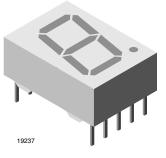
Vishay Semiconductors

High Intensity Red Low Current 7-Segment Display



www.vishay.com

DESCRIPTION

This series defines a new standard for low current displays. It is a single digit 7-segment LED display utilizing AllnGaP technology in color red.

The supreme light intensity allows applications under direct sunlight or "black front" designs by using tinted filter glass in front of the display.

Typical 1500 μ cd at 1 mA is best in class performance for applications with very limited power supply. The maximum forward current of 10 mA is allowed for an ambient temperature range of - 40 °C to + 85 °C without current derating.

Crosstalk between segments is possible at drive currents above 5 mA per segment. Therefore it is recommend to apply more than 5 mA only under direct sunlight or with tinted filter glass.

FEATURES

- 1500 µcd typical at 1 mA
- Very low power consumption
- Wide viewing angle
- Grey package surface
- Light intensity categorized at I_F = 1 mA
- Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

APPLICATIONS

- Battery driven instruments
- Telecom devices
- Home appliances
- Instrumentation
- POS terminals

PRODUCT GROUP AND PACKAGE DATA

- Product group: Display
- Package: 13 mm
- Product series: Low current
- Angle of half intensity: ± 50°

PARTS TABLE															
PART COLOR		LUMINOUS INTENSITY (µcd)		at WAVELENGTH I _F (nm)		at I _F	FORWARD VOLTAGE (V)		at I _F	CIRCUITRY					
		MIN.	TYP.	MAX.	(mA)	MIN.	TYP.	MAX.	(mA)	MIN.	TYP.	MAX.	(mA)		
TDSR1350	Red	280	-	3600	1	-	640	-	1	-	1.8	2.4	1	Common anode	
TDSR1360	Red	280	-	3600	1	-	640	-	1	-	1.8	2.4	1	Common cathode	
TDSR1360-IK	Red	1100	-	3600	1	-	640	-	1	-	1.8	2.4	1	Common cathode	

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25$ °C, unless otherwise specified) **TDSR1350, TDSR1360, TDSR1360-IK**

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Reverse voltage per segment		V _R	5	V		
DC forward current per segment		١ _F	10	mA		
Peak forward current per segment	$t_p \le 10 \ \mu s$, duty cycle 1/10	I _{FM}	50	mA		
Power dissipation	T _{amb} ≤ 85 °C	Pv	185	mW		
Junction temperature		Tj	105	°C		
Operating temperature range		T _{amb}	- 40 to + 85	°C		
Storage temperature range		T _{stg}	- 40 to + 85	°C		
Soldering temperature	$t \leq 3~\text{s},2~\text{mm}$ below seating plane	T _{sd}	260	°C		
Thermal resistance LED junction/ambient		R _{thJA}	100	K/W		



COMPLIANT



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OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) TDSR1350, TDSR1360, TDSR1360-IK, RED							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
	I _F = 1 mA	TDSR1350	I _V	280	-	3600	μcd
Luminous intensity per segment (digit average)		TDSR1360		280	-	3600	
(digit avoiago)		TDSR1360-IK		1100	-	3600	
Dominant wavelength	I _F = 1 mA		λ _d	-	640	-	nm
Peak wavelength	I _F = 1 mA	TDSR1350.	λρ	-	650	-	nm
Angle of half intensity	I _F = 1 mA	TDSR1360,	j	-	± 50	-	deg
Forward voltage per segment or DP	I _F = 1 mA	TDSR1360-IK	V _F	-	1.8	2.4	V
Reverse voltage per segment or DP	V _R = 6 V		I _R	-	10	-	μA

LUMINOUS INTENSTIY CLASSIFICATION

GROUP	LIGHT INTENSITY (µcd)					
STANDARD	MIN.	MAX.				
F	280	560				
G	450	900				
Н	700	1400				
I	1100	2200				
К	1800	3600				

Note

 The above type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped in one tube (there will be no mixing of two groups in one tube).

In order to ensure availability, single brightness groups will not be orderable.

TYPICAL CHARACTERISTICS ($T_{amb} = 25 \text{ °C}$, unless otherwise specified)

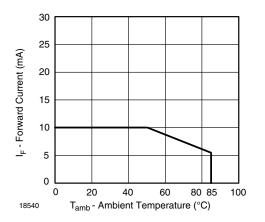


Fig. 1 - Forward Current vs. Ambient Temperature

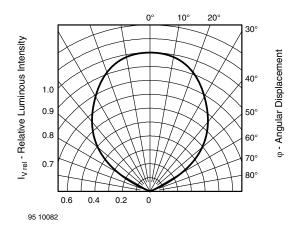


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

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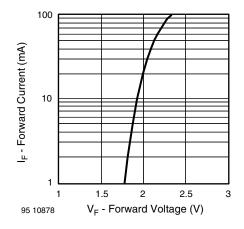


Fig. 3 - Forward Current vs. Forward Voltage

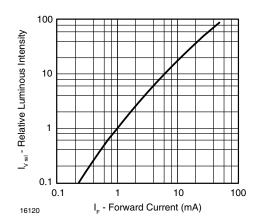


Fig. 4 - Relative Luminous Intensity vs. Forward Current

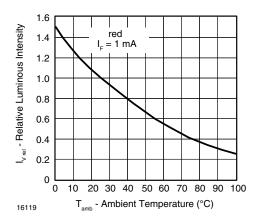


Fig. 5 - Relative Luminous Intensity vs. Ambient Temperature

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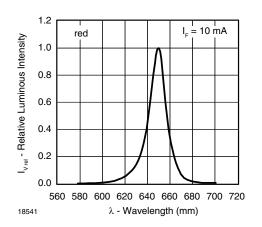


Fig. 6 - Relative Luminous Intensity vs. Ambient Temperature

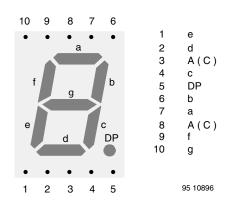
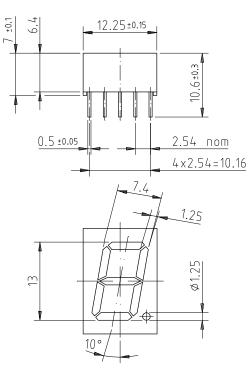


Fig. 7 - TDSR13..

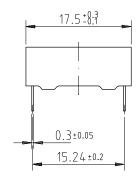
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PACKAGE DIMENSIONS FOR TDSR13.. in millimeters



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Drawing-No.: 6.544-5150.01-4 Issue: 1; 21.11.95 95 11344



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