



Bi-CMOS LSI

LV5215LF — 4ch LED Driver

Overview

The LV5215LF is an LED driver IC for use in cell phones.

Features

- Four main LED driver circuits
- Supports two LED current modes
- Miniature package
- Thermal shutdown function

Specifications

Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max	V_{CC}	6	V
Maximum input voltage 1	V_1 max	MLED1, MLED2, MLED3, MLED4	6	V
Maximum output current	I_O max	ILED	25	mA
Allowable power dissipation	P_d max	Mounted on a circuit board.*	0.41	W
Operating temperature	$Topr$		-30 to +75	$^\circ\text{C}$
Storage temperature	T_{stg}		-40 to +125	$^\circ\text{C}$

* Specified circuit board : 40×50×0.8mm³ : glass epoxy four-layer

Recommended Operating Conditions at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage 1	V_{BAT}		3.0 to 4.5	V

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LV5215LF

Electrical Characteristics at Unless otherwise specified $T_a = 25^\circ\text{C}$, $V_{BAT} = 3.7\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[Analog Block] Current drain						
Current drain 1	I_{CC1}	$V_{BAT} + V_{DD}$ current drain. CTL: low		0	5	μA
Current drain 2	I_{CC2}	CTL : H		3	5	mA
LED Driver Block at $R_1 = 110\text{k}\Omega$, $R_2 = 11\text{k}\Omega$						
LED current 1	I_{LED1}	$V_O = 0.5\text{V}$ *1	1	2	3	mA
LED current 2	I_{LED2}	$V_O = 0.5\text{V}$ *1	18	20	22	mA
Control Circuit Block						
High level 1	V_{INH1}	High-level input *2	1.5		V_{BAT}	V
Low level 1	V_{INL1}	Low-level input *2	0		0.3	V
Switch on state resistance	RON	SW1 pin : V_{BAT}		200		Ω

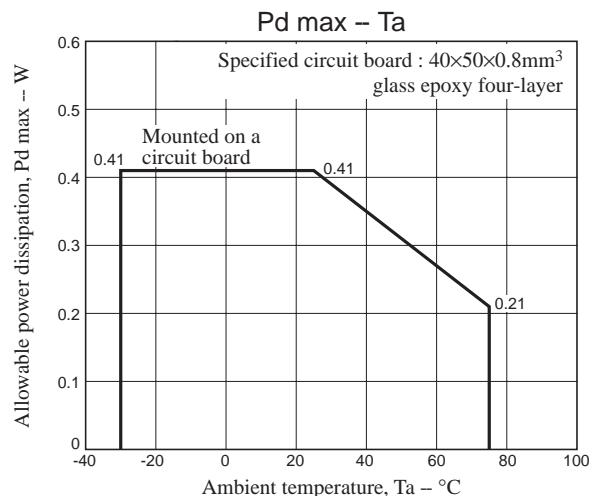
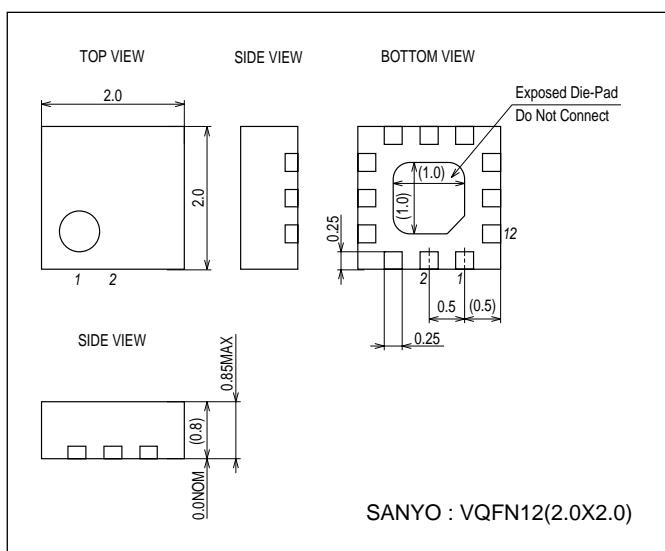
*1 : ILED will have a value about 200 times that of the current (IRT) flowing in the current setting resistor (RT).

*2 : The IC operates when CTL is high, and stops when CTL is low.

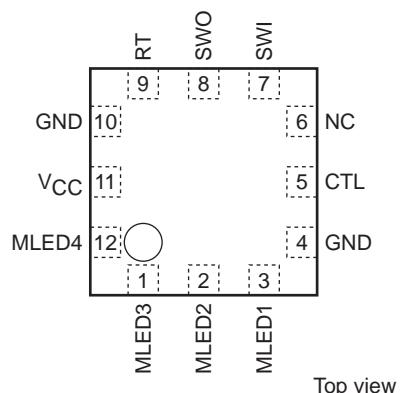
Package Dimensions

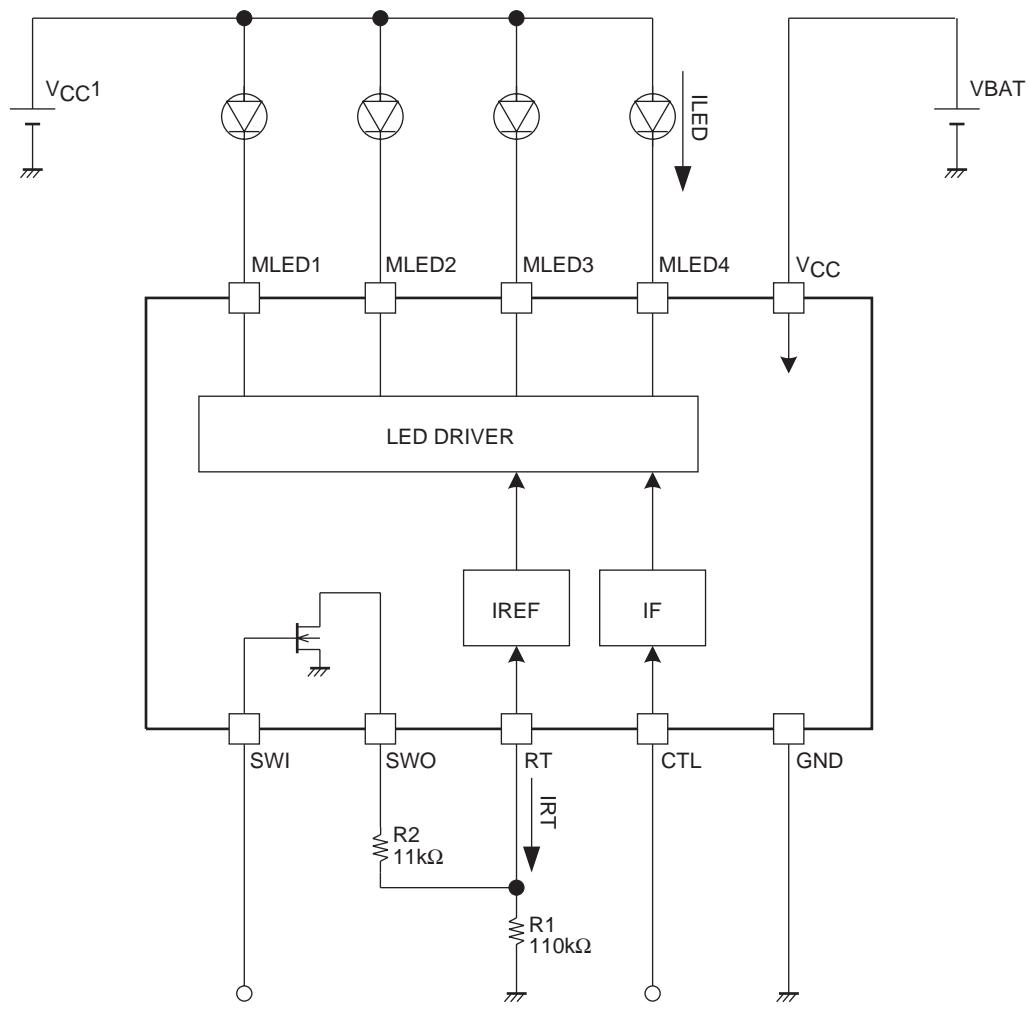
unit : mm (typ)

3335

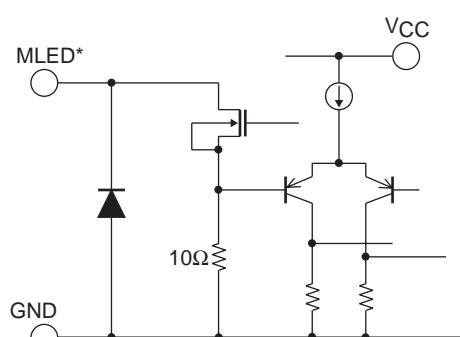
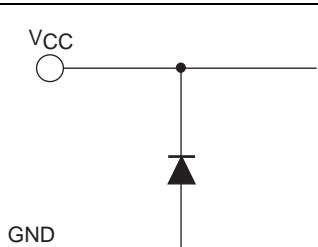
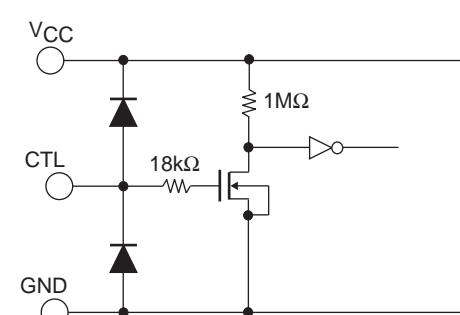
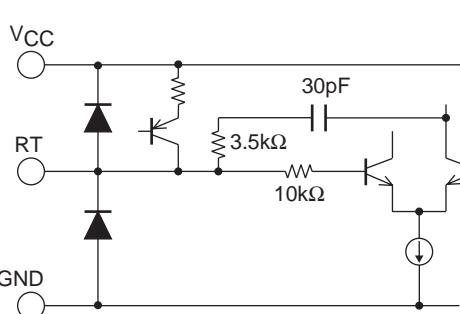
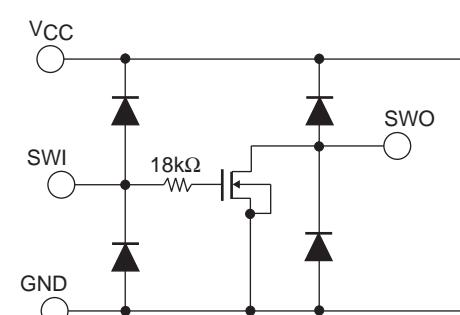


Pin Assignment



Block Diagram

Pin Equivalent Circuit

Pin No.	Pin	Description	Equivalent Circuit
1 2 3 12	MLED3 MLED2 MLED1 MLED4	LED driver pin. Feedback is applied so that the current flowing in the output transistor becomes the set current value.	
11	V _{CC}	Power supply.	
5	CTL	The circuits operate when CTL is high. The circuits stop when CTL is low.	
9	RT	Reference current setting resistor connection. The reference current is created by connecting an external resistor to ground. The pin voltage is about 1.0 V. The LED driver current value can be changed by changing this current value.	
7 8	SWI SWO	Current adjustment. The output current can be adjusted using the SWO pin sink current.	

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