

Order code: **55-9074**

MPN: OSM53014C1A

Order code: **55-9075**

MPN: OSW33014C1A

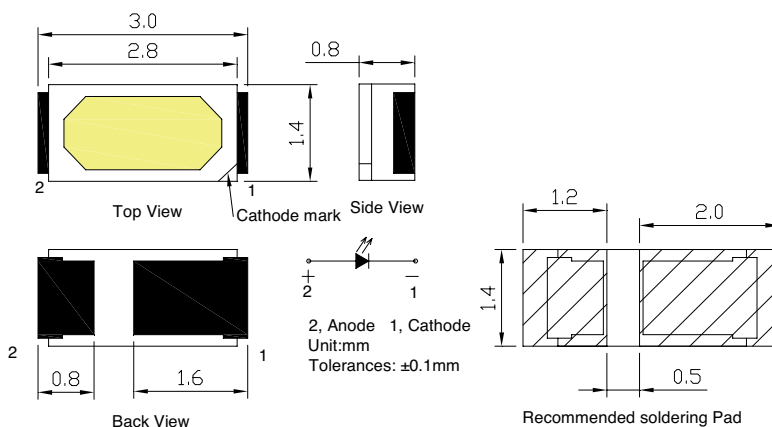
Features:

- Top view white LED (3.0 x 1.4 x 0.8mm)
- Super high brightness of surface mount LED
- Lead frame package with individual 2 pins
- Compatible to IR reflow soldering

Applications

- General lighting
- Decoration lighting
- Indicator

Outline Dimension:

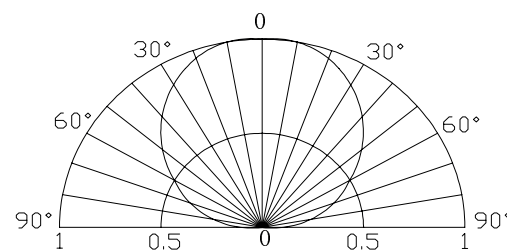


Absolute maximum rating (Ta=25°C)

Item	Symbol	Value	Unit
DC forward current	I_F	30	mA
Pulse forward current*	I_{FP}	100	mA
Reverse voltage	V_R	5	V
Power dissipation	P_D	100	mW
Operating temperature	T_{opr}	-40 to +85	°C
Storage temperature	T_{stg}	-40 to +85	°C
Lead soldering temperature	T_{sol}	260°C/5sec	-

*Pulse width max. 10ms. Duty ratio max. 1/10

Directivity:



Electrical - Optical characteristics (Ta=25°C)

Order code	MPN	Colour		V_F (V)			I_R (μA)	I_v (mcd)			CCT			$2\theta_{1/2}$ (deg)
				Min.	Typ.	Max.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Typ.
				$I_F=20mA$			$V_R=5V$	$I_F=20mA$						
55-9075	OSM53014C1A	White	W	2.9	3.1	3.6	10	2000	-	3000	5000K	-	6000K	120
55-9074	OSW33014C1A	Warm White	M	2.9	3.1	3.6	10	2000	-	3000	2800K	-	3500K	120

Note: * V_F tolerance: ±0.05V

* Luminous flux measurement allowance is:±10%

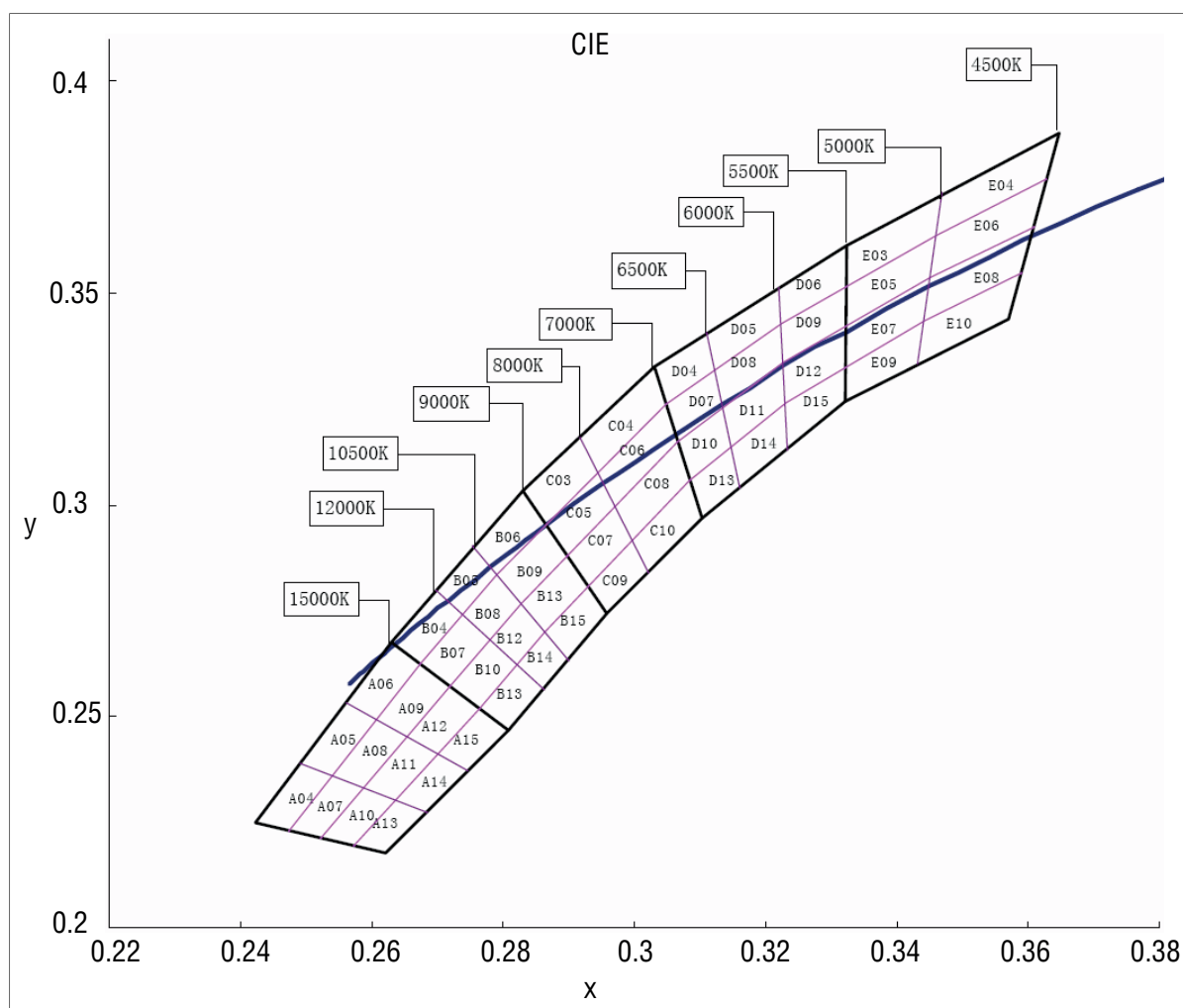
Rank

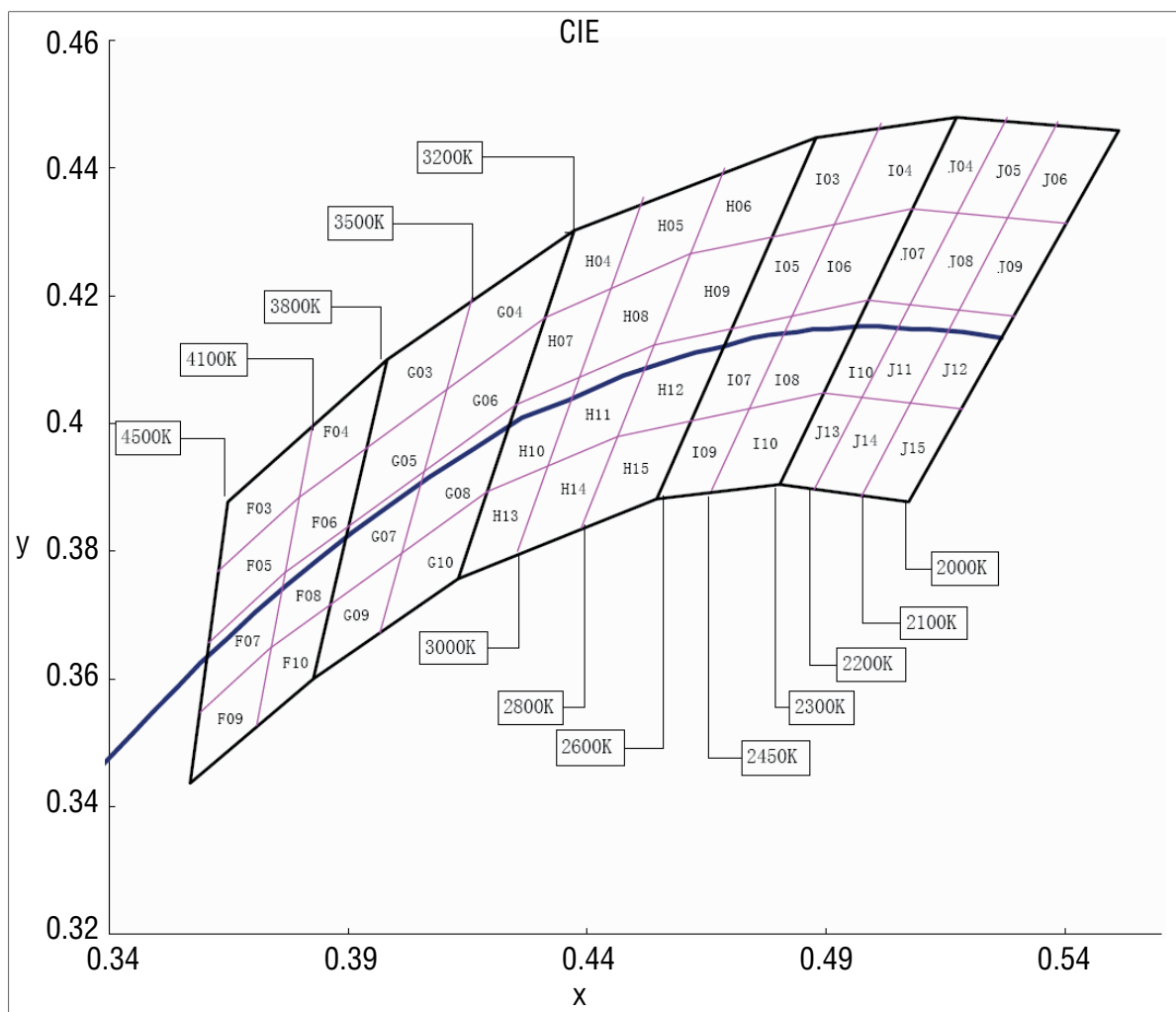
* Correspondence Table of Luminous Flux – Intensity

Rank	Luminous intensity (mcd)	Luminous Flux (lm)*
T11	2000~2150	5.9~6.3
T12	2150~2300	6.3~6.8
T21	2300~2450	6.8~7.2
T22	2450~2600	7.2~7.6
U11	2600~2800	7.6~8.2
U12	2800~3000	8.2~8.8

*Luminous flux measurement allowance is $\pm 10\%$ (for reference)

Chromaticity Diagram





* Bin Range of Chromaticity Coordinates (OSW33014C1A)

Code	X1	Y1	X2	Y2	X3	Y3	X4	Y4
D06	0.3221	0.3523	0.3324	0.3612	0.3324	0.3520	0.3224	0.3420
D09	0.3224	0.3430	0.3324	0.3520	0.3323	0.3429	0.3228	0.3336
D12	0.3228	0.3336	0.3323	0.3429	0.3323	0.3337	0.3231	0.3243
D15	0.3231	0.3243	0.3323	0.3337	0.3322	0.3245	0.3234	0.3149
E03	0.3324	0.3612	0.3470	0.3738	0.3461	0.3637	0.3324	0.3520
E05	0.3324	0.3520	0.3461	0.3637	0.3452	0.3536	0.3323	0.3429
E07	0.3323	0.3429	0.3452	0.3536	0.3442	0.3435	0.3323	0.3337
E09	0.3323	0.3337	0.3442	0.3435	0.3433	0.3334	0.3322	0.3245

*** Bin Range of Chromaticity Coordinates (OSM53014C1A)**

Code	X1	Y1	X2	Y2	X3	Y3	X4	Y4
G04	0.4160	0.4199	0.4373	0.4302	0.4313	0.4166	0.4112	0.4067
G06	0.4112	0.4067	0.4313	0.4166	0.4252	0.4030	0.4063	0.3936
G08	0.4063	0.3936	0.4252	0.4030	0.4192	0.3893	0.4015	0.3804
G10	0.4015	0.3804	0.4192	0.3893	0.4131	0.3757	0.3966	0.3672
H04	0.4373	0.4302	0.4518	0.4354	0.4453	0.4216	0.4313	0.4166
H05	0.4518	0.4354	0.4689	0.4408	0.4614	0.4265	0.4453	0.4216
H07	0.4313	0.4166	0.4453	0.4216	0.4387	0.4077	0.4252	0.4030
H08	0.4453	0.4216	0.4614	0.4265	0.4539	0.4123	0.4387	0.4077
H10	0.4252	0.4030	0.4387	0.4077	0.4322	0.3939	0.4192	0.3893
H11	0.4387	0.4077	0.4539	0.4123	0.4463	0.3980	0.4322	0.3939
H13	0.4192	0.3893	0.4322	0.3939	0.4256	0.3800	0.4131	0.3757
H14	0.4322	0.3939	0.4463	0.3980	0.4388	0.3837	0.4256	0.3800

*If color binning is required, only one color group is allowed for each chip within a reel.

Chromaticity coordinate groups are measured with an accuracy of ± 0.01

*Color coordinate is derived from the CIE 1931 chromaticity.

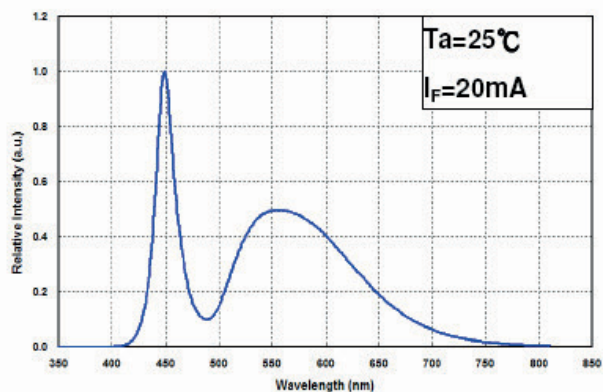
*** Bin Rank of VF**

Rank ($I_F=20mA$)	White		
	88T-999	AAA	BBB
DC Forward Voltage (V)	2.9-3.2	3.2-3.4	3.4-3.6

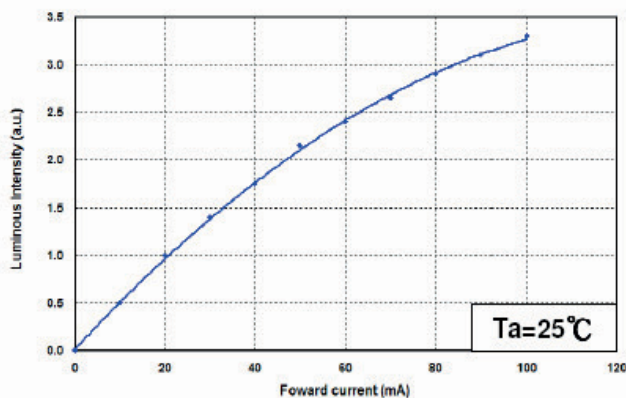
*Forward voltage is measured with an accuracy of $\pm 0.1V$.

■ Typical Electro-Optical Characteristics Curves

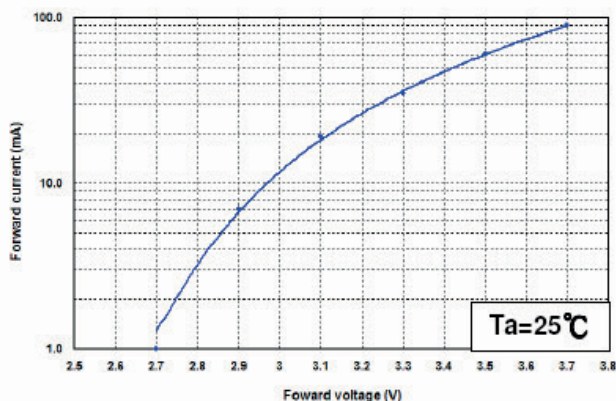
Spectrum



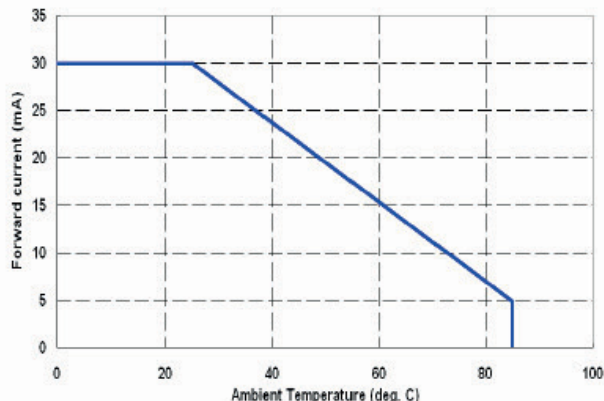
Luminous Intensity — I_F



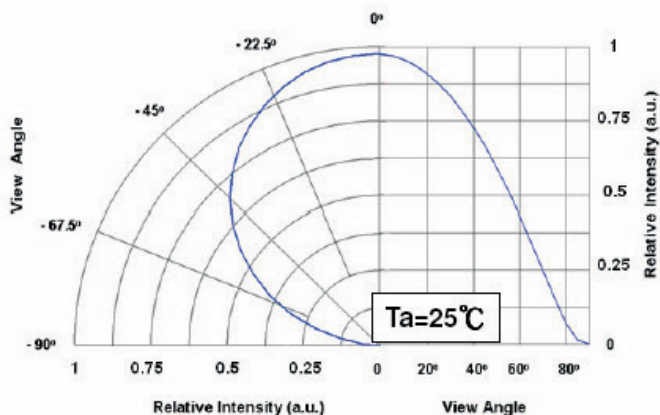
$I_F - V_F$



$I_F - T_a$



Radiation Pattern



■ RELIABILITY TEST REPORT

CLASSIFICATION	TEST TIME	TEST CONDITION
ENDURANCE TEST	OPERATION LIFE	If:20mA Ta:25+5 TEST TIME=1000HRS (-24HRS,+72HRS)
	HIGH TEMPERATURE HIGH HUMIDITY STORAGE	R.H:90~95% Ta:65+5°C TEST TIME=240HRS (+2HRS)
	HIGH TEMPERATURE STORAGE	Ta:-105±5°C TEST TIME=500HRS (-24HRS,+48HRS)
	LOW TEMPERATURE STORAGE	Ta:-55+5°C TEST TIME=500HRS (-24HRS,+48HRS)
ENVIRONMENTAL TEST	TEMPERATURE CYCLING	105°C~25°C~-55°C~25°C 60min 10min 60min 10min 20 cycles
	THERMAL SHOCK	105°C~-55°C 10min 10min 10 cycles
	SOLDER RESISTANCE	Ta:260±5°C TEST TIME=10±1sec
	SOLDERABILITY	Ta:230±5°C TEST TIME=5±1sec

■ JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

MEASURING TIME	SYMBOL	CONDITIONS	FAILURE
LUMINOUS INTENSITY	IV	IF=20mA	IV<0.5*INITIAL VALUE
FORWARD VOLTAGE	VF	IF=20mA	VF>1.2*INITIAL VALUE
REVERSE CURRENT	IR	Vr=5V	IR>2*SPEC

■ Recommended Reflow Soldering Profile

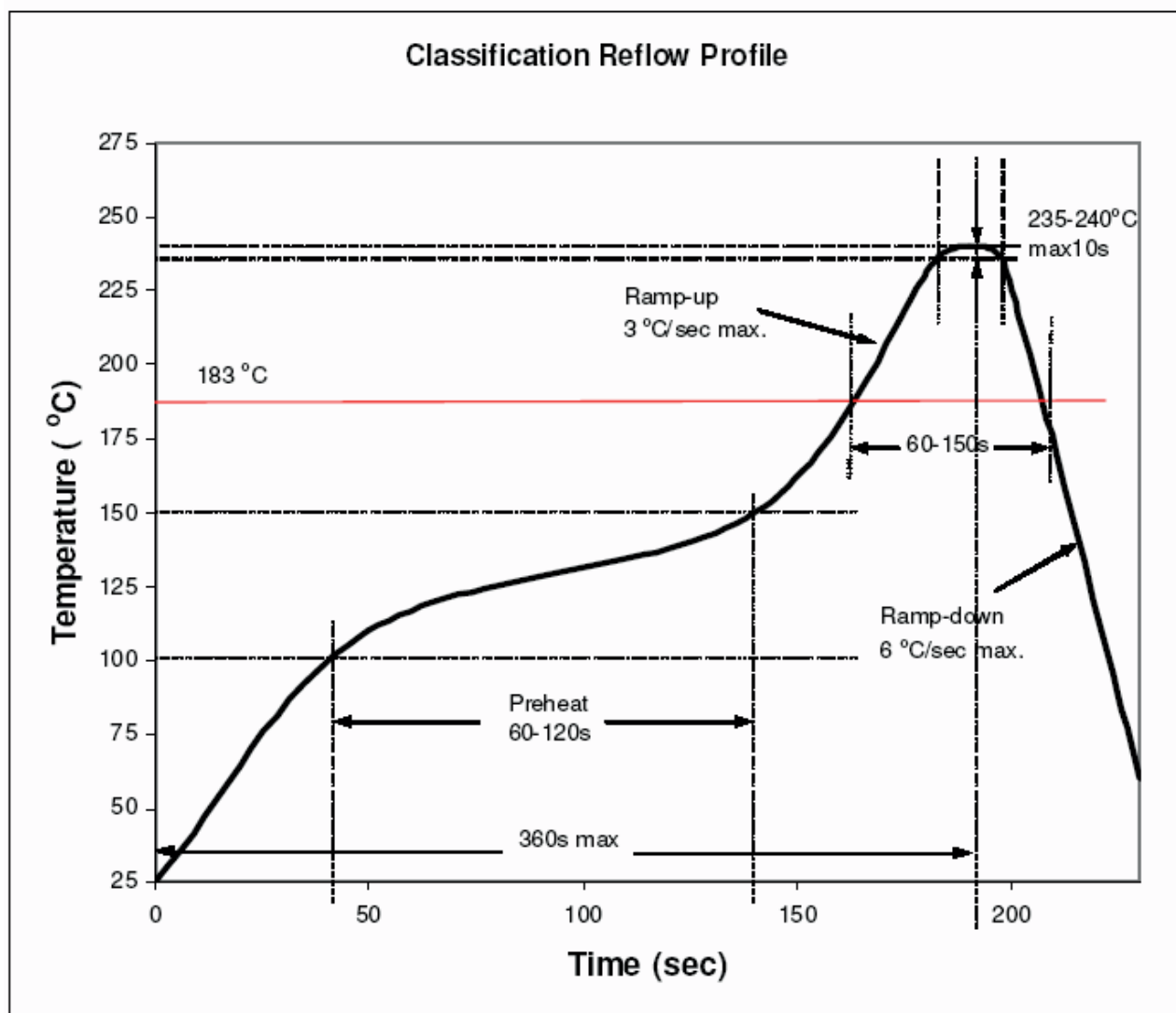
Surface mounting condition

In automatic mounting of the SMD LEDs on printed circuit boards, any bending, expanding and pulling forces or shock against the SMD LEDs should be kept min. to prevent them from electrical failures and mechanical damages of the devices.

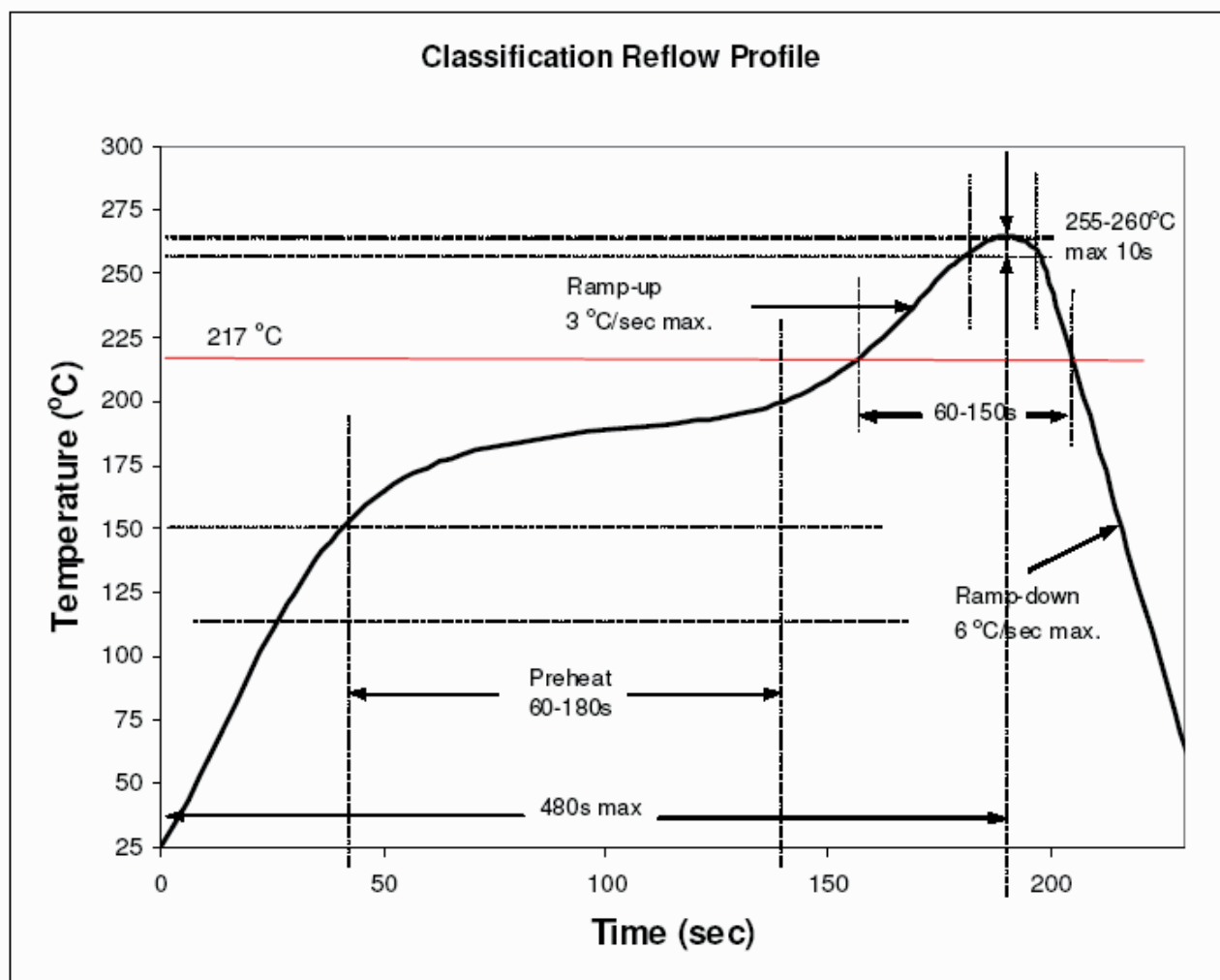
Soldering reflow

- Soldering of the SMD LEDs should conform to the soldering condition in the individual specifications.
- SMD LEDs are designed for reflow soldering.
- In the reflow soldering, too high temperature and too large temperature gradient such as rapid heating/cooling may cause electrical & optical failures and damages of the devices.
- Wellypower can't guarantee the LEDs after they have been assembled using the solder dipping method.

1) Lead solder



2) Lead-free solder

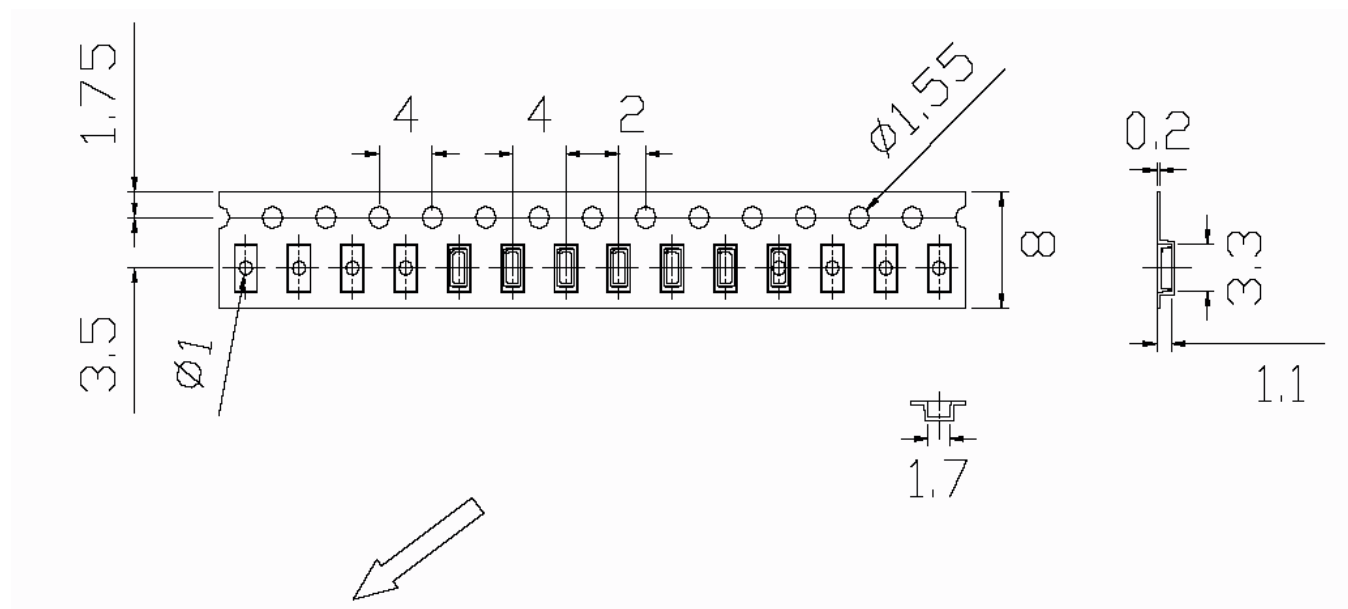


3) Manual soldering

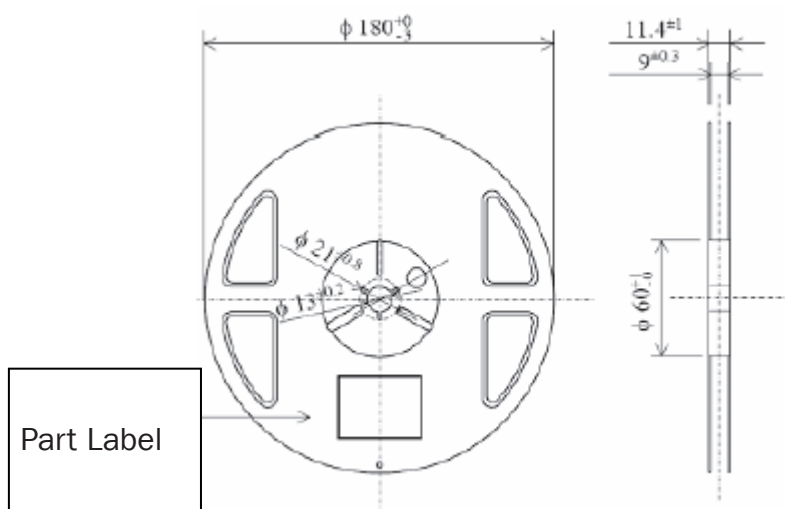
- Lead solder
Max. 300°C for max. 3sec, and only one time.
- Lead-free solder
Max. 350°C for max. 3sec, and only one time.
- There is possibility that the brightness of LEDs is decreased, which is influenced by heat or ambient atmosphere during reflow. It is recommended to use the nitrogen reflow method use the nitrogen reflow method.
- After LEDs have been soldered, repairs should not be done. As repair is unavoidable, a doublehead soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will be damaged by repairing or not.
- Reflow soldering should not be done more than two times.

■ Package Model

Loaded Quantity 4000 pcs. Per Reel



Reel Part



Part Label