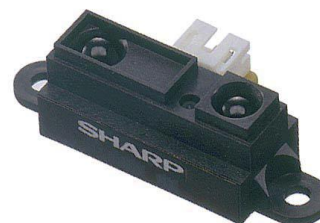


GP2Y0A41SK0F

Distance Measuring Sensor Unit
Measuring distance : 4 to 30 cm
Analog output type



■Description

GP2Y0A41SK0F is a distance measuring sensor unit, composed of an integrated combination of PSD (position sensitive detector) , IR-LED (infrared emitting diode) and signal processing circuit. The variety of the reflectivity of the object, the environmental temperature and the operating duration are not influenced easily to the distance detection because of adopting the triangulation method. This device outputs the voltage corresponding to the detection distance. So this sensor can also be used as a proximity sensor.

■Agency approvals/Compliance

1. Compliant with RoHS directive (2002/95/EC)

■Applications

1. Cleaning robot
2. Personal robot
3. Sanitary

■Features

1. Distance measuring sensor is united with PSD, infrared LED and signal processing circuit
2. Short measuring cycle (16.5ms)
3. Distance measuring range : 4 to 30 cm
4. Package size (29.5 × 13.0 × 13.5mm)
5. Analog output type

Notice The content of data sheet is subject to change without prior notice.

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Sheet No.: OP13008EN

■ Absolute maximum ratings

(Ta=25°C, Vcc=5V)

Parameter	Symbol	Ratings	Unit	Remark
Supply voltage	Vcc	-0.3 to +7	V	-
Output terminal voltage	Vo	-0.3 to Vcc+0.3	V	-
Operating temperature	Topr	-10 to +60	°C	-
Storage temperature	Tstg	-40 to +70	°C	-

■ Operating supply voltage

Symbol	Rating	Unit	Remark
Vcc	4.5 to 5.5	V	-

■ Electro-optical Characteristics

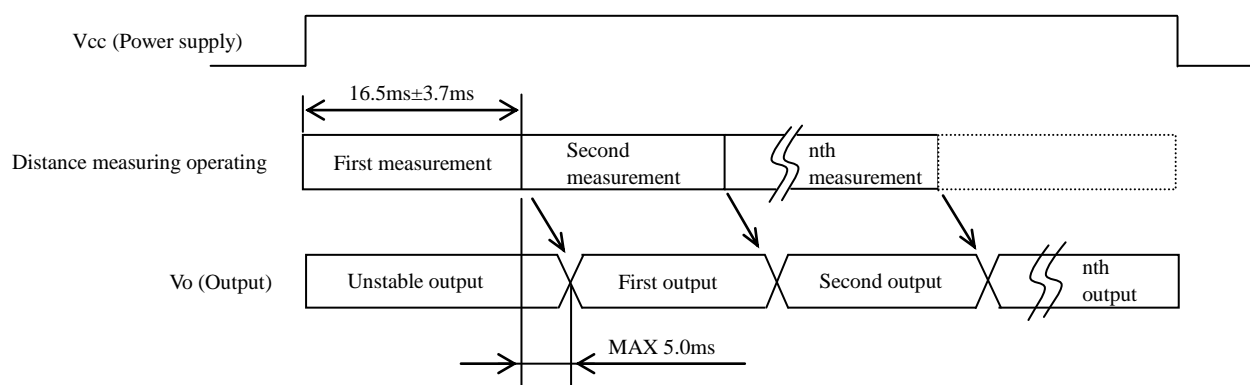
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Measuring distance range	ΔL	(Note 1)	4	-	30	Cm
Output terminal voltage	Vo	L=30cm (Note 1)	0.25	0.4	0.55	V
Output voltage difference	ΔVo	Output change at L change (30cm → 4cm) (Note 1)	1.95	2.25	2.55	V
Average supply current	Icc	L=30cm (Note 1)	-	12	22	mA

※L : Distance to reflective object

(Note 1) Using reflective object : White paper

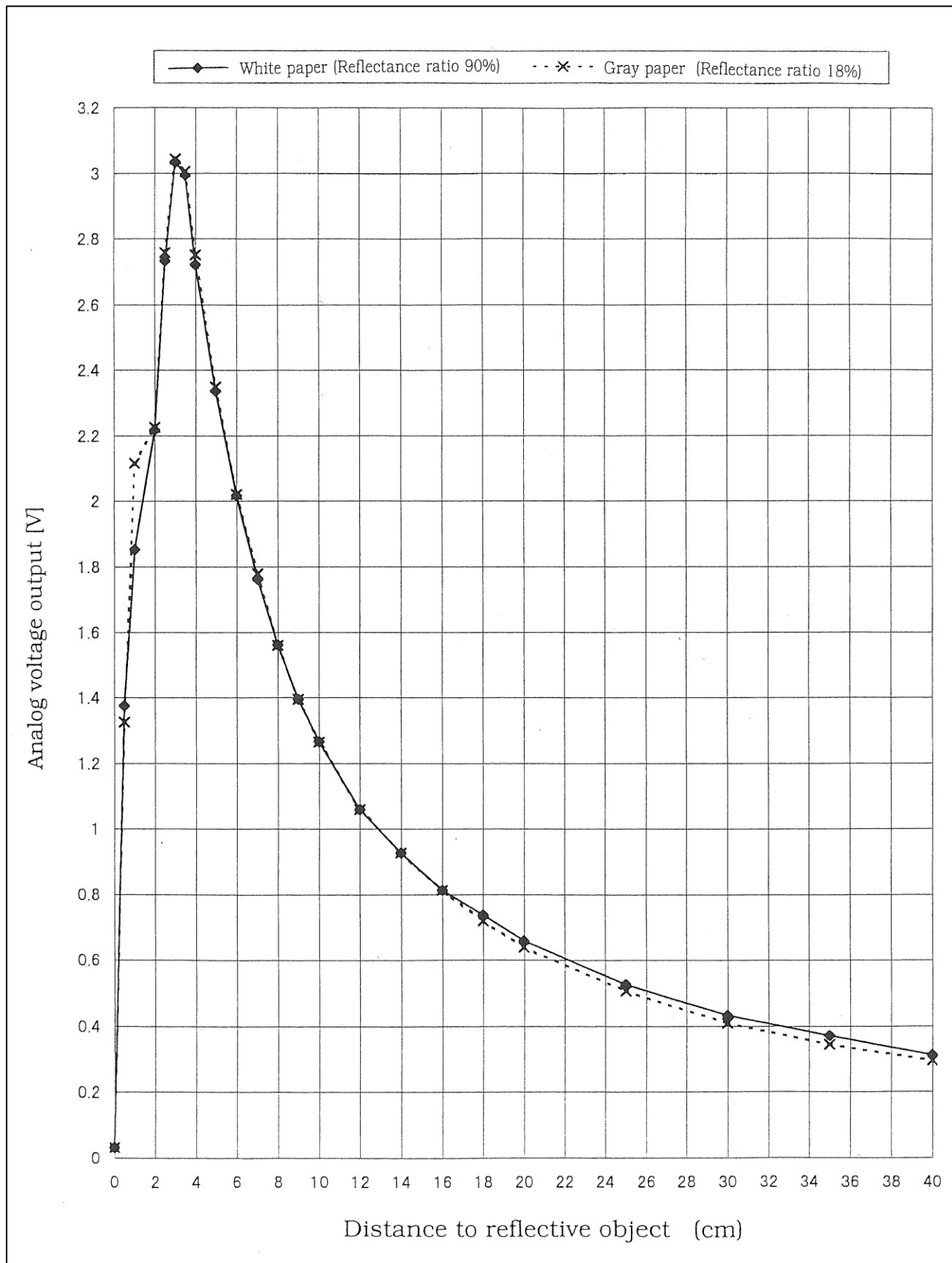
(Made by Kodak Co., Ltd. gray cards R-27 • white face, reflective ratio ; 90%)

■ Timing Chart

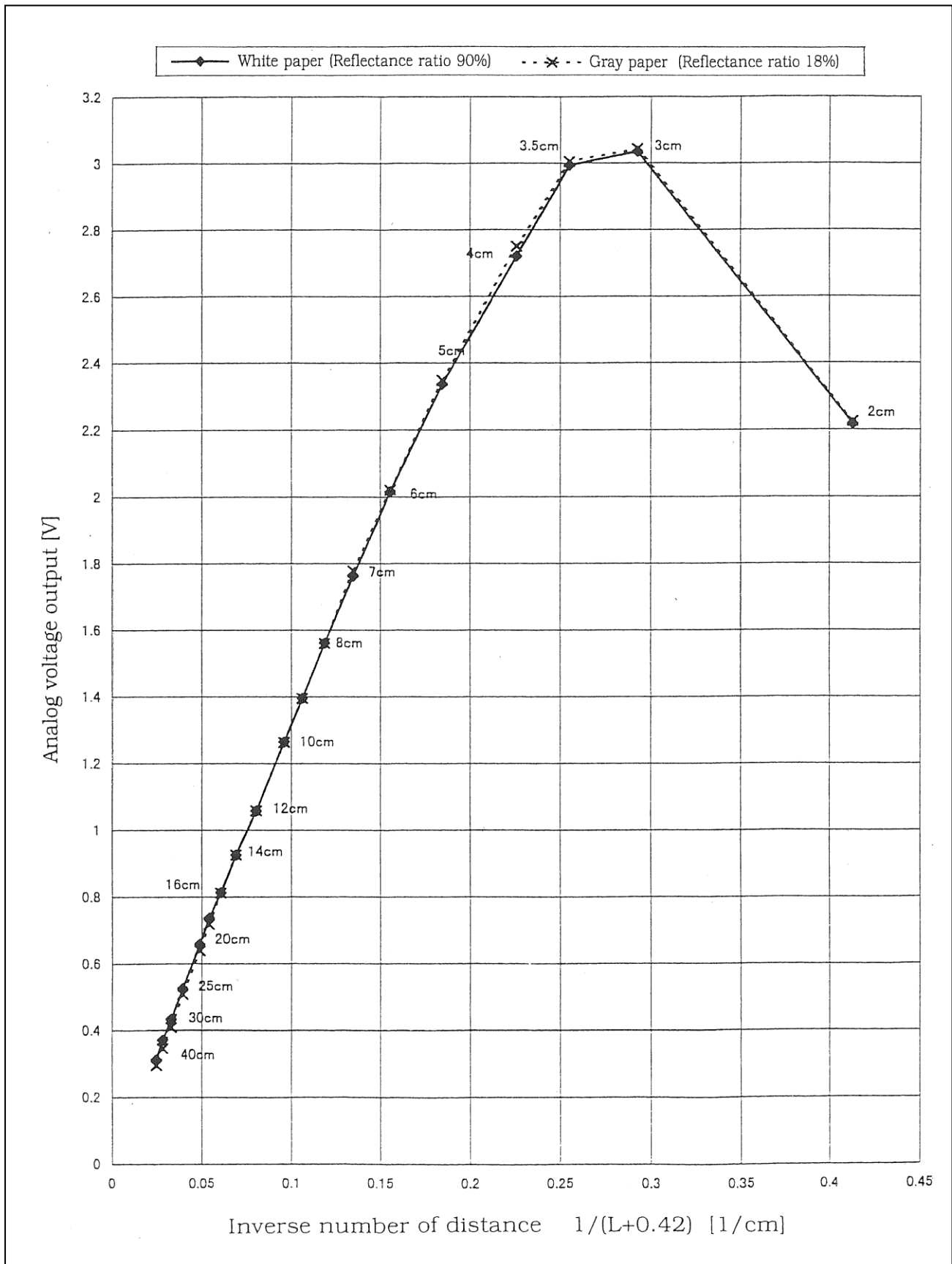


Supplements

- Example of output distance characteristics



● Example of output distance characteristics with the inverse of distance



- This product shall not contain the following materials.

Also, the following materials shall not be used in the production process for this product.

Materials for ODS : CFC_s, Halon, Carbon tetrachloride 1.1.1-Trichloroethane (Methyl chloroform)

- Product mass : Approx. 3.6g (TYP)
- This product does not contain the chemical materials regulated by RoHS directive.
(Except for the NOT regulated by RoHS directive.)
- Compliance with each regulation

1) The RoHS directive(2002/95/EC)

This product complies with the RoHS directive(2002/95/EC) .

Object substances: mercury, lead (except for lead in high melting temperature type solders^{*1} and glass of electronic components), cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)

*1 : i.e. tin-lead solder alloys containing more than 85% lead

2) Content of six substances specified in Management Methods for Control of Pollution Caused by Electronic Information Products Regulation (Chinese : 电子信息产品污染控制管理办法).

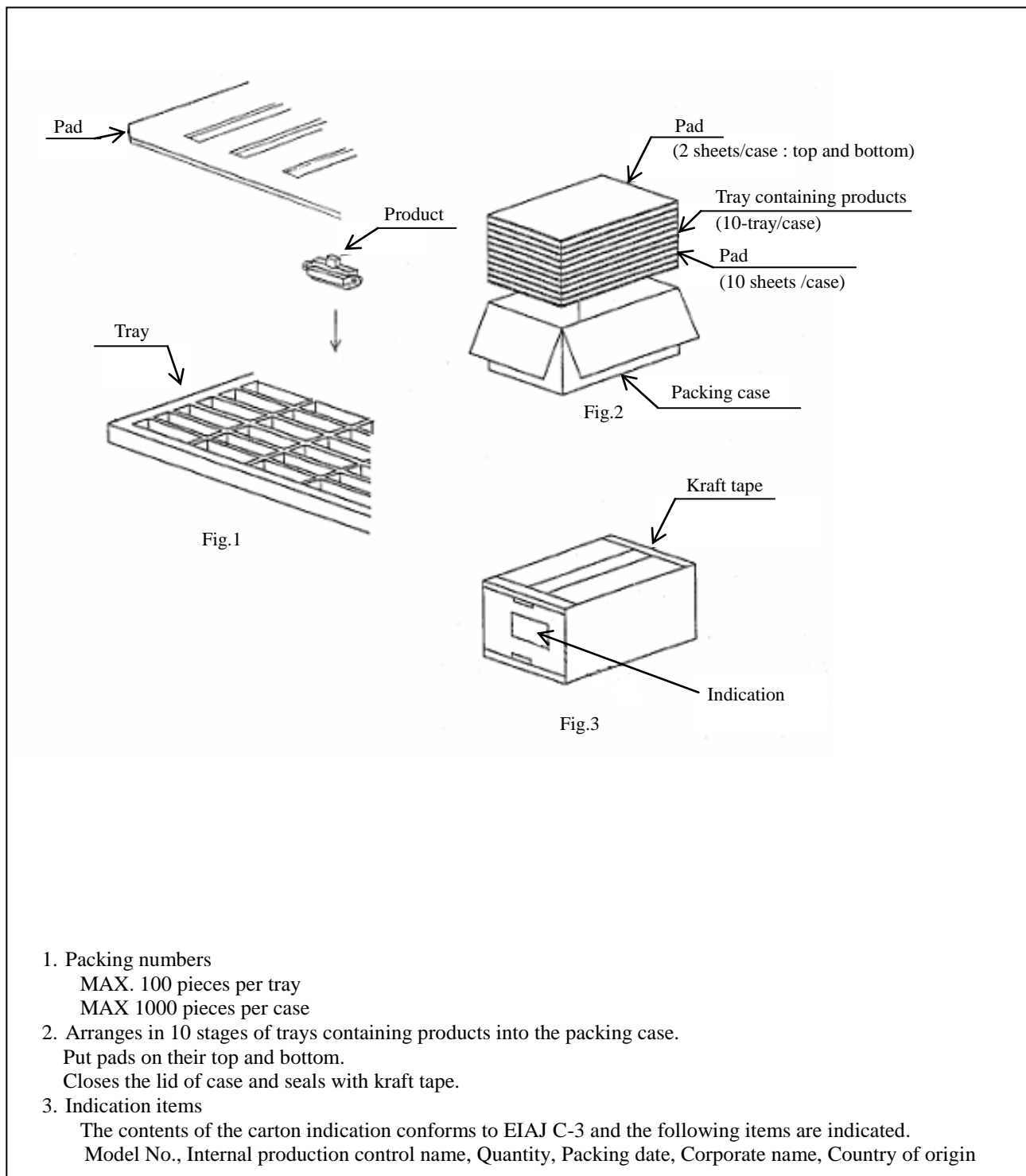
Category	Toxic and hazardous substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr ⁶⁺)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Distance Measuring Sensor	*	✓	✓	✓	✓	✓

✓ : indicates that the content of the toxic and hazardous substance in all the homogeneous materials of the part is below the concentration limit requirement as described in SJ/T 11363-2006 standard .

* : indicates that the content of the toxic and hazardous substance in at least one homogeneous material of the part exceeds the concentration limit requirement as described in SJ/T 11363-2006 standard.

Lead in high melting temperature type solders (i.e. tin-lead solder alloys containing more than 85% lead) and glass of electronic components (designated by “*” in the above table) are exempt from the RoHS directive (2002/95/EC), because there is no effective way to eliminate or substitute them by present scientific technology.

■ Packing specification



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- Personal computers
- Office automation equipment
- Telecommunication equipment [terminal]
- Test and measurement equipment
- Industrial control
- Audio visual equipment
- Consumer electronics

(ii) Measures such as fail-safe function and redundant design should be taken to ensure reliability and safety when SHARP devices are used for or in connection

with equipment that requires higher reliability such as:

- Transportation control and safety equipment (i.e., aircraft, trains, automobiles, etc.)
- Traffic signals
- Gas leakage sensor breakers
- Alarm equipment
- Various safety devices, etc.

(iii) SHARP devices shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as:

- Space applications
- Telecommunication equipment [trunk lines]
- Nuclear power control equipment
- Medical and other life support equipment (e.g., scuba).

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