

Large-screen E L Driver MIP814

Overview

MIP814 is an IPD (Intelligent Power Device) that can drive large-screen EL display units with low current to deliver exceptionally bright pictures. Its transformer-free configuration minimizes the need for externally connected components. The use of an SMD package helps make EL display designs smaller and lighter. This product is most suitable for reducing power consumption and increasing brightness of EL display units measuring 30cm² to 60cm².

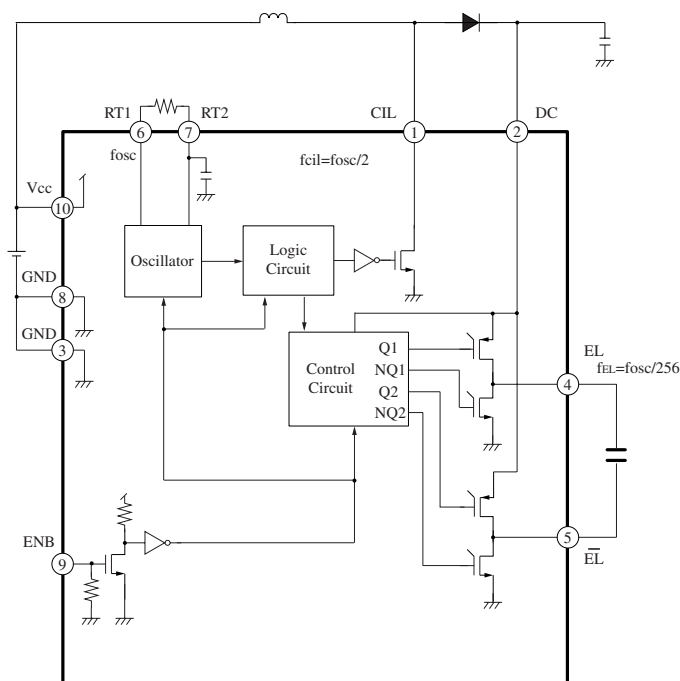
Features

- Integrates a MOS FET with high output breakdown voltage used for stepping-up the coil voltage and CMOS control circuitry into single-chip configuration.
- Oscillating frequency adjustment possible vis an externally connected resistor.
- Push-pull drive system for EL peak voltage of 230Vp-p.
- Package: 10-pin SSOP

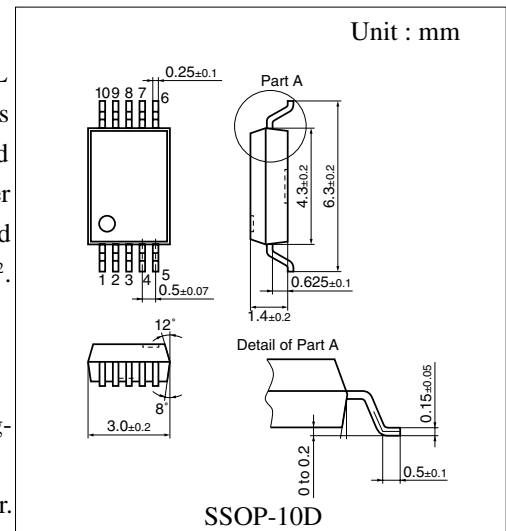
Applications

- Cellular phone
- PDA
- Electronic organizers
- Other mobile equipment

Block Diagram



† The products and specifications are subject to change without any notice. Please ask for the latest product standards to guarantee the satisfaction of your product requirements.



Pin Descriptions

Pin No.	Function
1	Charge or discharge coil
2	High voltage charge input
3	GND
4	EL lamp driver output 1
5	EL lamp driver output 2
6	Internal oscillation output
7	OSC resistor connection pin
8	GND
9	Enable pin
10	V _{CC}

■ Absolute Maximum Ratings

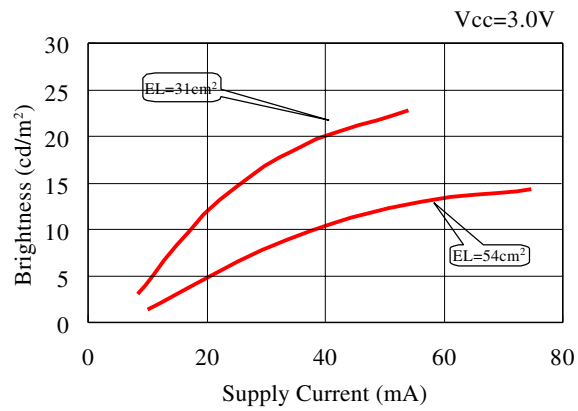
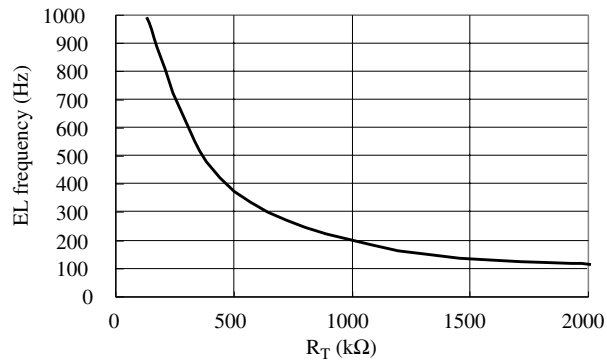
Parameters	Symbol	Rating	Item
Supply voltage	V _{CC}	-0.5 to 5.5	V
Input voltage	V _{ENB}	-0.5 to V _{CC} +0.5	V
Output voltage	V _{DC}	-0.5 to 115	V
EL output voltage	V _{EL}	-0.5 to 115	V
EL output voltage	V _{EL}	-0.5 to 115	V
EL output peak current	I _{EL}	150	mA
EL output peak current	I _{EL}	150	mA
CIL output peak current	I _{CIL}	600	mA
CIL output current*1	I _{OCIL}	100	mA
Power dissipation	P _D	150	mW
Operating ambient temperature	T _{opr}	-20 to +70	°C
Operating Junction Temperature	T _{ch}	-20 to +125	°C
Storage temperature	T _{stg}	-20 to +125	°C

*1 Average current on inductor drive.

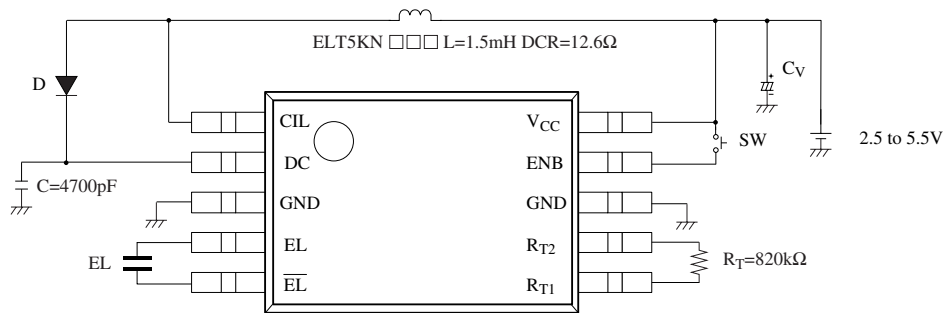
■ Electrical Characteristics (Ta = 25°C ± 3°C, V_{CC} = 3 V, ENB = 3 V, GND = 0 V)

Parameters	Symbol	Conditions	min	typ	max	Item
Supply voltage	V _{CC}		2.5		5.5	V
ENB high level input voltage	V _{IH}	V _{CC} = 2.5V to 5.5V	1.0		V _{CC}	V
ENB low level input voltage	V _{IL}	V _{CC} = 2.5V to 5.5V	0		0.3	V
(Inductor output)						
Output voltage	V _{DSS-CIL}	ENB = 0V, I _{CIL} = 20μA	115	-	-	V
ON-state resistance	R _{ON}	I _{CIL} = 20mA	-	8	-	Ω
Off leakage current	I _{DSS-CIL}	ENB = 0V, V _{CIL} = 120V	-	-	10	μA
Output current	I _{DSCIL}	V _{CIL} = 20V	-	280	-	mA
(EL output)						
Output voltage	V _{DSS-EL}	R _{T2} = 3V, idc-el = 60μA	115	-	-	V
Off leakage current	I _{DSS-EL}	R _{T2} = 3V, V _{DC} = 105V	-	-	50	μA
(EL output)						
Output voltage	V _{DSS-ELB}	R _{T2} = 0V, idc-el = 60μA	115	-	-	V
Off leakage current	I _{DSS-ELB}	R _{T2} = 0V, V _{DC} = 105V	-	-	50	μA
DC output voltage	V _{DC}	ENB = 0V, I _{DC} = 250μA	115	-	-	V
Oscillator output frequency	f _{osc}	R _T = 820kΩ	54	64	74	kHz
EL frequency	f _{EL}	R _T = 820kΩ	213	254	295	Hz
CIL frequency	f _{CIL}	R _T = 820kΩ	26.9	32	37.1	kHz
CIL Duty	D _{CIL}	R _T = 820kΩ	70	75	80	%
Quiescent supply current	I _{COFF}	V _{CC} =5.5V, ENB=0V, R _T =390kΩ	-	-	0.3	μA
Supply current*1	I _C	V _{CC} =ENB=5.5V, R _T =390kΩ	-	1	2	mA

*1 Excluding Inductor Current



■ Application Circuit



Symbol	Part	Type	Specification	Manufacturer
R _T	Resistance		820kΩ	Matsushita
D	Diode	MA2Z001	200V	Electronic
C	Ceramic capacitor	ECJ2XB2D472K	4700pF,200V	Components
L	Inductor	ELT5KN	1.5mH,12.5Ω	Co., Ltd.
CV	Capacitor		>0.1μF,10V	

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Attached table "IPD availability by customer"

Parts No.			Able to supply	Disable to supply	Application
MIP13*	MIP17*	MIP2**	Domestic Japanese companies Japanese companies in Asia (50% or more owned)	European and American companies Local Asian companies Other local companies	IPD for power supply
MIP14*	MIP18*	MIP30*			
MIP15*	MIP01**				
MIP16*	MIP02**				
MIP10*	MIP11*	MIP803/MIP804/MIP806	Domestic Japanese companies Japanese companies in Asia (50% or more owned)	European and American companies† Local Asian companies† Other local companies†	IPD for power supply IPD for EL drive
MIP501 to MIP511 MIP704 to MIP709 MIP805			No restrictions in terms of contract	No restrictions in terms of contract	IPD for lamp/Power supply IPD for EL power supply IPD for DC/AC converter

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