SVETLED

Datasheet

SVL03P1 01 August 2012

SVL03P1

Svetel LLC is proud to introduce SVETLEDs.The new brand of high powered LEDs. Supported by state of the art manufacturing technology, SVETLEDs offer a market leading value proposition without sacrificing perfomance.

SVETLEDs are available in array of white temperatures while maintaining common size, voltage, current and optical properties.

This document contains the performance data needed to design and engineer SVETLED based applications.

Available in White	2600 K to 7000 K (CCT)
Size (mm)	5x5x1,3
Max Drive Current	500 mA
Viewing Angle	120°
RoHS-Compliant	Yes
Unlimited floor life	at <30C785% RH
Luminous Flux (lm)	70-130

Product Code

The part number designation is explained as follows:

SVL A B-C-D

Manufacturer designation	Type of case «03»	Group of operating power 1 W (+/-12%)	Class of Luminous Flux (number is equal to typical output)	Typical value of Correlated ColorTemperature D1-D8 (other color variants available through special order)

Where:

SVL – Manufacturer designation
A/03 – Type of case «03»
B/P1 – Group of operating power 1 W (+/-12%)
C/FX – Class of Luminous Flux (number is equal to typical output)
D/XX – Typical value of Correlated ColorTemperature D1-D8 (other color variants available through special order)

SVETLEDs are tested and binned at constant current of 350 mA.

Flux Characteristics

Color												
CCT Range	2600				3700				5300			7000
Bin	F80	F90	F100	F110	F90	F100	F110	F120	F100	F110	F120	F130
Luminous Flux min-max	75-85	85-95	95-105	105-115	85-95	95-105	105-115	115-125	95-115	105-115	115-125	125-135
Min Lum efficacy 350mA	72	81	90	100	81	90	100	109	90	100	109	118
Color Rendering Index			80				75				75	

Part Number SvL-03P1-F130
bin

Notes

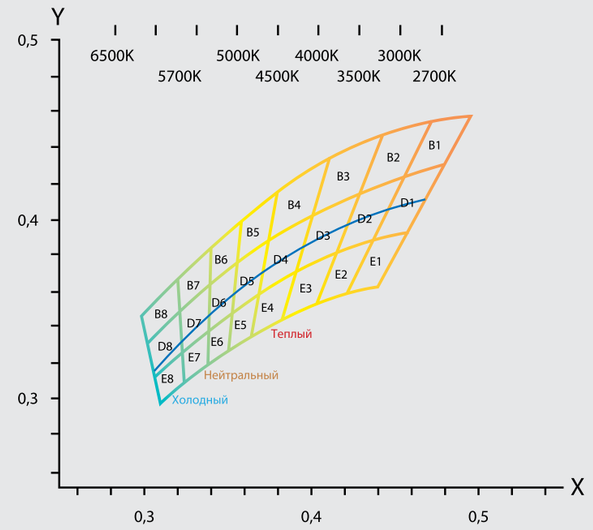
1. Perfomance guranteed within published operating conditions.
   (Thermal Pad Temperature =25°C, Test current =350mA.)
2. SVETLED maintains a tolerance of 10% on flux measurements.
3. CCT ±5% tester tolerance.
4. CRI tolerance is ± 2.

Electrical Characteristics

Forward Voltage Vf **2.8 (min.); 3.2 (typ.); 3.6 (max.)**
Svetel LEDs maintain a tolerance of ±0.06V on forward voltage measurements.

Coefficient of Forward Voltage (mV/°C) AVf/ ATj **-2.0 to -4.0**
Measured between 25°C = Tj = 110°C at If = 350 mA.

Typical Thermal Resistance Junction toThermal Pad (°C/W) Rd j-c **7**



Bins D correspond to the ANSI NEMA ANSLG C78.377-2008 standard.
D - Range bins are available from inventory. Others may be special ordered.

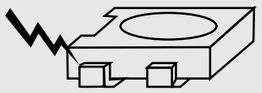
	Bin Code	X	y	Bin Code	X	y	Bin Code	X	y
		0,4813	0,4319		0,4963	0,4589		0,4593	0,3944
2700 K	D1	0,4562	0,4260	B1	0,4704	0,4538	E1	0,4373	0,3893
		0,4373	0,3893		0,4562	0,4260		0,4213	0,3587
		0,4593	0,3944		0,4813	0,4319		0,4407	0,3622
		0,4562	0,4260		0,4704	0,4538		0,4373	0,3893
3000 K	D2	0,4299	0,4165	B2	0,4428	0,4453	E2	0,4147	0,3814
		0,4147	0,3814		0,4299	0,4165		0,4022	0,3528
		0,4373	0,3893		0,4562	0,4260		0,4213	0,3587
		0,4299	0,4165		0,4428	0,4453		0,4147	0,3814
3500 K	D3	0,3996	0,4015	B3	0,4099	0,4318	E3	0,3889	0,3690
		0,3889	0,3690		0,3996	0,4015		0,3798	0,3434
		0,4147	0,3814		0,4299	0,4165		0,4022	0,3528
		0,4006	0,4044		0,4099	0,4318		0,3898	0,3716
4000 K	D4	0,3736	0,3874	B4	0,3788	0,4139	E4	0,3670	0,3578
		0,3670	0,3578		0,3736	0,3874		0,3616	0,3350
		0,3898	0,3716		0,4006	0,4044		0,3798	0,3434
		0,3736	0,3874		0,3788	0,4139		0,3670	0,3578
4500 K	D5	0,3548	0,3736	B5	0,3581	0,3980	E5	0,3512	0,3465
		0,3512	0,3465		0,3548	0,3736		0,3483	0,3273
		0,3670	0,3578		0,3736	0,3874		0,3616	0,3350
		0,3551	0,3760		0,3581	0,3980		0,3515	0,3487
5000 K	D6	0,3376	0,3616	B6	0,3383	0,3822	E6	0,3366	0,3369
		0,3366	0,3369		0,3376	0,3616		0,3357	0,3193
		0,3515	0,3487		0,3551	0,3760		0,3483	0,3273
		0,3376	0,3616		0,3383	0,3822		0,3366	0,3369
5700 K	D7	0,3207	0,3462	B7	0,3192	0,3650	E7	0,3222	0,3243
		0,3222	0,3243		0,3207	0,3462		0,3233	0,3094
		0,3366	0,3369		0,3376	0,3616		0,3357	0,3193
		0,3205	0,3481		0,3192	0,3650		0,3221	0,3261
6500 K	D8	0,3028	0,3304	B8	0,3000	0,3452	E8	0,3068	0,3113
		0,3068	0,3113		0,3028	0,3304		0,3096	0,2988
		0,3221	0,3261		0,3205	0,3481		0,3233	0,3094

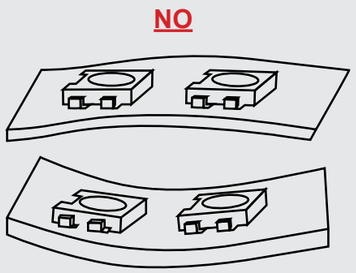
Handling Precaution

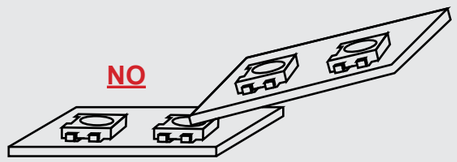
All LEDs are extremely sensitive to static electricity so the following precautions should be taken when handling LEDs:

1. The LED handler should be grounded in order to discharge static electricity.
2. The working bench, insert machine, measuring equipment, etc. that may touch directly to LED should also be grounded.
3. Due to the small size, the product may be damaged by external stress. Please avoid any shocks.

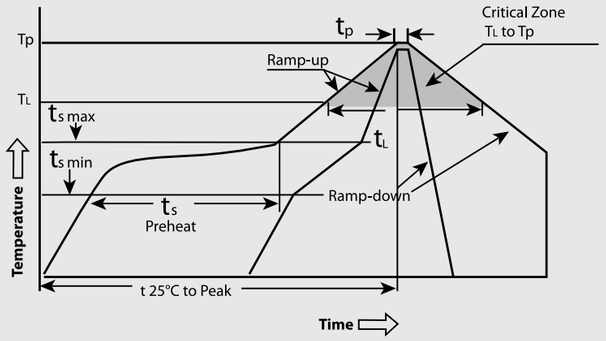
- ***Surge voltage, ESD and excess current should be avoided.***
- ***External stresses such as the stress by PCB wrap must be avoided***
- ***Prevent PCB from dropping and hitting other PCBs.***







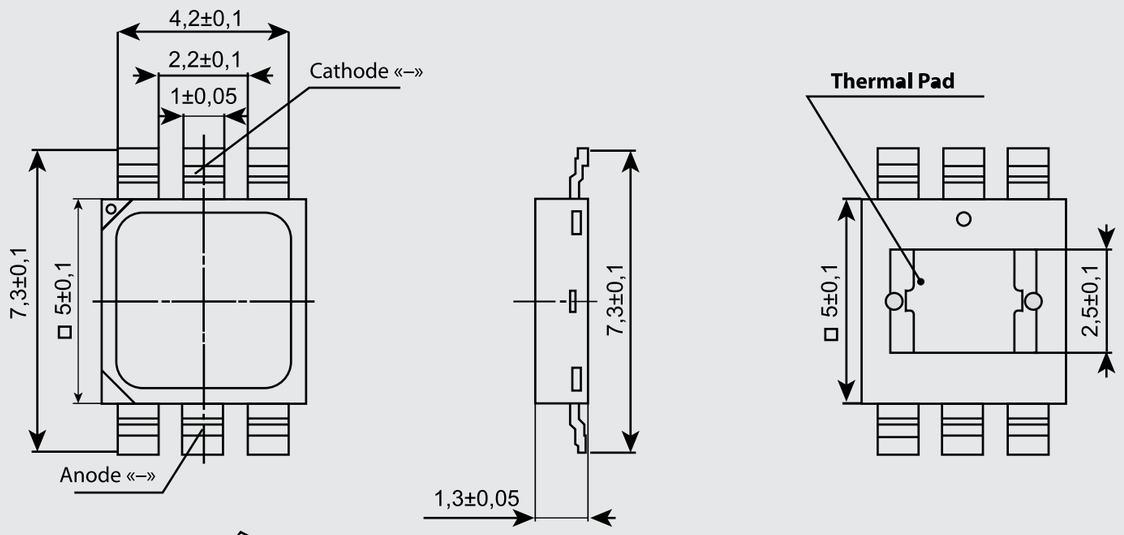
Reflow Soldering Characteristics



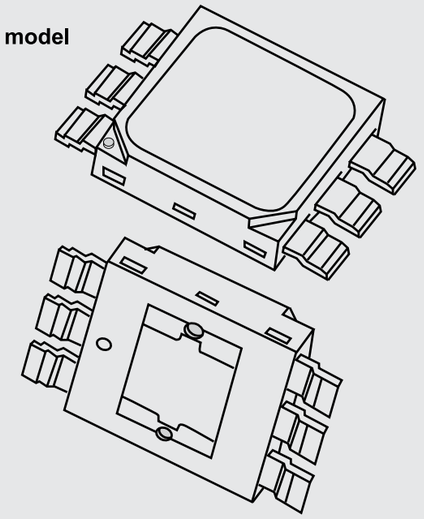
Profile Feature	Lead Free Assembly
Average Ramp-Up Rate (Tsmax to Tp)	**3°C / second max**
Preheat Temperature Min (Tsmin)	**150 °C**
Preheat Temperature Max (Tsmax)	**200 °C**
Preheat Time (tsmin to tsmax)	**100 seconds max**
Time Maintained AboveTemperature (TL)	**217 °C**
Time Maintained Above Time (tL)	**80 seconds max**
Peak Temperature (Tp)	**260 °C**
Time Within 5°C of Actual Peak temperature (tp)	**10-30 seconds**
Ramp - Down Rate	**6°C / second max**
Time 25°C to Peak Temperature	**5 minutes max**

For achieving high grade soldered joints use thermal profile recommended by solder paste manufacturer.

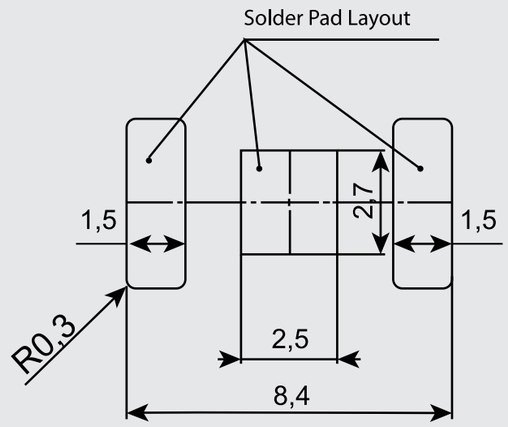
1. Correct handling of the product is required to ensure the product is not damaged
2. All dimensions are in millimeters.
3. Drawings not to scale.
4. The Thermal Pad is electrically isolated from the Anode and Cathode contact pads.



3D model



Package Outline Drawing



Environmental Compliance
SVETLEDs are environmentally friendly products and compliant with the European Union directives, including RoHS, on the restriction of hazardous substances in electronic equipment.

Absolute Maximum Ratings
Maximum Performance
DC Forward Current (mA) **500**
Peak Pulsed Forward Current (mA) **800**
ESD Sensitivity **Class 2 JESD22-A114-B**
LED Junction Temperature **125°C**
Operating Case Temperature at 350mA **-40°C +110°C**
Storage Temperature **-40°C+110°C**
Soldering Temperature **JEDEC J-STD-020D.01 260°C**
Allowable Reflow Cycles **2**
Reverse Voltage **5V**

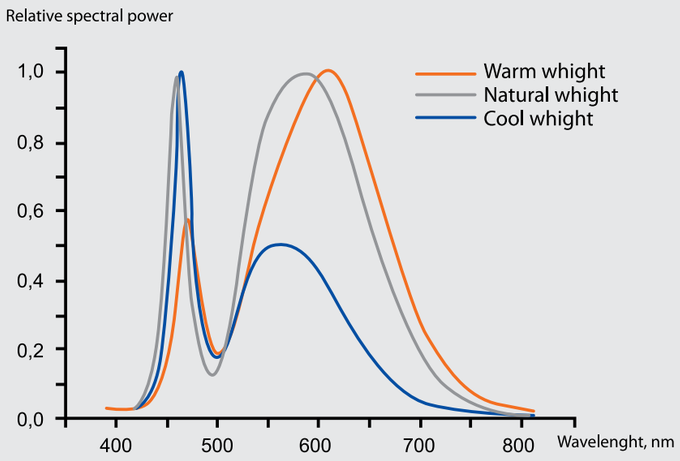
Notes:
1. Proper current derating must be observed to maintain junction temperature below the maximum.
2. ESD Sensitivity certification available for download on site.

Humidity Absorption and Soldering
The LED has a mechanical structure of metal frame with resin encapsulation. After absorbing humidity, LED stores water in proximity of the interface between metal and resin. If the LED is soldered under such situation, a sudden evaporation may occur leading to a package crack and/or a break of the interface, resulting light-off defect. Therefore, soldering at dry condition is required to sustain LED's designed strength.

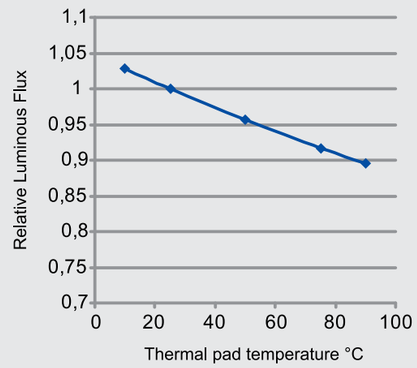
The LEDs should be stored and dried (if necessary) as outlined in the specification.

Damp Proof Packing
In order to avoid the absorption of humidity during transport and storage, the products are packed in airtight antistatic packaging.
Storage conditions before opening: Temperature: < 40°C. Humidity: < 90 % RH Storage time: 1 year after shipping
Treatment after opening:
1. Use (solder) products within 168 hours from breaking airtight seal
2. If the LEDs are unable to be used in this time period, then they should be stored in a dry box with a desiccative such as silica gel.
3. If the LEDs have absorbed moisture they should be baked to remove the moisture.

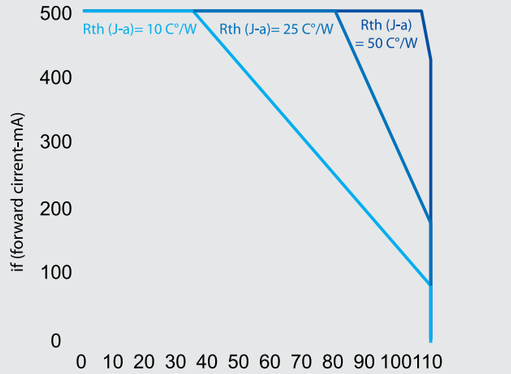
Recommendable conditions:
Temperature: 80°C±15°C
Time: 24 - 36 hours
We do not recommend baking the LEDs more than once as they may become damaged.



Typical Light Output Characteristics over Temperature Test Current = 350mA

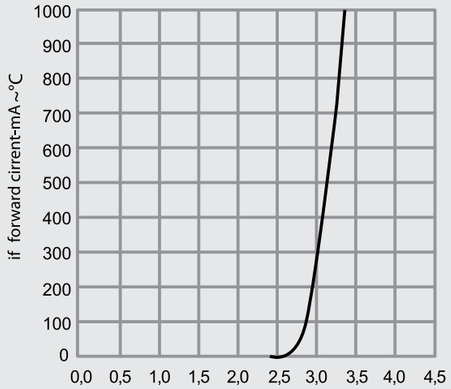


Current Derating Curves Characteristics

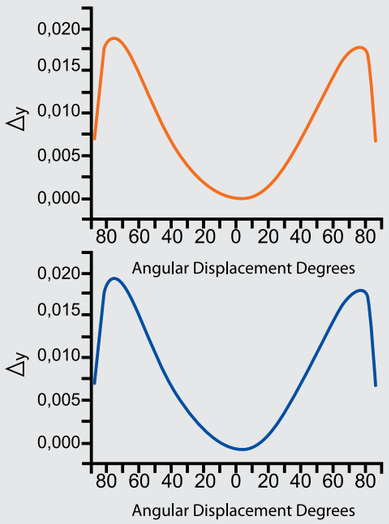


Maximum Forward Current vs. Ambient Temperature

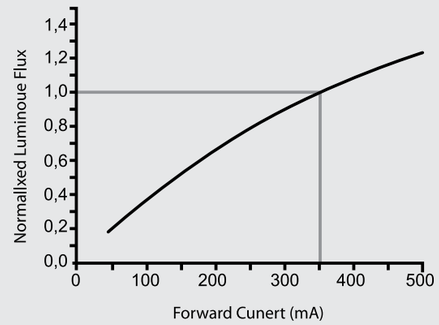
Typical Forward Current Characteristics Thermal Pad Temperature = 25°C



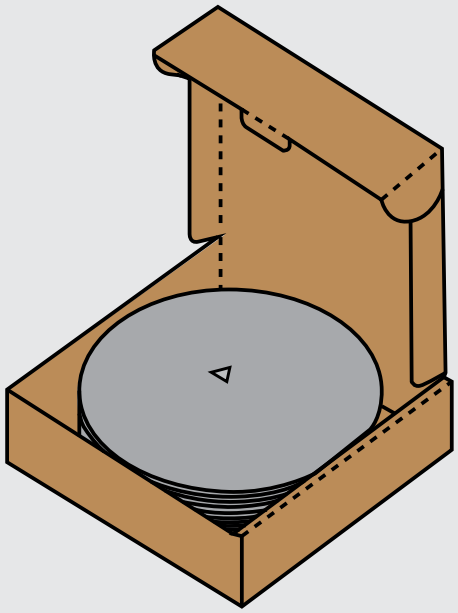
Forward Current v.s. Forward Voltage



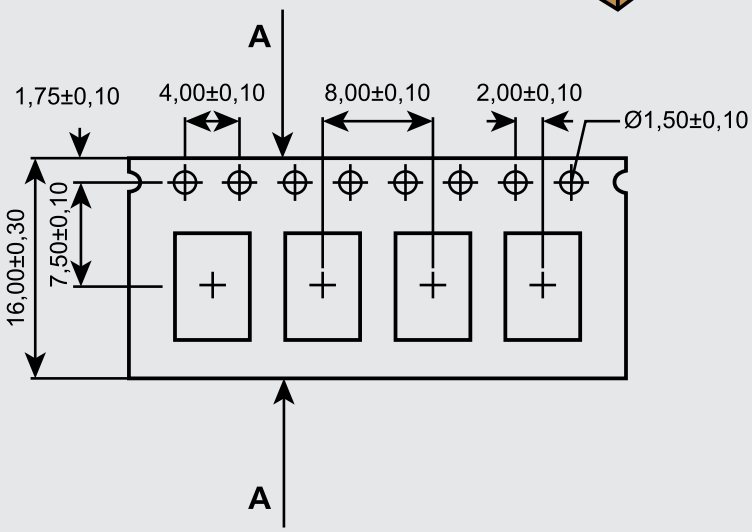
Typical Relative Luminous Flux Thermal Pad Temperature -25 °C Test Current = 350 mA

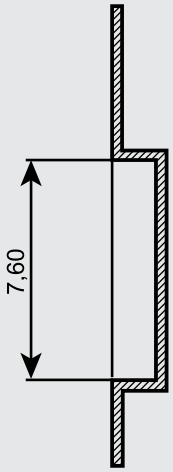


Relative Luminous Flux vs. Forward Current.



Pocket Tape Packaging





Section A-A

Reel Packaging