



587 SERIES

**3535 Addressable  
RGB LED**

SMD LED + IC

MECHANICAL / SPECIFICATIONS

PART NUMBER:

[587-2074-137F](#)

DIMENSIONS:

3.5 x 3.5 x 1.9mm

LENS COLOR: Clear

LENS MATERIAL: Silicone

# CONTROL WIRES:

Single Wire

STANDARD PACKAGING:

500 pcs on 7 inch Reel

MOISTURE SENSITIVITY LEVEL: 4

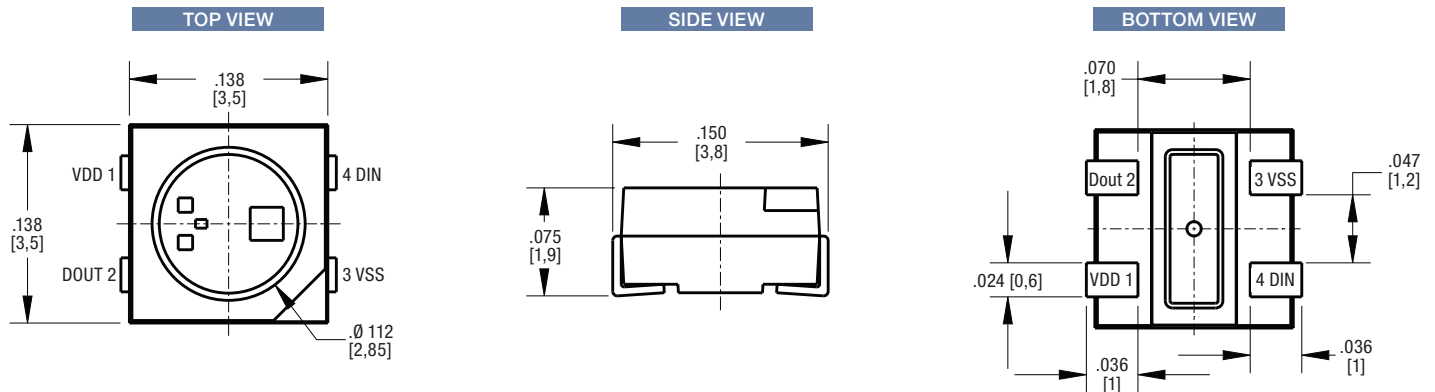
CERTIFICATIONS & RATINGS

ROHS Compliant

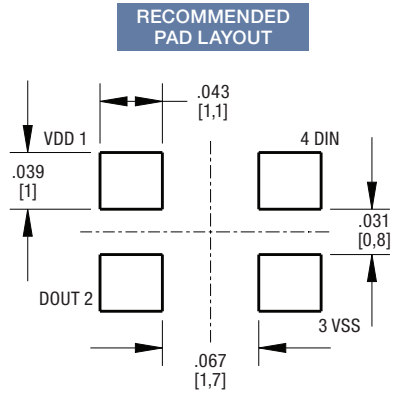
FEATURES & BENEFITS

- 3535 package with integrated constant current IC and RGB LED chip.
- Single line data transmission (return to zero code).
- Specific Shaping Transmit Technology - number of LED stacked is not restricted.
- Cascading Enhancement Technology - any 2 LED spacing can be up to 10 meters.
- Data transfer rate of 800 kbp/s at 30 frames per second.
- RGB output port PWM control can achieve 256 grey level adjustments.

DIMENSIONS inches [mm]



DIMENSIONS inches [mm]



PIN FUNCTION

Serial Number	Symbol	Function Description
1	VDD	DC power input
2	DOUT	Control data signal output
3	VSS	Ground
4	DIN	Control data signal input

ELECTRICAL - OPTICAL CHARACTERISTICS (Ta=25°C IF=12mA)

Items	Symbol	Min	Typ	Max	Unit	Condition
Luminous Intensity	Iv	R	300	----	650	mcd
		G	750	----	1350	
		B	125	----	320	
Dominant Wavelength	λD	R	614	----	630	nm
		G	515	----	530	
		B	462	----	478	
Viewing Angle	2θ 1/2	----	120	----	deg	VDD = 5.0 V

ABSOLUTE MAXIMUM RATINGS (Ta=25°C, VDD=5V, VSS=0)

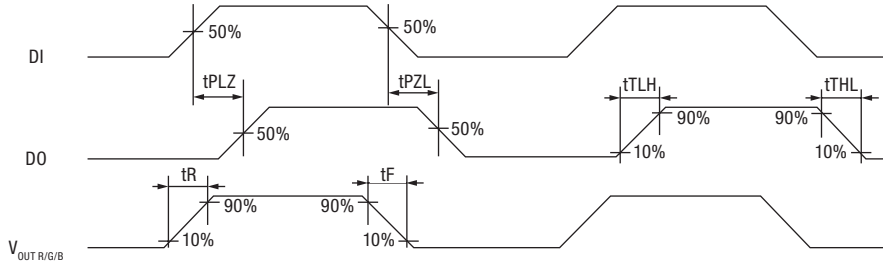
Parameter	Symbol	Ratings	Units
Supply Voltage	VDD	3.3 ~ +6.0	V
LED Output Current	I <sub>OUT</sub>	20	mA
Electrostatic Discharge	ESD(HBM)	1000	V
Operating Temperature	Topr	-40~ +85	°C
Storage Temperature	Tstg	-40 ~ +100	°C

ELECTRICAL PARAMETERS (Ta=25°C)

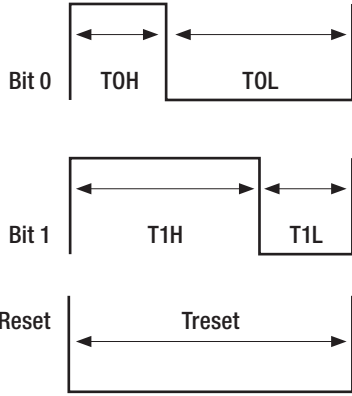
Items	Symbol	Min	Typ	Max	Unit	Condition
Supply Voltage	VDD	3.3	5	5.5	V	
Each R/G/B Current	IOL		12		mA	VDD=5V
Input High Voltage	VIH	2.7		VDD	V	DI,
Input Low Voltage	VIL	0		1.0	V	DI,
Output High Voltage	VOH	3.8				IOH=4mA
Output Low Voltage	VOL			0.6	V	IOL=4mA
Operation Current	IDD		1.2		mA	B-G-R no load
Pull Down Resistance	R <sub>PD</sub>		500K		Ω	Din, Dout(VDD=5V)
The Frequency of PWM	F <sub>PWM</sub>		20		KHz	Default

**DYNAMIC PARAMETERS (Unless otherwise specified, Ta=25°C)**

Items	Symbol	Min	Typ	Max	Unit	Note
Propagation delay time	tPLZ			80	ns	Din → Dout, CL=30pF,
Rising time	tTHL		15		ns	
Falling time	tTLH		15		ns	
Rising time	tR		50		ns	G/R/B=12mA, CL=30pF
Falling time	tF		50		ns	
Data rate	F <sub>data</sub>		800		Khz	



**DATA TRANSMISSION TIME**

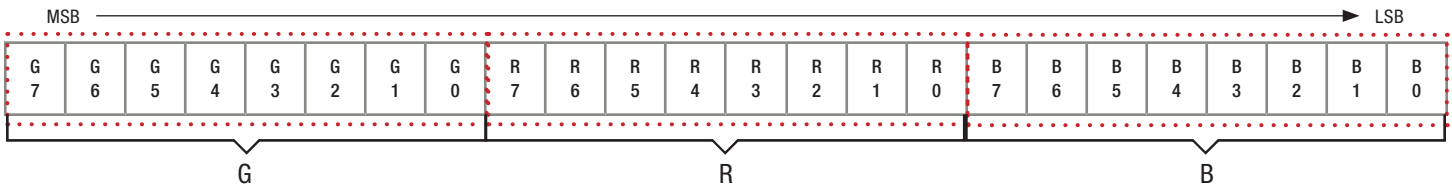


Items	Description	Min	Typ	Allowance	Unit
T0H	0 code, High-level time		0.3	±0.15	us
T0L	0 code, Low-level time		0.9	±0.15	us
T1H	1 code, High-level time		0.9	±0.15	us
T1L	1 code, Low-level time		0.3	±0.15	us
Trst	Reset code, Low-level time	250			us

**DATA COMMUNICATION**

LED1	1st 24 bits	2nd 24 bits	3rd 24 bits	4th 24 bits	Trst
LED2		2nd 24 bits	3rd 24 bits	4th 24 bits	Trst
LED3			3rd 24 bits	4th 24 bits	Trst
LED4				4th 24 bits	Trst

SINGLE DATA IN 24 BIT FOR RGB



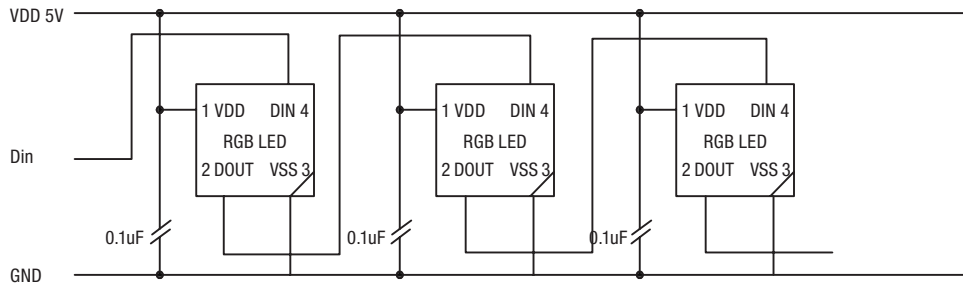
**Advance Function Mode**

This product has a Advance Function mode that supports the MCU to start with a specific command setting.

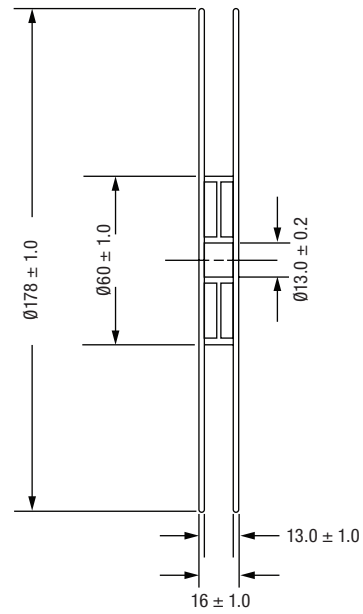
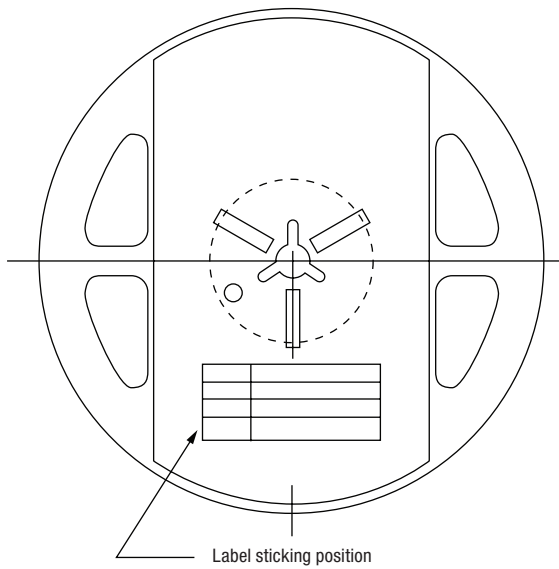
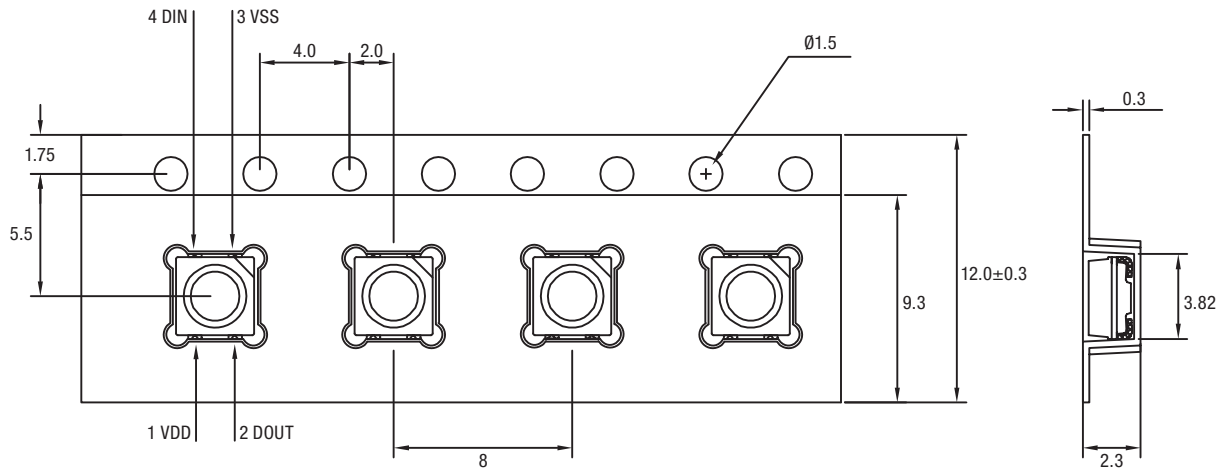
Advance Function Mode includes the following function °

1. Feedback the cascaded number of LEDs and maximum sink current of R/G/B channel
2. Current Gain control:32 level(5bits) to adjust maximum sink current of R/G/B channel
3. Programmable PWM refresh rate (1.25kHz/2.5kHz/5kHz/10kHz)

RECOMMENDED ROUTE



TAPE AND REEL SPECIFICATION



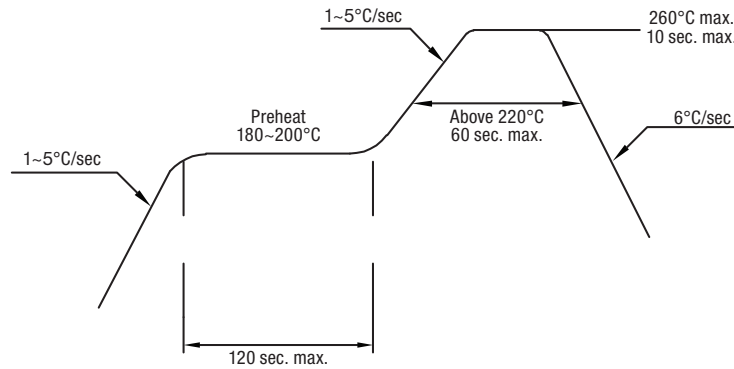
Unit: mm

## REFLOW SOLDERING

Recommended soldering paste specifications:

1. Operating temp.: Above 217 °C, 60~150 sec.
2. Peak temp.: 260 °C max, 10 sec max
3. Reflow soldering should not be done more than two times.
4. Never attempt next process until the component is cooled down to room temperature after reflow.
5. The recommended reflow soldering profile (measured on the surface of the LED terminal) is as following:

## LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

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