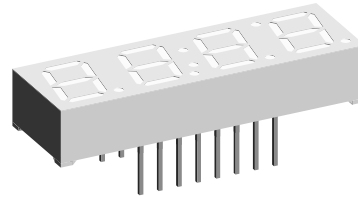


## Clock Display

### Description

Four digit Display, with 10 mm digit charactersize.  
Designed as clock Display with active colon between digit two and three.



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### Features

- High efficient AlInGAP technology
- Dark surface, white segments
- Common anode (TDC.1050m)
- Common cathode (TDC.1060m)
- Recommended viewing distance up to 7 meter
- Multiplex mode
- Lead-free device

### Applications

Clock modules for Video/Audioequipment,  
Instrumentation, Set Top Boxes

### Parts Table

Part	Color, Luminous Intensity	Circuitry
TDCG1050m	Green, $I_V = (2.8 \text{ to } 4.0) \text{ mcd}$	Common anode
TDCG1060m	Green, $I_V = (2.8 \text{ to } 4.0) \text{ mcd}$	Common cathode
TDCR1050m	Red, $I_V = (4.0 \text{ to } 6.0) \text{ mcd}$	Common anode
TDCR1060m	Red, $I_V = (4.0 \text{ to } 6.0) \text{ mcd}$	Common cathode
TDCY1050m	Super Yellow, $I_V = (4.0 \text{ to } 8.0) \text{ mcd}$	Common anode
TDCY1060m	Super Yellow, $I_V = (4.0 \text{ to } 8.0) \text{ mcd}$	Common cathode

### Absolute Maximum Ratings

$T_{amb} = 25^\circ\text{C}$ , unless otherwise specified

**TDCG1050m/ TDCG1060m, TDCR1050m/ TDCR1060m, TDCY1050m/ TDCY1060m,**

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		$V_R$	5	V
Forward current		$I_F$	25	mA
Operating temperature range		$T_{amb}$	- 40 to + 85	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	- 40 to + 100	$^\circ\text{C}$
Soldering temperature		$T_{sd}$	$260 \pm 5$	$^\circ\text{C}$
Power dissipation		$P_V$	60	mW
Peak forward current	(Duty 1/10 @ 1kHz)	$I_F(\text{Peak})$	160	mA

### Optical and Electrical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

#### Red

##### TDCR1050m/ TDCR1060m

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity per segment <sup>1)</sup>	$I_F = 2\text{ mA}$	TDCR1050m	$I_V$		1.5		mcd
		TDCR1060m	$I_V$		1.5		mcd
	$I_F = 10\text{ mA}$	TDCR1050m	$I_V$	4.0	6.0		mcd
		TDCR1060m	$I_V$	4.0	6.0		mcd
Luminous intensity of colon	$I_F = 2\text{ mA}$	TDCR1050m	$I_V$		0.4		mcd
		TDCR1060m	$I_V$		0.4		mcd
	$I_F = 10\text{ mA}$	TDCR1050m	$I_V$	0.5	0.8		mcd
		TDCR1060m	$I_V$	0.5	0.8		mcd
Dominant wavelength	$I_F = 20\text{ mA}$		$\lambda_d$		631		nm
Peak wavelength	$I_F = 20\text{ mA}$		$\lambda_p$		639		nm
Spectral bandwidth	$I_F = 20\text{ mA}$		$\Delta\lambda$		20		nm
Forward voltage	$I_F = 20\text{ mA}$		$V_F$		2.0	2.4	V
Reverse current	$V_R = 5\text{ V}$		$I_R$			10	$\mu\text{A}$

Note<sup>1)</sup>  $I_{Vmin}$  and  $I_V$  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.

#### Yellow

##### TDCY1050m/ TDCY1060m

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity per segment <sup>1)</sup>	$I_F = 2\text{ mA}$	TDCY1050m	$I_V$		1.5		mcd
		TDCY1060m	$I_V$		1.5		mcd
	$I_F = 10\text{ mA}$	TDCY1050m	$I_V$	4.0	8.0		mcd
		TDCY1060m	$I_V$	4.0	8.0		mcd
Luminous intensity of colon	$I_F = 2\text{ mA}$	TDCY1050m	$I_V$		0.4		mcd
		TDCY1060m	$I_V$		0.4		mcd
	$I_F = 10\text{ mA}$	TDCY1050m	$I_V$	0.5	1.0		mcd
		TDCY1060m	$I_V$	0.5	1.0		mcd
Dominant wavelength	$I_F = 20\text{ mA}$		$\lambda_d$		589		nm
Peak wavelength	$I_F = 20\text{ mA}$		$\lambda_p$		591		nm
Spectral bandwidth	$I_F = 20\text{ mA}$		$\Delta\lambda$		15		nm
Forward voltage	$I_F = 20\text{ mA}$		$V_F$		2.0	2.4	V
Reverse current	$V_R = 5\text{ V}$		$I_R$			10	$\mu\text{A}$

Note<sup>1)</sup>  $I_{Vmin}$  and  $I_V$  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.



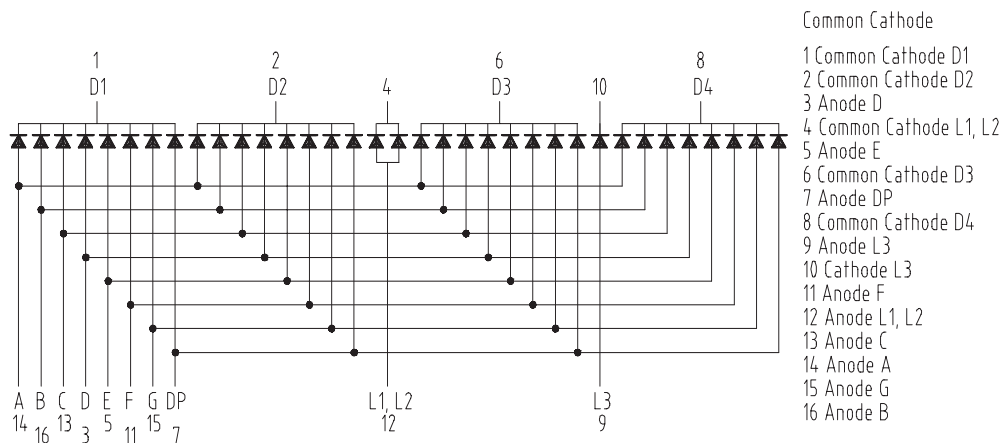
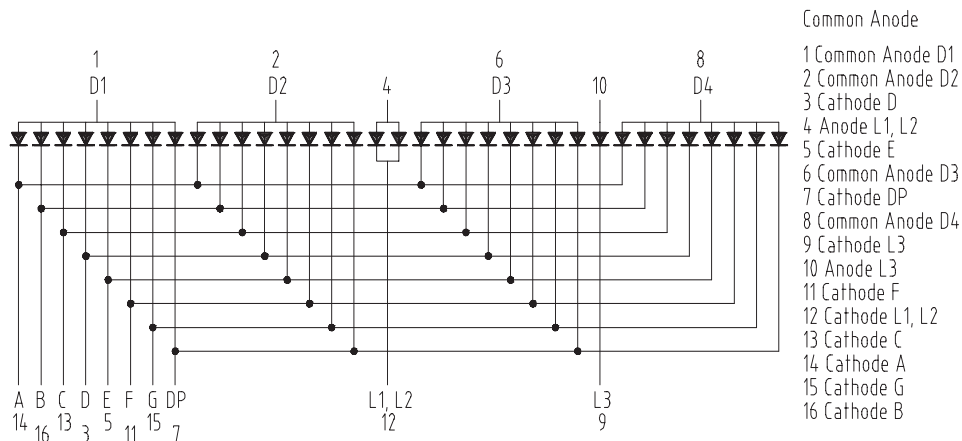
## Green

### TDCG1050m/ TDCG1060m

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity per segment <sup>1)</sup>	$I_F = 2 \text{ mA}$	TDCG1050m	$I_V$		1.0		mcd
		TDCG1060m	$I_V$		1.0		mcd
	$I_F = 10 \text{ mA}$	TDCG1050m	$I_V$	2.8	4.0		mcd
		TDCG1060m	$I_V$	2.8	4.0		mcd
Luminous intensity of colon	$I_F = 2 \text{ mA}$	TDCG1050m	$I_V$		0.2		mcd
		TDCG1060m	$I_V$		0.2		mcd
	$I_F = 10 \text{ mA}$	TDCG1050m	$I_V$	0.5	1.2		mcd
		TDCG1060m	$I_V$	0.5	1.2		mcd
Dominant wavelength	$I_F = 20 \text{ mA}$		$\lambda_d$	562	573	575	nm
Peak wavelength	$I_F = 20 \text{ mA}$		$\lambda_p$		575		nm
Spectral bandwidth	$I_F = 20 \text{ mA}$		$\Delta\lambda$		20		nm
Forward voltage	$I_F = 20 \text{ mA}$		$V_F$		2.0	2.4	V
Reverse current	$V_R = 5 \text{ V}$		$I_R$			10	$\mu\text{A}$

Note<sup>1)</sup>  $I_{V\min}$  and  $I_V$  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.

## Pinning

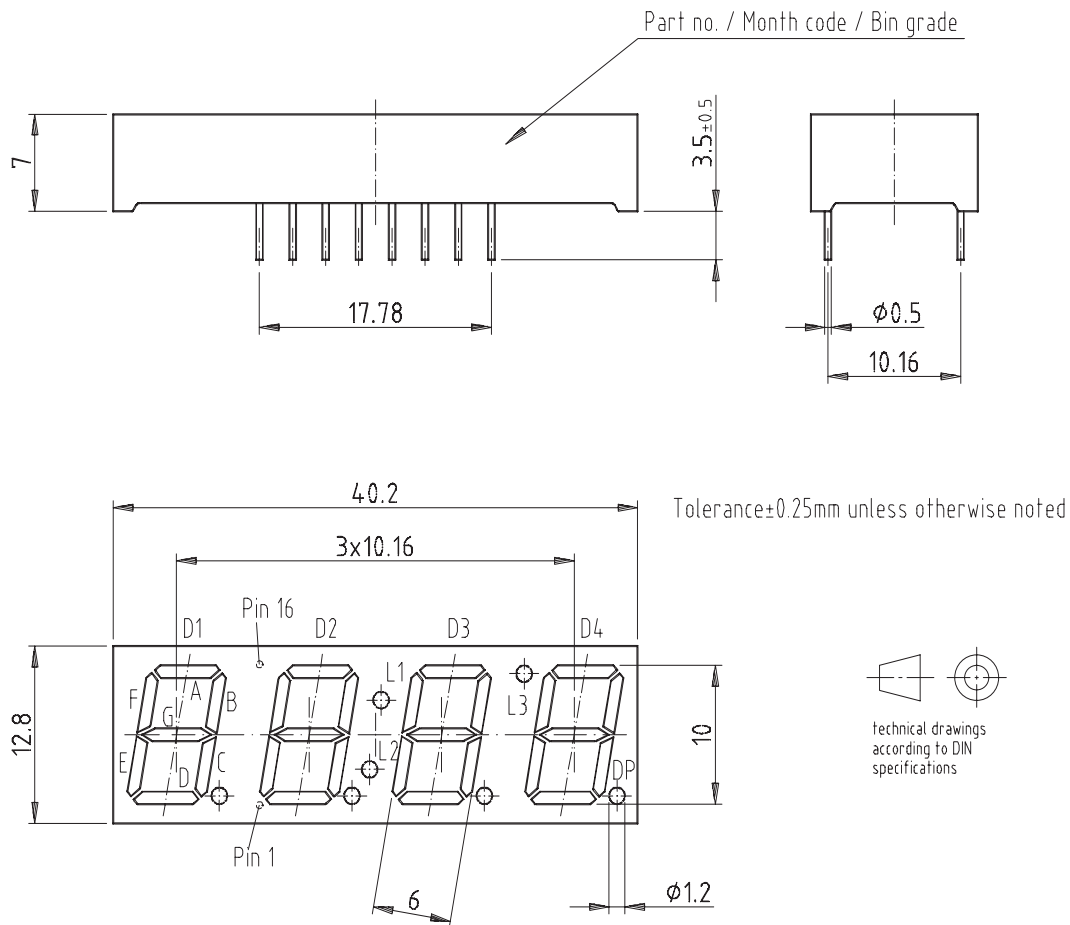


Drawing-No.: 6.544-5332.01-4 Bl. 2

Issue: 1; 20.02.02

16715

## Package Dimensions in mm



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

Issue: 3; 27.02.02

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### 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 operating systems 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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Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany  
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423



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