

General Description

The Durel® D361 Lamp Driver is part of a family of switch-mode IC inverters intended to reduce cost, improve performance and simplify the design of EL back-lighting systems. The D361 IC and three components make a complete EL lamp driving circuit. Equipped with a patented discharge circuit design, the D361 device minimizes EL lamp system noise for handset applications.

Features

- Integrated low noise circuitry
- High voltage AC output
- Drives up to 20 in² EL lamps
- Very low standby current

Applications

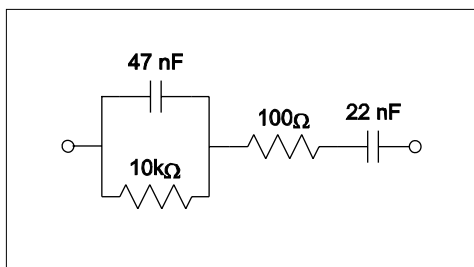
- Cellular phones and handsets
- Data organizers/PDAs
- LCD Backlight

Lamp Driver Specifications

(T_a=25°C; V₊=3.3V; Load B*; L=1mH Mouser; DCR = 2Ω; CHF=6.8nF; MPSA56 PNP transistor)

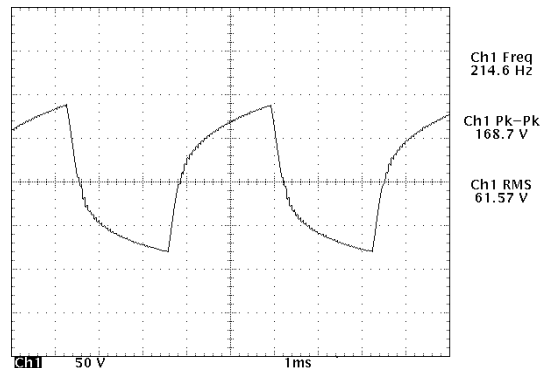
Parameter	Symbol	Minimum	Typical	Maximum	Unit	Comments
Standby Current			4	1000	nA	E = GND
Supply Current	I		68	90	mA	E = V ₊
Enable Current: On			15	50	μA	E = V ₊
Enable Current: Off				20	nA	E = GND
Enable Voltage: On	E	1.7		V ₊	V	
Enable Voltage: Off		0		0.5	V	
Output Voltage	V _{out}	162	184	280	V _{pp}	
Lamp Frequency	LF	236	270	306	Hz	LF = HF/72
Inductor Oscillator Frequency	HF	17.0	19.2	22.0	kHz	

Load B



* Load B approximates a 4in² EL lamp.

Output Waveform



Data Sheet D361A Electroluminescent Lamp Driver IC



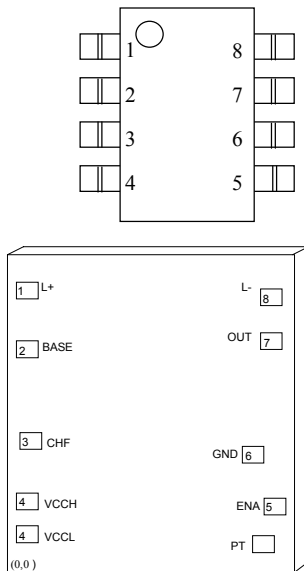
MSOP-8

Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit	Comments
Supply voltage					
Operating range	V+	2.5	6.5	V	E = V+
Withstand range		-0.5	7.0		E = GND
Enable voltage	E	-0.5	(V+) +0.5	V	
Lamp Output	Vout		280	V _{pp}	E = V+
Power Dissipation	P _d		250	mW	
Operating temperature	T _a	-20	85	°C	
Storage temperature	T _s	-40	150	°C	

Note: The above are stress ratings only. Functional operation of the device at these ratings or any other above those indicated in the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods of time may affect reliability.

Physical Data

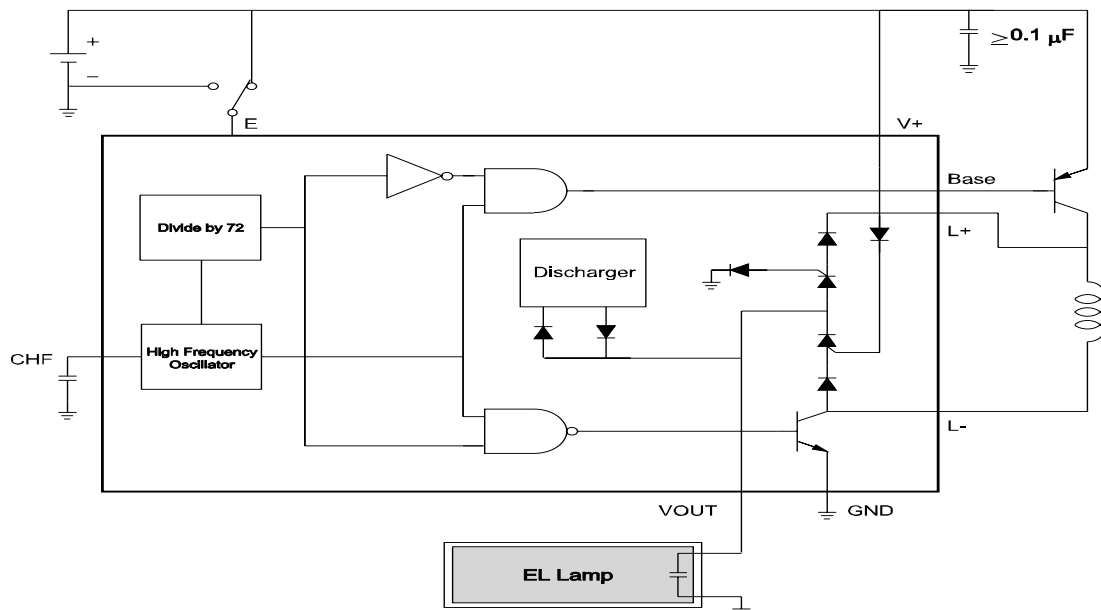


Pin #	Name	Pad Location		Function
1	L+	172	1492	Positive input to inductor
2	Base	172	1061	PNP transistor base connection
3	CHF	172	662	High freq. oscillator capacitor/clock input
4	VCCH	163	396	DC power supply input
	VCCL	163	165	DC power supply input
5	E	1183	364	System enable; HI = On
6	GND	1032	686	System ground connection
7	VOU	1012	1362	AC output to lamp
8	L-	1012	1614	Negative input to inductor

Notes:

1. Dimensions are in microns, unless otherwise noted.
2. Bond pads are typically 100 x 100.
3. Die thickness is 550 +/-30 (22 +/-1 mil).
4. Pad center coordinates are relative to origin on left bottom corner of die.
5. Die size is 1360 x 1780 (53.5 x 70 mils).

Block Diagram of the Inverter Circuitry

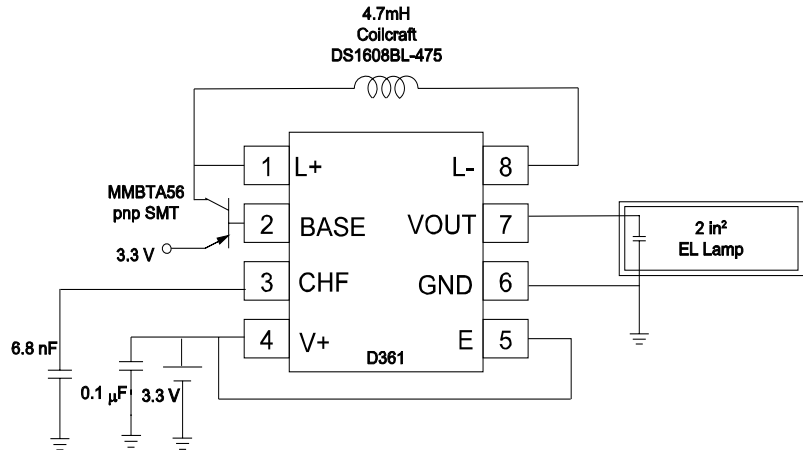


Typical D361A EL Driver Configurations

3.3 V Handset LCD

Typical Output

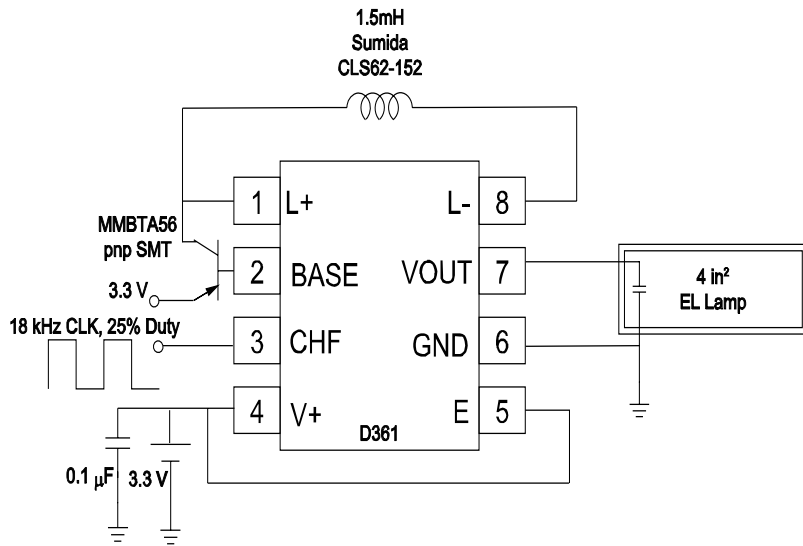
Luminance = 5.6 fL (19.2 Cd/m²)
 Lamp Frequency = 280 Hz
 Supply Current = 31mA
 Vout = 198 Vpp
 Load = 2in² Durel 3 Green EL



3.3 V Handset LCD + Keypad

Typical Output

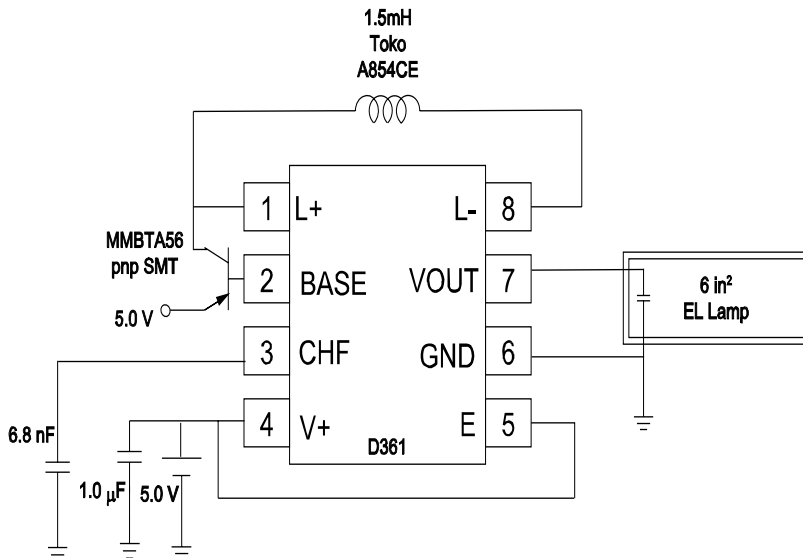
Luminance = 5.4 fL (18.5 Cd/m²)
 Lamp Frequency = 256 Hz
 Supply Current = 50mA
 Vout = 204 Vpp
 Load = 4in² Durel 3 Green EL



5.0 V LCD Backlight

Typical Output

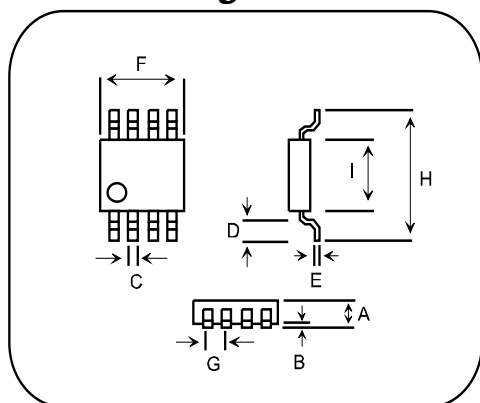
Luminance = 8.8 fL (30 Cd/m²)
 Lamp Frequency = 350 Hz
 Supply Current = 65mA
 Vout = 224 Vpp
 Load = 6in² Durel 3 Green EL



Ordering Information

The D361A IC is available as bare die in probed 5" wafer form or in die trays, and in standard MSOP-8 plastic package per tube or per tape and reel. A Durel D361 Designer's Kit (1DDD361AA-K01) provides a vehicle for evaluating and identifying the optimum component values for any particular application using D361.

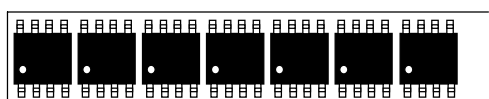
Plastic Package Outline



Description	MSOP-8					
	Min.		Typical		Max.	
	mm.	in.	mm.	in.	mm.	in.
A	0.94	0.037	1.02	0.040	1.09	0.043
B	0.05	0.002	0.10	0.004	0.15	0.006
C	0.20	0.008	0.33	0.013	0.46	0.018
D	0.41	0.016	0.53	0.021	0.65	0.026
E	0.13	0.005	0.18	0.007	0.23	0.009
F	2.84	0.112	3.00	0.118	3.15	0.124
G	0.43	0.017	0.65	0.026	0.83	0.033
H	4.70	0.185	4.90	0.193	5.11	0.201
I	2.84	0.112	3.00	0.118	3.25	0.128

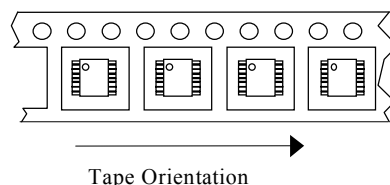
MSOPs are marked with part number (361A) and 3-digit wafer lot code. Bottom of marking is on the pin 1 side.

MSOPs in Tubes: 1DDD361AA-M01



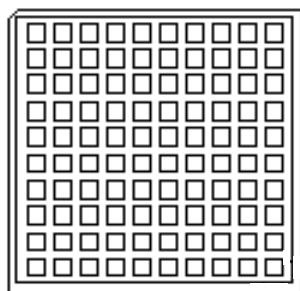
Tube-length is 320 mm (12.6 in).
100 units per tube.

MSOPs in Tape & Reel: 1DDD361AA-M02



Embossed tape on 360 mm diameter reel.
2500 units per reel.

Die in Trays: 1DDD361AA-B02



- Die tray size is 2 inches square
- Total number of pockets is 100
- Pocket depth is 890 μ m (0.035")
- Pocket area is 2030 μ m x 2030 μ m (0.080" x 0.080")

ISO 9001 Certified

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