GL4800E0000F

Infrared Emitting Diode

■ Features

1. Side view emission type
2. Plastic mold with resin lens
3. Medium directivity angle ($\Delta\theta$: ±30° TYP.)
   Peak emission wavelength: 950 nm TYP.
4. Radiant flux ϕe: 0.7 mW MIN.
5. Lead free and RoHS directive component

■ Agency Approvals/Compliance

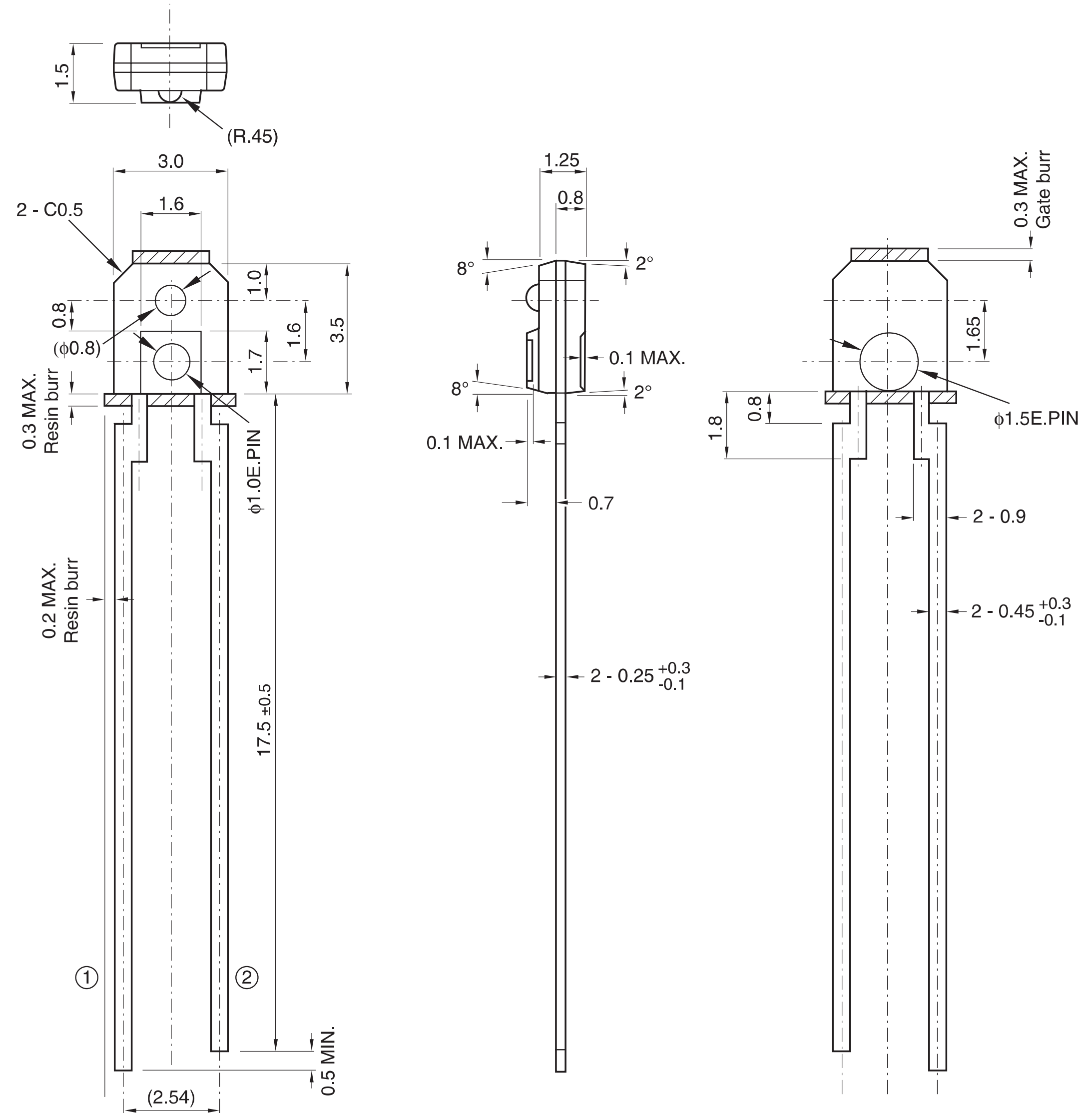
1. Compliant with RoHS directive (2002/95/EC)
2. Content information about the six substances specified in “Management Methods for Control of Pollution Caused by Electronic Information Products Regulation” (popular name: China RoHS) (Chinese: 电子信息产品污染控制管理办法); refer to page 7

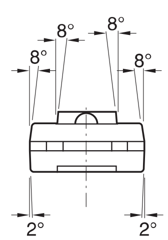
■ Applications

1. Optoelectronic switching
2. Office automation equipment
3. Audio visual equipment
4. Home appliances
5. Telecommunication equipment
6. Measuring equipment
7. Tooling machines
8. Computers

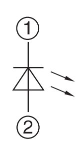
Sheet No.: D1-A01001EN
Date: March 30, 2007

■ Outline Dimensions





Pin Arrangement



No.	Name
①	Cathode
②	Anode

NOTES:
1. Units: mm
2. Unspecified tolerances: ±0.2
3. Package: transparent epoxy resin
4. ( ): Reference dimensions
5. The thin burr thickness (0.05 mm MAX.) and the gate burr (0.3 mm MAX.) shall not be included in the outline dimensions.
6. Protruded resin 0.3 mm MAX. However, the thin burr adheres to the lead 1.8 mm MAX. from the resin.

■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating	Unit
Forward current	I_F	50	mA
Peak forward current *1	I_{FM}	1	A
Reverse voltage	V_R	6	V
Power dissipation	P	75	mW
Operating temperature	Topr	-25 to +85	°C
Storage temperature	Tstg	-40 to +85	°C
Soldering temperature *2	Tsol	260	°C

*1 Pulse width: 100 μs, Duty ratio: 0.01
*2 3 s (MAX.) positioned 1.8 mm from the resin edge.

■ Electro-optical Characteristics

(Ta = 25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward voltage	V_F	I_F = 20 mA	–	1.2	1.4	V
Peak forward voltage	V_{FM}	I_{FM} = 0.5 A	–	3.0	4.0	V
Reverse current	I_R	V_R = 3 V	–	–	10	μA
Radiant flux	ϕ_e	I_F = 20 mA	0.7	1.6	3.0	mW
Peak emission wavelength	λp	I_F = 5 mA	–	950	–	nm
Half intensity wavelength	$\Delta\lambda$	I_F = 5 mA	–	45	–	nm
Terminal capacitance	C_t	V_R = 0, f = 1 MHz	–	70	–	pF
Cut-off frequency	f_C	–	–	300	–	kHz

Fig. 1 Forward Current vs. Ambient Temperature

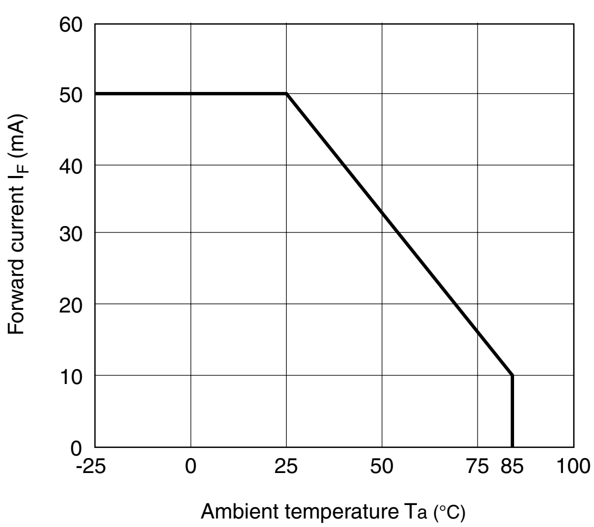


Fig. 2 Peak Forward Current vs. Duty Ratio

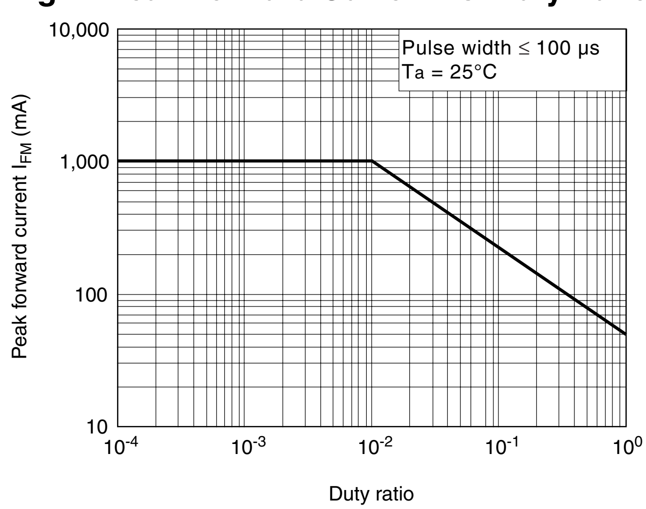


Fig. 3 Radiation Diagram

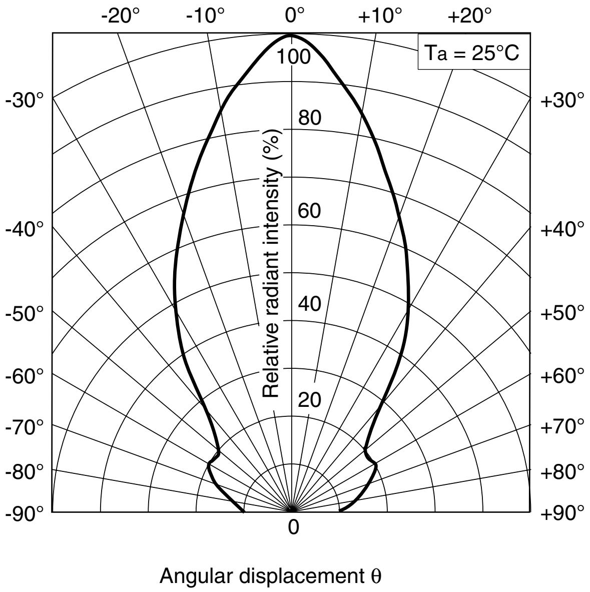


Fig. 5 Peak Emission Wavelength vs. Ambient Temperature

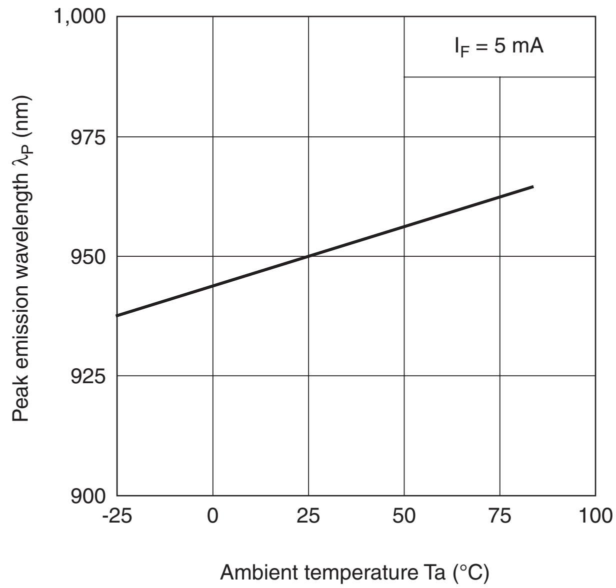


Fig. 4 Spectral Distribution

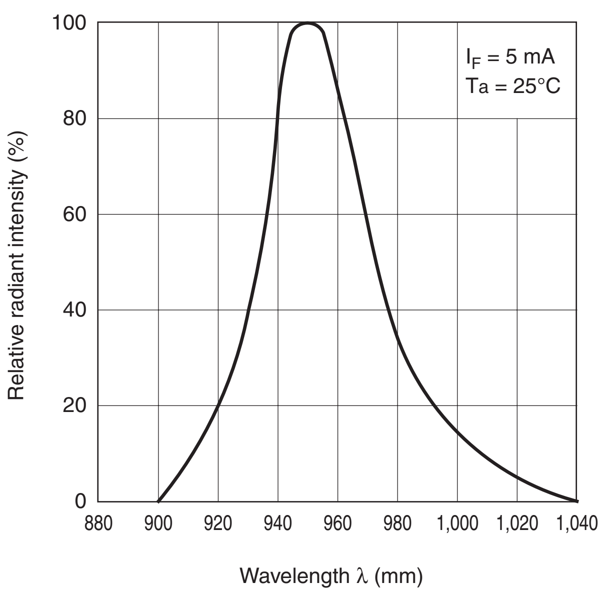


Fig. 6 Forward Current vs. Forward Voltage

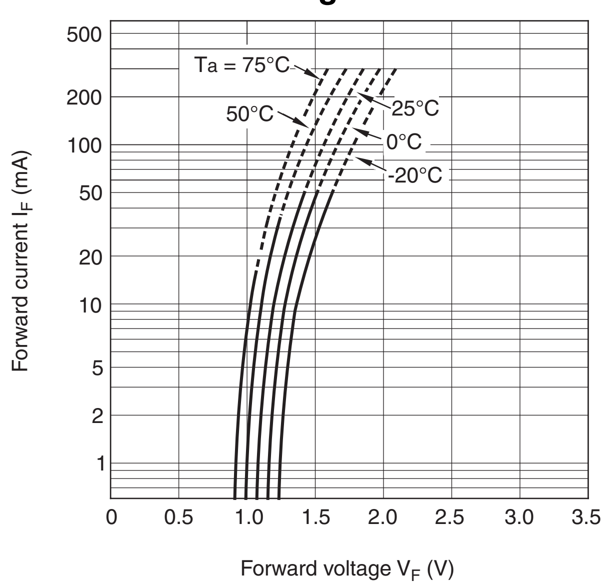


Fig. 7 Relative Radiant Flux vs. Ambient Temperature

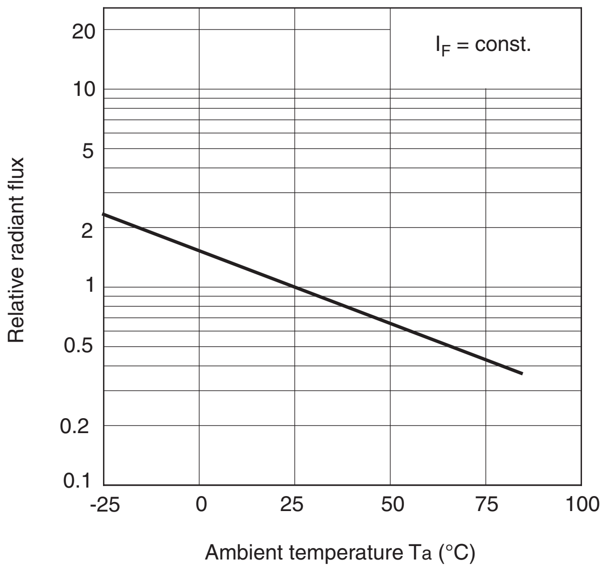


Fig. 8 Radiant Flux vs. Forward Current

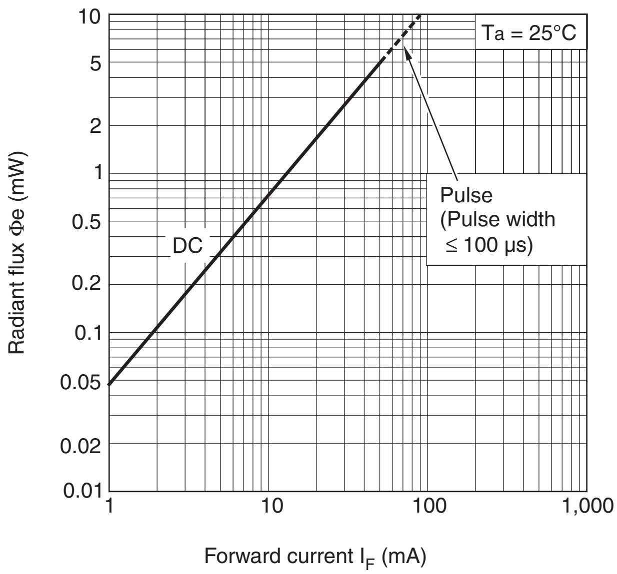


Fig. 9 Relative Radiant Intensity vs. Distance

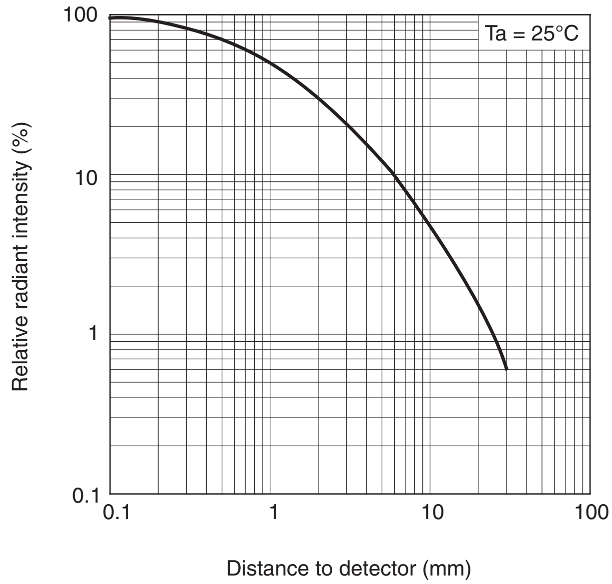
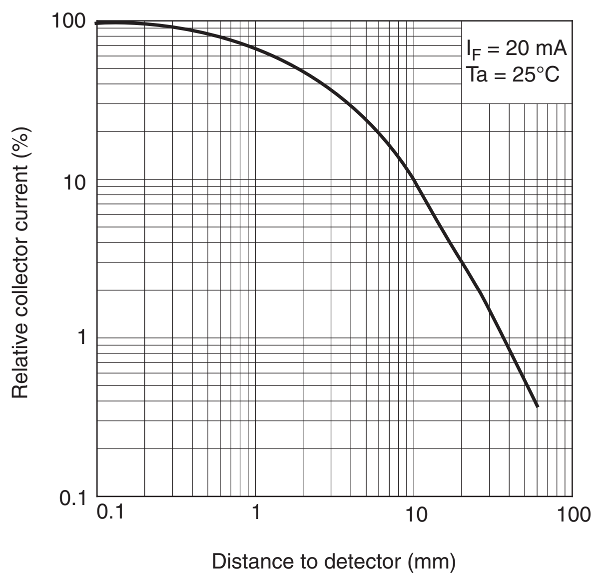


Fig. 10 Relative Collector Current vs. Distance (Detector: PT4800)



■ Design Considerations

Design Guidelines

1. Allow for natural degradation of the LED as a result of long continuous operation. This part will have 50% degradation in output after 5 years of continuous use.
2. This product is not designed to be electromagnetic- and ionized-particle-radiation resistant.

■ Manufacturing Guidelines

Cleaning Instructions

1. Confirm this device's resistance to process chemicals before use, as certain process chemicals may affect the optical characteristics.
2. Solvent cleaning: Solvent temperature should be 45°C or below. Immersion time should be 3 minutes or less.
3. Ultrasonic cleaning: The effect upon devices varies due to cleaning bath size, ultrasonic power output, cleaning time, PCB size and device mounting circumstances. Sharp recommends testing using actual production conditions to confirm the harmlessness of the ultrasonic cleaning methods.
4. Recommended solvent materials: Ethyl alcohol, Methyl alcohol, and Isopropyl alcohol.

Soldering Instructions

1. Sharp recommends not soldering this part using preheat or solder reflow methods.
2. If hand soldering, use temperatures $\leq$260°C for $\leq$3 seconds.
3. When mounting this device, care should be taken to prevent any boundary exfoliation (pad lifting) between the solder, the pad, and the circuit board.
4. Do not subject the package to excessive mechanical force during soldering as it may cause deformation or defects in plated connections. Internal connections may be severed due to mechanical force placed on the package due to the PCB flexing during the soldering process.

Storage and Handling

1. Sharp recommends storing these parts between 5°C and 30°C, at a relative humidity of less than 60%.
2. After breaking the package seal, Sharp recommends maintaining the environment within 5° to 30°C, at a relative humidity of less than 60%.

■ Packing Specifications

1. Parts are packed in a vinyl bag, at an average quantity of 1,000 pieces per bag.
2. Bags are secured in a box as shown in illustration on page 7.
3. Product mass: 0.07 g (approximately)
4. Sharp guarantees the following:
   a. Missing parts will not make up more than 0.1% of the total quantity.
   b. Parts will be easily removed from the packing.

■ Presence of ODCs (RoHS Compliance)

This product shall not contain the following materials, and they are not used in the production process for this product:

- Regulated substances: CFCs, Halon, Carbon tetrachloride, 1,1,1-Trichloroethane (Methylchloroform). Specific brominated flame retardants such as the PBBOs and PBBs are not used in this product at all.

This product shall not contain the following materials banned in the RoHS Directive (2002/95/EC).

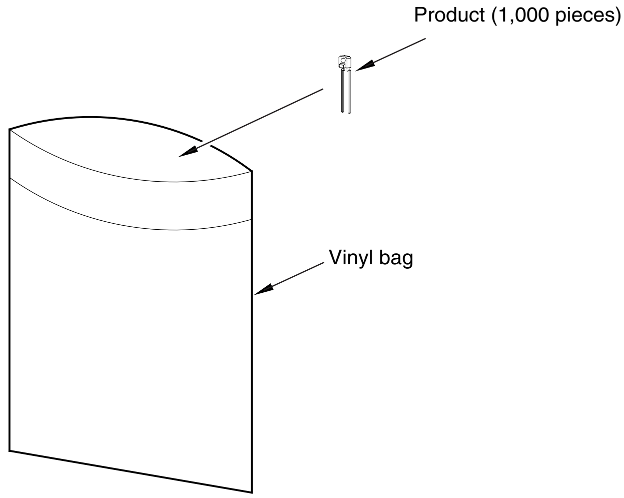
- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE).
- Content information about the six substances specified in “Management Methods for Control of Pollution Caused by Electronic Information Products Regulation” (Chinese: 电子信息产品污染控制管理办法)

Category	Toxic and Hazardous Substances					
	Lead (Pb)	mercury (Hg)	Cadmium (Cd)	Hexavalent chromiun (Cr^{6+})	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Infrared Emitting Diode	✓	✓	✓	✓	✓	✓

NOTE: ✓ 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.

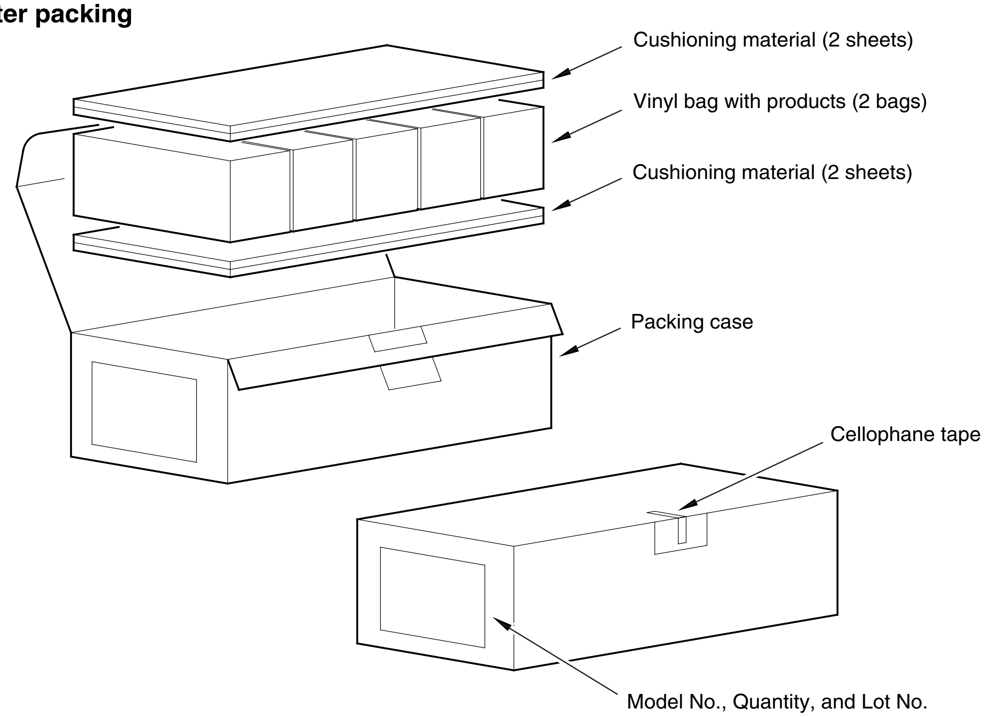
■ Package Specification

Inner packing



NOTES:
1. Inner packing material : Vinyl bag (Polyethylene)
2. Quantity: 1,000 pieces/bag

Outer packing



NOTES:
1. Outer material : Packing case (Corrugated cardboard),
   Cushioning material (Urethane), Cellophane tape
2. Quantity: 5,000 pieces/box
3. Regular packaged mass: Approximately 460 g
4. Indication: Model No., quantity, and Lot No.

■ Important Notices

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(i) The devices in this publication are designed for use in general electronic equipment designs such as:
--- 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 reliabilty 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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