



Pb-free
HEAT



PS3G07S

Through-hole Phototransistor/ ϕ 3 Type

Features

| | |
|-----------------------------|--|
| Package | ϕ 3 type, Water clear epoxy |
| Product features | <ul style="list-style-type: none">• Photo Current : 5.0mA TYP. ($V_{CE}=5V, E_e=10mW/cm^2$)• Flat Lens• Lead-free soldering compatible• RoHS compliant |
| Peak Sensitivity Wavelength | 880nm |
| Half Intensity Angle | 150 deg. |
| Die materials | Si |
| Rank grouping parameter | Sorted by photo current per rank taping |
| Soldering methods | TTW (Through The Wave) soldering and manual soldering ※Please refer to Soldering Conditions about soldering. |
| ESD | 2kV (HBM) |
| Packing | Bulk : 200pcs(MIN.) |

Recommended Applications

Electric Household Appliances, OA/FA, PC/Peripheral Equipment, Other General Applications

Absolute Maximum Ratings

(Ta=25°C)

| Item | Symbol | Absolute Maximum Ratings | Unit |
|---------------------------|------------------|--------------------------|------|
| Collector Dissipation | Pc | 75 | mW |
| Collector-Emitter Voltage | V _{CEO} | 30 | V |
| Emitter-Collector Voltage | V _{ECO} | 5 | V |
| Collector Current | Ic | 30 | mA |
| Operating Temperature | T _{opr} | -30~+85 | °C |
| Storage Temperature | T _{stg} | -30~+100 | °C |

Electro-Optical Characteristics

(Ta=25°C)

| Item | Conditions | Symbol | Characteristics | | Unit |
|--------------------------------------|---|----------------------|-----------------|------|------|
| | | | Min. | TYP. | |
| Photo Current | V _{CE} =5V, Ee=10mW/cm ² ※1 | Ic | 1.5 | 5 | mA |
| | | | 27 | | mA |
| | | | | | |
| Response Time | V _{CE} =10V, Ic=2mA, R _L =100Ω | tr/tf | TYP. | 5/5 | μs |
| Dark Current | V _{CEO} =10V | I _{CEO} | Max. | 0.2 | μA |
| Peak Sensitivity Wavelength | V _{CE} =5V | λ _p | TYP. | 880 | nm |
| Collector-Emitter Saturation Voltage | Ic=0.5mA, Ee=10mW/cm ² | V _{CE(SAT)} | TYP. | 0.1 | V |
| Spatial Half Width | - | Δθ | TYP. | 150 | deg. |

※1 Color temperature is 2,856K. Employs a standard tungsten lamp.

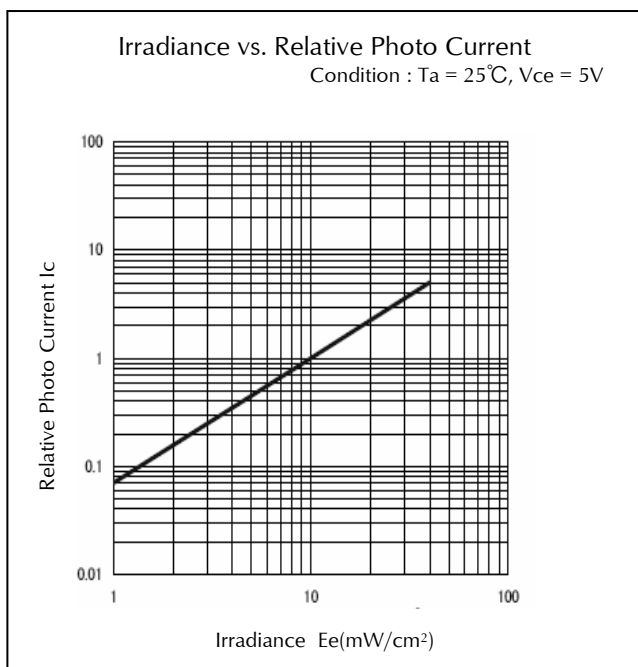
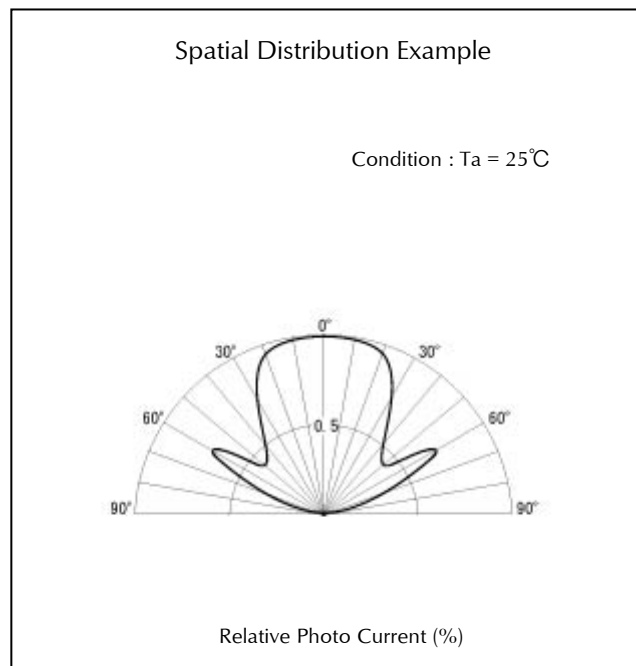
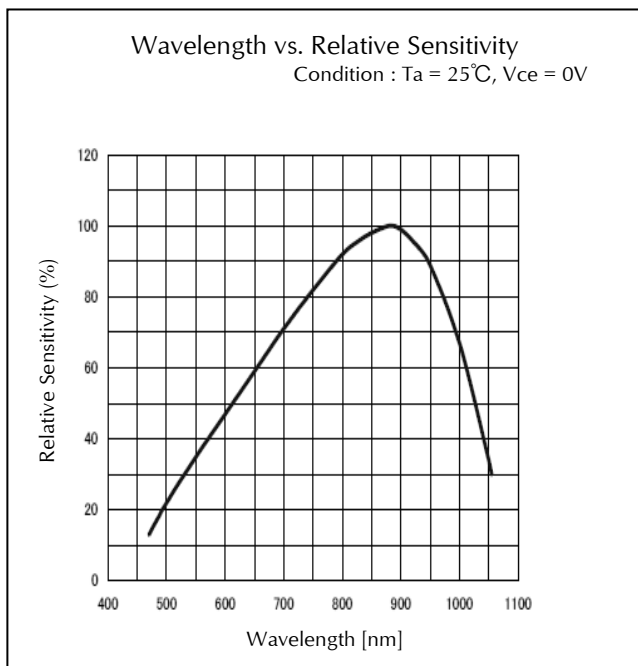
Photo Current Rank

(Ta=25°C)

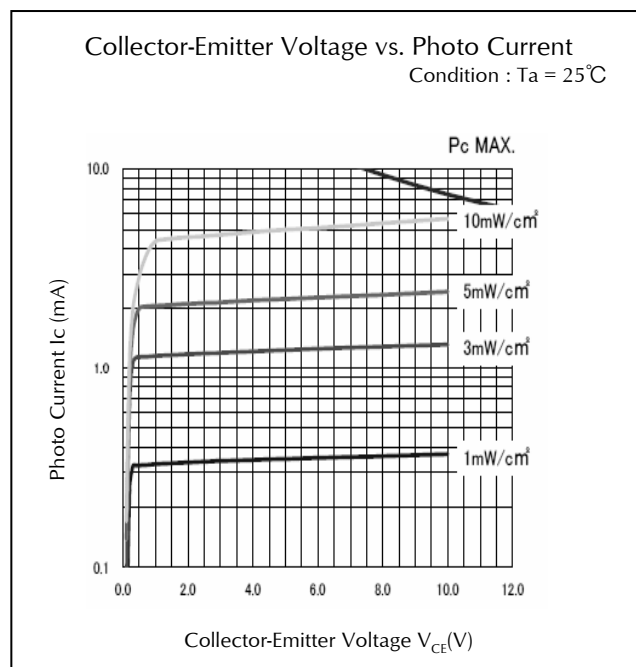
| Rank | Ic (mA) | | Condition |
|------|---------|------|------------------------------------|
| | MIN. | MAX. | |
| A | 1.5 | 3.0 | $V_{CE} = 5V$ $E_e = 10mW/cm^2$ |
| B | 2.6 | 5.2 | |
| C | 4.5 | 9.0 | |
| D | 7.8 | 15.6 | |
| E | 13.5 | 27.0 | |

※Please contact our sales staff concerning rank designation.

Technical Data

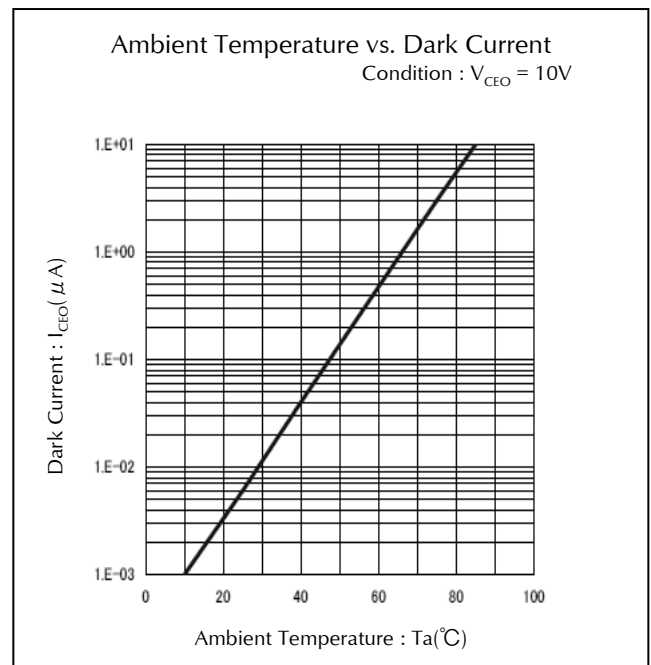
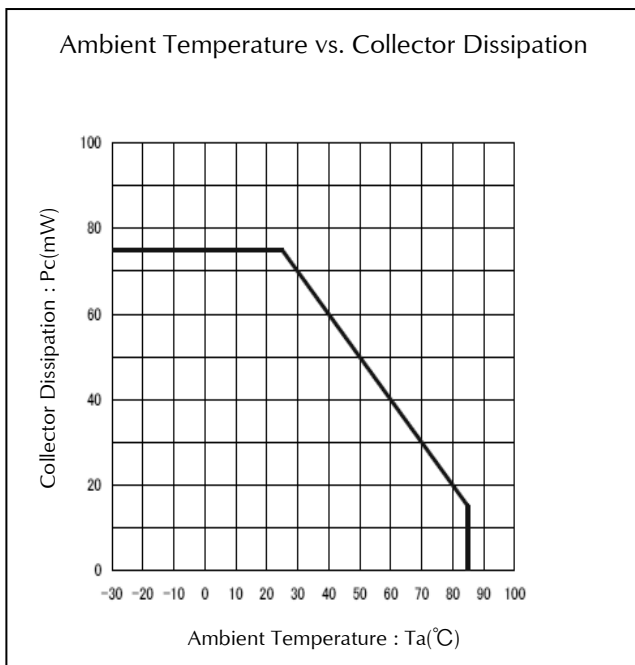
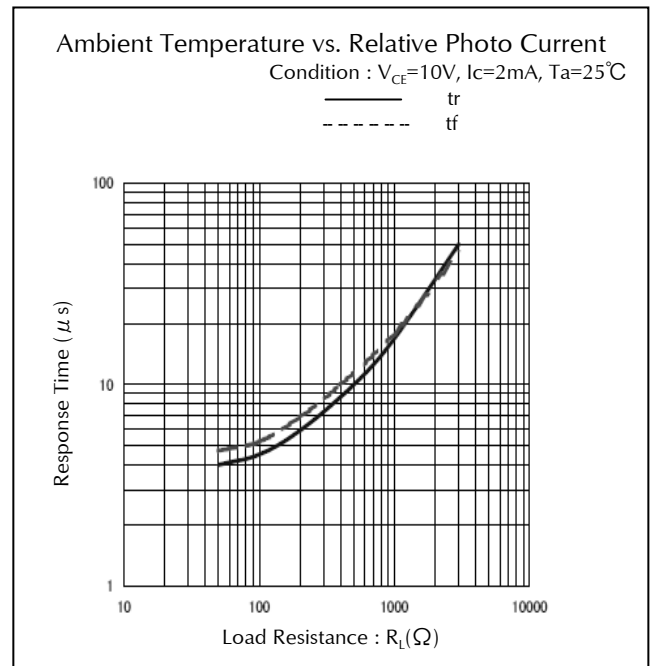
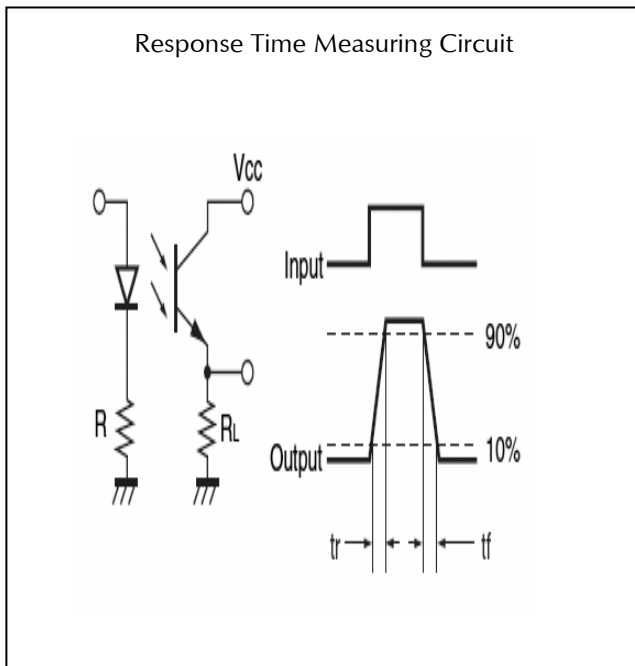


It is based on $E_e = 1\text{mW/cm}^2$.
Employs a standard tungsten lamp of 2,856K.

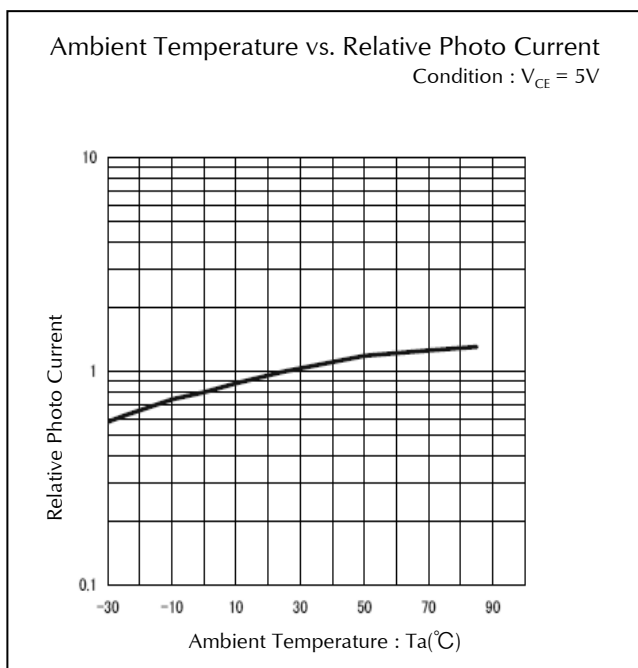


Employs a standard tungsten lamp of 2,856K.

Technical Data

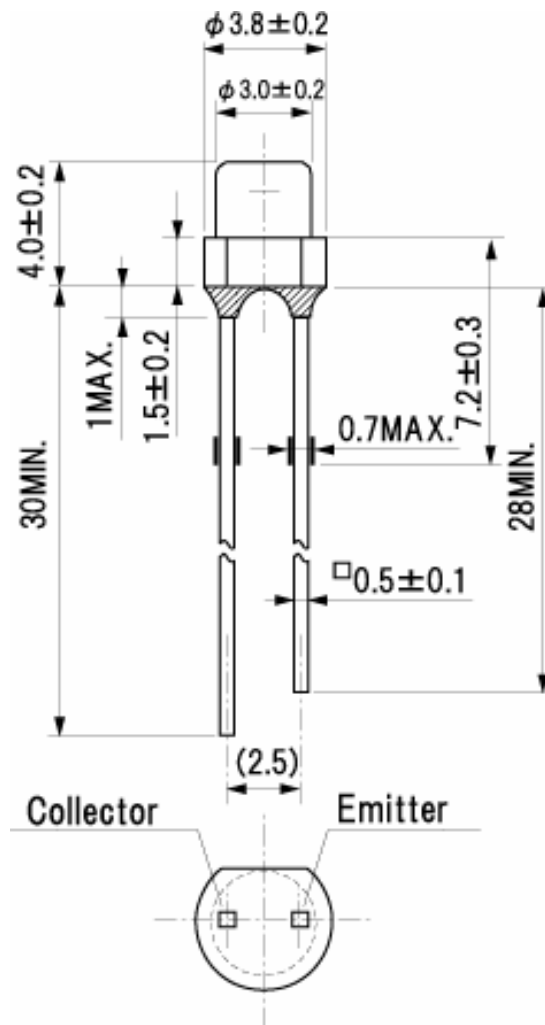


Technical Data



Package Dimensions

(Unit: mm)



TTW (Through The Wave) soldering Conditions

| | | |
|-------------------|--|----------------------------------|
| Pre-heating | 100 °C | (MAX.) Resin surface temperature |
| Solder Bath Temp. | 265 °C | (MAX.) |
| Dipping Time | 5 s | (MAX.) |
| Position | At least 3.0 mm away from the root of lead | |

- 1) The dip soldering process shall be twice maximum.
- 2) The product shall be cooled to normal temperature before the second dipping process.
 ※The detail is described to LED and Photodetector handling precautions of home page:
 "Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Manual Soldering Conditions

| | | |
|------------------------------|--|--------------------|
| Iron tip temp. | 400 °C | (MAX.) (30 W Max.) |
| Soldering time and frequency | 3 s | (MAX.) |
| | 1 time | (MAX.) |
| Position | At least 3.0 mm away from the root of lead | |

- ※The detail is described to LED and Photodetector handling precautions of home page:
 "Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Reliability Testing Result

| Reliability Testing Result | Applicable Standard | Testing Conditions | Duration | Failure |
|-------------------------------|-----------------------|---|----------|---------|
| Room Temp. Operating Life | EIAJ ED-4701/100(101) | Ta = 25°C, Pc = Maximum Rated Power Dissipation | 1,000 h | 0/16 |
| Resistance to Soldering Heat | EIAJ ED-4701/300(302) | 265±5°C, 3mm from package base | 5s | 0/16 |
| Temperature Cycling | EIAJ ED-4701/100(105) | Minimum Rated Storage Temperature(30min) ~Normal Temperature(15min) ~Maximum Rated Storage Temperature(30min) ~Normal Temperature(15min) | 5 cycles | 0/16 |
| Wet High Temp. Storage Life | EIAJ ED-4701/100(103) | Ta = 60±2°C, RH = 90±5% | 1,000 h | 0/16 |
| High Temp. Storage Life | EIAJ ED-4701/200(201) | Ta = Maximum Rated Storage Temperature | 1,000 h | 0/16 |
| Low Temp. Storage Life | EIAJ ED-4701/200(202) | Ta = Minimum Rated Storage Temperature | 1,000 h | 0/16 |
| Lead Tension | EIAJ ED-4701/400(401) | 10N, 1time (□0.4 and Flat Package : 5N) | 10s | 0/16 |
| Vibration, Variable Frequency | EIAJ ED-4701/400(403) | 98.1m/s ² (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction | 2 h | 0/16 |

Failure Criteria

| Items | Symbols | Conditions | Failure criteria |
|---------------------|------------------|--|--|
| Photo Current | I _C | E _E Value of each product Irradiance of Photo Current V _{CE} Value of each product Collector-emitter Voltage of Photo Current | Testing Max. Value ≥ Initial Value x 1.3 Testing Min. Value ≤ Initial Value x 0.7 |
| Dark Current | I _{CEO} | V _{CEO} Value of each product Collector-emitter Voltage of Dark Current | Testing Max. Value ≥ Spec. Max. Value x 1.2 |
| Cosmetic Appearance | - | - | Occurrence of notable decoloration, deformation and cracking |

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