

KOE500XC

The KOE5001C, KOE5002C and KOE5003C are light to voltage optical sensors and respond to all wavelengths from 300nm to 1050nm.

Features

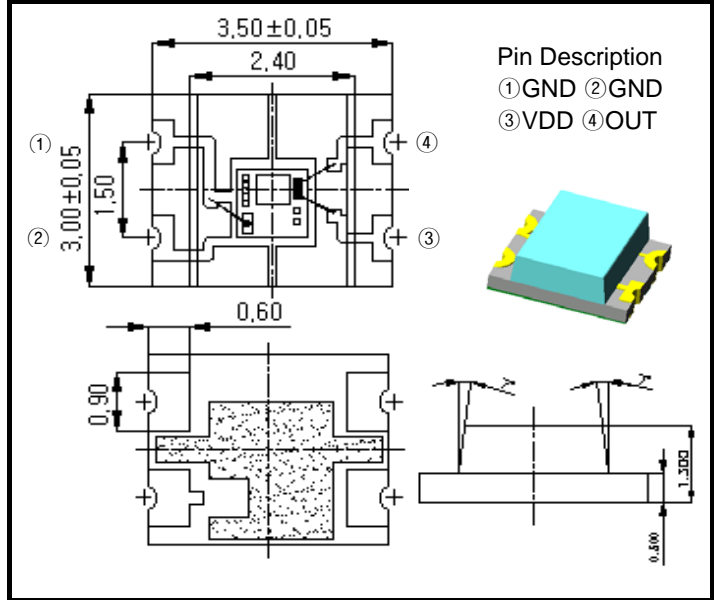
- Light to Voltage Converters
- Linear output corresponding to light intensity
- High bandwidth

Applications

- Paper handling
- Mark detection
- Smoke and partical detection

Dimensions

[Unit : mm]



Absolute Maximum Ratings

[$T_A = 25^\circ\text{C}$]

Parameter	Symbol	Rating	Unit
Supply voltage ^(*1)	VDD	6	V
Output current	IO	± 10	mA
Operating free-air temperature ^(*2)	TA	-25 ~ 85	$^\circ\text{C}$
Storage temperature range	Tstg	-25 ~ 85	
Duration of short-circuit current at(or below)25 $^\circ\text{C}$ ^(*2)		5	s

*1. All voltages are with respect to GND

*2. Output may be shorted to supply

Recommend Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit.
Supply voltage	VDD		2.7		5.5	V
Operating free-air temperature	TA		0		70	$^\circ\text{C}$

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ELECTRICAL CHARACTERISTICS

[See Notes 1]

SYMBOL	DESCRIPTION	TEST CONDITION	KOE5001C			KOE5002C			KOE5003C			UNIT
			MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX	
V _{OM}	Maximum output voltage		4.6	4.9		4.6	4.9		4.6	4.9	V	
V _O	Output voltage	E _e =8 μW/cm ²	1.5	2	2.5						V	
		E _e =32 μW/cm ²				1.5	2.0	2.5				
		E _e =128 μW/cm ²							1.5	2.0		2.5
Re	Irradiance responsivity	NOTE 2	250			62			15			mV/ (μW/cm ²)
I _D	Supply current	E _e =8 μW/cm ²	1.1			1.7						mA
		E _e =32 μW/cm ²				1.1			1.7			
		E _e =128 μW/cm ²							1.1			

NOTES) 1. Measurements are made with R_L=10k_Ω between output and ground.

2. Irradiance responsivity is characterized over range = 0.2 to 4 V. The best-fit straight line of output voltage V_O versus irradiance E_e over this range may a positive or negative extrapolated V_O value for E_e=0.

DYNAMIC CHARACTERISTICS

(V_{DD}=5V, T_A=25°C, λ_D=640nm, R_L=10k_Ω)

SYMBOL	DESCRIPTION	TEST CONDITION	KOE5001C			KOE5002C			KOE5003C			UNIT
			MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX	
tr	Output pulse rise time (10% to 90%)	V _O range : 0V to 0.5V	64			12			4			μs
		V _O range : 0V to 1V	32			10			4			
		V _O range : 0V to 2V	20			9			4			
		V _O range : 0V to 4V	15			8			4			
		V _O range : 0.5V to 1V	13			9			4			
		V _O range : 0.5V to 2V	11			8			4			
		V _O range : 0.5V to 4V	10			8			4			
tf	Output pulse fall time (90% to 10%)	V _O range : 0V to 0.5V	80			18			5			μs
		V _O range : 0V to 1V	35			11			4			
		V _O range : 0V to 2V	13			9			4			
		V _O range : 0V to 4V	10			8			4			
		V _O range : 0.5V to 1V	13			9			4			
		V _O range : 0.5V to 2V	11			8			4			
		V _O range : 0.5V to 4V	10			8			4			

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