

ELM900x CMOS White LED flashlight driver

■General description

ELM900x is CMOS white LED flashlight driver. This series can drive two series connected white LED by 1.5V to 3.0V input voltage. ELM900 series uses an external inductor as voltage booster and consists of an oscillator circuit and a driving transistor. The input DC power is transformed to constant current pulse when the external inductor is switched on and repeatedly at the frequency : 35kHz, 55kHz.

■Features

- Low noise : 35kHz, 55kHz (constant frequency switching)
- Constant average power control
- High efficiency
- Package : SOT-89

■Application

- White LED flashlight
- Laser pointer
- LCD backlighting

■Maximum absolute ratings

Parameter	Symbol	Limit	Unit
Max.voltage (Vdd to Vss)	Vdd	12	V
Max.voltage (LX to Vss)	Vlx	12	V
Max.current LX	Ilx	200	mA
Power dissipation	Pd	500	mW
Operating temperature	Top	-20 to +70	°C
Storage temperature	Tstg	-55 to +125	°C

■Selection guide

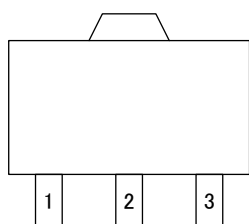
ELM900x-x

Symbol		
a	Switching frequency	B: Frequency 35kHz D: Frequency 55kHz
b	Taping direction	S: Refer to PKG file N: Refer to PKG file

ELM900 x - x
 ↑ ↑
 a b

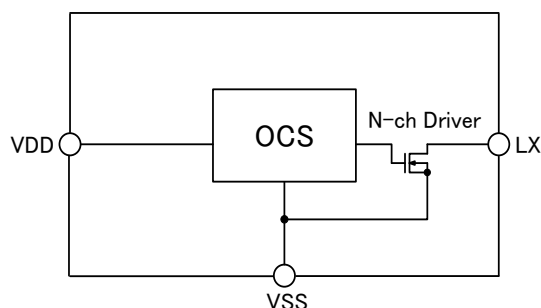
■Pin configuration

SOT-89(TOP VIEW)



Pin No.	Pin name
1	VSS
2	VDD
3	LX

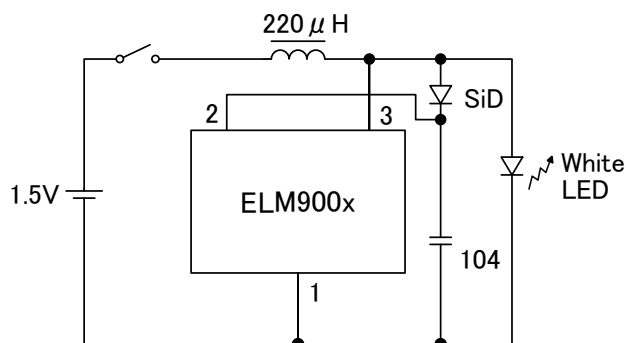
■Block diagram



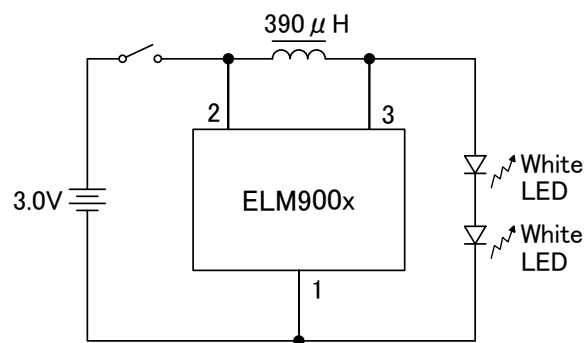
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■ Application circuit

1cell 1LED



2cell 2LED



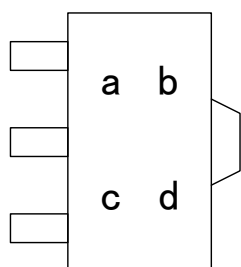
■ Electrical characteristics

Top=25°C

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Power voltage	Vdd		1.0		5.0	V
Current consumption	I _{ss}	Vdd=3.0V		7.0	14.0	μA
Output current of LX pin	I _{lx}	Vdd=3.0V	90.0			mA
Leakage current of LX pin	I _{lxl}	Vdd=LX=6.0V			1.0	μA
Oscillation frequency : 35kHz	Fosc	Vdd=3.0V	22	35	55	kHz
Oscillation frequency : 55kHz			35	55	75	
Duty ratio : switching 35kHz	Duty	Vdd=3.0V	45	55	65	%
Duty ratio : switching 55kHz			45	55	75	

■ Marking

SOT-89



a, b : Product IC code — 90

c : the assembly lot No.1

Products	Lot No.
ELM900B	0 to 9
ELM900D	A to Z (I, O, X expected)

d : the assembly lot No.2

Products	Lot No.
ELM900B	A to Z (I, O, X expected)
ELM900D	0 to 9