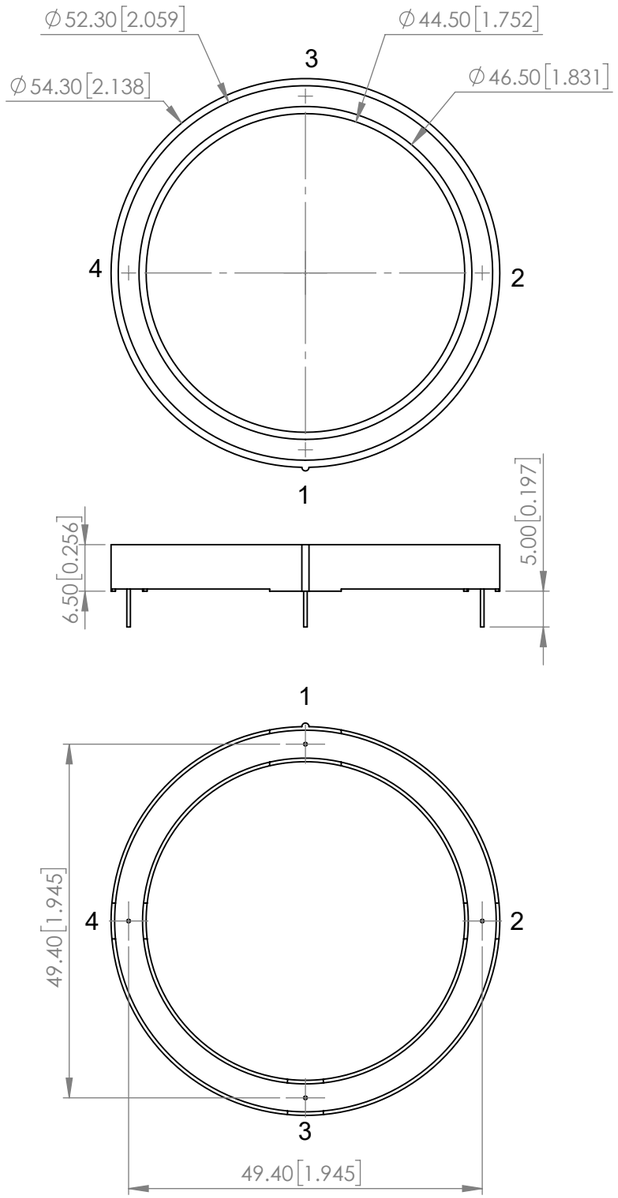
PRELIMINARY

PART NUMBER	LDM-R4652-28-RGB	REV	X1

REV	E.C.N. NUMBER AND REVISION COMMENTS	DATE
X1	--	10.23.26



ELECTRO-OPTICAL CHARACTERISTIC TA=25℃ PER LED

PARAMETER		MIN	TYP	MAX	UNITS	TEST COND
DOMINANT WAVELENGTH	R	-	622	-	nm	ISINK=5mA
	G	-	525	-		
	B	-	466	-		
LUMINOUS INTENSITY	R	-	36	-	mcd	ISINK=5mA
	G	-	76	-		
	B	-	25	-		

ABSOLUTE MAXIMUM RATINGS TA=25℃ PER LED

PARAMETER	SYMBOL	MAX	UNITS
SUPPLY VOLTAGE	VDD	6.5	V
OUTPUT CURRENT	ILEDOUT	5	mA
POWER DISSIPATION	PD	400	mW
STORAGE TEMPERATURE	TST	-40 TO +105	℃
OPERATING TEMPERATURE	TOP	-40 TO +105	℃

PIN ASSIGNMENT

PIN NUMBER	DESCRIPTION
1	CONTROL DATA INPUT
2	POWER SUPPLY
3	GROUND
4	CONTROL DATA OUTPUT

STATIC DEVICE FOLLOW PROPER E.S.D. HANDLING PROCEDURES WHEN WORKING WITH THIS PART

*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= $^{+\text{DECIMAL PRECISION}}_{-0.00}$ MAX.= $^{+0.00}_{-\text{DECIMAL PRECISION}}$

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2325. KENYON ROAD.
BARTLETT, IL 60103
PHONE : 800-278-5666
FAX : 630-315-2150
WEB : WWW.LUMEX.COM

2.14"(54.3mm) CASE MODE TYPE LED DISPLAY, THROUGH HOLE, LOW CURRENT OPERATION, RGB FULL COLOR, SINGLE DATA LUNE, WHITE DIFFUSED SEGMENT.

****THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE.****

CONFIDENTIAL INFORMATION

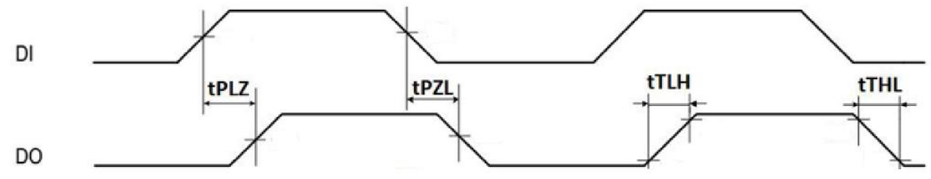
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SCALE : NTF	APRVD BY : --
UNIT : mm [INCH]	Pb

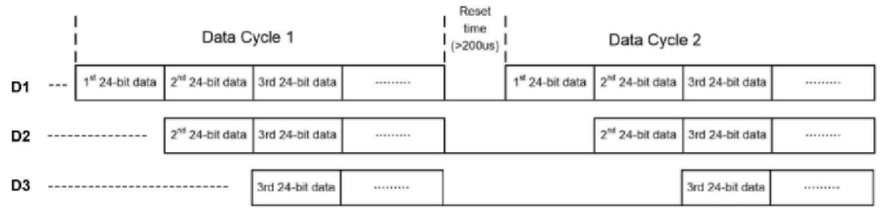
ELECTRO-OPTICAL CHARACTERISTIC TA=25℃

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Supply Voltage	VDD	4.5	5	5.5	V	
Operation Current	I_{DD}			2	mA	R、G、B no load
Input High "H" of DI	V_{IH}	2.7		VDD	V	
Input Low "L" of DI	V_{IL}	0		1.0	V	
Pull Down Resistance	R_{PD}		500K		Ω	DI, DO
Output High "H" of DO	V_{OH}	4.5			V	I_{OH}=4mA
Output Low "L" of DO	V_{OL}			0.4	V	I_{OL}=4mA
R, G, B Sink Current	I_{sink}	4.75	5	5.25	mA	Vo=VDD-3.0V @VDD=5V
Input leakage	I_{leak}			1	uA	DI=VDD
R , G , B off leakage current	I_{off}			1	uA	PWM=0(off), @R, G, B =5V

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Propagation delay time	tPLZ			300	ns	DI → DO, CL=15pF, RL=10KΩ
	tPZL			300	ns	
Rising time	tTZH			200	ns	R、G、B=20mA, CL=30pF
Falling time	tTHZ			200	ns	
Data rate	F_{data}		800		Khz	



DATA TRANSFER PROTOCOL

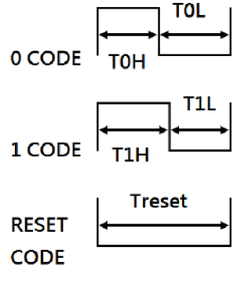


The single wire data transfer protocol supports 24-bit data for each LED RGB display data refresh. The IC receives 24-bit data and passes the remaining data to next LED. The 24-bit data consist of green, red and blue data, each with 8-bit width, and are transferred with MSB first.

G7	G6	G5	G4	G3	G2	G1	G0	R7	R6	R5	R4	R3	R2	R1	R0	B7	B6	B5	B4	B3	B2	B1	B0

The transferred data are recognized based on the pulse widths received by the IC. A low bit 0 is represented by a 0.3us high pulse followed by a 0.9us low pulse. A high bit 1 is represented by a 0.9us high pulse followed by a 0.3us low pulse. A low pulse ≧ 200us is used to issue a reset command to the IC to start a new cycle of serial commands.

SEQUENCE CHART



(T0H:0.3us+0.15us,T0L:0.9us+0.15us)
(T1H:0.9us+0.15us,T1L:0.3us+0.15us)

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