Doc. No: LUMI 5050-6P- 08 05 08- SPEC

6PIN-SMD LED

WHITE COLOR LED

Preliminary Specification

Customer Approval		Model	LMTP553WHX	
		Issued Date	2008 ? 05 - 08	
Checked By	Approved By	Description	SMD Type LED	
		Written By	Checked By	Approved by

Contact Point

Tel: 82-31-213-9200

Fax: 82-31-213-9210

Homepage: www.lumimicro.com

◆ **Lumimicro TOP VIEW LED P/N**

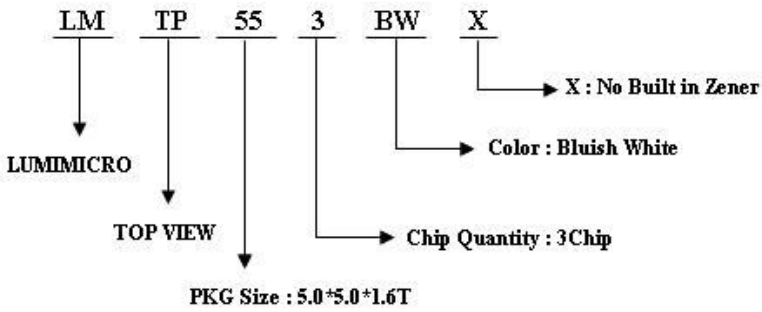
LUMIMICRO 5050 Top View LED Part No. Explantion

LM	: LUMIMICRO. Ltd
TP	: TOP VIEW LED - SMD Type
55	: Package Size (5.0*5.0*1.6T)
3	: Chip Quantity
BW	: Color - Bluish White

BW	PW	YW	RW	AW	WW
Bluish White	Pure White	Yellow White	Reddish White	Amber White	Warm White

X	: Built in Zener (X : NO ZENER / Z : ZENER)

[EX]



◆ **Features**

[1] Built-in 3 chip Super-luminosity Chip LED

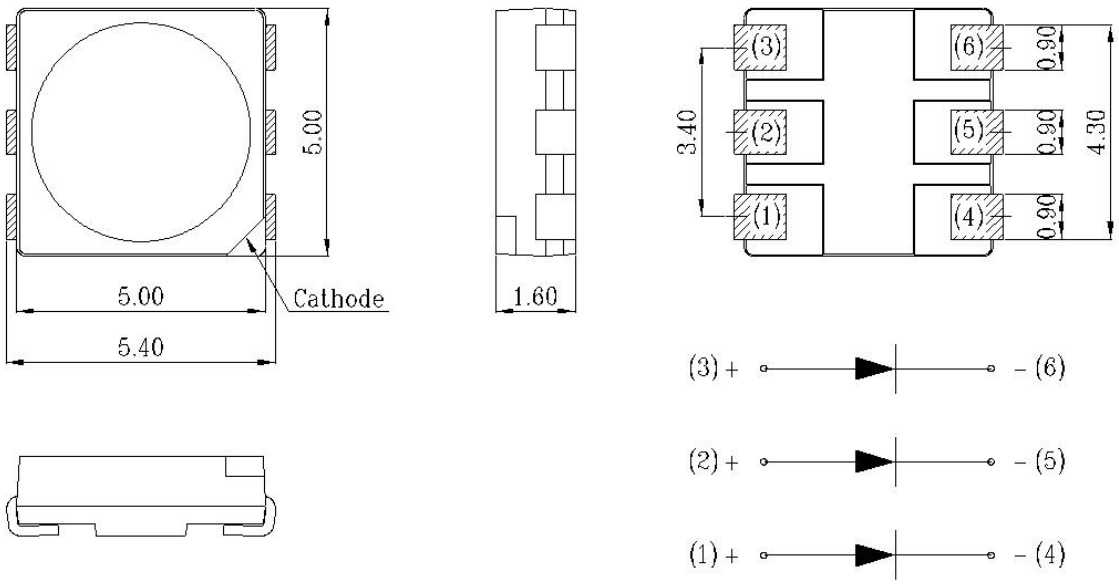
[2] Super-luminosity chip LED

[3] Wide viewing angle

[4] External dimensions: 5.0 x 5.0 x 1.6t mm

[5] Lead frame package with individual 6 pin

◆ **Outline Dimensions**



Unit: mm, Tolerance: ± 0.1

◆ **Absolute Maximum Rating**

Parameter	Color	Symbol	Rating Value	Unit
Forward DC Current	White	IF-1	90	m A
Power Dissipation	White	PD	300	mW
Forward Pulse Current *1	White	IPF-1	180	m A
Reverse Voltage	White	VR-1	5	V
ESD Voltage	White	ESD-1	HBM 3,000	V
Storage Temperature	White	TST	-40 to + 120	¡C
Soldering Temperature	White	TSD	260C for 10 Seconds	¡C

*1 : Forward Pulse Current : Pulse Width < 10msec / Duty Ratio < 1/10

◆ **Forward Voltage Characteristics [Condition : 60mA ? Ta = 25¡C]**

Color	Item	Rank	Luminous Intensity			Unit
			MIN.	TYP.	Max.	
White	Forward Voltage	2V9	2.8	2.85	2.9	V
	Forward Voltage	3V0	2.9	2.95	3.0	V
	Forward Voltage	3V1	3.0	3.05	3.1	V
	Forward Voltage	3V2	3.1	3.15	3.2	V
	Forward Voltage	3V3	3.2	3.25	3.3	V
	Forward Voltage	3V4	3.3	3.35	3.4	V
	Forward Voltage	3V5	3.4	3.45	3.5	V
	Forward Voltage	3V6	3.5	3.55	3.6	V

Measurement Tolerance: + / 0.05V

◆ **Peak Luminous Intensity Characteristics [Condition : 60mA ? Ta = 25¡C]**

Color	Part No.	Item	Rank	Luminous Intensity			Unit
				MIN.	TYP.	Max.	
Bluish White	LMTP553BWX	Luminous Intensity	3L2	4	_	5	cd
			3L3	5	_	6	cd
			3L4	6	_	7	cd
			3L5	7	_	8	cd
			3L6	8	_	9	cd
			3L7	9	_	10	cd
Pure White	LMTP553PWX	Luminous Intensity	3L3	5	_	6	cd
			3L4	6	_	7	cd
			3L5	7	_	8	cd
			3L6	8	_	9	cd
			3L7	9	_	10	cd
Yellowish Reddish	LMTP553YWX LMTP553RWX	Luminous Intensity	3L3	5	_	6	cd
			3L4	6	_	7	cd
			3L5	7	_	8	cd
			3L6	8	_	9	cd
			3L7	9	_	10	cd
Warm White Amber White	LMTP553WWX LMTP553AWX	Luminous Intensity	3L2	4	_	5	cd
			3L3	5	_	6	cd
			3L4	6	_	7	cd
			3L5	7	_	8	cd
			3L6	8	_	9	cd

Measurement Tolerance: + / - 0.5cd

◆ **Peak Luminous Flux Characteristics [Condition : 60mA ? Ta = 25¡C]**

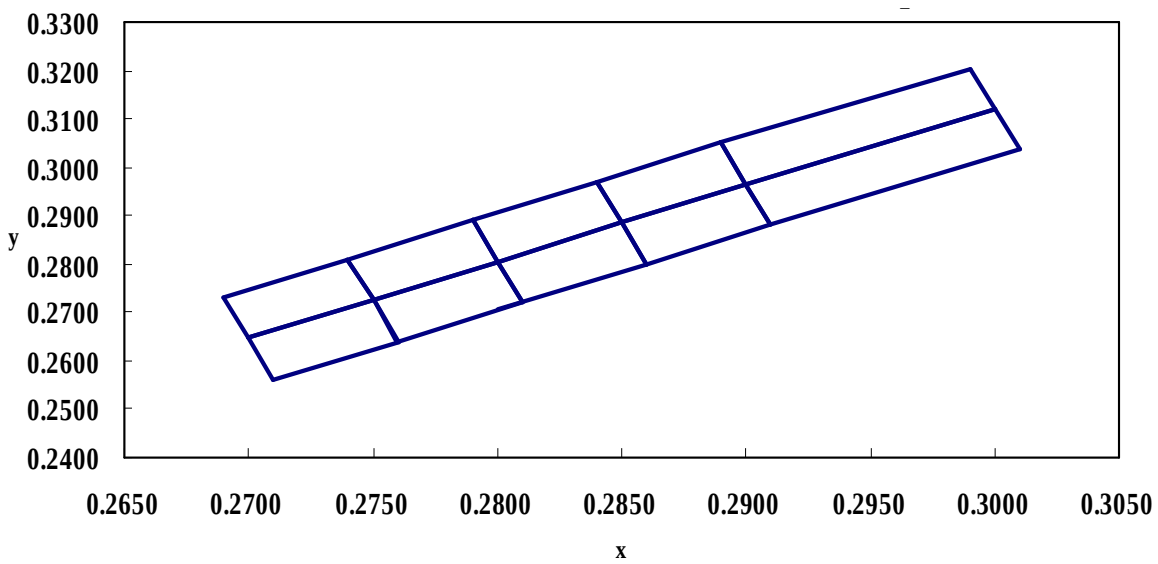
Color	Part No.	Item	Rank	Luminous Flux			Unit
				MIN.	TYP.	Max.	
Bluish White	LMTP553BWX	Luminous Flux	3L2	8	_	_	lm
			3L3	10	_	_	lm
			3L4	12	_	_	lm
			3L5	14	_	_	lm
			3L6	16	_	_	lm
			3L7	18	_	_	lm
Pure White	LMTP553PWX	Luminous Flux	3L3	10	_	_	lm
			3L4	12	_	_	lm
			3L5	14	_	_	lm
			3L6	16	_	_	lm
			3L7	18	_	_	lm
Yellowish Reddish	LMTP553YWX LMTP553RWX	Luminous Flux	3L3	10	_	_	lm
			3L4	12	_	_	lm
			3L5	14	_	_	lm
			3L6	16	_	_	lm
			3L7	18	_	_	lm
Warm White Amber White	LMTP553WWX LMTP553AWX	Luminous Flux	3L2	8	_	_	lm
			3L3	10	_	_	lm
			3L4	12	_	_	lm
			3L5	14	_	_	lm
			3L6	16	_	_	lm

Measurement Tolerance: + / - 0.5lm

◆ **White Color C.I.E Characteristics [Condition : 60mA ? Ta = 25¡C]**

☞ **Bluish White Color C.I.E**

14K0H		12K0H		11K0H		9K5H		8K3H	
X	Y	X	Y	X	Y	X	Y	X	Y
0.2700	0.2650	0.2750	0.2725	0.2800	0.2805	0.2850	0.2885	0.2900	0.2965
0.2690	0.2730	0.2740	0.2810	0.2790	0.2890	0.2840	0.2970	0.2890	0.3050
0.2740	0.2810	0.2790	0.2890	0.2840	0.2970	0.2890	0.3050	0.2990	0.3205
0.2750	0.2725	0.2800	0.2805	0.2850	0.2885	0.2900	0.2965	0.3000	0.3120
14K0L		**12K0L**		**11K0L**		**9K5L**		**8K3L**	
x	y	x	y	x	y	x	y	x	y
0.2710	0.2560	0.2760	0.2640	0.2810	0.2720	0.2860	0.2800	0.2910	0.2880
0.2700	0.2650	0.2750	0.2725	0.2800	0.2805	0.2850	0.2885	0.2900	0.2965
0.2750	0.2725	0.2800	0.2805	0.2850	0.2885	0.2900	0.2965	0.3000	0.3120
0.2760	0.2640	0.2810	0.2720	0.2860	0.2800	0.2910	0.2880	0.3010	0.3035

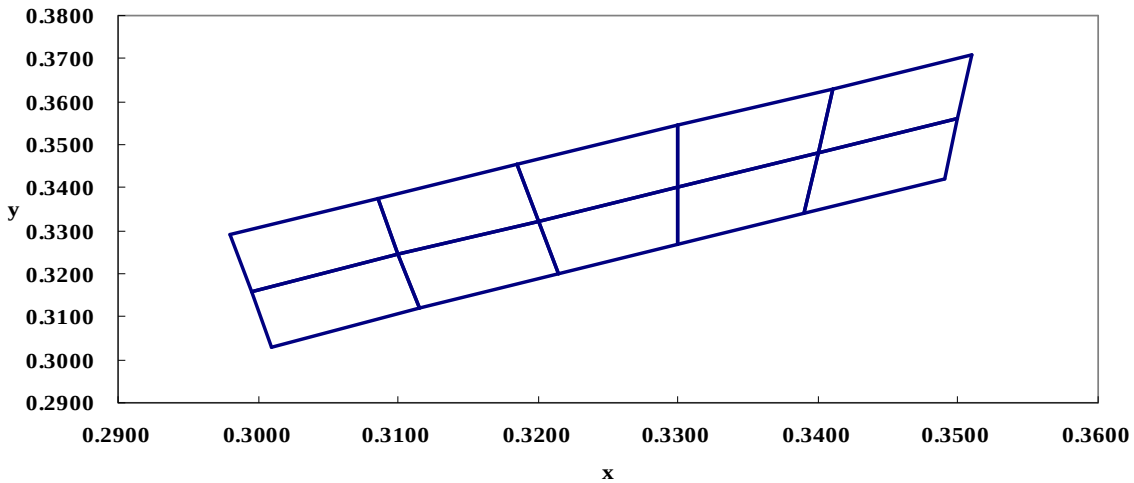


◆ **White Color C.I.E Characteristics [Condition : 60mA ? Ta = 25¡C]**

☞ **Pure White Color C.I.E**

7K0H		6K3H		5K7H		5K3H		5K0H	
x	y	x	y	x	y	x	y	x	y
0.2980	0.3290	0.3085	0.3375	0.3185	0.3455	0.3300	0.3545	0.3410	0.3630
0.3085	0.3375	0.3185	0.3455	0.3300	0.3545	0.3410	0.3630	0.3510	0.3710
0.3100	0.3245	0.3200	0.3320	0.3300	0.3400	0.3400	0.3480	0.3500	0.3560
0.2995	0.3160	0.3100	0.3245	0.3200	0.3320	0.3300	0.3400	0.3400	0.3480
7K0L		**6K3L**		**5K7L**		**5K3L**		**5K0L**	
x	y	x	y	x	y	x	y	x	y
0.2995	0.3160	0.3100	0.3245	0.3200	0.3320	0.3300	0.3400	0.3400	0.3480
0.3100	0.3245	0.3200	0.3320	0.3300	0.3400	0.3400	0.3480	0.3500	0.3560
0.3115	0.3120	0.3215	0.3200	0.3300	0.3270	0.3390	0.3340	0.3490	0.3420
0.3010	0.3030	0.3115	0.3120	0.3215	0.3200	0.3300	0.3270	0.3390	0.3340

Lumimicro.Ltd Pure White C.I.E Rank Graph

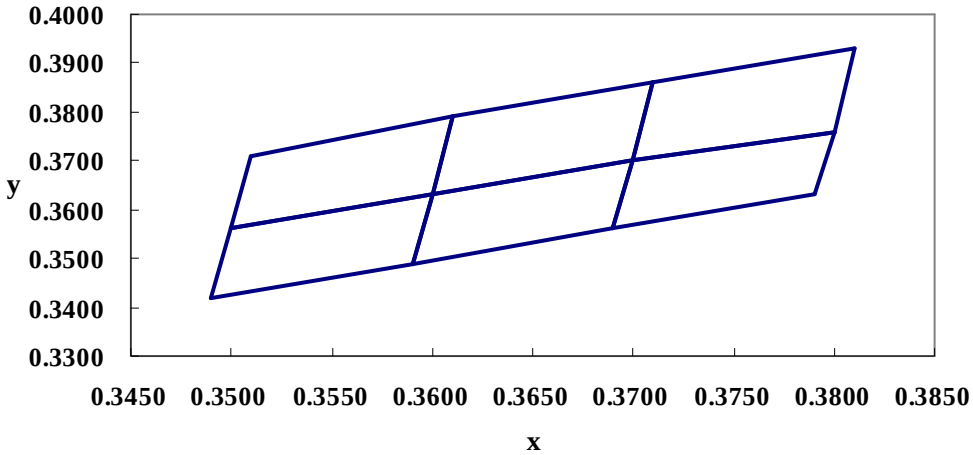


◆ **White Color C.I.E Characteristics [Condition : 60mA ? Ta = 25¡C]**

☞ **Yellowish White Color C.I.E**

4K7H		4K5H		4K0H	
x	y	x	y	x	y
0.3500	0.3560	0.3600	0.3630	0.3700	0.3700
0.3510	0.3710	0.3610	0.3790	0.3710	0.3860
0.3610	0.3790	0.3710	0.3860	0.3810	0.3930
0.3600	0.3630	0.3700	0.3700	0.3800	0.3760
4K7L		**4K5L**		**4K0L**	
x	y	x	y	x	y
0.3490	0.3420	0.3590	0.3490	0.3690	0.3560
0.3500	0.3560	0.3600	0.3630	0.3700	0.3700
0.3600	0.3630	0.3700	0.3700	0.3800	0.3760
0.3590	0.3490	0.3690	0.3560	0.3790	0.3630

Lumimicro Yellowish White C.I.E GRAPH

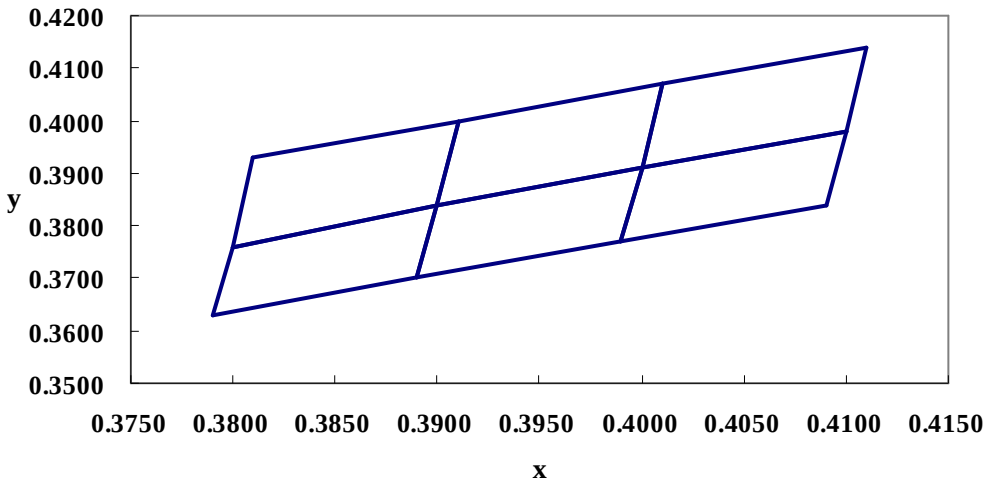


◆ **White Color C.I.E Characteristics [Condition : 60mA ? Ta = 25¡C]**

☞ **Reddish White Color C.I.E**

3K8H		3K6H		3K4H	
x	y	x	y	x	y
0.3800	0.3760	0.3900	0.3840	0.4000	0.3910
0.3810	0.3930	0.3910	0.4000	0.4010	0.4070
0.3910	0.4000	0.4010	0.4070	0.4110	0.4140
0.3900	0.3840	0.4000	0.3910	0.4100	0.3980
3K8L		**3K6L**		**3K4L**	
x	y	x	y	x	y
0.3790	0.3630	0.3890	0.3700	0.3990	0.3770
0.3800	0.3760	0.3900	0.3840	0.4000	0.3910
0.3900	0.3840	0.4000	0.3910	0.4100	0.3980
0.3890	0.3700	0.3990	0.3770	0.4090	0.3840

Lumimicro.Ltd Reddish White C.I.E GRAPH

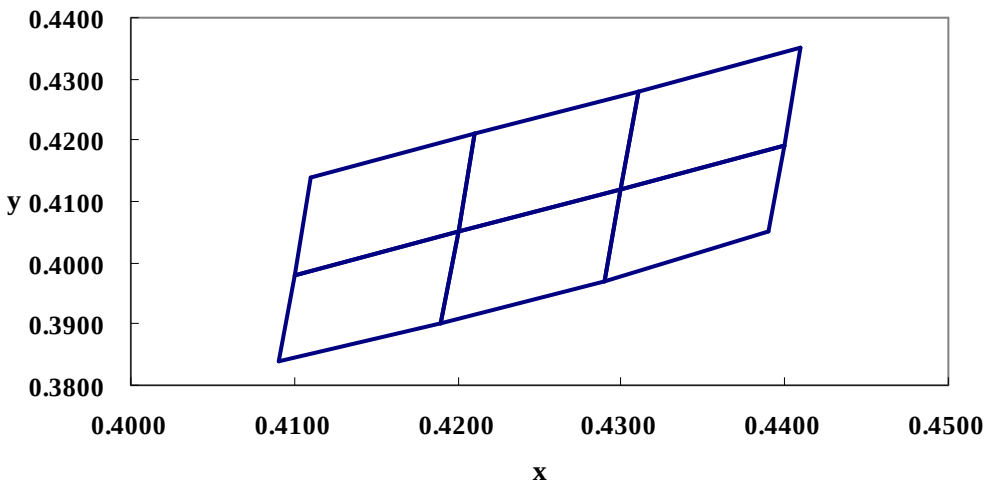


◆ **White Color C.I.E Characteristics [Condition : 60mA ? Ta = 25¡C]**

☞ **Amber White Color C.I.E**

3K2H		3K0H		2K9H	
x	y	x	y	x	y
0.4100	0.3980	0.4200	0.4050	0.4300	0.4120
0.4110	0.4140	0.4210	0.4210	0.4310	0.4280
0.4210	0.4210	0.4310	0.4280	0.4410	0.4350
0.4200	0.4050	0.4300	0.4120	0.4400	0.4190
3K2L		**3K0L**		**2K9L**	
x	y	x	y	x	y
0.4090	0.3840	0.4190	0.3900	0.4290	0.3970
0.4100	0.3980	0.4200	0.4050	0.4300	0.4120
0.4200	0.4050	0.4300	0.4120	0.4400	0.4190
0.4190	0.3900	0.4290	0.3970	0.4390	0.4050

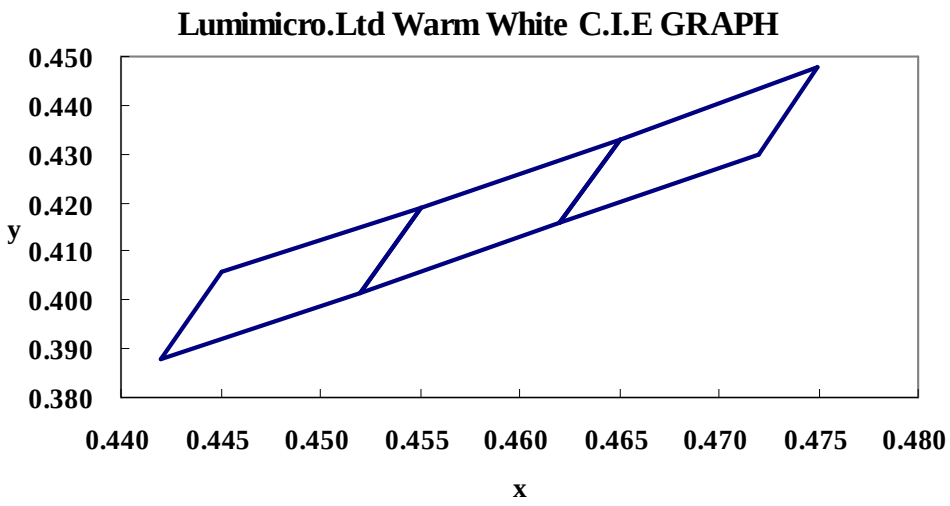
Lumimicro.Ltd Amber White C.I.E GRAPH



◆ **White Color C.I.E Characteristics [Condition : 60mA ? Ta = 25¡C]**

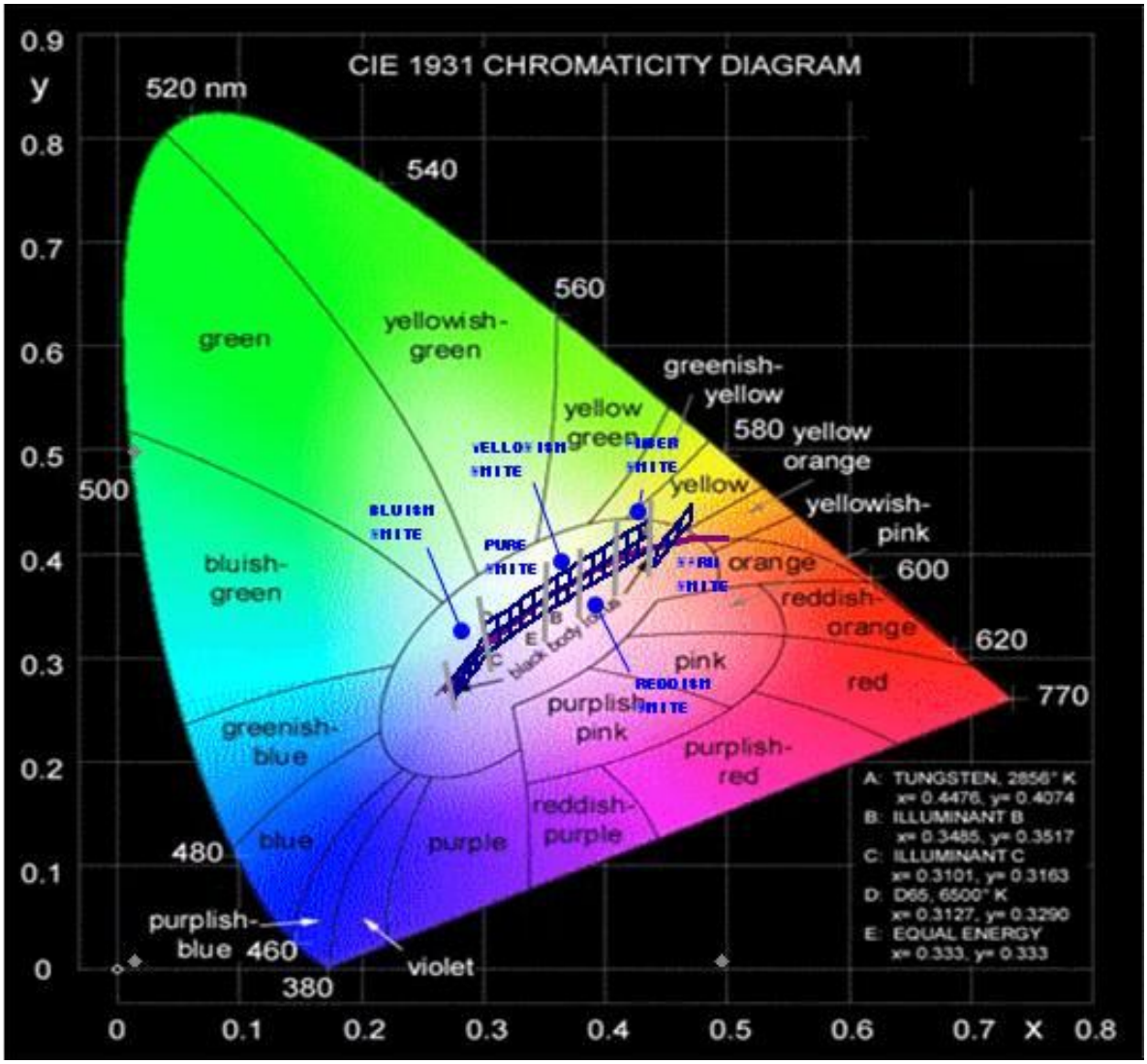
☞ **Warm White Color C.I.E**

2K8		2K7		2K6	
X	Y	X	Y	X	Y
0.4420	0.3880	0.4520	0.4015	0.4620	0.4160
0.4450	0.4060	0.4550	0.4190	0.4650	0.4330
0.4550	0.4190	0.4650	0.4330	0.4750	0.4480
0.4520	0.4015	0.4620	0.4160	0.4720	0.4300

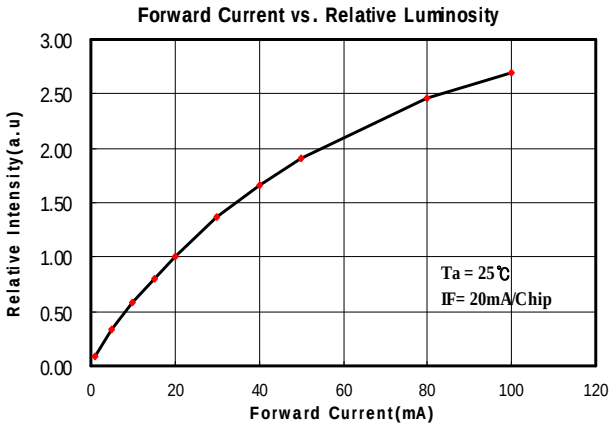


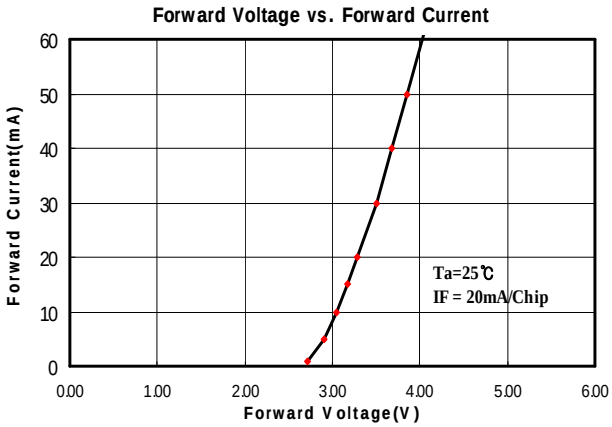
◆ **White Color C.I.E Characteristics [Condition : 60mA ? Ta = 25¡C]**

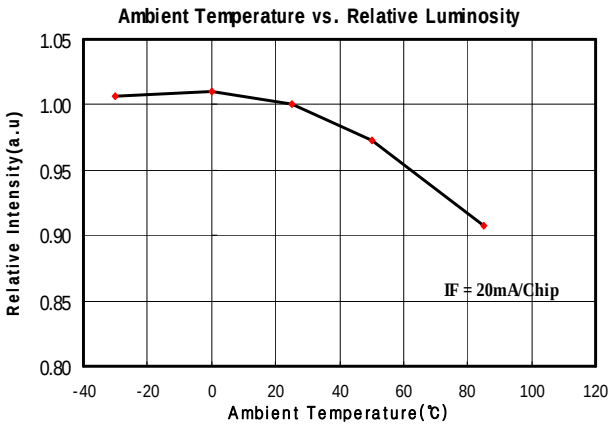
☞ **White Color C.I.E Graph**

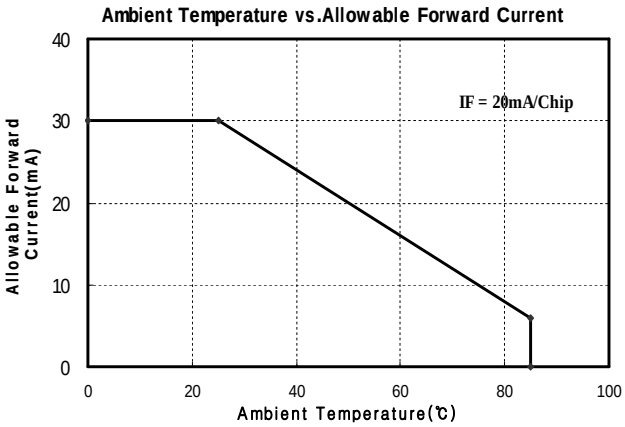


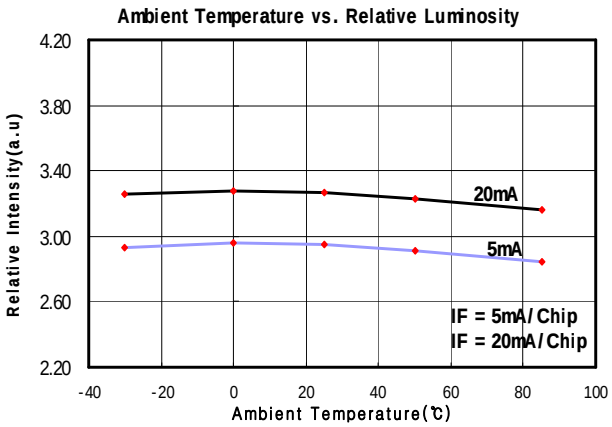
◆ Electrical & Optical Characteristics

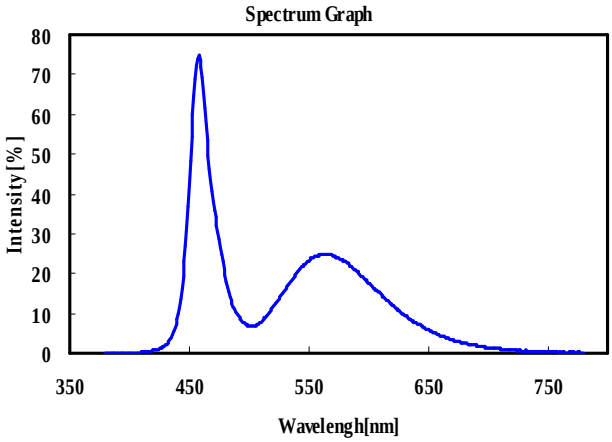












◆ Reliability Results

	ITEMS	CONDITION	NOTE	Fail/Sample
1	RESISTANCE TO SOLDERING HEAT (REFLOW SOLDERING)	TSID=260℃ , 10sec (PRE TREATMENT 30℃, 70%, 168hr)	2TIMES	0/50
2	SOLDERBILITY (REFLOW SOLDERING)	TSID=215℃¡5 ℃, 3sec (LEAD SOLDER)	1TIME OVER 95%	0/50
3	THERMAL SHOCK	-40℃ ~ 100℃, 15min AT EACH TEMP.	20CYCLES	0/50
4	MOISTURE RESISTANCE CYCLE	25℃ ~ 65℃ ~ -10℃, 90%RH 24hr/ 1cycle	20CYCLES	0/50
5	HIGH TEMPERATURE STORAGE	Ta = 100℃	1,000HRS	0/50
6	TEMPERATURE HUMIDITY STORAGE	Ta = 60℃ , RH = 90%	1,000HRS	0/50
7	LOW TEMPERATURE STORAGE	Ta = -40℃	1,000HRS	0/50
8	LIFE TIME 1	20mA @ ROOM TEMP.	1,000HRS	0/50
9	LIFE TIME 2	15mA @ 60℃, 90%RH	1,000HRS	0/50
10	ON/OFF TEST	IF = 20mA , Pulse Width 2sec, Duty Ratio 1/2	100,000CYCLES	0/50

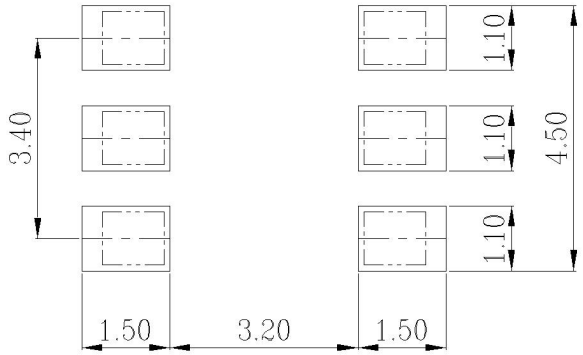
◆ Failure Criteria

ITEM	SYMBOL	Failure Criteria	
		MIN	MAX
Forward Voltage	VF	-	U.S.L*)¡1.2
C.I.E. x, y	x, y	L.S.L*)¡0.8	U.S.L*)¡1.2
Luminous Intensity	IV	L.S.L*)¡0. 7	-

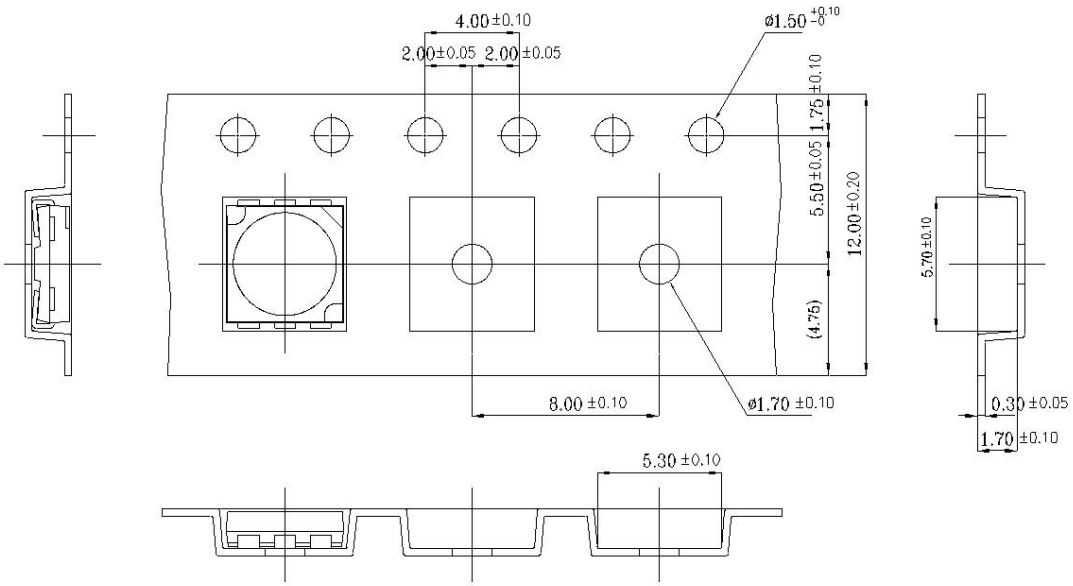
U.S.L*) ; Upper Standard Level

L.S.L*) ; Lower Standard Level

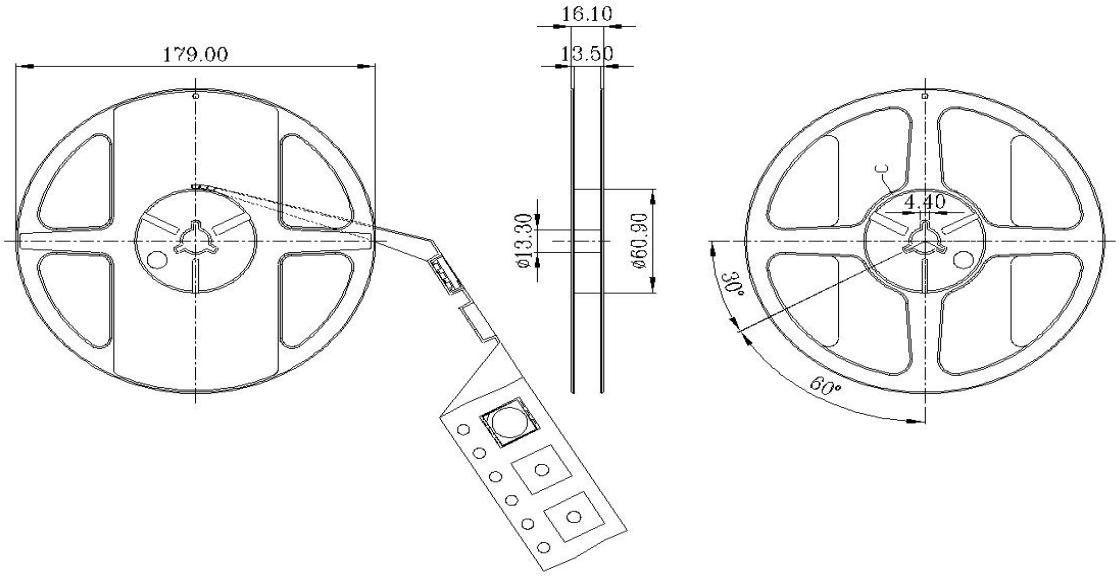
◆ Recommended Pad Pattern



◆ Taping pocket Dimension

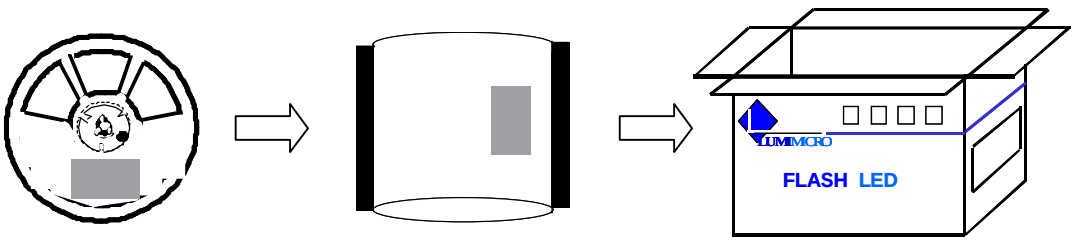


◆ Reel Dimensions



One Reel	Unit	Tolerance
Max 750EA	mm	0.1

◆ Packing Spec



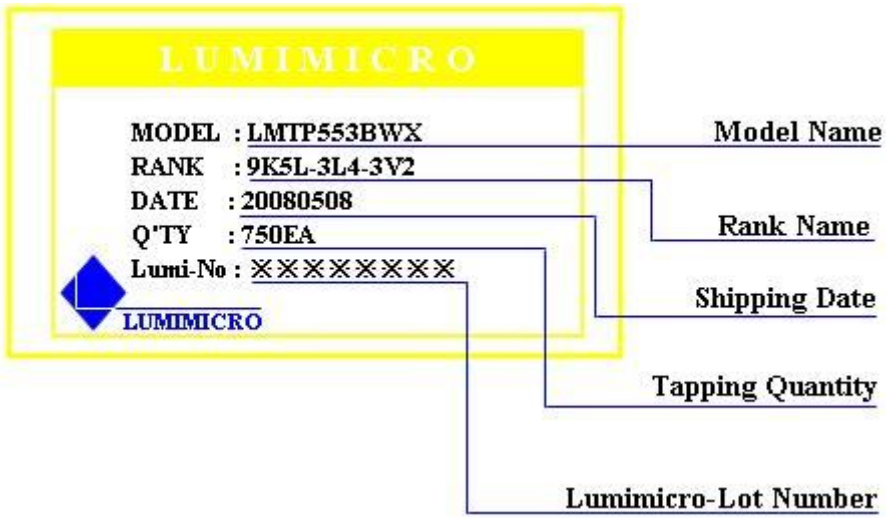
- Aluminum Bag

	Reel in a Bag	Silica in a Bag	Goods QNT in a Bag
Aluminum Bag	1 Reel	1 Silica, 1 Indicator	Max : 750ea

- Box Spec.

	Dimensions(Width/Thickness) Unit : mm	Reels in Box	Goods in QNT in Box
Box	275/ 285/ 200	10	Max : 7,500ea

◆ **Label Spec**



◆ **Precautions For Use**

This device should not be used in any type of fluid such as water, oil, organic solvent, etc. When washing is required, IPA should be used.

When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.

LEDs must be stored to maintain a clean atmosphere. If the LEDs are stored for 3months or more after being shipped from LUMIMICRO, sealed container with a nitrogen atmosphere should be used for storage.

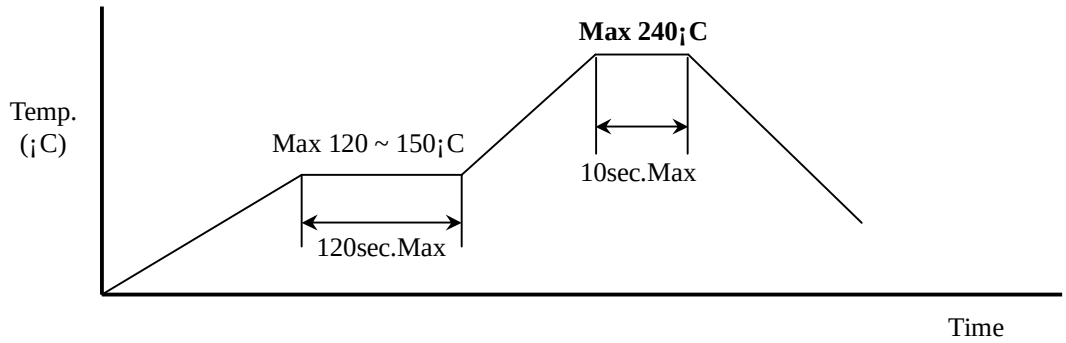
The LEDs must be dip soldered within seven days after opening the moisture-proof packing. Repack unused Products with anti-moisture packing, fold to close any opening and then store in dry place. The appearance and specifications of the product may be modified for improvement without notice. These LEDs are sensitive to the static electricity and surge. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs. If Over voltage which exceeds the absolute maximum rating is applied to LEDs, it will cause damage in LEDs and result in destruction. Damaged LEDs will show some unusual characteristics such as remarkably increased leak current, turn-on voltage becomes lower and the LEDs get unlighted at low current.

◆ Soldering Condition

1. Reflow Conditions (With Pb)

Preliminary heating to be at 150¡C max. for 2 minutes max.

Soldering heat to be at 240¡C max. for 10 seconds max.

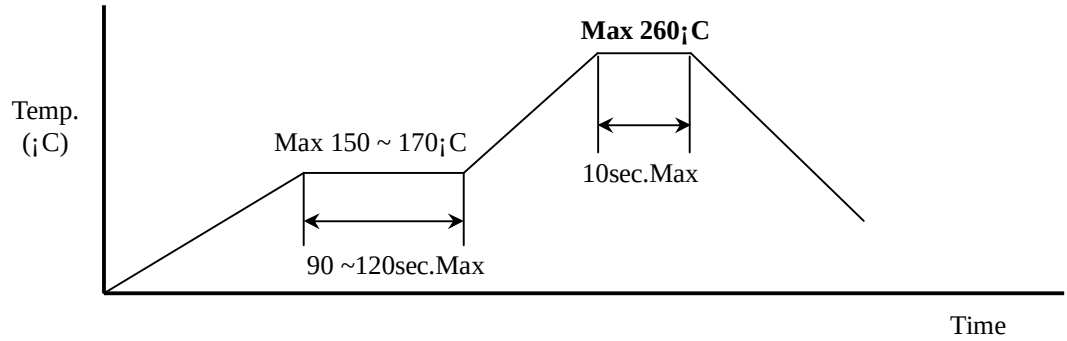


Recommended Solder Paste : Alloy- 63Sn/37Pb Model: OL107B,

2. Pb free Reflow Conditions

Preliminary heating to be at 170¡C max. for 2 minutes max.

Soldering heat to be at 260¡C max. for 10 seconds max.



Recommended Pb free Paste Alloy: 96.5Sn/3Ag/0.5Cu. - Model: OL204

3. For Manual Soldering

Not more than 5seconds @MAX300¡C, under soldering iron.

◆ Test Certification

SGS

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Sample No. : AYA07-23702.001
Sample Description : LED
Item No./Part No. : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	US EPA 3052(1996), US EPA 6010B(1996), ICP	0.5	N.D.
Lead (Pb)	mg/kg	US EPA 3052(1996), US EPA 6010B(1996), ICP	5	N.D.
Mercury (Hg)	mg/kg	US EPA 3052(1996), US EPA 6010B(1996), ICP	2	N.D.
Hexavalent Chromium (Cr VI)	mg/kg	US EPA 3060A(1996), US EPA 7196A(1992), UV	1	N.D.
Antimony (Sb)	mg/kg	US EPA 3050B(1996), US EPA 6010B(1996), ICP	10	N.D.
Phosphorous (P)	mg/kg	US EPA 3050B(1996), US EPA 6010B(1996), ICP	10	434

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Dibromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tribromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tetrabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Pentabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Hexabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Heptabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Octabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Nonabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Decabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Monobromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Dibromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tribromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tetrabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Pentabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Hexabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Heptabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Octabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Nonabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Decabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.

NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) "" = Qualitative analysis (No Unit)
(6) Negative = Undetectable / Positive = Detectable