

# MIP805

## Silicon MOS IC

### ■ Features

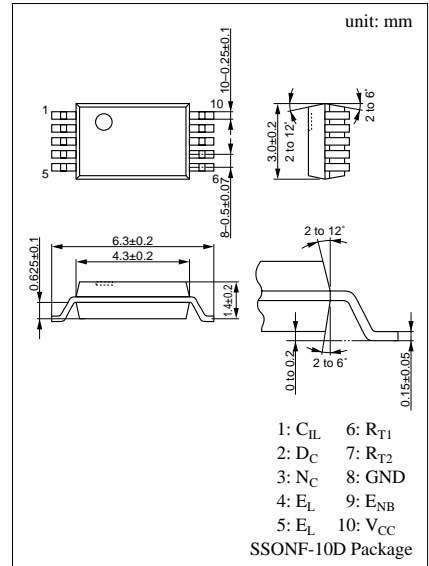
- Output MOSFET with high breakdown voltage for voltage step-up, EL driver and CMOS control circuits are integrated into one chip.
- Oscillation circuit is incorporated
- EL voltage controlled push-pull drive system achieves higher EL light intensity. ( $160V_{p-p}$ )

### ■ Applications

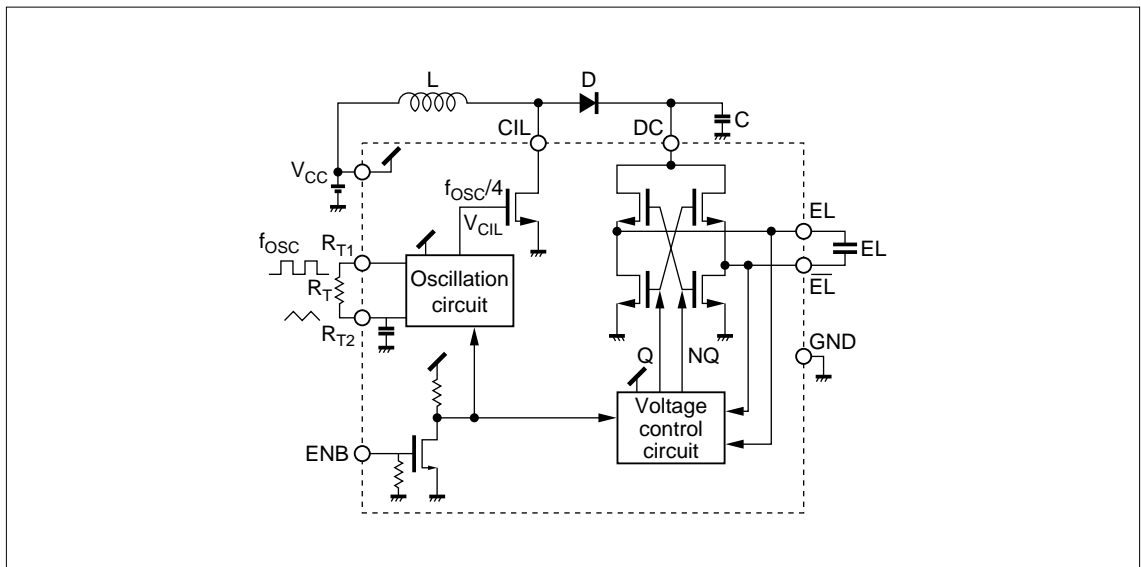
- EL drive

### ■ Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Ratings	Unit
Power supply voltage	$V_{CC}$	- 0.5 to 6	V
Input voltage (ENB)	$V_{ENB}$	- 0.5 to $V_{CC} + 0.5$	V
Output voltage (CIL)	$V_{CIL}$	- 0.5 to 100	V
Output voltage (DC)	$V_{DC}$	- 0.5 to 100	V
Output voltage (EL)	$V_{EL}$	- 0.5 to 100	V
Output voltage ( $\bar{E}L$ )	$V_{\bar{E}L}$	- 0.5 to 100	V
Output current (CIL)	$I_{CIL}$	80	mA
Output current ( $\bar{E}L$ )	$I_{\bar{E}L}$	20	mA
Output current (EL)	$I_{EL}$	20	mA
Allowable power dissipation	$P_D$	150	mW
Operating ambient temperature	$T_{opr}$	-20 to +70	$^\circ\text{C}$
Operating Junction temperature	$T_{ch}$	-20 to +125	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +125	$^\circ\text{C}$



### ■ Block Diagram



■ Electrical Characteristics (Ta = 25 ± 2°C)

Parameter	Symbol	Conditions*	min	typ	max	Unit	
<b>Operating condition</b>							
Supply voltage	V <sub>CC</sub>		2.5	3	3.5	V	
Input voltage (High) (ENB)	V <sub>IH</sub>	V <sub>CC</sub> = 2.5 to 3.5V	1			V	
Input voltage (Low) (ENB)	V <sub>IL</sub>	V <sub>CC</sub> = 2.5 to 3.5V	0		0.3	V	
<b>Oscillation circuit</b>							
Oscillator output frequency (R <sub>TI</sub> )	f <sub>OSC</sub>	R <sub>T</sub> = 270kΩ	98	116	134	kHz	
Inductor frequency (CIL)	f <sub>COIL</sub>	R <sub>T</sub> = 270kΩ	24.5	29	33.5	kHz	
Inductor duty cycle (CIL)	DUTY		70	75	80	%	
<b>Output</b>							
Inductor output (CIL)	Output breakdown voltage	V <sub>DSS</sub>	E <sub>NB</sub> = 0, I <sub>DS</sub> = 100μA	100			V
	Output current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V	70			mA
	ON-state resistance	R <sub>on</sub>	I <sub>D</sub> = 10mA		10	15	Ω
	OFF-leakage current	I <sub>DSS(off)</sub>	E <sub>NB</sub> = 0, V <sub>DS</sub> = 80V			10	μA
EL output (EL)	Output current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V	10			mA
	OFF-leakage current	I <sub>DSS(off)</sub>	E <sub>NB</sub> = 0, V <sub>DS</sub> = 80V			10	μA
EL output (EL̄)	Output current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V	10			mA
	OFF-leakage current	I <sub>DSS(off)</sub>	E <sub>NB</sub> = 0, V <sub>DS</sub> = 80V			10	μA
<b>EL output voltage control</b>							
EL output voltage	V <sub>EL</sub>		148	160	180	V <sub>P-P</sub>	
<b>Consumption current</b>							
Quiescent circuit current	I <sub>COFF</sub>	V <sub>CC</sub> = 3.5V, V <sub>ENB</sub> = 0, R <sub>T</sub> = 270kΩ			0.1	μA	
Circuit current	I <sub>C</sub>	V <sub>CC</sub> = V <sub>ENB</sub> = 3.5V, R <sub>T</sub> = 270kΩ		0.5	10	μA	

\* V<sub>CC</sub> = 3V, ENB = 3V, and GND = 0 unless otherwise specified

■ Timing Chart

