

DUREL[®] Backlight IC Driver Product Selector Guide

Applying its extensive knowledge of electroluminescent lamp technology, Rogers Corporation-Durel Division developed a portfolio of driver ICs for a wide range of applications using EL backlighting systems. Most DUREL[®] EL drivers are based on Rogers' patented three-port (3P) circuit topology, which offers designers the simplicity of a single DC input, single AC output, and a shared common ground that provides an integrated EMI shielding. The addition of a patented controlled discharge circuitry in most DUREL[®] EL drivers extends the noise reduction capability of these devices for acoustic noise sensitive applications such as handsets and other portable electronic products without sacrificing efficiency. Rogers has extended its backlight IC product family with new products that combine the EL lamp driver functionality with an efficient high-brightness light-emitting diode (HBLED) driver to backlight color displays. Rogers IC family now includes an IC driver for liquid lens focusing. All DUREL[®] backlight drivers demand very low standby current for longer battery life in portable electronic products.

D305

The D305 IC driver is a high-power IC capable of driving EL lamps as large as 100 cm² with very high voltage AC output up to 400V peak-to-peak. Operating at supply voltages of 2.0 - 7.0 V_{DC} and logic voltage from 2.0V_{DC} to 5.0V_{DC}, the D305 IC driver is equipped with many control functions including: wave-shaping programmability for minimizing audible noise, and other features that allow for component cost savings, precision control of frequencies, and stability of lamp color over wide temperature extremes. The D305 IC driver is available in space-saving MSOP-10 package in tape/reel. A D305 IC Driver Designer's Kit is available as a tool for optimizing the driver circuit for your application.

D306

Intended for signage, instrumentation displays and other large electroluminescent backlighting uses, the D306 IC driver can drive EL lamps as large as 180 cm². The D306 IC driver is a powerful device that can convert a wide input voltage range from 2.0V_{DC} to 12.0 V_{DC} and logic voltage from 2.0V_{DC} to 5.0V_{DC} to an output voltage as high as 400V peak-to-peak. For reducing audible noise, this IC is also equipped with patented wave-shaping programmability. Dual on-chip oscillators allow for independent selection of inductor switching and lamp output frequency optimization through the choice of external capacitor values or with separate external clock signals. The D306 IC driver is available in a square-body surface mount QFN-16 package in tape and reel and requires a minimal number of external components. A D306 IC Driver Designer's Kit is available as a tool for optimizing the driver circuit for your application.

D307

Intended for signage, instrumentation displays and other large electroluminescent backlighting uses, the D307 IC driver can drive EL lamps as large as 225.8 cm². The D307 IC driver is a powerful device that can convert a wide and high input voltage range from 6.0V_{DC} to 16.0 V_{DC} and logic voltage from 4.5V_{DC} to 5.5V_{DC} to an output voltage as high as 440V peak-to-peak. For reducing audible noise, this IC is also equipped with patented wave-shaping programmability. Dual on-chip oscillators allow

for independent selection of inductor switching, lamp output frequency optimization through the choice of external capacitor values or with separate external clock signals, and control of lamp brightness. The D307 IC driver features over-voltage-protection and open-load-protection circuitry. The D307 IC driver is available in a square-body surface mount QFN-16 package in tape and reel. A D307 IC Driver Designer's Kit is available as a tool for optimizing the driver circuit for your application.

D355

The D355 IC driver offers superior efficiency over a wide range of applications such as two-way pagers, MP3 players, other handheld electronics, and timepieces. Based on Rogers' patented 3P topology, the D355 IC driver requires only one inductor and one capacitor to complete a driver circuit that will drive EL lamps and other devices, such as piezoelectric actuators. The D355 IC driver operates with supply voltages of 1.0 - 7.0 V_{DC}, and features internally controlled current discharge for built-in EMI shielding. The D355 IC driver is offered in 8-pin MSOP in tape/reel and in die form by wafer or waffle pack.

The D355 IC driver is also available as a "stand-alone" EL driver module solution that combines all required external discrete components, including a power inductor, into a small, 5mm X 7mm X 1.5mm lead-free (Pb-free) package. A D355 IC Driver Designer's Kit is available as a tool for optimizing the circuit for your application.

D356

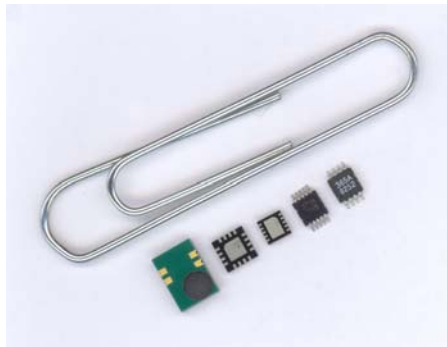
The D356 IC driver provides system performance similar to that of the D355 IC driver. Their designs differ only in that the D356 IC driver uses an enable high system while the D355 IC driver functions with enable low. Both devices offer built-in EMI shielding based on Rogers' patented 3P circuit. The D356 IC driver is offered in the MSOP-8 package by tape/reel and in die form by wafer or waffle pack. A D356 IC Driver Designer's Kit is available as a tool for optimizing the circuit for your application.

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D365

The D365 IC driver is a high-powered EL driver with low-noise performance for backlighting handsets and other applications that are sensitive to audible and electrical noise. Based on Rogers' patented 3P circuit, the D365 IC driver also includes a patented circuit design that minimizes system noise by reducing the rate of voltage discharge from the lamp. It only requires one external inductor, one transistor, and one capacitor to make a complete driver circuit with a supply voltage range of 2.5 - 6.5 V_{DC}. The D365 IC driver is offered in standard or Pb-free 8-pin MSOP in tape/reel. A D365 IC Driver Designer's Kit is available as a tool for optimizing the circuit for your application.



D371

The D371 IC driver is a high performance EL driver based on Rogers' patented 3P circuit. It uses a patented circuit design for programmable wave-shaping providing low-noise performance in applications that are sensitive to audible and electrical noise, such as handsets. This EL driver operates very efficiently over a supply voltage range of 2.0 – 6.5 V_{DC}. External capacitors or clock signals may be used to set the lamp output and inductor frequencies. The D371 IC driver is offered in 10-pin MSOP in tape/reel and in die form by wafer or wafer pack. A D371 IC Driver Designer's Kit is available as a tool for optimizing the circuit.

D372

The D372 IC driver delivers a regulated high voltage AC signal for use in backlighting EL lamps with areas up to 12 in² (80 cm²). It also features programmable wave-shaping for low-noise performance in applications that are sensitive to audible and electrical noise. This EL driver operates efficiently over a supply voltage range of 2.0 - 6.5 V_{DC}. External capacitors or clock signals may be used to set the lamp output and inductor switching frequencies. The D372 IC driver is offered in 10-pin MSOP in tape/reel and in die form by wafer or wafer pack. A D372 IC Driver Designer's Kit is available as a tool for optimizing the circuit.



D381

The D381 IC driver is a very efficient power device based on Rogers' patented 3P topology for driving EL lamps in PDAs, keypads and large LCDs in handsets. It can drive other devices, such as piezoelectric actuators, requiring a high voltage AC signal as well. The D381 IC driver features a patented programmable wave-shaping option for low noise performance, and external capacitors or independent clock signals may be used to control the output frequency and inductor switching frequency of the device. The D381 IC driver operates with a 2.0-7.0 V_{DC} supply voltage. In the MSOP-10 package, it is configured compatibly with the D371 IC driver; it is also available in the 8-pin MSOP, and DFN-10 packaging in tape/reel. A D381 IC Driver Designer's Kit is available as a tool for optimizing the circuit.

The D381 IC driver is also available as a "stand-alone" EL driver module solution that combines all required external discrete components, including a power inductor, into a small, 5mm X 7mm X 1.5mm lead-free (Pb-free) package. A D381 IC Driver Designer's Kit is available as a tool for optimizing the circuit for your application.

D388

The D388 IC driver combines the functionality of a high performance EL lamp driver for backlighting monochrome displays and keypads with an efficient HBLEED driver to backlight color displays. It has a wide input voltage range from 2.5 V_{DC} to 7.0 V_{DC} to fit many types of applications and battery technologies. Operating at high switching frequencies, it uses a single low profile inductor to drive up to 4 HBLEEDs and up to 20 cm² EL lamp simultaneously with separate enable controls. This dual driver features independent EL voltage control and LED current control for constant light output and dimming options to reduce power consumption. The D388 IC driver includes a patented circuit design for programmable wave-shaping of the high voltage AC output to the EL lamp providing low-noise performance in applications that are sensitive to audible and electrical noise. The D388 IC driver is offered in the Pb-free, leadless QFN-16 package in tape/reel. A D388 IC Driver Designer's Kit is available as a tool for optimizing the circuit for your particular application.

DLL3

The DLL3 IC driver applies the D388 technology to drive a liquid lens. By using the EL driver portion of the D388 driver the DLL3 IC driver is able to vary between 10V_{RMS} to 65V_{RMS} at the lens by either a PWM or I²C (requires digital to analog converter (DAC)) signal. This driver technology uses only 8 external components and uses an input voltage range from 2.8V_{DC} to 5.5V_{DC}. The DLL3 IC driver is offered in the Pb-free, leadless QFN-16 package in tape/reel. A DLL3 IC Driver Kit Board is available for sampling and testing.

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DUREL[®] EL Lamp Drivers:

Product	Package	Supply Voltage Logic Voltage	Features	# External Components	Applications	Lamp Area
D305A	MSOP-10	2.5 - 7.0V _{DC} 2.0 - 5.0V _{DC}	High Vout to 400Vpp, Wave-shaping, Small Package	3-8	PDA's, GPS, Small Signage, Remote Controls	<15 in ² <100 cm ²
D306A	QFN-16	2.0 - 12.0V _{DC} 2.0 - 5.0V _{DC}	Powerful, Vout to 400Vpp, Wave-shaping	3-8	Large Graphic Displays, Signage Backlighting, Automotive	<28 in ² <180 cm ²
D307A	QFN-16	9.0 - 16.0V _{DC} 4.5 - 5.5V _{DC}	High Vout to 440Vpp, Wave-shaping, Regulated Output, Open Load Protected	10-13	Large Graphic Displays, Signage Backlighting, Automotive	<35 in ² <225.8 cm ²
D355B	MSOP-8	1.0 - 7.0V _{DC}	3P, ENA Low, Low current discharge; LF Control	1-2	Watches, PDA's, Pagers, MP3, GPS, Remote Controls	<6 in ² <40 cm ²
D356B	MSOP-8	1.0 - 7.0V _{DC}	3P, ENA High, Low current draw, LF control	1-2	Watches, PDA's, Pagers, MP3, GPS, Remote Controls	<6 in ² <40 cm ²
D365A	MSOP-8	2.5 - 6.5V _{DC}	3P, High Power, Low noise, Up to 280Vpp Output	2-3	Handsets, PDA's, Monochrome LCDs, Remote Controls, DFLX™ EL Keypad Lamps	<12 in ² <80 cm ²
D371A	MSOP-10	2.0 - 6.5V _{DC}	3P, Low noise Wave-shaping, HF and LF control	1-4	Handsets, PDA's, Monochrome LCDs, Remote Controls, DFLX EL Keypad Lamps	<10 in ² <65 cm ²
D372A	MSOP-10	2.0 - 6.5V _{DC} 2.0 - 6.5V _{DC}	Low noise Wave-shaping, Regulated Output, HF and LF control	3-5	Handsets, PDA's, Monochrome LCDs, Remote Controls, DFLX EL Keypad Lamps	<12 in ² <80 cm ²
D381B	MSOP-10 MSOP-8 DFN-10	2.0 - 7.0V _{DC}	3P, Low noise Wave-shaping, High Efficiency, HF and LF Control	1-4	Handsets, PDA's, Monochrome LCDs, Remote Controls, DFLX EL Keypad Lamps	<12 in ² <80 cm ²

DUREL[®] EL Lamp Driver Modules:

D355B	Custom 5x7x1.5 Module	1.0 - 7.0V _{DC}	3P, ENA Low, Low current discharge	0	Watches, PDA's, Pagers, MP3, GPS, Remote Controls	<5 in ² <32 cm ²
D381B	Custom 5x7x1.5 Module	1.0 - 6.0V _{DC}	3P, Low noise, Wave-shaping, High Efficiency	0	Handsets, PDA's, Monochrome LCDs, Remote Controls, DFLX EL Keypad Lamps	<12 in ² <80 cm ²

DUREL[®] Combination EL Lamp and White LED Driver:

D388A	QFN-16	2.5 - 7.0V _{DC} 2.5 - 7.0V _{DC}	Independent EL and LED enable control; Regulated EL voltage and LED current; Separate EL and LED dimming controls; Low noise EL Wave-shaping, High Efficiency	6-8	Color Handsets Displays and, DFLX EL Keypad Lamps, PDA's, GPS, Other Handheld Electronics; See DLL3A	<3 in ² (<20 cm ²) and/or up to 6 white LEDs in series
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DUREL[®] Liquid Lens Driver:

DLL3A	QFN-16	2.8 - 5.5V _{DC}	Interface with PWM or I ² C (DAC required), 2.8 to 5.5V _{DC} Operation, High Efficiency	6-8	Liquid Lens	Up to 500pF Lens
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ISO 9001:2000, ISO/TS 16949:2002, and ISO 14001:2004 Certified

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DUREL EL drivers are covered by one or more of the following U.S. patents: #5,313,141, #5,347,198, #5,789,870, #5,677,599, #6,043,610, #6,297,597, and #6,580,222. Corresponding foreign patents are issued or pending.

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