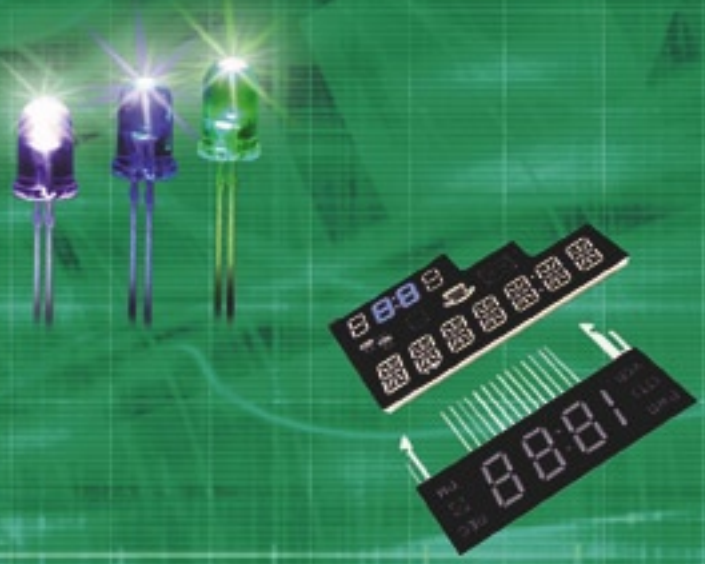
SLI Miniature Lighting

EBT

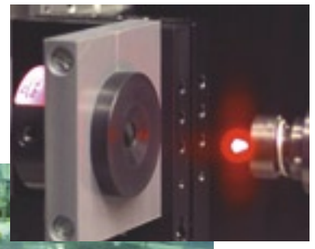


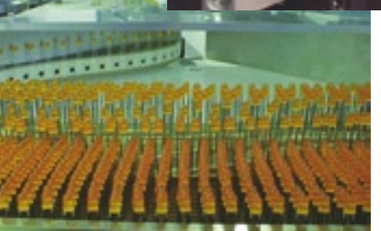
Designer's catalogue for Ultra High Brightness LEDs

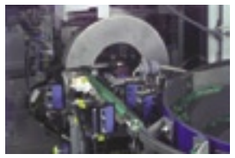
SLI Miniature Lighting is leading in innovative lighting solutions ; our 1800 employees are specifically dedicated to the design, production and distribution of miniature light sources and miniature lighting systems. Our worldwide operations and know-how allow us to continually exceed our customers requirements.

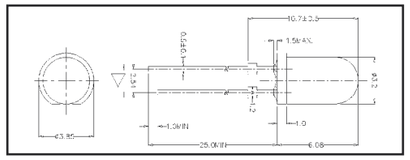
SLI Miniature Lighting est leader en solutions innovantes d'éclairage ; nos 1800 collaborateurs sont dédiés à la conception, la production et la distribution de sources et de systèmes lumineux. Notre savoir-faire et nos implantations mondiales nous permettent de mieux servir nos clients et de répondre aux niveaux d'exigences les plus élevées.

SLI Miniature Lighting ist der führende Hersteller für innovative Beleuchtung ; unsere 1800 Mitarbeiter engagieren sich für die Entwicklung, die Produktion und den Vertrieb von Beleuchtungsquellen und –Systemen. Unsere Erfahrung und unsere weltweiten Standorte machen es möglich, unseren Kundenservice stets zu verbessern und auch für die höchsten Ansprüche eine optimale Lösung zu finden.

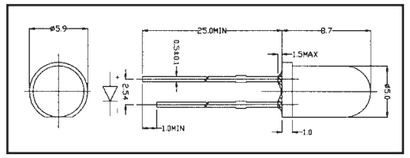




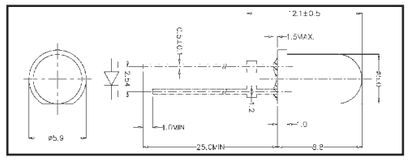




LC374 - series



LC503 - series



LC512 - series

Ultra High Brightness LEDs

Features & Benefits:

- Using latest chip-generation
- Highest luminous intensity
- Excellent sunlight visibility
- Reliability engineered to stand real outdoor environmental changes
- Long life span and low maintenance cost

Applications:

- Bulb and Lamp Replacement
- Illumination
- Lighting Signals
- Highway Variable Message Signs
- Count Down Timer Displays
- Variable Speed Limit Signs
- Lane Control Signals

Part N°	Emitting Colour	Lens Colour	Lens Shape	Angle	Luminous Intensity			D. Wavelength	Forward Voltage			Stopper
				2θ1/2	min.	typ.	max.	typ.	min.	typ.	max.	
LC512QWN1-25G	white	WT	5 mm	25°	3.000 mcd	5.500 mcd	8.200 mcd	x = 0.31 y = 0.32	3,2	3,6	4,2	yes
LC503QWN1-50G	white	WT	5 mm	50°	1.100 mcd	1.800 mcd	3.000 mcd	x = 0.31 y = 0.32	3,2	3,6	4,2	yes
LC503PWN1-60P	white	WT	5 mm	60°	550 mcd	900 mcd	1.520 mcd	x = 0.31 y = 0.32	3,2	3,6	4,2	yes
LC374QWN1-25G	white	WT	3 mm	25°	3.000 mcd	4.200 mcd	8.200 mcd	x = 0.31 y = 0.32	3,2	3,6	4,2	yes
LC374QWN1-35G	white	WT	3 mm	35°	1.520 mcd	3.000 mcd	5.860 mcd	x = 0.31 y = 0.32	3,2	3,6	4,2	yes
LC374QWN1-65G	white	WT	3 mm	60°	770 mcd	1.500 mcd	3.000 mcd	x = 0.31 y = 0.32	3,2	3,6	4,2	yes
LC503QBL1-15H	blue	WT	5 mm	15°	4.180 mcd	7.000 mcd	12.000 mcd	470 nm	3,2	3,6	4,2	no
LC503QBL1-30H	blue	WT	5 mm	30°	1.520 mcd	2.600 mcd	5.860 mcd	470 nm	3,2	3,6	4,2	no
LC503QPG1-15H	pure green	WT	5 mm	15°	12.000 mcd	21.000 mcd	32.900 mcd	525 nm	3,2	3,6	4,2	no
LC503QPG1-30H	pure green	WT	5 mm	30°	5.860 mcd	9.500 mcd	16.800 mcd	525 nm	3,2	3,6	4,2	no

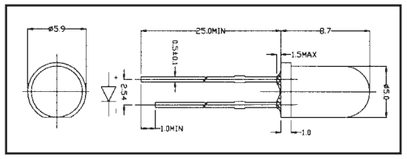
LEDs for Signaling

Features & Benefits:

- High luminous intensity with low power consumption
- Reliability engineered to stand real outdoor environmental changes
- Long life span and low maintenance cost
- Excellent visibility in daytime and adverse weather conditions
- Conform to colour requirements of ITE, SAE and ECE

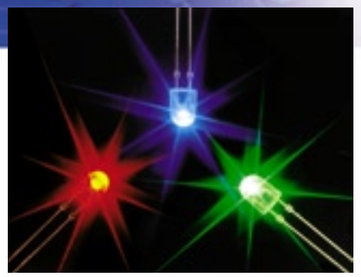
Applications:

- Ball and Arrow Traffic Signals
- Pedestrian Traffic Signals
- Highway Variable Message Signs
- Count Down Timer Displays
- Variable Speed Limit Signs
- Lane Control Signals



LC503 - series

Part N°	Emitting Colour	Lens Colour	Lens Shape	Angle	Luminus Intensity			D. Wavelength	Forward Voltage			Stopper
				2θ1/2	min.	typ.	max.	typ.	min.	typ.	max.	
LC503THR1-15Q	high red	WT	5 mm	15°	5.860 mcd	6.500 mcd	12.000 mcd	628 nm	1,7	2,1	2,6	no
LC503TYL1-15Q	yellow	WT	5 mm	15°	4.180 mcd	6.000 mcd	12.000 mcd	591 nm	1,7	2,1	2,6	no
LC503PPG1-15Q-01	pure green	WT	5 mm	15°	5.860 mcd	11.000 mcd	16.800 mcd	525 nm	3,2	3,6	4,2	no
LC503PBL1-15Q	blue	WT	5 mm	15°	1.520 mcd	2.800 mcd	4.180 mcd	470 nm	3,2	3,6	4,2	no
LC503PWH1-15Q-01	white	WT	5 mm	15°	4.180 mcd	6.500 mcd	12.000 mcd	x = 0.31 y = 0.32	3,2	3,6	4,2	no
LC503THR1-30H-01	high red	WT	5 mm	30°	3.000 mcd	3.800 mcd	5.860 mcd	628 nm	1,7	2,1	2,6	no
LC503TYL1-30H-01	yellow	WT	5 mm	30°	2.130 mcd	3.500 mcd	5.860 mcd	591 nm	1,7	2,1	2,6	no
LC503PPG1-30Q	pure green	WT	5 mm	30°	3.000 mcd	4.800 mcd	8.200 mcd	525 nm	3,2	3,6	4,2	no
LC503PBG1-30Q	bluish green	WT	5 mm	30°	3.000 mcd	4.800 mcd	8.200 mcd	505 nm	3,2	3,6	4,2	no
LC503PBL1-30Q	blue	WT	5 mm	30°	1.100 mcd	1.600 mcd	3.000 mcd	470 nm	3,2	3,6	4,2	no



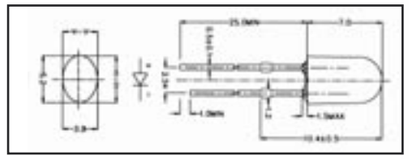
Video-Screens LEDs

Features:

- Precise optical design delivers excellent far field pattern, resulting in brightness consistency across large display areas
- Innovative structure enables far field pattern of RGB matched for all types of LED chips

Applications:

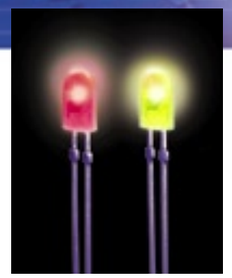
- Full Colour Video Screens
- Single or Dual Colour Graphic Signs
- Variable Message Signs (VMS)



LO5SM - series

Part N°	Emitting Colour	Lens Colour	Lens Shape	Angle	Luminous Intensity			D. Wave-length	Forward Voltage			Stopper
				2θ1/2	min.	typ.	max.	typ.	min.	typ.	max.	
Indoor Combination												
LO5SMNHR4-B0G	high red	TD	5 mm oval	H-H 110° / V-V 50°	200 mcd	350 mcd	550 mcd	624 nm	1,7	2,0	2,5	yes
LO5SMNPG4-B0G	pure green	TD	5 mm oval	H-H 110° / V-V 50°	390 mcd	650 mcd	1.100 mcd	525 nm	3,2	3,6	4,2	yes
LO5SMNBL4-B0G	blue	TD	5 mm oval	H-H 110° / V-V 50°	102 mcd	160 mcd	280 mcd	470 nm	3,2	3,6	4,2	yes
Outdoor Combination												
LO5SMTHR4-B0G	high red	TD	5 mm oval	H-H 110° / V-V 50°	390 mcd	750 mcd	1.100 mcd	628 nm	1,7	2,1	2,6	yes
LO5SMPPG4-B0G	pure green	TD	5 mm oval	H-H 110° / V-V 50°	770 mcd	1.100 mcd	2.130 mcd	525 nm	3,2	3,6	4,2	yes
LO5SMPBL4-B0G	blue	TD	5 mm oval	H-H 110° / V-V 50°	200 mcd	320 mcd	550 mcd	470 nm	3,2	3,6	4,2	yes

4 mm Video-Screen LEDs available upon request



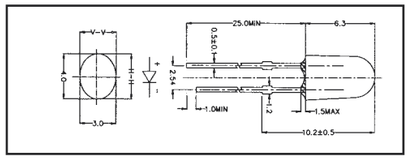
Oval LEDs for Information Signs

Features & Benefits:

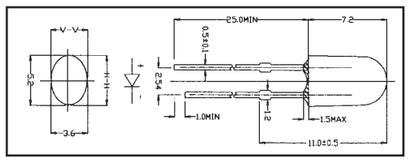
- Oval shape optics provide good cost-performance ratio
- Wide viewing angle optimal for large display areas
- Far field pattern optimum for large area full colour screens
- Red, Green, Blue matched for colour consistency across the whole horizontal field
- Reliability engineered to stand real outdoor environment in conditions temperature, humidity and ultra-violet exposure

Applications:

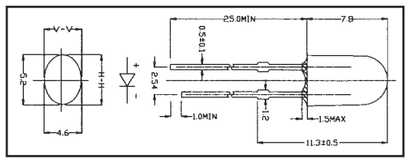
- Full Colour Video Screens
- Single or Dual Colour Graphic Signs
- Variable Message Signs (VMS)



LO494 - series



LO565 - series



LO566 - series

Part N°	Emitting Colour	Lens Colour	Lens Shape	Angle	Luminous Intensity			D. Wave-length	Forward Voltage			Stopper
				2θ1/2	min.	typ.	max.	typ.	min.	typ.	max.	
LO494THR4-B0G	high red	TD	4mm oval	H-H 100° / V-V 50°	390 mcd	750 mcd	1.100 mcd	628 nm	1,7	2,1	2,6	yes
LO494TYL4-B0G	yellow	TD	4mm oval	H-H 100° / V-V 50°	550 mcd	700 mcd	1.100 mcd	591 nm	1,8	2,3	2,6	yes
LO565THR4-B0G	high red	TD	5mm oval	H-H 100° / V-V 40°	550 mcd	750 mcd	1.100 mcd	628 nm	1,7	2,1	2,6	yes
LO565TYL4-B0G	yellow	TD	5mm oval	H-H 100° / V-V 40°	550 mcd	700 mcd	1.520 mcd	591 nm	1,7	2,1	2,6	yes
LO566THR4-B0G	high red	TD	5mm oval	H-H 70° / V-V 40°	770 mcd	850 mcd	1.520 mcd	628 nm	1,7	2,1	2,6	yes
LO566TYL4-B0G	yellow	TD	5mm oval	H-H 70° / V-V 40°	550 mcd	800 mcd	1.520 mcd	591 nm	1,7	2,1	2,6	yes

All colours are available upon request

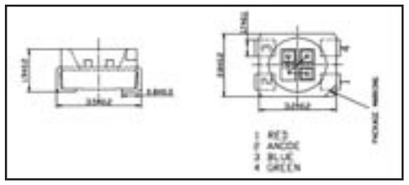
Full Colour SMD-LEDs for Video-Screen

Features & Benefits:

- Specially designed low profile, compact package best for fine pitch and high resolution signage
- LED chips can be controlled separately
- Black surface to optimise the mixture of RGB for white colour emission
- Designed for space conscious devices

Applications:

- Full Colour Video Screens
- Single or Dual Colour Graphic Signs
- Variable Message Signs (VMS)



RGB SMD - series

Part N°	Emitting Colour	Lens Colour	Lens Shape	Angle	Luminous Intensity			D. Wavelength	Forward Voltage			Stopper
				2θ1/2	min.	typ.	max.	typ.	min.	typ.	max.	
LM1-MMM1-01	high red	WT	PLCC-4	120°	71 mcd	140 mcd	280 mcd	610 nm ~ 620 nm	-	2,0	2,5	-
	green				71 mcd	140 mcd	280 mcd	520 nm ~ 540 nm	-	3,6	4,2	-
	blue				18 mcd	35 mcd	71 mcd	460 nm ~ 480 nm	-	3,6	4,2	-
LM1-NNN1-01	high red	WT	PLCC-4	120°	112 mcd	180 mcd	280 mcd	610 nm ~ 620 nm	-	2,0	2,5	-
	green				180 mcd	280 mcd	450 mcd	520 nm ~ 540 nm	-	3,6	4,2	-
	blue				45 mcd	70 mcd	112 mcd	460 nm ~ 480 nm	-	3,6	4,2	-
LM1-TPP1-01	high red	WT	PLCC-4	120°	180 mcd	300 mcd	450 mcd	612 nm ~ 625 nm	-	2,1	2,6	-
	green				280 mcd	450 mcd	710 mcd	520 nm ~ 540 nm	-	3,6	4,2	-
	blue				71 mcd	110 mcd	180 mcd	460 nm ~ 480 nm	-	3,6	4,2	-

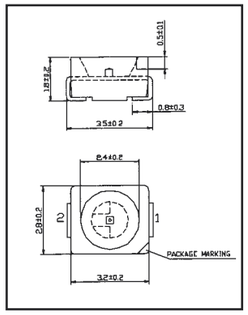
SMD LEDs for Interior & Exterior Lighting

Features & Benefits:

- Brightness increased, with forward current of up to 70mA.
- Excellent heat dissipation and conductivity
- Long life span and safer usage
- Sharper and brighter colours
- Available in 2 types of viewing angle : 120° for Power SMD, 60° for Power SMD with lens
- Compact size allows usage in space conscious devices
- Thin profile offers unlimited design flexibility
- Suitable for all SMT assembly methods
- Available in a full range of colour including white

Applications:

- Interior and Exterior Lighting
- Signs and Advertisement Illumination
- Special decorative Lighting
- Light Source for Machine Vision, Motion Detection (I.e. optical mouse)
- Backlight for Channel Letters & Exit Signs
- Architecture & Entertainment Lighting
- Lighting and Signage for Gas Station
- Strip Lighting



SMD - series
Power SMD - series

Part N°	Emitting Colour	Lens Colour	Lens Shape	Angle	Luminous Intensity			D. Wave-length	Forward Voltage			Stopper
				2θ1/2	min.	typ.	max.	typ.	min.	typ.	max.	
SMD LEDs If = 20mA												
LM1-THR1-01	high red	WT	PLCC-2	120°	280 mcd	400 mcd	560 mcd	628 nm	1,7	2,1	2,6	-
LM1-TRO1-01	high reddish orange	WT	PLCC-2	120°	280 mcd	450 mcd	710 mcd	618 nm	1,7	2,1	2,6	-
LM1-TYL1-01	yellow	WT	PLCC-2	120°	280 mcd	300 mcd	450 mcd	591 nm	1,7	2,1	2,6	-
LM1-PBL1-01	blue	WT	PLCC-2	120°	112 mcd	160 mcd	224 mcd	470 nm	3,2	3,6	4,2	-
LM1-PPG1-01	pure green	WT	PLCC-2	120°	355 mcd	560 mcd	900 mcd	525 nm	3,2	3,6	4,2	-
LM1-PWH1-01	white	WT	PLCC-2	120°	280 mcd	450 mcd	710 mcd	x = 0.31 y = 0.32	3,2	3,6	4,2	-
LM1-PWH1-03 (3 Chips)	white	WT	PLCC-2	120°	900 mcd	1.300 mcd	1.800 mcd	x = 0.31 y = 0.32	3,2	3,6	4,2	-
Power SMD series If = 50mA												
LM1-THR1-11	high red	WT	PLCC-4	120°	560 mcd	1.000 mcd	1.400 mcd	628 nm	1,7	2,3	3,0	-
LM1-TYL1-11	yellow	WT	PLCC-4	120°	450 mcd	700 mcd	1.120 mcd	591 nm	1,7	2,3	3,0	-

Also available with lens or sideview version upon request

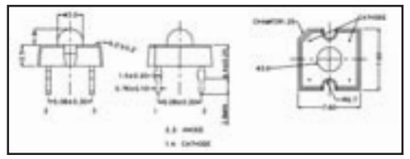
LEDs for Automotive

Features & Benefits:

- Fast, response time provides safety advantage
- Consumes less power, reduces electrical current drain on the car battery
- Long life span, low maintenance cost
- High flux output reduces number of LEDs required
- Designed for high current operation
- Low profile incorporated with lenses enables efficient light distribution
- Specially designed with higher forward voltage to provide optimal brightness
- Colour conforms to SAE J578
- Vibration and Shock resistant
- Packaged in tubes for use with automatic insertion equipment

Applications:

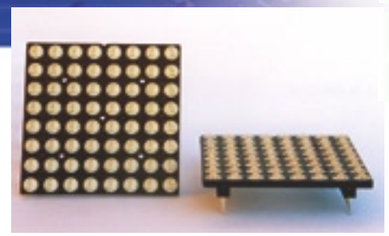
- Center High-Mounted Stop Lamps (CHMSL)
- Rear stop/turn signal lamps
- Front turn signal lamps
- Truck Marker Lights



LP377 - series

Part N°	Emitting Colour	Lens Colour	Lens Shape	Angle	Luminous Intensity			D. Wavelength	Forward Voltage			Stopper
				2θ1/2	min.	typ.	max.	typ.	min.	typ.	max.	
LP377THR1-40G	high red	WT	3 mm	40°	3.000 mlm	4.000 mlm	6.100 mlm	628 nm	2,2	2,6	3,0	yes
LP377THR1-70G	high red	WT	3 mm	70°	3.000 mlm	4.000 mlm	6.100 mlm	628 nm	2,2	2,6	3,0	yes
LP377THR1-A0G	high red	WT	3 mm	100°	3.000 mlm	4.000 mlm	6.100 mlm	628 nm	2,2	2,6	3,0	yes
LP377TYL1-40G	yellow	WT	3 mm	40°	2.000 mlm	3.200 mlm	4.800 mlm	591 nm	2,2	2,6	3,0	yes
LP377TYL1-70G	yellow	WT	3 mm	70°	2.000 mlm	3.200 mlm	4.800 mlm	591 nm	2,2	2,6	3,0	yes
LP377TYL1-A0G	yellow	WT	3 mm	100°	2.000 mlm	3.200 mlm	4.800 mlm	591 nm	2,2	2,6	3,0	yes
LP377PWH1-60G	white	WT	3 mm	60°	770 mcd	1.200 mcd	2.130 mcd	x = 0.31 y = 0.32	3,6	4,0	4,6	yes
LP377PWH1-90G	white	WT	3 mm	90°	550 mcd	1.000 mcd	1.520 mcd	x = 0.31 y = 0.32	3,6	4,0	4,6	yes
LP377PWH1-C0G	white	WT	3 mm	120°	200 mcd	350 mcd	550 mcd	x = 0.31 y = 0.32	3,6	4,0	4,6	yes

All colours are available upon request



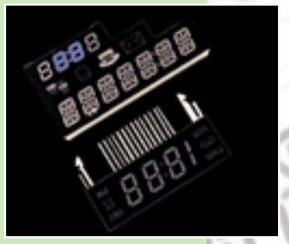
Customized Displays

Features:

- Custom Design Display (CDD) for unique customized use
- Available with IC driver and Smart Functions
- Available in Surface Mount Device
- Vacuum epoxy encapsulation technology

Applications :

- Oven and Home Appliances
- VCR/DVD/Hi-Fi/Amplifier and other AV devices
- Car Audio and other Car Appliances
- Equipment and Instrumental Machinery
- Control Unit/Meter
- Indoor VMS Boar/Video Sign Board
- Backlight for Cellular Phone/PDA/Laptop Computer



Flat Fish Displays

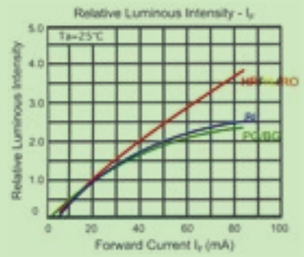
Features:

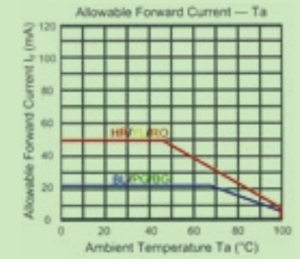
- Chip-on-Board Matrix Modul
- Each dot can be provided with 1, 2 or 3 chips
- All colours are possible, including RGB
- COB-technology, therefore very flat and excellent heat dissipation
- Pixel size from 2.8mm ti 5mm
- 8x8 pixels, 16x16 pixel or customized

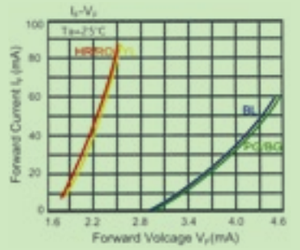
Applications :

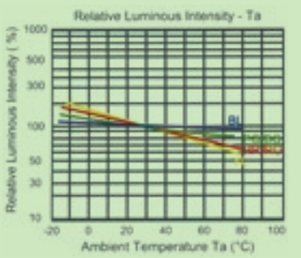
- Running letter displays
- Information signs
- Full colour video screens
- Replacement of traditional dot
- Matrix displays
- Others
- Only for indoor use because of the big viewing angle

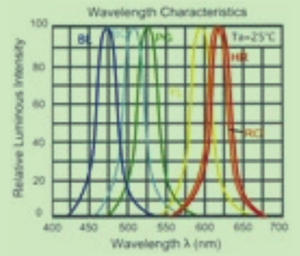
Technical Data











LED Lamp Bin Selection

Lamp Dominant Wavelength Bin Selection

COLOR	RANGE(Unit:nm)
BLUE	X1: 450 ~ 455
	X2: 455 ~ 460
	X3: 460 ~ 465
	X4: 465 ~ 470
	X5: 470 ~ 475
	X6: 475 ~ 480
	X7: 480 ~ 485
	X8: 485 ~ 490
GREEN	X1: 490 ~ 495
	X2: 495 ~ 500
	X3: 500 ~ 505
	X4: 505 ~ 510
	X5: 510 ~ 515
	X6: 515 ~ 520
	X7: 520 525
	X8: 525 ~ 530
	X9: 530 ~ 535
	X10: 535 ~ 540
	X11: 540 ~ 545
	X12: 545 ~ 550
	X13: 550 ~ 555
YELLOW GREEN	X1: 555 ~ 558
	X2: 558 ~ 561
	X3: 561 ~ 564
	X4: 564 ~ 567
	X5: 567 ~ 570
	X6: 570 ~ 573
	X7: 573 ~ 576
	X8: 576 ~ 579
	X9: 579 ~ 581
YELLOW	X1: 581 ~ 584
	X2: 584 ~ 587
	X3: 587 ~ 590
	X4: 590 ~ 593
	X5: 593 ~ 596
YELLOW ORANGE	X1: 597 ~ 600
	X2: 600 ~ 603
	X3: 603 ~ 606
	X4: 606 ~ 609
ORANGE	X1: 609 ~ 612
	X2: 612 ~ 615
	X3: 615 ~ 618
RED	X1: 618 ~ 621
	X2: 621 ~ 624
	X3: 624 ~ 627
	X4: 627 ~ 630
	X5: 630 ~ 633
	X6: 633 ~ 636

Non-P4 Lamp Luminous Intensity Bin / P4 Lamp Luminous Flux Bin

CODE	RANGE(Unit:mcd)	CODE	RANGE(Unit:mlm)
A	< 5.0		
B	5.0 ~ 7.0		
C	7.0 ~ 9.8		
D	9.8 ~ 13.7		
E	13.7 ~ 19.0	A	150 ~ 300
F	19.0 ~ 26.6	B	250 ~ 500
G	26.6 ~ 37.2	C	400 ~ 800
H	37.2 ~ 52.0	D	600 ~ 1200
J	52.0 ~ 72.8	E	1000 ~ 1800
K	72.8 ~ 102	F	1500 ~ 2400
L	102 ~ 145	G	2000 ~ 3000
M	145 ~ 200	H	2500 ~ 3600
N	200 ~ 280	J	3000 ~ 4200
P	280 ~ 390	K	3500 ~ 4800
Q	390 ~ 550	L	4000 ~ 6100
R	550 ~ 770	M	5000 ~ 7300
S	770 ~ 1100	N	6000 ~ 9700
T	1100 ~ 1520		
U	1520 ~ 2130		
V	2130 ~ 3000		
W	3000 ~ 4180		
X	4180 ~ 5860		
Y	5860 ~ 8200		
Z	8200 ~ 12000		
Z1	12000 ~ 16800		
Z2	16800 ~ 23500		
Z3	23500 ~ 32900		
Z4	32900 ~ 46100		

Lamp VF Bin Selection

BIN	RANGE(Unit:V)	BIN	RANGE(Unit:V)
V1:	1.6 ~ 1.8	V9:	3.2 ~ 3.4
V2:	1.8 ~ 2.0	V10:	3.4 ~ 3.6
V3:	2.0 ~ 2.2	V11:	3.6 ~ 3.8
V4:	2.2 ~ 2.4	V12:	3.8 ~ 4.0
V5:	2.4 ~ 2.6	V13:	4.0 ~ 4.2
V6:	2.6 ~ 2.8	V14:	4.2 ~ 4.4
V7:	2.8 ~ 3.0	V15:	4.4 ~ 4.6
V8:	3.0 ~ 3.2	V16:	4.6 ~ 4.8

Remark:

1:Tolerance of measurement of Luminous Intensity is ±15%.

2:No tolerance in the measurement of Luminous Flux.

3:Tolerance of measurement of Dominant Wavelength is ±1nm.

4:Tolerance of measurement of VF is ±0.05v.

Notes:

1. All dimensions are in mm. Tolerance is +0,25mm unless otherwise noted.
2. An epoxy meniscus may extend about 1,5mm down the leads.
3. Burr around bottom of epoxy may be 0,5mm max.

All datas are subject to changes without notices.

SLI Miniature Lighting

EBT

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Space for Distributor label