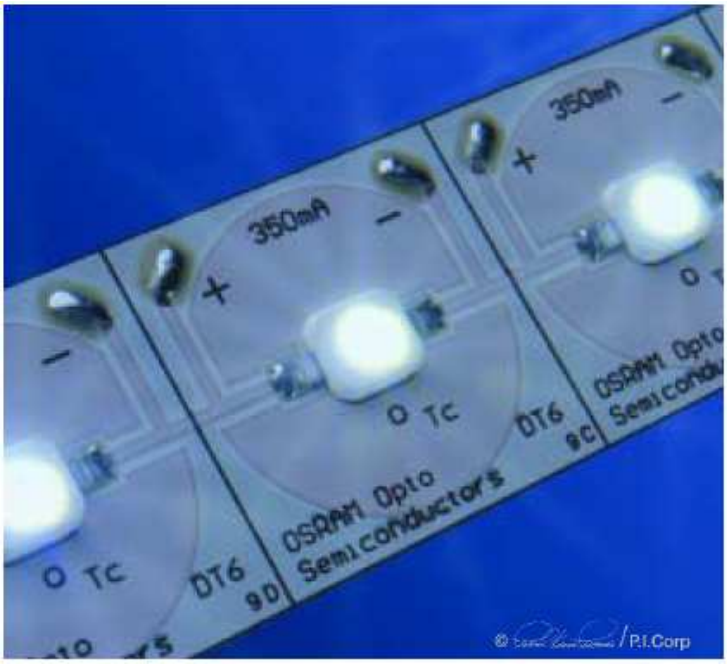
Product Information Bulletin

DRAGONtape®

Gilway Technical Lamp
Distributed by
www.gilway.com
781.935-4442
Fax:781.938.5867



- 6 Golden DRAGON™ LEDs in series connection with a one inch spacing
- Self-adhesive backing for easy, reliable assembly
- Intended for use with constant current power supplies for optimal efficiency
- Circuit board can be cut to reconfigure LEDs; connection made by soldering wires
- Size of entire module – 6 LEDs (LxW): 5.9 in x 1.0 in (150 mm x 25 mm)
- Size of smallest subunit – one LED (LxW): 1.0 in x 1.0 in (25 mm x 25 mm)
- Better efficacy than incandescent or tungsten halogen
- Comparable illumination to many fluorescent lamp fixtures
- New longer service life when installed with proper thermal management
- No ultraviolet or infrared radiation

OSRAM's new DRAGONtape brings LED lighting to a level that makes illumination applications possible.

The DRAGONtape, like our standard LED modules, is available in many colors but the emphasis is on white for illumination applications. DRAGONtape uses the new OSRAM Golden DRAGON LED that delivers efficacy and service life far in excess of incandescent lamps, offering cost savings for energy and replacement labor. With a forward emitting luminous flux comparable to that of many fluorescent lamp fixtures, DRAGONtape may be specified for fluorescent specialty applications such as task lighting, backlit displays and refrigerated display cases. The DRAGONtape consists of six LEDs on a lightweight circuit board that can be used whole or subdivided. A self-adhesive backing allows the tape to be mounted on a substrate of suitable thermal conductivity to transfer heat away from the LEDs.

The module operates on special constant current power supplies, available in AC-DC format for standard lighting applications and DC-DC format for specialty applications that already employ DC power, such as solar powered batteries and certain transportation vehicles.

Product Availability

Wattage (W)	Product	LED Color
7.2	DRAGONtape/OS/DT6/W2-865	6500 K
7.2	DRAGONtape/OS/DT6/W2-854	5400 K
7.2	DRAGONtape/OS/DT6/W2-847	4700 K
4.8	DRAGONtape/OS/DT6/A1	617 nm
4.8	DRAGONtape/OS/DT6/Y1	587 nm
7.2	DRAGONtape/OS/DT6/V1	505 nm
7.2	DRAGONtape/OS/DT6/B1	465 nm

Application Information

Applications

Task lighting – reading lights, under cabinet lighting
Accent lighting – cove lighting, outdoor/landscape lighting
Refrigerated and freezer display case lighting
Light box, backlit graphics, edge lighting
Vehicle cabin lighting – RV, truck, boat, airplane
Solar powered installations

Power Supply Information

The DRAGONtape is presently compatible with the OT9/100-120/350 (NAED 51525) and the OT9/10-24/350 DIM E (NAED 51526) power supply products. Contact your OSRAM SYLVANIA representative for specific information on these products and possible updates to this list.

Gilway Technical Lamp
Distributed by
www.gilway.com
781.935-4442
Fax:781.938.5867

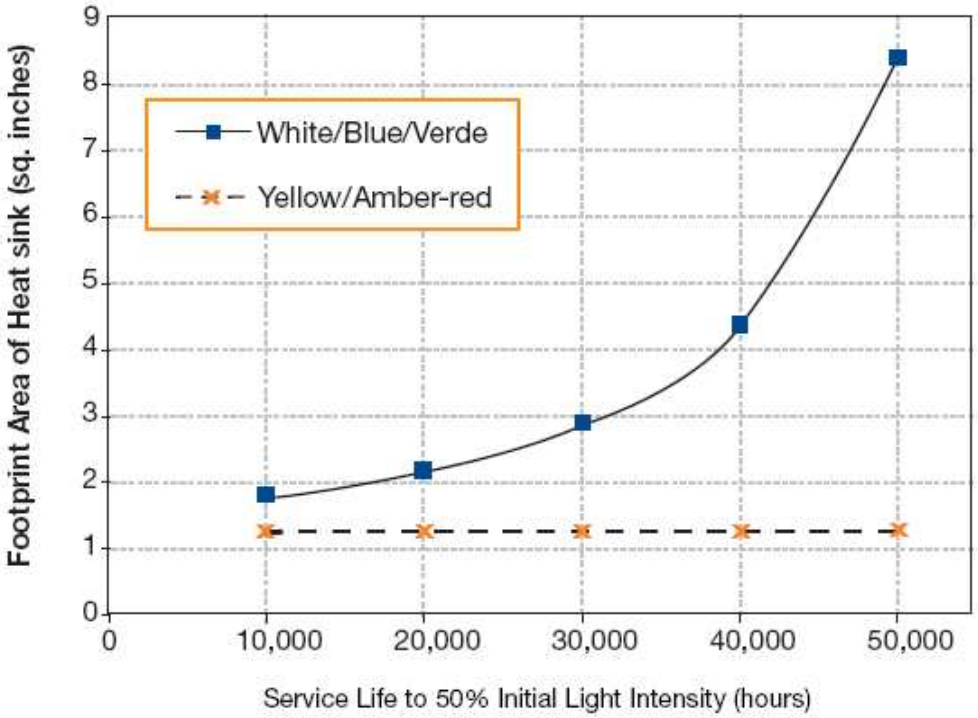
Application Information (continued)

Application Notes

1. Module is intended for use with 350 mA constant current drive condition as is provided by the OT9/100-120/350 and OT9/10-24/350 DIM E (see PIB ECS052 for details). The module is not intended for use with constant voltage power supplies, including other OSRAM LED power supplies.
2. For the white, blue and verde DRAGONtape products, the OT9 power supplies can power up to six LEDs (i.e. one complete module). For the yellow and red DRAGONtape products, the OT9 can power up to 9 LEDs (i.e. 1.5 modules).
3. Installation of the DRAGONtape must include provision for thermal management to avoid premature failure of the product and to obtain expected service life. Service life (i.e. lumen depreciation) is primarily a function of LED temperature which is to be monitored on the circuit board at the designated "Tc-Point". (A Tc-Point temperature of 40°C should be sufficient to enable a service life of 50,000 hours for the white DRAGONtape.)
4. There is no exact installation prescription to obtaining an appropriate Tc-Point temperature because every fixture design is different. In general, the DRAGONtape module should be adhered to a clean, flat metal surface which has enough surface area to transfer the heat from the LED to the surrounding air. The metal surface can be part of a conventional finned heat sink or can be part of the mass of the fixture itself. A very "ballpark" starting point can be interpreted from the chart below which shows approximate heat sink surface area requirements for given service life expectations for individual DRAGON LEDs (i.e multiply area values by six for an entire DRAGONtape module).
5. Concerning fixture design, it is important to understand that once heat is transferred to a "heat sink", that heat must still be allowed to escape the "system". A heat sink transferring the thermal energy to the inside of an enclosed cavity may ultimately be of little use.
6. The fixture makers' strategy should be to design a prototype fixture and test that fixture in an appropriate ambient environment while monitoring the temperature at the Tc-Point which should be allowed enough time to reach thermal equilibrium. In the end, the heat sink areas from the chart below only represent a starting point for initial design work while the Tc-Point temperature serves as the emperical test of proper thermal management. Tc-Point temperature can be measured with a standard thermocouple in direct contact with the circuit board at the Tc-Point or by use of ML4C Series non-reversible OMEGALABELS (www.omega.com) or equivalent.

Approximate Heat Sink Size to Reach Lifetime Targets per LED

(Vertically oriented flat aluminum plate: total cooling surface area equals 2x footprint area)



Product Information Bulletin

DRAGONtape®

Gilway Technical Lamp
Distributed by
www.gilway.com
781.935-4442
Fax:781.938.5867

Safety Information

1. The LED module and all of its components must not be subject to mechanical stress.
2. Assembly must not damage or destroy the conducting paths on the circuit board.
3. The LED Module incorporates no protection against short circuits, overload or overheating. Therefore, it is absolutely necessary to operate the modules with an electrically stabilized power supply offering protection against the above mentioned safety risks. For dimming applications, attention should be paid to the specific references in the "OPTOTRONIC Technical Guide". OSRAM OPTOTRONIC power supplies are specifically designed with protection features for safe operation. Use of third party power supplies is not recommended.
4. Installation of the LED Modules and OSRAM LED power supplies need to be made with regard to all applicable electrical and safety standards. Only qualified personnel should be allowed to perform installations.
5. Correct electrical polarity needs to be observed. Incorrect polarity may destroy the module.
6. All LEDs, up to the maximum number allowable for the power supply, should be installed in a single electrical series connection. Electrical parallel connection can result in unbalanced voltage distribution resulting in damaging and potentially hazardous overload of some LEDs.
7. Pay attention to standard ESD precautions when handling and installing the module.
8. Only install according to the heat sinking parameters outlined in the Application Notes section.
9. Modules may be hot to touch; use caution.

Assembly Information

1. Solder connections should only be performed on designated solder pads at the locations of LED subunit marked "+" and "-". During soldering, do not exceed the maximum soldering time of 10 seconds and the maximum soldering temperature of 260°C.
2. The mounting of the module is facilitated by means of the double-sided adhesive on the back surface of the module. Care must be taken to provide a clean and dry mounting surface, free of oils or silicone coatings as well as dirt particles. The mounting substrate must have sufficient structural integrity. Take care to completely remove the adhesive backing. Once the module is appropriately positioned, press on the module with about 20 N/cm² (refer to application techniques of 3M adhesives transfer tapes).
3. The module should be installed onto flat surfaces to facilitate intimate thermal contact between the circuit board and the substrate material. The module should not be installed onto curved surfaces.

Minimum and Maximum Ratings For DRAGONtape (all colors)

Parameter	Rating
Operating Temperature at Tc-Point	-30…+65°C (-22…+149°F)
Storage Temperature	-30…+85°C (-22…+185°F)
Maximum Allowable Current (dc)	350 mA
Maximum Reverse Voltage	0 V

Notes:

1. Exceeding maximum ratings may damage the LED module and cause potential safety hazards.
2. Elevated operating temperatures can be expected to negatively impact the service life in terms of lumen output.
3. Incorrect wiring (i.e. reverse polarity) with constant current power supplies may damage the LED module.
4. Not intended for use with constant voltage power supplies.

Ordering and Specification Information

Product Number	Ordering Abbreviation	Color	LED Color	No. of LED's	Radiance angle	Operating current*
70106	DRAGONtape/OS/DT6/W2 - 847	White	4700K	6	120°	350 mA
70099	DRAGONtape/OS/DT6/W2 - 854	White	5400K	6	120°	350 mA
70100	DRAGONtape/OS/DT6/W2 - 865	White	6500K	6	120°	350 mA
70101	DRAGONtape/OS/DT6/A1	Amber red	617 nm	6	120°	350 mA
70117	DRAGONtape/OS/DT6/Y1	Yellow	587 nm	6	120°	350 mA
70118	DRAGONtape/OS/DT6/V1	Verde	505 nm	6	120°	350 mA
70119	DRAGONtape/OS/DT6/B1	Blue	465 nm	6	120°	350 mA

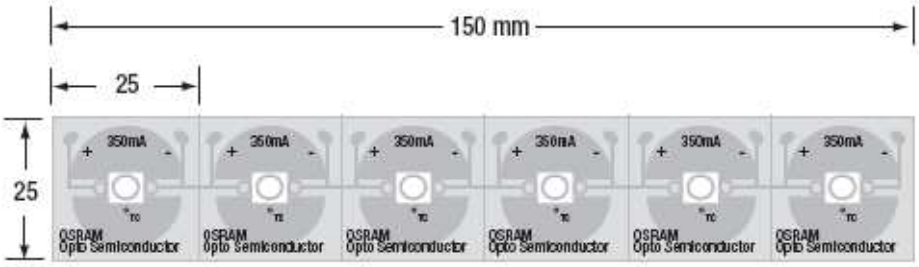
*Please contact OSRAM SYLVANIA for details.

Product Information Bulletin

DRAGONtape®

Gilway Technical Lamp
Distributed by
www.gilway.com
781.935-4442
Fax:781.938.5867

Lamp Dimensions



Ordering Guide

DRAGONtape	/	OS	/	DT6	/	W2-865
DRAGONtape		Opto Semiconductor		ID number		Color code- Color Temperature W2-865= White, 6500 K W2-854= White, 5400 K W2-847= White, 4700 K A1= Red Y1= Yellow V1= Verde B1= Blue

OSRAM SYLVANIA
National Customer
Service and Sales Center
18725 N. Union Street
Westfield, IN 46074

Industrial & Commercial

Phone: 1-800-255-5042
Fax: 1-800-255-5043

National Accounts

Phone: 1-800-562-4671
Fax: 1-800-562-4674

OEM/Specialty Markets

Phone: 1-800-762-7191
Fax: 1-800-762-7192

Display/Optic

Phone: 1-888-677-2627
Fax: 1-800-762-7192

In Canada
OSRAM SYLVANIA LTD.
Headquarters
2001 Drew Road
Mississauga, ON L5S 1S4

Industrial & Commercial

Phone: 1-800-263-2852
Fax: 1-800-667-6772

Special Markets

Phone: 1-800-265-2852
Fax: 1-800-667-6772

DRAGONtape and OPTOTRONIC are registered trademarks of OSRAM GmbH used under license.
OSRAM is a registered trademark of OSRAM GmbH.
Golden DRAGON is a trademark of OSRAM GmbH used under license.