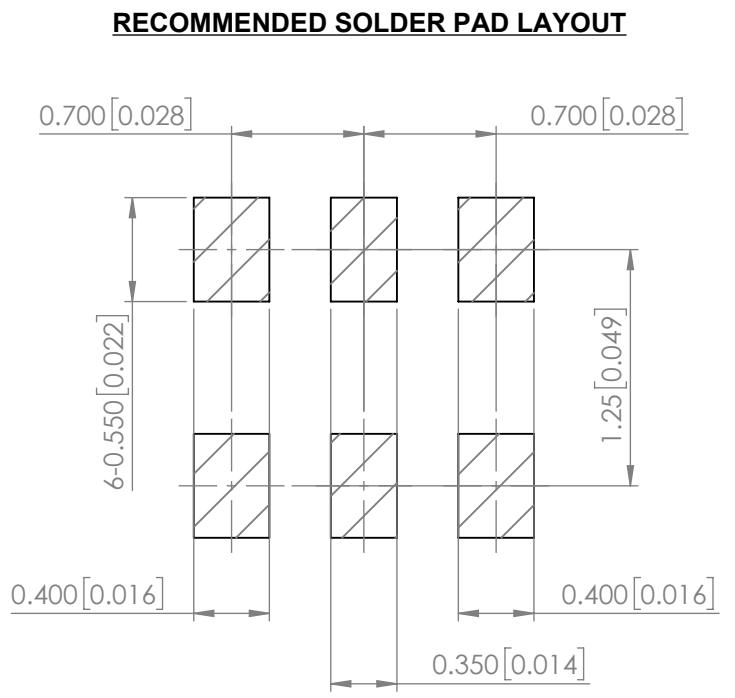
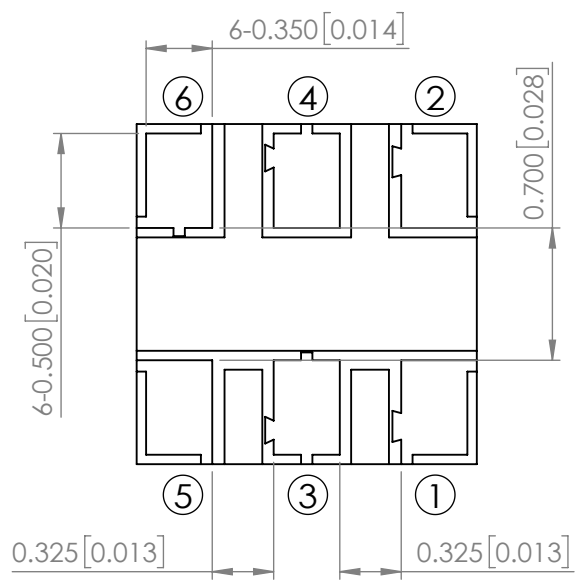
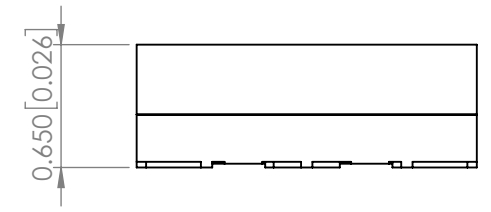
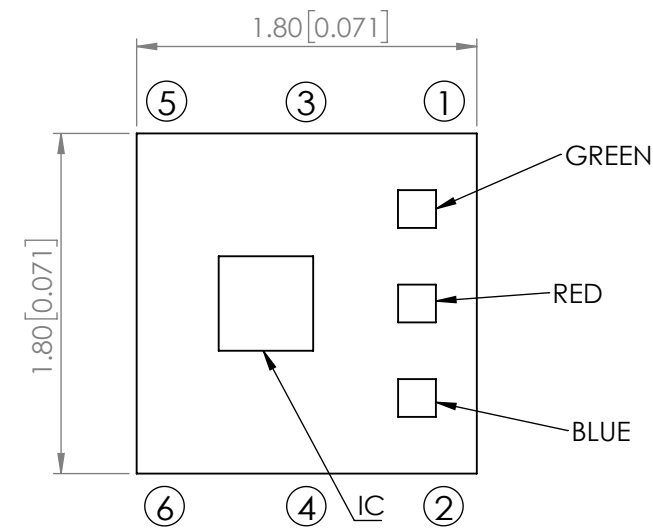


PART NUMBER	SMD-LX1818RGBDWCTR	REV	B
REV	E.C.N. NUMBER AND REVISION COMMENTS	DATE	
A	ECN-Lumex202300099	08.29.23	
B	ECN-Lumex202400014	04.03.24	



PIN ASSIMENT

PIN	SYMBOL	DESCRIPTION
1	VDD	POWER VOLTAGE
2	GND	GROUND
3	CKO	CLOCK OUT
4	CKI	CLOCK IN
5	DAO	DATA OUT
6	DAI	DATA IN

ELECTRICAL CHARACTERISTICS(Ta=25°C , VDD=5.0V)

PARAMETER		MIN	TYP	MAX	UNITS	TEST COND
SUPPLY VOLTAGE	VDD	4.5	5	5.5	V	-
OUTPUT CURRENT (PER CHIP)	IoL	-	20	-	mA	-
OPERATION CURRENT	IDYN	-	-	1.2	mA	VDD=5V RGB OFF
INPUT VOLTAGE(HIGH)	ViH	2.7	-	VDD+0.4	V	-
INPUT VOLTAGE(LOW)	ViL	-0.4	-	1.0	V	-
PULL-UP RESISTANCE (CI , DI)	RiN	-	80K	-	Ω	-
CI FREQUENCY	CFREQ	-	-	15	MHz	-
CI HIGH PULSE WIDTH	TCKH	30	-	-	ns	-
CI LOW PULSE WIDTH	TCKL	30	-	-	ns	-
DI TO CI RISE SETUP	TSETUP	10	-	-	ns	-
DI TO CI RISE HOLD	THOLD	5	-	-	ns	-
OUTPUT HIGH "H"	VoH	4.5	-	-	V	4mA@VDD=5V
OUTPUT HIGH "L"	VoL	-	-	0.4	V	4mA@VDD=5V

**MOISTURE SENSITIVE DEVICE
PER JEDEC LEVEL 4 STANDARDS**

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= ^{+DECIMAL PRECISION}/_{-0.00} MAX= ^{+0.00}/_{-DECIMAL PRECISION}


ELECTRO-OPTICAL CHARACTERISTIC TA=25°C

PARAMETER		MIN	TYP	MAX	UNITS	TEST COND	
PEAK WAVELENGTH	R	-	630	-	nm	@VDD=5V (DIMMING[4:0]=1F OUT_R/G/B[7:0]=FF)	
	G	-	520	-			
	B	-	470	-			
LUMINOUS INTENSITY	R	-	425	-	mcd		
	G	-	1350	-			
	B	-	270	-			
VIEWING ANGLE		-	120	-	2x theta1/2		
EMITTED COLOR		RED / GREEN / BLUE					
EPOXY LENS FINISH		WATER CLEAR					

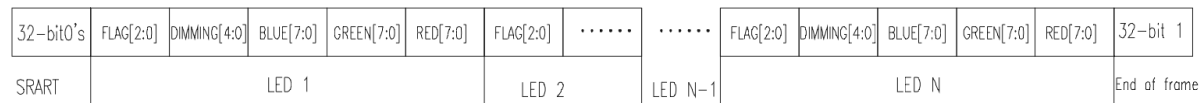
ABSOLUTE MAXIMUM RATINGS TA=25°C

PARAMETER		MAX	UNITS
SUPPLY VOLTAGE	VDD	6.5	V
LED FORWARD CURRENT (PER CHIP)	IOUT	20	mA
POWER DISSIPATION	Pd	400	mW
STORAGE TEMPERATURE	-	-40 TO +90	°C
OPERATING TEMPERATURE	-	-25 TO +85	°C

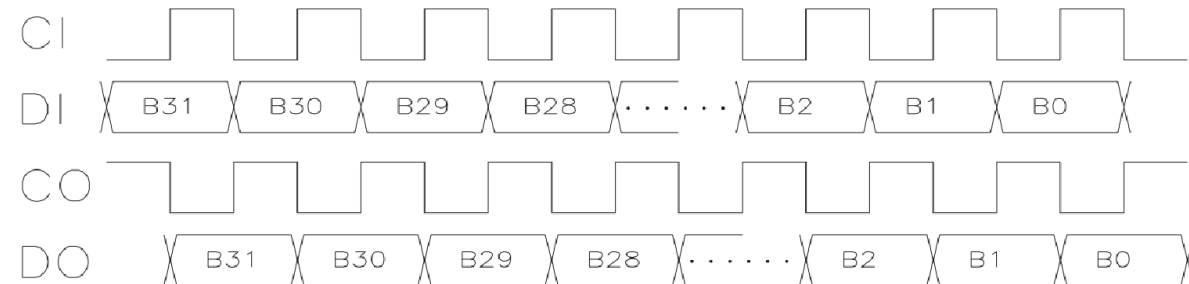
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 <p>425 N. GARY AVE. CAROL STREAM, IL 60188 PHONE : 800-278-5666 FAX : 630-315-2150 WEB : WWW.LUMEX.COM</p>	1.8(L)*1.8(W)*0.65(H)mm, SURFACE MOUNT LED, RGB FULL COLOR, 13-BIT PWM FOR EACH OF RGB OUTPUTS, DUAL-WIRE LINES, WATER CLEAR LENS, TAPE & REEL	DATE : 2023.08.29	DRAWN BY : T.S.
	THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE.		
	CONFIDENTIAL INFORMATION		
	THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC., THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES.		
		PAGE : 2 OF 4	CHKD BY : E.C.
		SCALE : NTF	APRVD BY : G.Y.
		UNIT : mm [INCH]	(Pb)

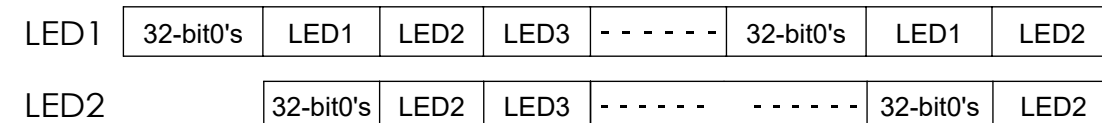
COMMAND SET



32 consecutive 0's denote the start of a command for SMD-LX1818RGBDWCTR LED. After receiving 32 0's, SMD-LX1818RGBDWCTR gets the following 32 bits as the received command, including FLAG, DIMMING, BLUE, GREEN and RED fields.

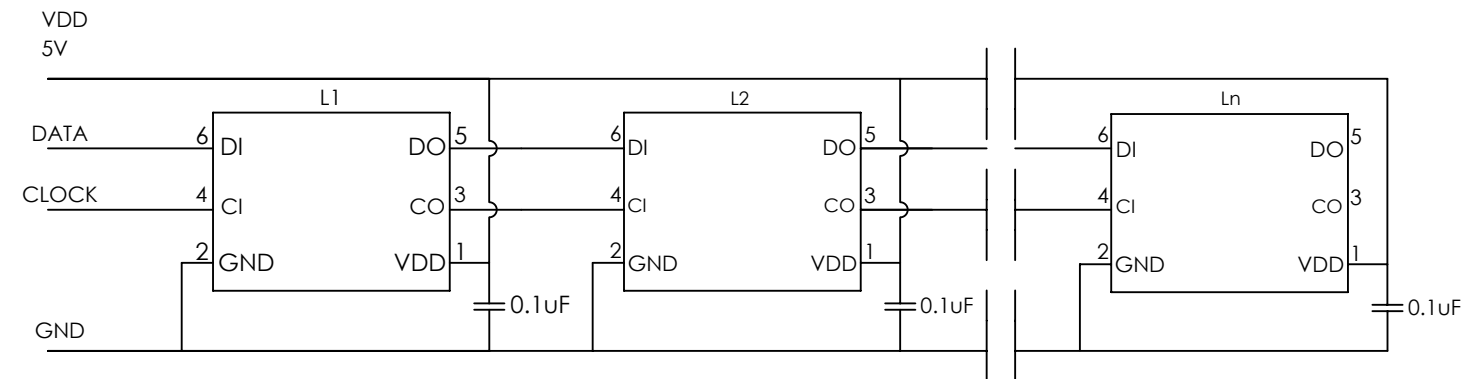


The serial command is transmitted with MSB first, DI is latched at the rising edge of CI clock. CO and DO are re-generated for the next SMD-LX1818RGBDWCTR LED. CO is inverted from CI. When 32 consecutive 0's are encountered, the next 1 is expected to start a 32-bit command, i.e., FLAG[2:0]=1xx. When FLAG[2:0]=1xx, then DIMMING, BLUE, GREEN and RED fields are latched respectively. while the current 32-bit command is got, SMD-LX1818RGBDWCTR passes remaining command bits to the next SMD-LX1818RGBDWCTR. After the last one command is issued for the last LED (LED n), the following 32 consecutive 1's denote the end of the current command for SMD-LX1818RGBDWCTR LED (End of Frame) and wait for next 32 consecutive 0's to start a new command set. (Note: SMD-LX1818RGBDWCTR is workable either with or without "End of Frame" command, but MCU should issue the extra N/2 numbers of clocks signal if there are N LEDs totally connected in the strip to make sure the data transfer and display of the last one LED is complete and correct)



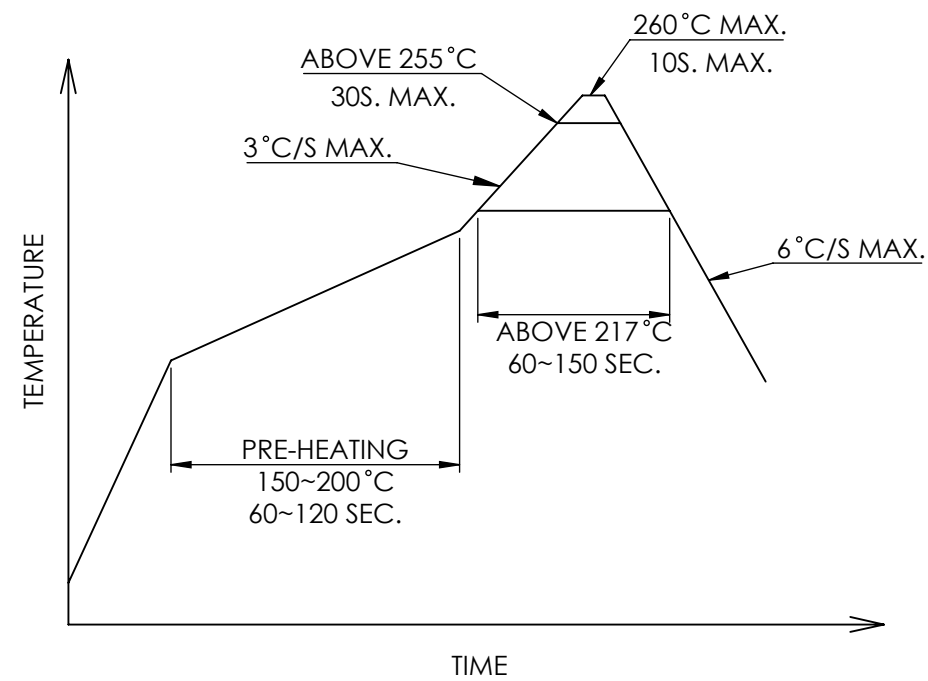
- FLAG [2:0] : 1xx to start a 32-bit command
- DIMMING [4:0] : 32-level current control for R/G/B drivers
- BLUE [7:0] : 256 gray levels for blue LED
- GREEN [7:0] : 256 gray levels for green LED
- RED [7:0] : 256 gray levels for red LED

5V APPLICATION CIRCUIT

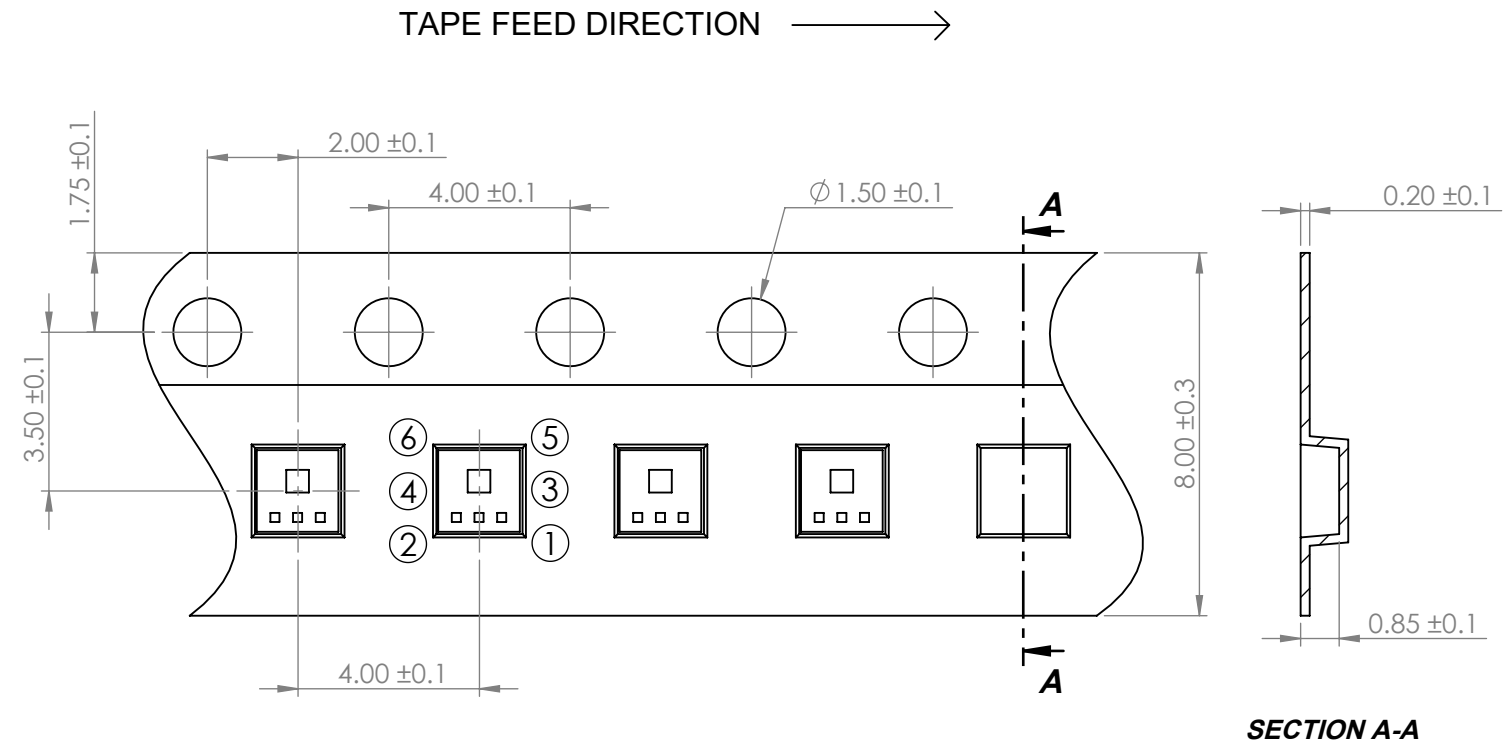


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PROFILE




CARRIER TAPE DIMENSION



NOTE:
1. PACKAGE: 2000 PCS/REEL.

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