



# OPC10M

10 kV High Voltage Optical Coupler

## Features

- Integrated low voltage LED drivers with 10kV photo detector diode
- Black casing, light tight packaging
- RoHS compliant to Directive 2011/65/EC, Article 4(1), Annex II, Annex III, 7(a) and EU RoHS Directive (EU) 2015/863 of March 2015, Amending Annex II.



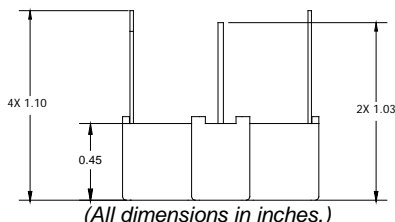
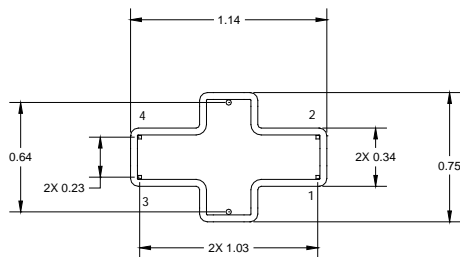
## Specifications

Photo Coupler Characteristics	Conditions	Symbo	Value		
			Min.	Typ.	Max.
Current Transfer Ratio	$I_{LED} = 50 \text{ mA}$ for 1 sec	CTR	-	0.48%	-
Turn-on time	-	$t_{on}$	-	2 $\mu\text{s}$	-
Turn-off time	-	$t_{off}$	-	2 $\mu\text{s}$	-
Operating Temperature Range	-	$T_{OP}$	-40°C to 85°C		
Storage Temperature Range	-	$T_{STG}$	-55°C to 100°C		
Insulation Voltage	LED Drivers to Photo Detector		-	12,000 V	-
Photo Detector Diode					
Repetitive Peak Reverse Voltage	-	$V_{RRM}$	-	-	10,000 V
Average Forward Current	$T_{Air} = 55^\circ\text{C}$	$I_{FAVM}$	-	-	80 mA
Reverse Leakage Current	** $V_{DR} = V_{RRM}$ , $I_{LED} = 0 \text{ mA}$	$I_R$	-	25 nA	-
Forward Surge Current	Single cycle, 1/2 sine, 60Hz	$I_{FSM}$	-	-	10 Amps
Forward Voltage Drop	$I_F = 100\text{mA}$	$V_F$	-	-	12 V
Junction Capacitance	$f = 1\text{MHz}$ ; $V_{DR} = 0 \text{ V}$	$C_J$	-	3.0 pF	-
Maximum Junction Temperature	-	$T_J$	100°C		
LED Driver (2 per device) – specifications are for each LED					
Forward DC Current	-	$I_{LED}$	-	-	100 mA
Forward Voltage Drop	$I_{LED} = 50 \text{ mA}$	$V_{FLED}$	-	1.25 V	-
Reverse Voltage	-	$V_{RLED}$	-	-	5 V

(\* All specifications at 25°C ambient temperature unless stated otherwise.)

\*\* Detector diode voltage in reverse

## Dimensions:



(All dimensions in inches.)

SHORT LEAD

LONG LEAD



LONG LEAD

SHORT LEAD



High Voltage Products. High Voltage Experts.

HVP High Voltage Products GmbH Bunsenstr. 5 82152 Martinsried/Planegg +49 89 8646 677-0

[www.hvproducts.de](http://www.hvproducts.de)  
[info@hvproducts.de](mailto:info@hvproducts.de)

VERSION: 1.0

EFFECTIVE: 8 September 2017

PAGE: 1 OF 3



Test Circuit: \*

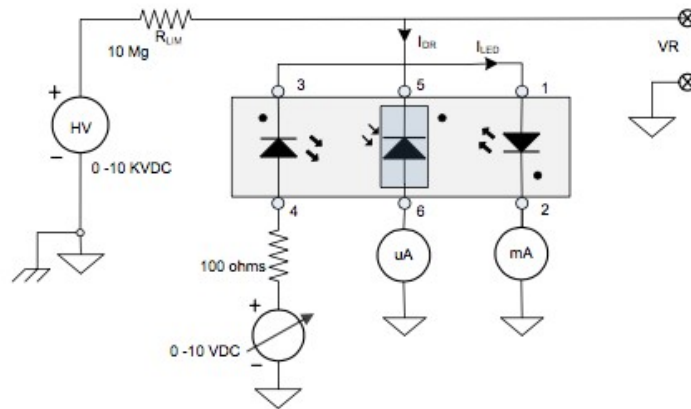


Figure 1: Test Circuit

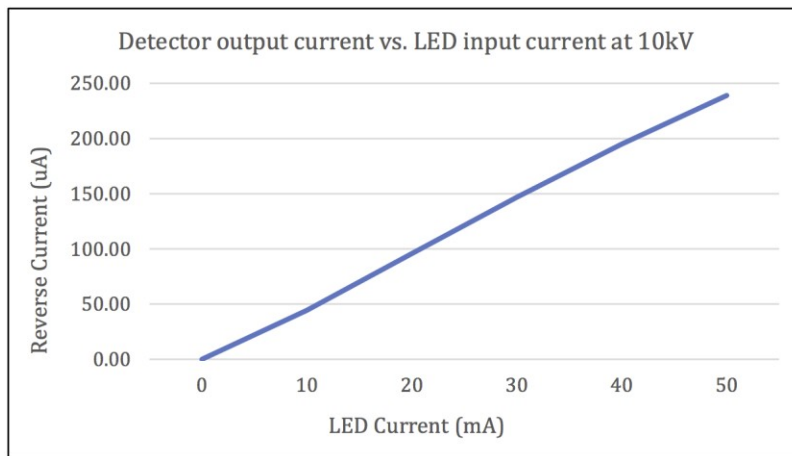


Figure 2: Photo Detector Diode Current vs. LED Current

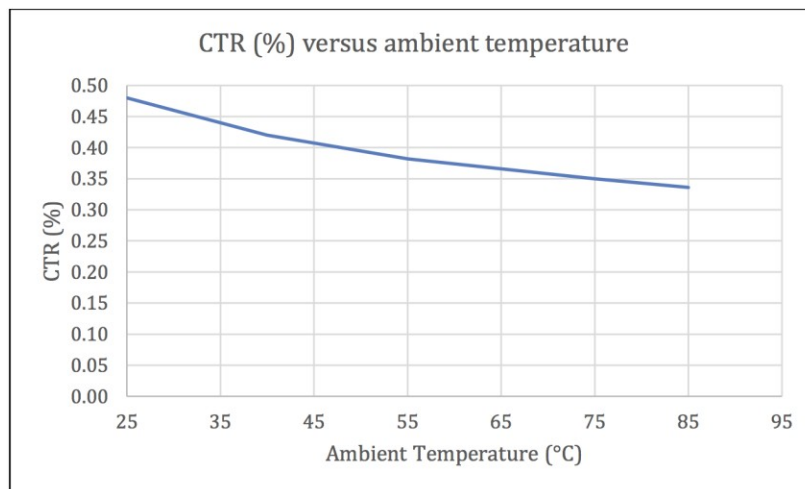


Figure 3: Optocoupler Current Transfer Ratio vs. Ambient Temperature

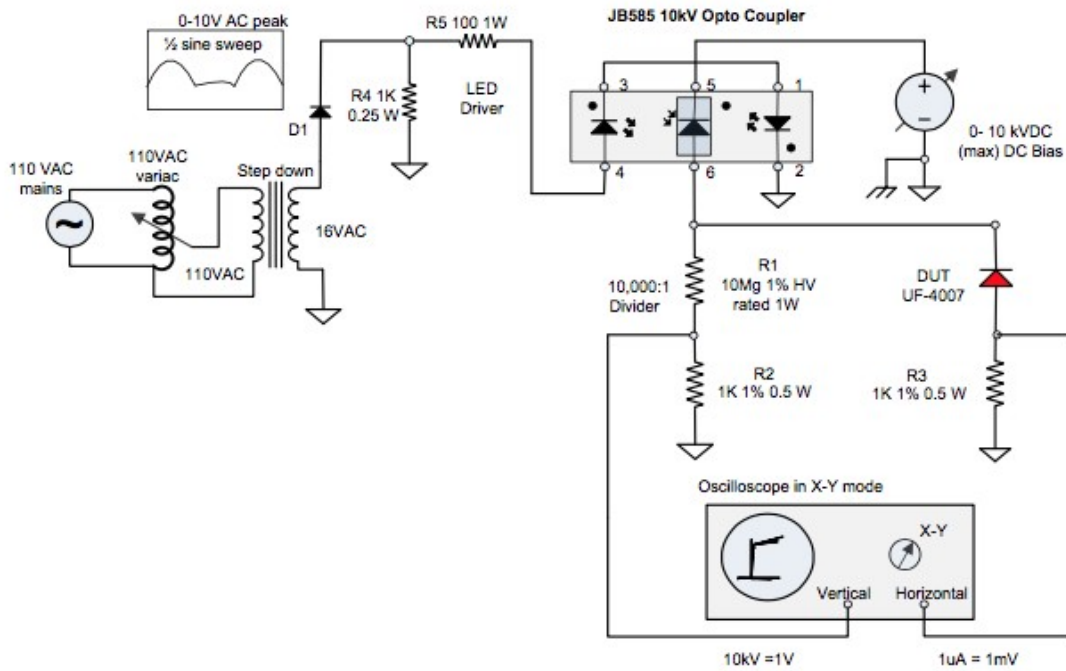
(\* Chart shown represents use of OPC10M in test circuit)



**Sample Application Circuit:**

The circuit shown in Figure 4 is used to visually observe the reverse characteristic curve of a typical silicon diode.

The variac sets the LED sweep drive current for the OPC10M. The photo detector diode outputs current to back drive the Diode Under Test (DUT). The results are observed on an X-Y configured scope.



**Figure 4: Visual Diode Tester**

**Custom configurations are available now!**

The OPC10M represents a new technical capability for Dean Technology. We are actively developing this technology into a series of standard parts. Please contact us if you have an interest in a similar device with different electrical or mechanical specifications.