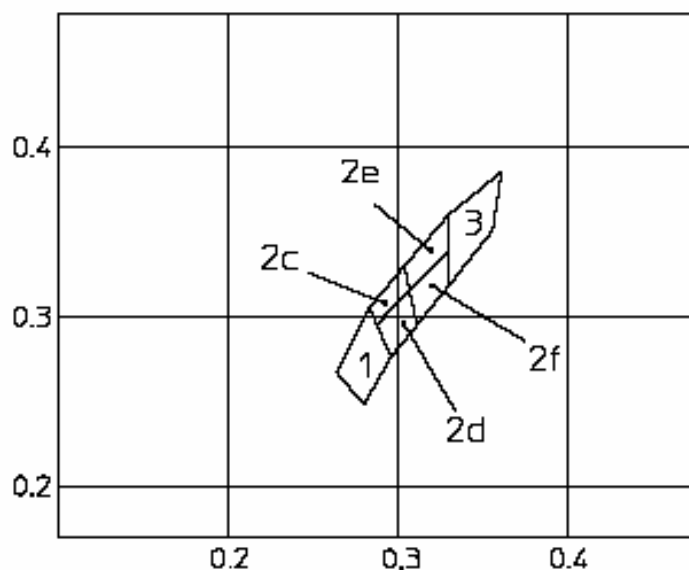
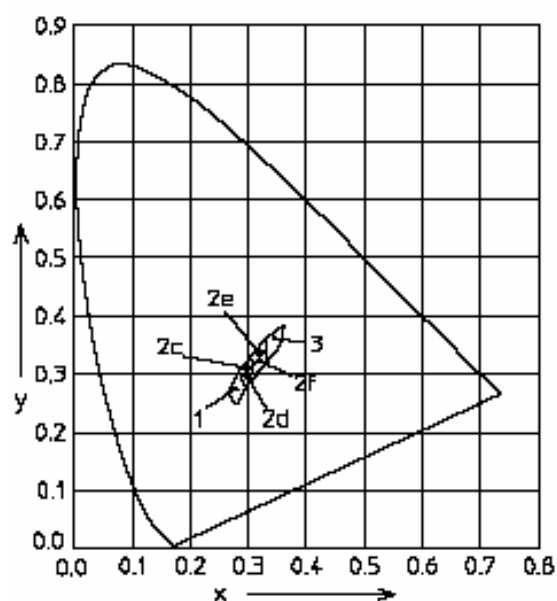
Luminous Intensity Rank

(T_a=25℃)

Rank	I _v (mcd)		Condition
	MIN.	MAX.	
A	1,000	2,000	I _F =20mA
B	1,400	2,800	
C	2,000	4,000	
D	2,800	5,600	
E	4,000	8,000	
F	5,600	-	

※ Please contact our sales staff concerning rank designation.

Sorting Chart for Chromaticity Coordinates



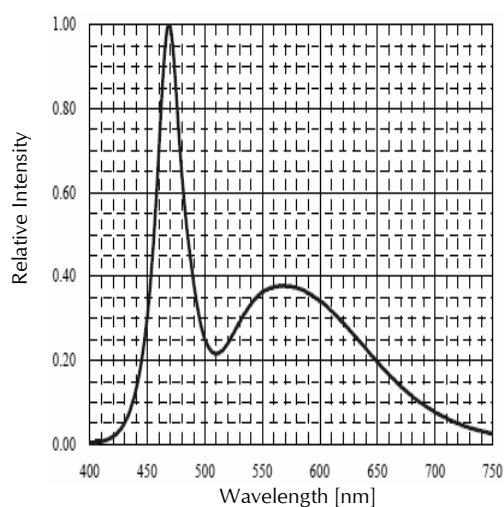
	LEFT DOWN point		LEFT UP point		RIGHT UP point		RIGHT UP point		Conditions
Rank	x	y	x	y	x	y	x	y	
1	0.280	0.248	0.264	0.267	0.283	0.305	0.296	0.276	$I_F = 20\text{mA}$
2c	0.287	0.295	0.283	0.305	0.304	0.330	0.307	0.315	
2d	0.296	0.276	0.287	0.295	0.307	0.315	0.311	0.294	
2e	0.307	0.315	0.304	0.330	0.330	0.360	0.330	0.339	
2f	0.311	0.294	0.307	0.315	0.330	0.339	0.330	0.318	
3	0.330	0.318	0.330	0.360	0.361	0.385	0.356	0.351	

Chromaticity Coordinates Tolerance Each Rank : ± 0.02

※Please contact our sales staff concerning rank designation.

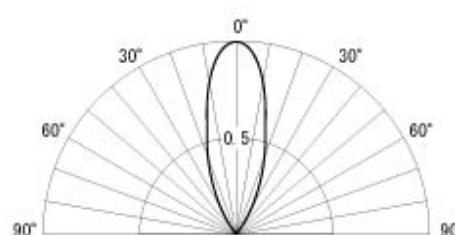
Technical Data

Spectral Distribution
Relative Intensity vs. Wavelength
Condition : $T_a = 25^\circ\text{C}$, $I_F = 20\text{mA}$

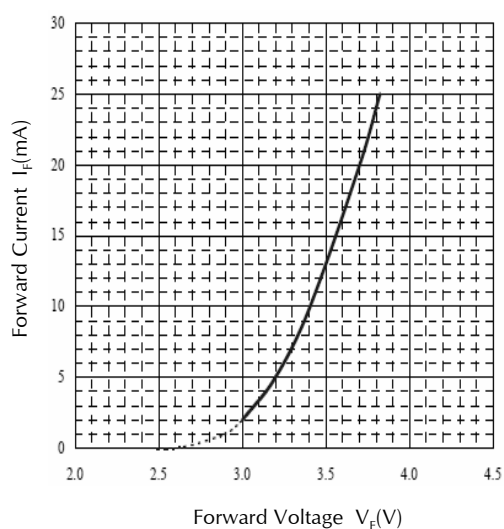


Spatial Distribution Example

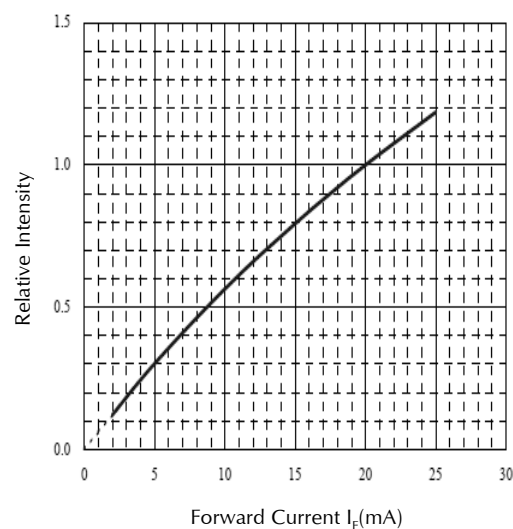
Condition : $T_a = 25^\circ\text{C}$, $I_F = 20\text{mA}$



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



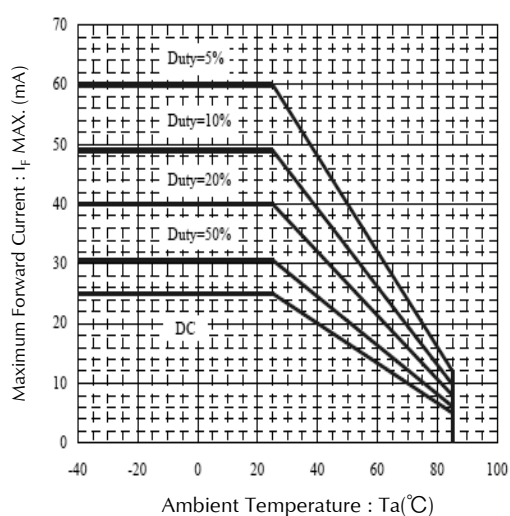
Forward Current vs. Relative Intensity
Condition : $T_a = 25^\circ\text{C}$



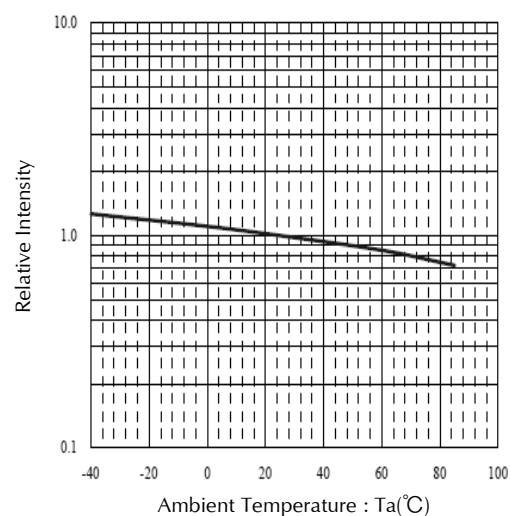
Technical Data

Derating

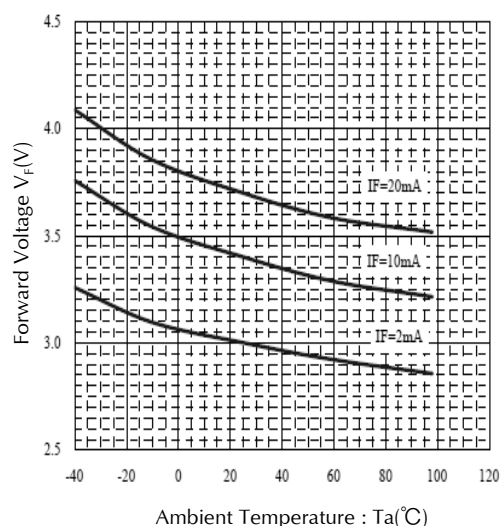
Ambient Temperature vs. Maximum Forward Current
Repetition Frequency : $f \geq 50\text{Hz}$



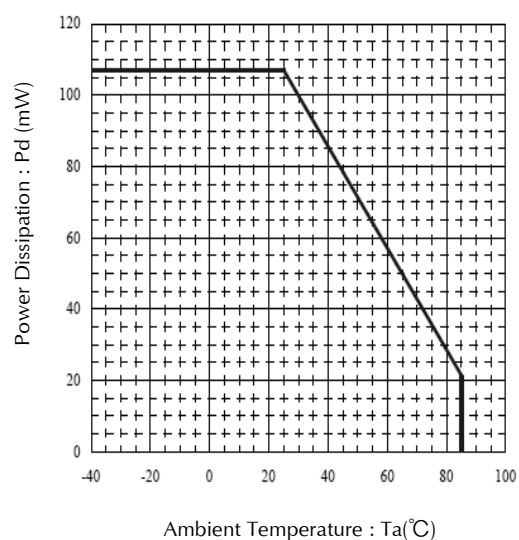
Ambient Temperature vs. Relative Intensity



Ambient Temperature vs. Forward Voltage

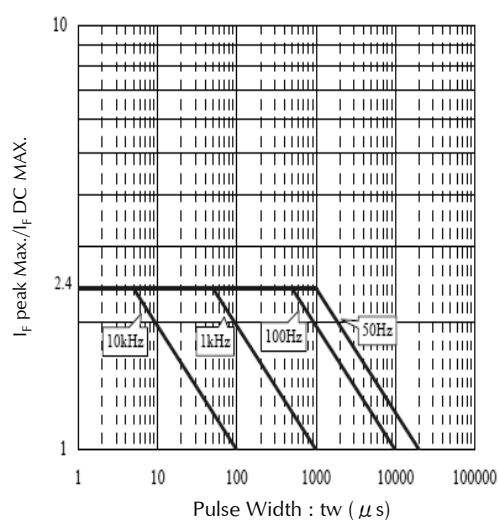


Power Dissipation vs. Ambient Temperature

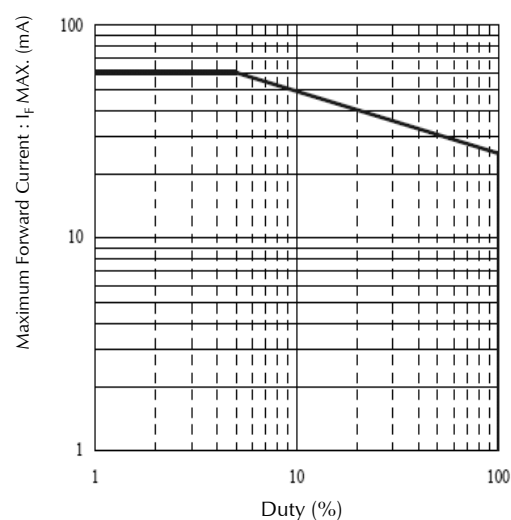


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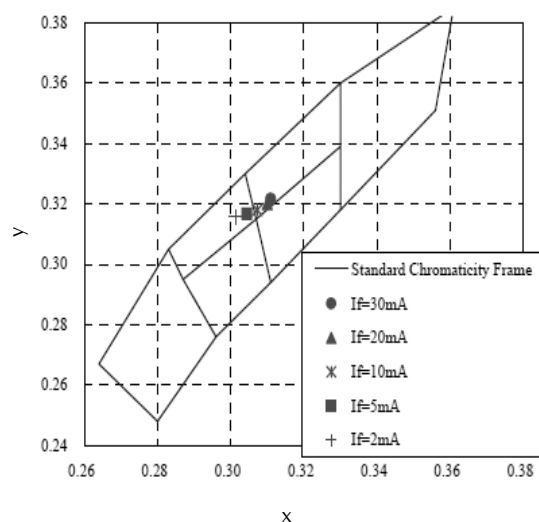
Pulse Width vs. Maximum Tolerable Peak Current
Condition : $T_a = 25^\circ\text{C}$



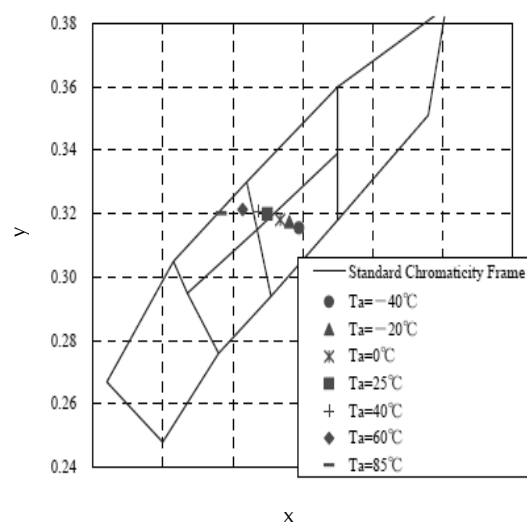
Dynamic Drive Rating
Duty cycle vs. Maximum Forward Current



Forward Current vs. Chromaticity (typ. value)
Condition : $T_a = 25^\circ\text{C}$



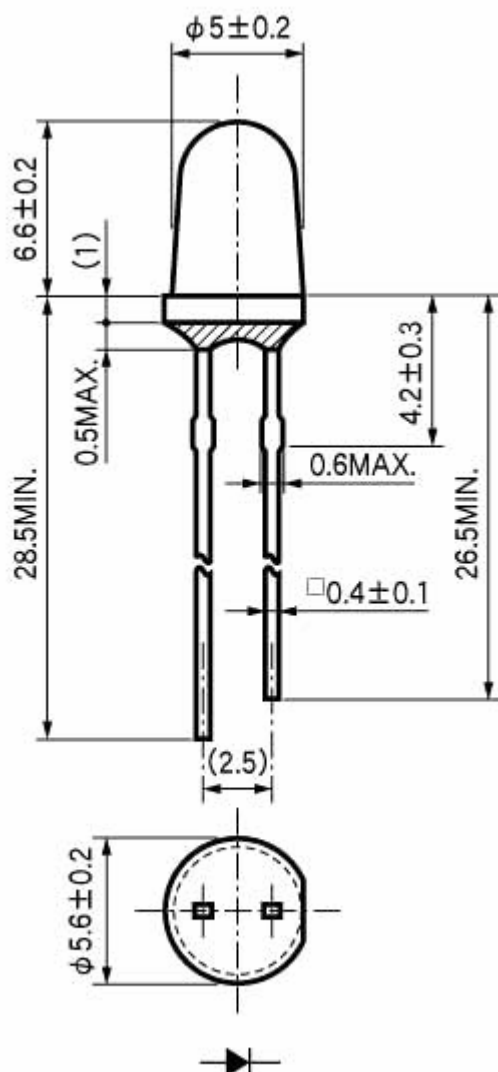
Ambient Temperature vs. Chromaticity (typ. value)
Condition : $I_F = 20\text{mA}$



Package Dimensions

(Unit: mm)

Weight: (0.28)g



TTW (Through The Wave) soldering Conditions

Pre-heating	100 °C	(MAX.)
Solder Bath Temp.	265°C	(MAX.)
Dipping Time	5 s	(MAX.)

- 1) The dip soldering process shall be 2 times maximum.
 - 2) The product shall be cooled to room temp. before the second dipping process.
- ※The detail is described to LED and Photodetector handling precautions of home page:
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Manual Soldering Conditions

Iron tip temp.	400°C	(MAX.)
Soldering time and frequency	3 s	(MAX.)
	2 times	(MAX.)

※The detail is described to LED and Photodetector handling precautions of home page:
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

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, 1.6mm 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 (□0.4 and Flat Package : 5N)	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	-	-	Occurrence of notable decoloration, deformation and cracking

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