

Flashlight LED driver IC

characteristic:

- **Low operating voltage**0.9V ~ 1.8V
- **High efficiency**80%above
- **600mΩ**Low on-resistance

describe:

YX8115It is developed by our company for flashlight lighting.leddriveIC,host

To be used with one rechargeable or alkaline battery.

YX8115It is a DC converter step-upIC,useCMOSTechnology, efficient

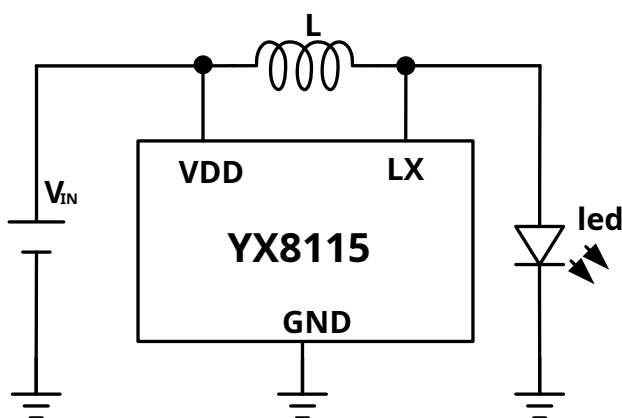
Low power consumption, simple peripherals, can drive small powered.

Applications:

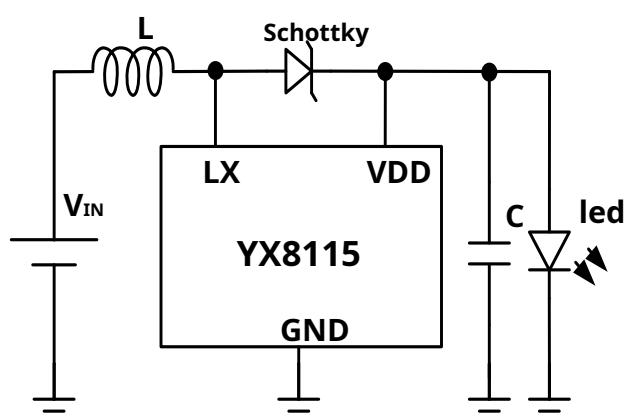
- **Mobile Flashlight**
- **ledheadlamp**
- **ledLED lighting decorative lamps**

YX8115Works on -40°C~+85°C

Typical Applications:



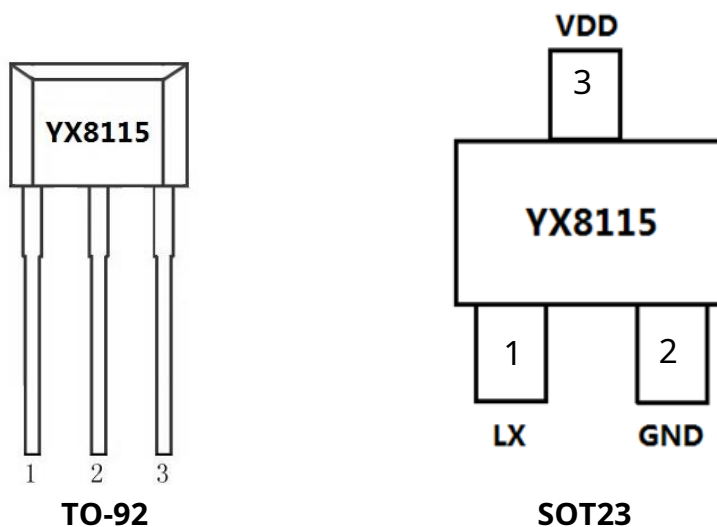
picture1.Solution 1



picture2.Solution 2

Ordering Information

Device Model	Order Number	Package Description	Storage temperature	Package marking	Packaging options
YX8115		TO-92	- 65°Cto +125°C		Bag
YX8115		SOT23	- 65°Cto +125°C		Tape and Reel

Pin Information


Pin Number		name	Functional Description
TO-92	SOT23		
1	1	LX	Power switch drain
2	3	VDD	Power supply
3	2	GND	catch land

Absolute Maximum Ratings

describe		scope	unit
Supply Voltage (VDD)		- 0.3 ~ 4.2	V
Other pins		- 0.3 ~ VDD+0.3	V
Storage Junction Temperature		-65 to +125	°C
Soldering temperature		260(10s)	°C
Static discharge (ESD)	HBM (Human Body Mode)	2000	V
	MM (Machine Mode)	200	V

Note 1: Exceeding the limit parameters specified in the above table may cause permanent damage to the device. Working under the above extreme conditions may affect the reliability of the device.

Heat loss information

describe		scope	unit
Package thermal resistance (θ_{JA}) Thermal resistance (Junction to Ambient) θ_{JA}	TO-92	200	°C/W
	SOT23	200	°C/W
Power consumption, $P_D @ T_A = 25^\circ\text{C}$ "Thermal resistance (Junction to Case) θ_{JC} "	TO-92	0.5	W
	SOT23	0.5	W

Recommended operating conditions

describe	scope	unit
Operating Junction Temperature	- 40 ~ 125	°C
Operating temperature	- 40 ~ 85	°C
Supply voltage	+ 0.9 ~ +1.8	V

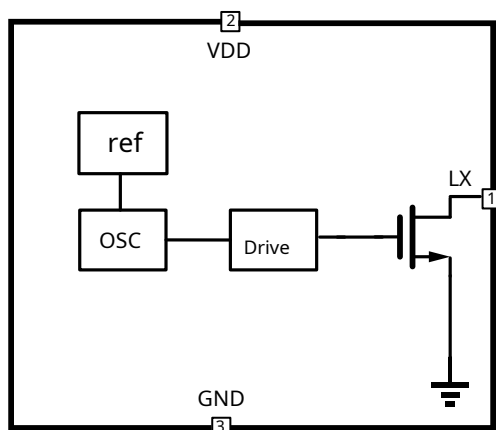
Note 2: The recommended operating range means that the device functions normally within this range, but it is not guaranteed to meet individual performance indicators.

Electrical properties

(Test method: Option 2, $V_{IN} = 1.5\text{V}$, $T_A = 25^\circ\text{C}$, $\Phi 8$ WLED, $L = 22\mu\text{H}/0307$, unless otherwise specified)

parameter	symbol	Test conditions	Minimum	Typical Value	Maximum	unit
Input voltage range	V_{IN}		0.9		1.8	V
Input current range	I_{IN}				500	mA
Switch on resistance	$R_{DS(ON)}$	$I_{IN} = 500\text{mA}$		0.6		Ω
Operating frequency	Fx	$V_{IN} = 1.5\text{V}$		280		KHz

Internal functional block diagram:



Current Regulation: Adjusting the external inductor value can change the operating current and led brightness.

Test data:

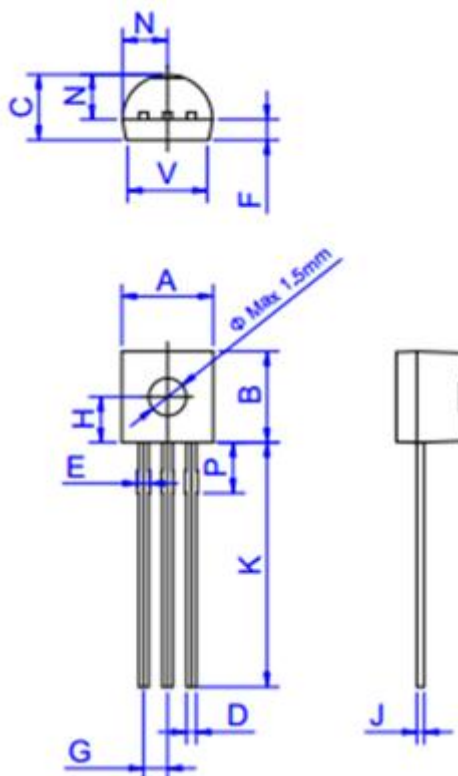
(Use the circuit of scheme 1, L=22uH/0307 Color ring inductor, ϕ 8 Straw Hat White LED)

Vi(V)	Ii(mA)	Io(mA)
1.6	231.7	61.5
1.5	196.2	51.8
1.4	161.2	42.4
1.3	126.5	33.0
1.2	95.8	24.5
1.1	70.7	17.3
1.0	50.7	11.5
0.9	48.7	9.1
0.8	47.6	2.7

(Use the circuit of scheme 2, L=22uH /0410 Color ring inductor, 3W White LED)

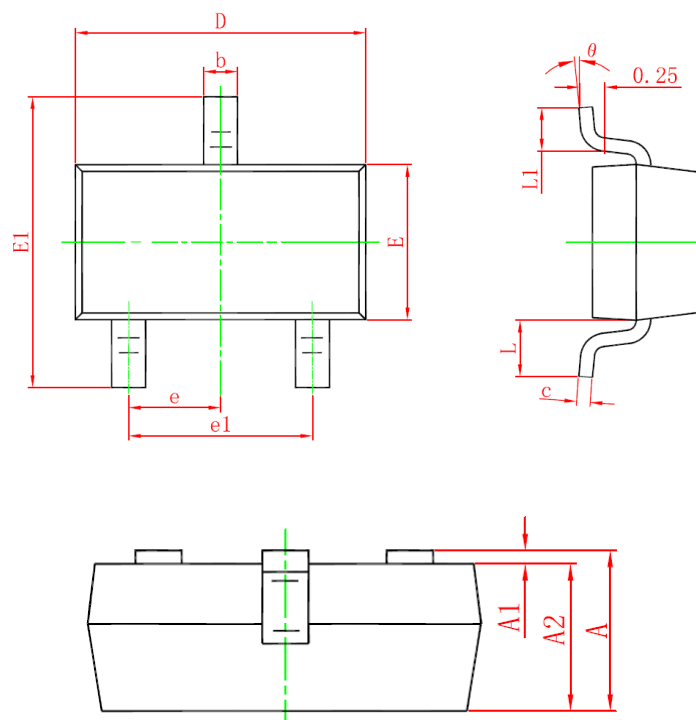
Vi(V)	Ii(mA)	Io(mA)
1.6	450	118
1.5	425	112
1.4	330	86
1.3	293	73
1.2	289	74
1.1	275	69
1.0	232	59
0.9	104	26
0.8	50	30

Package Description

TO-92


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45		5.20	0.175		0.205
B	4.32		5.33	0.170		0.210
C	3.18		4.19	0.125		0.165
D	0.407		0.533	0.016		0.021
E	0.60		0.80	0.024		0.031
F	-	1.1	-	-	0.043	-
G	-	1.27	-	-	0.050	-
H	-	2.30	-	-	0.091	-
J	0.36		0.50	0.014		0.020
K	12.70		15.0	0.500		0.591
N	2.04		2.66	0.080		0.105
P	1.86		2.06	0.073		0.081
V	-		4.3	-		0.169

SOT23



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°