Multi Colour LED

RoHS Compliant

Features

- Built-in reset circuit, power does not light
- Single-line zero code transmission protocol, can be infinite cascade
- The data transmission frequency can reach 800Kbps, and when the refresh rate is 30 frames per second, the number of cascades is not less than 1024 points

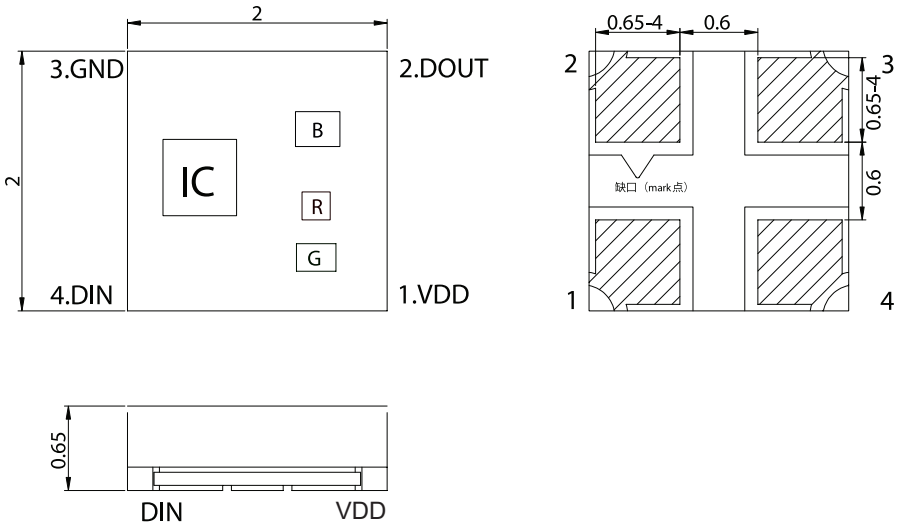
Applications

- Consumer electronics

Specifications

Forward voltage	: 5V@12mA (OUT RGB)
Typical view angle 50%	: 120°
Lens colour	: Translucent
Grayscale adjustment	: 256 levels
MSL	: 5a
ESD level	: 2KV
Series	: Default to RGB chip integrated with IC
Number of pins	: 4PINS

Mechanical dimensions

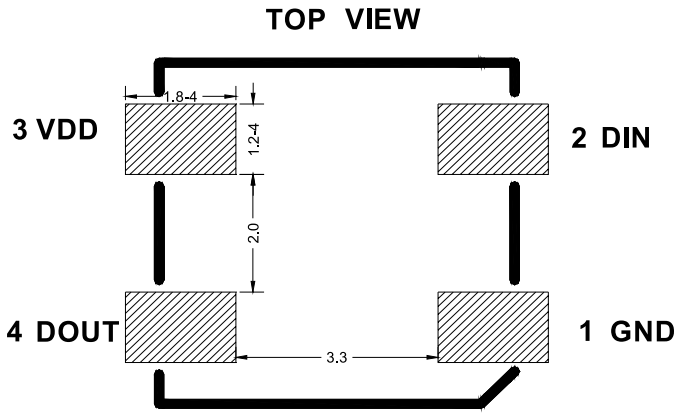


Newark.com/multicomp-pro
Farnell.com/multicomp-pro
sg.element14.com/b/multicomp-pro

Pin Function Description

Serial Number	Symbol	Pin name	Function Description
1	GND	Grounds	Signal grounding and power grounding
2	DIN	Data Input	Control data signal input
3	VDD	Power Supply	Power supply pins
4	DOUT	Data Output	Control data signal output

PCB recommended pad size



IC limit parameter (Ta=25°C)

Parameter	Symbol	Range	Unit
Working voltage	V_{DD}	+3.7 to +5.5	V
Operation temperature	T_{opt}	-40 to +85	°C
Storage temperature	T_{stg}	-40 to +85	
ESD withstand voltage (human mode)	V_{ESD}	2K	V

RGB Ld Optoelectronic parameters

Colour	Wavelength (nm)	Brightness (mcd)
Red	620-625	280-515
Green	520-530	815-1275
Blue	460-470	160-320

Note: Luminous Intensity: ±10%Iv, Dominant Wavelength: ±1.0nm

IC electrical parameters (T_A=25°C)

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Test conditions
Chip input voltage	V_{DD}	3.7	5	5.5	V	-
Signal input flip threshold	V_{IH}	0.7*VDD	---	---		+V_{DD}=5.0V
	V_{IL}	---	---	0.3*VDD		V_{DS}=1V
B/G/R output drive current	I_{DOUT}	10	12	14.5	mA	V_{DS}=1V
PWM frequency	F_{PWM}	---	1	---	KHz	-
Static power consumption	I_{DD}	---	0.6	---	mA	-
Transfer rate	F_{DIN}	---	800	---	Kbps	

Suggested data transmission time:

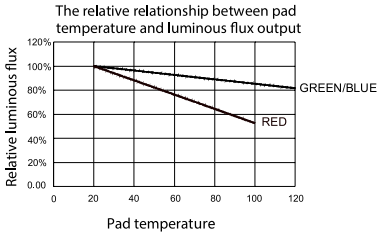
Timeline Name		Min.	Actual value	Max.	Unit
T	Symbol period	1.2	-	-	us
T0H	0 code, high-level time	0.2	0.3	0.4	
T0L	0 code, low-level time	0.8	-	-	
T1H	1 code, high-level time	0.6	0.67	1	
T1L	1 code, low-level time	0.2	-	-	
Reset	Reset code, low-level time	>200	-	-	

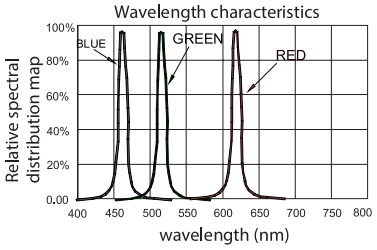
The protocol adopts unipolar zeroing code, and each symbol must have a low level. Each symbol in this protocol starts with a high level, and the duration of the high level determines the "0" or "1" code.

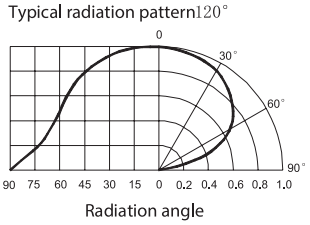
When writing a program, the minimum required code period is 1.2 μ s.

The high-level time of “0” and “1” codes should be within the specified range in the table above, and the low-level time of “0” and “1” codes should be less than 20 μ s

Photoelectric characteristic







Part Number Table

Description	Part Number
Multi Colour Led, Single-Line Zero Code Transmission Protocol, RGB, SMD 5050, 12mA	MP017063