

Data Sheet

DUREL DFLX™ Flexible Electroluminescent Lamp



Typical Applications

- Cellular Phone Keypads
- Remote Controls
- Cordless Phones
- Smartphones
- Portable Electronic Devices

DFLX Features-Advantages-Benefits

THICKNESS

At around 0.1 mm thick, DFLX lamps are thin enough to allow tactile transfer through a keymat, providing for a compact phone assembly.

FLEXIBILITY

Lamps can be folded or bent to emit light in different directions for differentiation and design freedom.

UNIFORMITY

Uniform light across entire surface eliminates need for light guide, provides superior-looking product.

POWER USE

Only ~20 mA power consumption per typical keypad provides for longer battery life.

DESIGN SIMPLICITY

Screen-printed 2-dimensional part -- puts light exactly where needed.

COLOR

Bold red and green keys; numerous base color options and custom colors.

COOL TO THE TOUCH

Generates NO heat to affect other components.

QUICK PROTOTYPING

Fast, simple, low-cost screen-printed product reduces development cycle time.

ROGERS SUPPORT

Global technical support from vertically integrated industry leader in EL, simplifies supply chain and system optimization.

MATCHED-SYSTEM PERFORMANCE

Engineered for maximum brightness and efficiency when powered by the Rogers brand or equivalent pumping-inductor style IC driver.

DFLX™ lamps (DUREL® Flexible Electroluminescent Lamps) are a very thin, very flexible, uniform light source which is ideal for backlighting LCD displays, keypads, and many other small electronic devices. Unlike traditional electroluminescent (EL) lamps, DFLX lamps have no polyester substrate to add thickness and stiffness.

Designed especially with mobile phone keypads in mind, DFLX lamps can be positioned directly between a keymat and dome array, placing light at the center of each key without affecting the tactile feel of the key actuation.

At around 0.1 mm thick, DFLX lamps give designers new options for backlighting that previously have not been possible. Compared to LEDs, DFLX lamps provide keypads a more uniform brightness, giving them a high-quality, best-in-class appearance.

DFLX lamps are available in a variety of colors including discrete areas of accent colors such as for a red-key (power/end) and green-key (send) on a mobile phone keypad.

DFLX technology is patented worldwide, including patents and applications covering the United States, Japan, Korea, China, Taiwan, Hong Kong, and the European Patent Community (EPC).



DUREL® 3 lamps are covered by one or more of the following patents; 5,156,885; 5,418,062; 5,593,782; 5,439,705; 5,908,698; 6,445,128; 6,528,943; 5,856,030; 6,270,834. Corresponding foreign patents are issued or pending.

*The displayed Samsung handset has been retrofitted with Rogers' DUREL DFLX lamp for demonstration purposes. Samsung does not currently use this technology in this handset nor is this intended to be an endorsement by Samsung of this technology. Samsung is a registered trademark of Samsung Electronics America, Inc. and its related entities.

DFLX™ LAMP ELECTRICAL CHARACTERISTICS

| Phosphor Name | Color | Color Coordinates @ 100 V 400 Hz. | | Luminance @ 100 V 400 Hz. | Time to Half Luminance (hours) 80 V/200 Hz @ 23° C / 45% RH (ambient) |
|---------------|------------|-----------------------------------|---------|---------------------------|--|
| | | x-coord | y-coord | | |
| 225 | Green | 0.180 | 0.410 | 88 cd/m ² | 3000 |
| 615 | Blue-Green | 0.200 | 0.370 | 73 cd/m ² | 3500 |
| 665 | Sky Blue | 0.190 | 0.250 | 48 cd/m ² | 1000 |
| 604 | Deep Blue | 0.160 | 0.180 | 38 cd/m ² | 900 |
| 225 WOPO* | White | 0.290 | 0.390 | 65 cd/m ² | 3000 |

*WOPO = White-On Pink-Off.

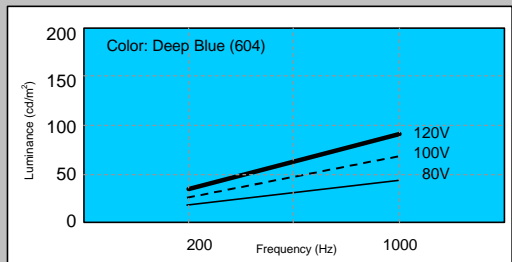
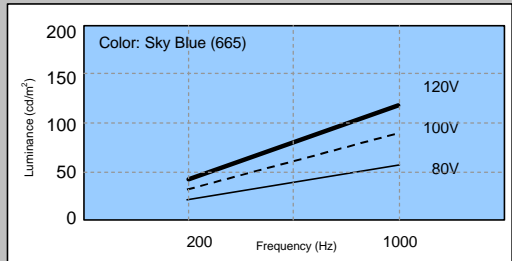
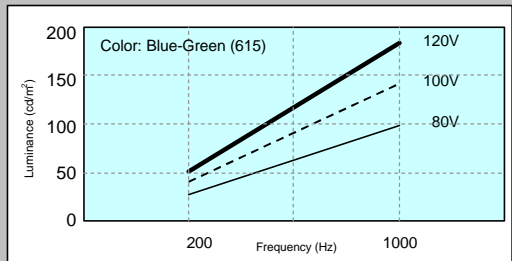
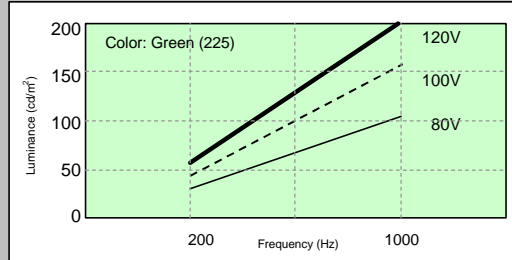
MAXIMUM RATINGS

| Property | Units | Max. | Typical |
|----------------------------------|--------------------|-----------|-------------|
| Supply Voltage | Vrms | 150 | 40 - 100 |
| Supply Frequency | Hz | 3000 | 200 - 500 |
| Input Current | mA/in ² | 2.0 | 0.2 - 1.0 |
| | mA/cm ² | 0.31 | 0.03 - 0.16 |
| Operating Temperature Range | °C | -25 to 70 | 0 to 40 |
| Storage Temperature Range | °C | -40 to 85 | 0 to 50 |
| Thermal Shock Resistance (unlit) | °C | -30 to 75 | N/A |
| Thickness | 2-electrode* | inches | 0.004 |
| | | mm | 0.10 |
| | 3-electrode* | inches | 0.005 |
| | | mm | 0.12 |

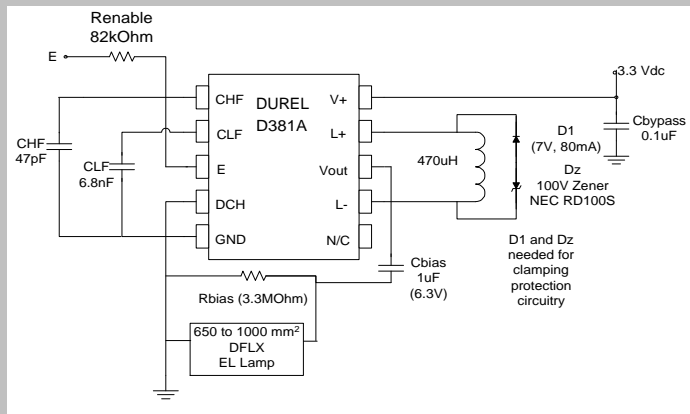
*2-electrode construction: Optimized for thinness and cost

*3-electrode construction: Additional ground plane for reduced electrical and audible noise

VOLTAGE & FREQUENCY RESPONSE



RECOMMENDED APPLICATION CIRCUIT



DUREL DFLX™ lamp construction is optimized for matched-system driver IC output using Rogers brand EL driver or equivalent. For maximum lamp reliability at extreme environmental conditions, the use of an RC(bias) high-pass filter circuit connected to the output as shown in configuration above is highly recommended when using any type of EL driver IC.

CONTACT INFORMATION:

ISO 9001:2000, ISO/TS 16949:2002,
ISO 14001:1996 Certified

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