

**DESCRIPTION** 

three.

## TDCG1050M, TDCG1060M, TDCR1050M, TDCR1060M

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### Vishay Semiconductors

## **Clock Display**



Four digit display, with 10 mm digit charactersize. Designed

as clock display with active colon between digit two and

#### **FEATURES**

- · High efficient AllnGAP technology
- · Dark surface, white segments
- Common anode (TDC.1050M)
- Common cathode (TDC.1060M)
- Multiplex mode
- Recommended viewing distance up to 7 m
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

#### **APPLICATIONS**

 Clock modules for video / audio equipment, instrumentation, set top boxes

### PRODUCT GROUP AND PACKAGE DATA

Product group: display
Package: 10 mm clock
Product series: standard
Angle of half intensity: ± 50°

PARTS TABLE														
PART	COLOR	LUMINOUS INTENSITY (µcd)		at WAVELENGTH (nm)		at I <sub>F</sub>	FORWARD VOLTAGE (V)		at I <sub>F</sub>	CIRCUITRY				
		MIN.	TYP.	MAX.	(mA)	MIN.	TYP.	MAX.	(mA)	MIN.	TYP.	MAX.	(mA)	
TDCG1050M	Green	2800	4000	-	10	562	573	575	20	-	2	2.4	20	Common anode
TDCG1060M	Green	2800	4000	-	10	562	573	575	20	-	2	2.4	20	Common cathode
TDCR1050M	Red	4000	6000	-	10	-	631	-	20	ı	2	2.4	20	Common anode
TDCR1060M	Red	4000	6000	-	10	-	631	-	20	-	2	2.4	20	Common cathode

ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25$ °C, unless otherwise specified) TDCG1050M, TDCG1060M, TDCR1050M, TDCR1060M								
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT				
Reverse voltage per segment		V <sub>R</sub>	5	V				
DC forward current per segment		I <sub>F</sub>	25	mA				
Peak forward current per segment	Duty 1/10 at 1 kHz	I <sub>FM</sub>	160	mA				
Power dissipation		P <sub>V</sub>	60	mW				
Operating temperature range		T <sub>amb</sub>	-40 to +85	°C				
Storage temperature range		T <sub>stg</sub>	-40 to +100	°C				
Soldering temperature		T <sub>sd</sub>	260 ± 5	°C				



## TDCG1050M, TDCG1060M, TDCR1050M, TDCR1060M

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OPTICAL AND ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25  ^{\circ}\text{C}$ , unless otherwise specified) TDCG1050M, TDCG1060M, GREEN									
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT		
	I <sub>E</sub> = 2 mA	TDCG1050M	- I <sub>V</sub>	-	1000	-	μcd		
Luminous intensity new account (1)	IF = 2 IIIA	TDCG1060M							
Luminous intensity per segment (1)	I <sub>F</sub> = 10 mA	TDCG1050M	- I <sub>V</sub>	2800	4000	-	μcd		
		TDCG1060M							
	I <sub>F</sub> = 2 mA	TDCG1050M	- I <sub>V</sub>	-	200	-	μcd		
Luminous intensity of colon		TDCG1060M							
Luminous intensity of colon	I <sub>F</sub> = 10 mA	TDCG1050M	- I <sub>V</sub>	500	1200	-	μcd		
		TDCG1060M							
Dominant wavelength	I <sub>F</sub> = 20 mA		$\lambda_{d}$	562	573	575	nm		
Peak wavelength	I <sub>F</sub> = 20 mA		λρ	-	575	-	nm		
Spectral bandwidth	I <sub>F</sub> = 20 mA	TDCG1050M, TDCG1060M	$\Delta_{\lambda}$	-	20	-	nm		
Forward voltage per segment or DP	I <sub>F</sub> = 20 mA		V <sub>F</sub>	-	2	2.4	V		
Reverse current per segment or DP	V <sub>R</sub> = 5 V		I <sub>R</sub>	-	-	10	μΑ		

#### Note

<sup>(1)</sup> I<sub>Vmin.</sub> and I<sub>V</sub> groups are mean values of all segments (a to g, D1 to D4), matching factor within segments is ≥ 0.5, excluding decimal points and colon

OPTICAL AND ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25  ^{\circ}C$ , unless otherwise specified) TDCR1050M, TDCR1060M, RED									
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT		
	J 0 m A	TDCR1050M	- I <sub>V</sub>	-	1500	-	μcd		
Luminous intensity new assertant (1)	$I_F = 2 \text{ mA}$	TDCR1060M							
Luminous intensity per segment (1)	I <sub>F</sub> = 10 mA	TDCR1050M	- I <sub>V</sub>	4000	6000	-	μcd		
		TDCR1060M							
	I <sub>F</sub> = 2 mA	TDCR1050M	- I <sub>V</sub>	-	400	-	μcd		
Luminous intensity of salar		TDCR1060M							
Luminous intensity of colon	I <sub>F</sub> = 10 mA	TDCR1050M	- I <sub>V</sub>	500	800	-	μcd		
		TDCR1060M							
Dominant wavelength	I <sub>F</sub> = 20 mA		$\lambda_{d}$	-	631	-	nm		
Peak wavelength	I <sub>F</sub> = 20 mA	TDCR1050M, TDCR1060M	λρ	-	639	-	nm		
Spectral bandwidth	I <sub>F</sub> = 20 mA		$\Delta_{\lambda}$	-	20	-	nm		
Forward voltage per segment or DP	I <sub>F</sub> = 20 mA		V <sub>F</sub>	-	2	2.4	V		
Reverse current per segment or DP	V <sub>R</sub> = 5 V		I <sub>R</sub>	-	-	10	μΑ		

#### Note

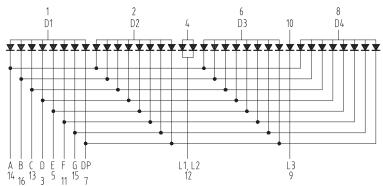
 $l_{Vmin.}$  and  $l_{V}$  groups are mean values of all segments (a to g, D1 to D4), matching factor within segments is  $\geq$  0.5, excluding decimal points and colon

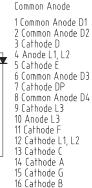


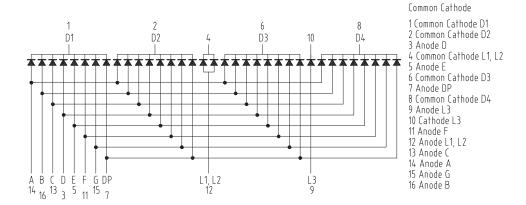
## TDCG1050M, TDCG1060M, TDCR1050M, TDCR1060M

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Drawing-No.: 6.544-5332.01-4 Bl. 2

Issue: 1; 20.02.02

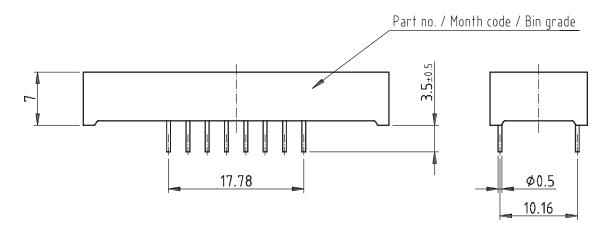
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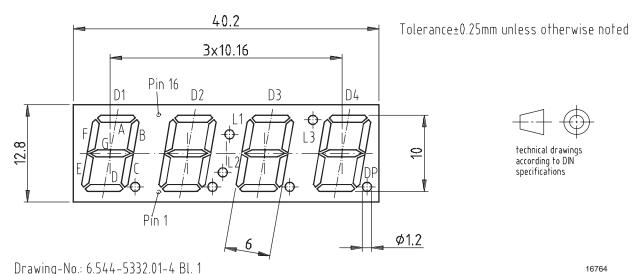
## TDCG1050M, TDCG1060M, TDCR1050M, TDCR1060M

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#### **PACKAGE DIMENSIONS** in millimeters





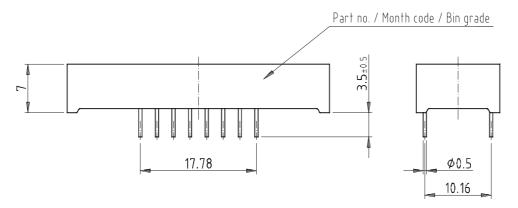
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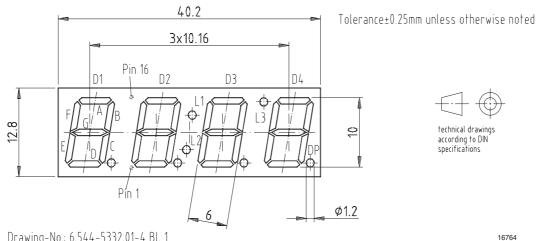
Issue: 3; 27.02.02

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# **Display-10 mm Clock Multiplex**

## Package Dimensions in mm





Drawing-No.: 6.544-5332.01-4 Bl. 1

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# **Display-10 mm Clock Multiplex**

### **Vishay Semiconductors**



### **Ozone Depleting Substances Policy Statement**

It is the policy of Vishay Semiconductor GmbH to

- 1. Meet all present and future national and international statutory requirements.
- 2. Regularly and continuously improve the performance of our products, processes, distribution and operatingsystems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

- 1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
- 2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
- 3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

### We reserve the right to make changes to improve technical design and may do so without further notice.

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