



Pb-free
HEAT



AN504

Through-hole IRED/Right Angle Type

Features

| | |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Package | φ 3.6 Right Angle type, Water clear epoxy |
| Product features | <ul style="list-style-type: none">• High Total Output Power : 5mW TYP. ($I_F=50mA$)• Lead-free soldering compatible• RoHS compliant |
| Peak Wavelength | 950nm |
| Half Intensity Angle | 60 deg. |
| Die materials | GaAs |
| Rank grouping parameter | Sorted by radiant intensity 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 |
|---------------------------------|------------------|--------------------------|-------|
| Power Dissipation | P_d | 150 | mW |
| Forward Current | I_F | 100 | mA |
| Pulse Forward Current ※1 | I_{FRM} | 1,000 | mA |
| Derating (Ta=25°C or higher) | ΔI_F | 1.33 | mA/°C |
| | ΔI_{FRM} | 13.3 | mA/°C |
| Reverse Voltage | V_R | 5 | V |
| Operating Temperature | T_{opr} | -30~+85 | °C |
| Storage Temperature | T_{stg} | -30~+100 | °C |

 ※1 IFRM Measurement condition : Pulse Width $\leq 100 \mu s$, Duty $\leq 1/100$
Electro-Optical Characteristics

(Ta=25°C)

| Item | Conditions | Symbol | Characteristics | | Unit |
|----------------------|-----------------------------------------------|------------------|-----------------|-----|---------|
| | | | | | |
| Forward Voltage | $I_F=50mA$ | V_F | TYP. | 1.3 | V |
| | | | MAX. | 1.5 | |
| Reverse Current | $V_R=5V$ | I_R | MAX. | 10 | μA |
| Radiant Intensity | $I_F=50mA$ | I_E | MIN. | 1.5 | mW/sr |
| | | | TYP. | 3 | |
| Total Output Power | $I_F=50mA$ | P_o | TYP. | 5 | mW |
| Peak Wavelength | $I_F=50mA$ | λ_p | TYP. | 950 | nm |
| Spectral Half-width | $I_F=50mA$ | $\Delta \lambda$ | TYP. | 45 | nm |
| Half Intensity Angle | $I_F=50mA$ | $2\theta_{1/2}$ | TYP. | 60 | deg. |
| Cut-off Frequency | $I_F=50mA_{DC} \pm 5mA$, -3db from 0.1MHz | fc | MIN. | - | MHz |
| | | | TYP. | 0.5 | |
| Response Time | $I_F=50mA$ | tr/tf | TYP. | 700 | ns |

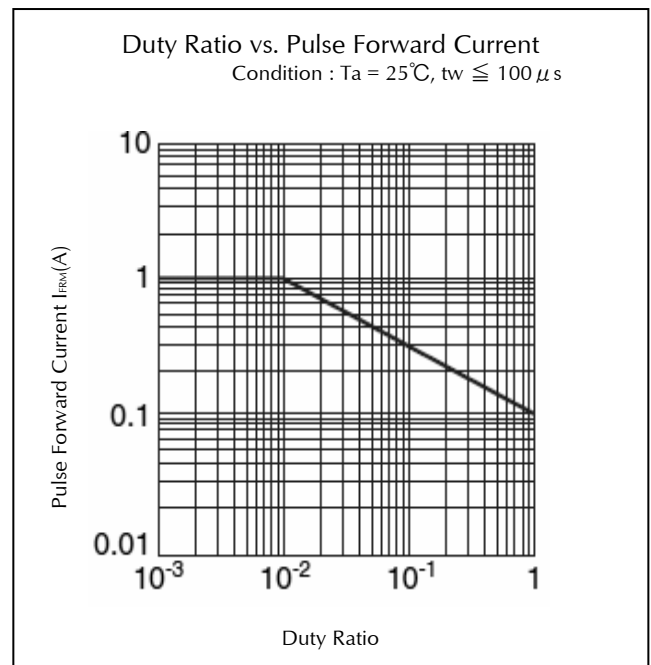
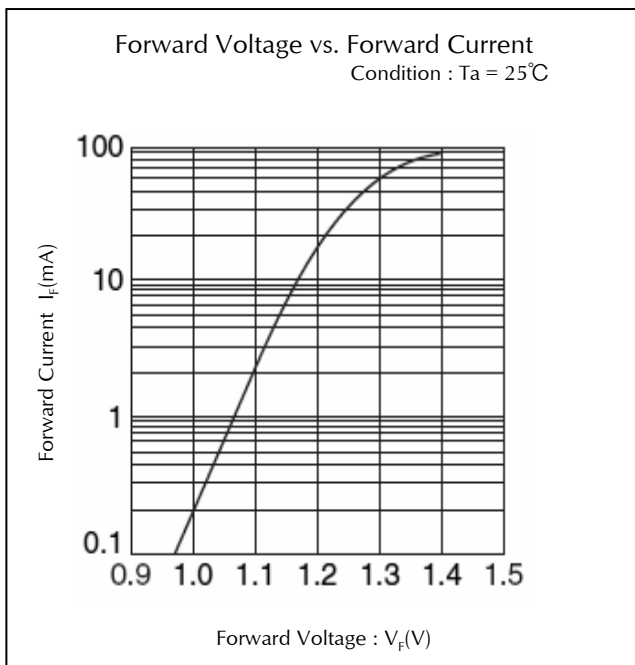
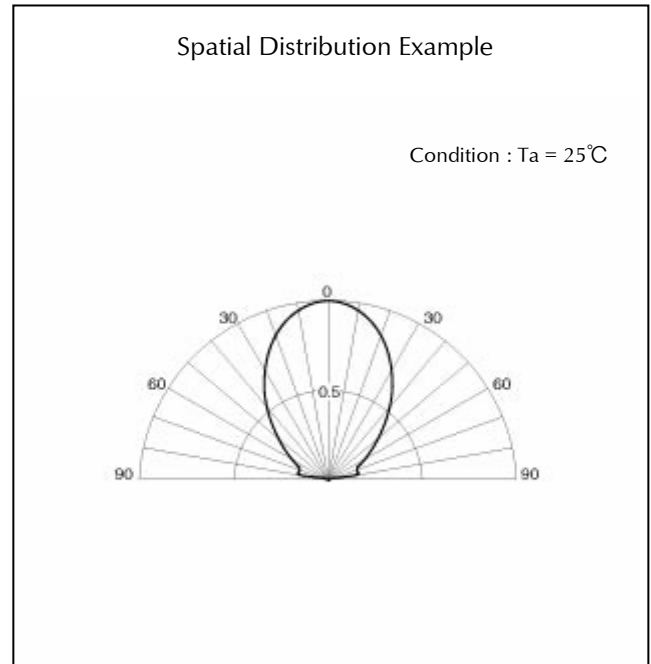
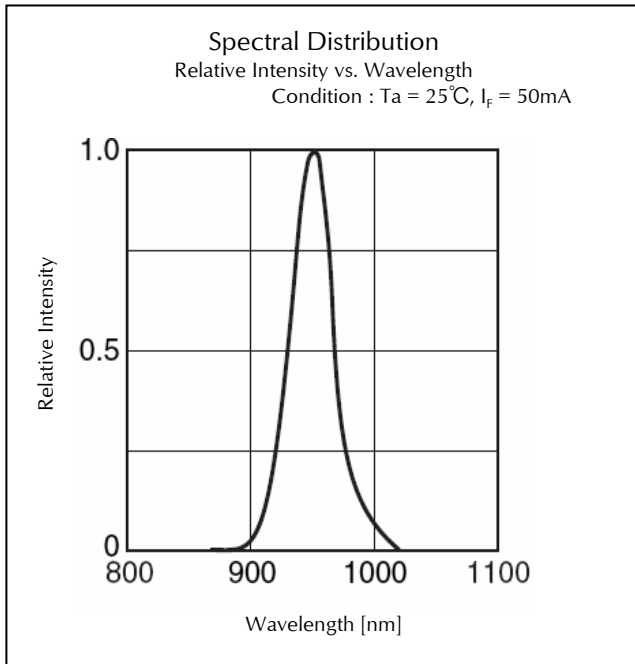
Radiant Intensity Rank

(Ta=25°C)

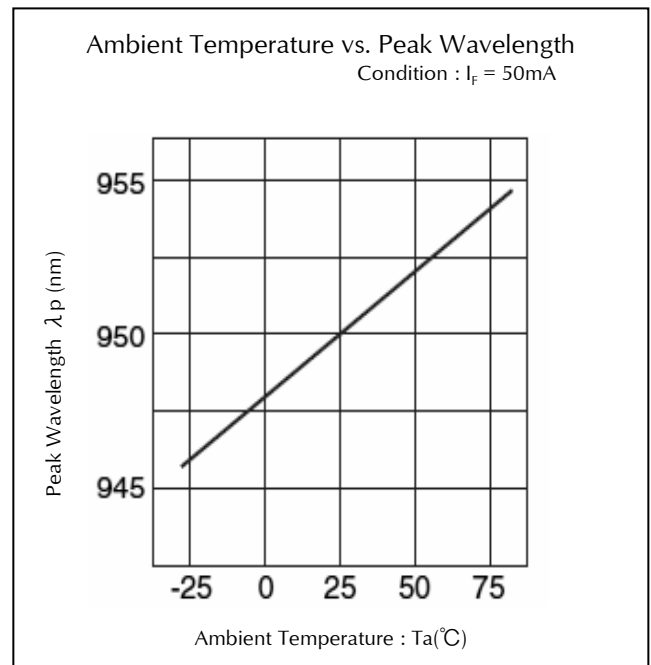
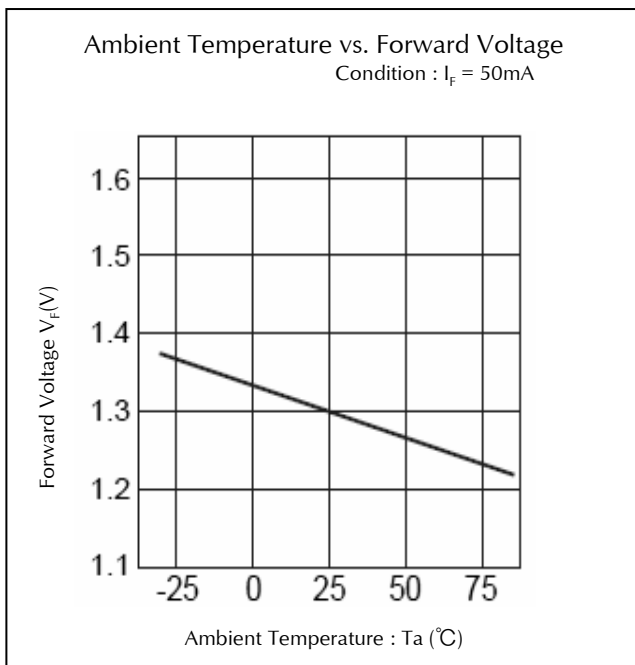
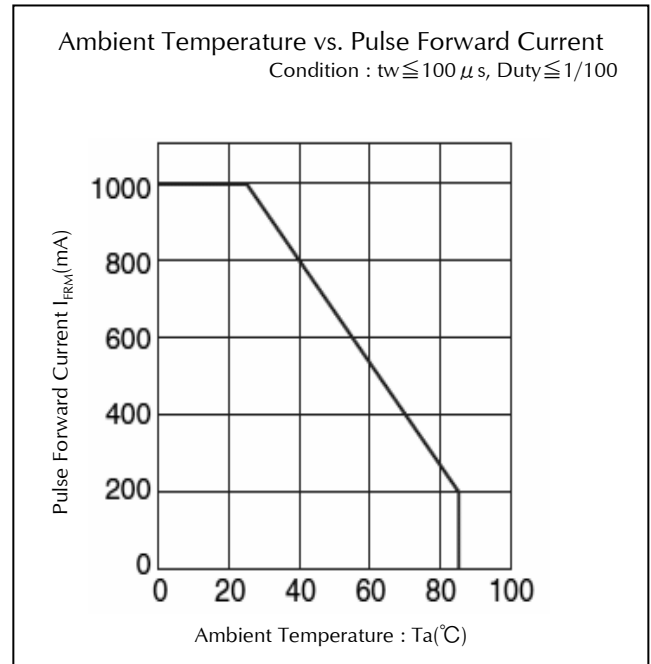
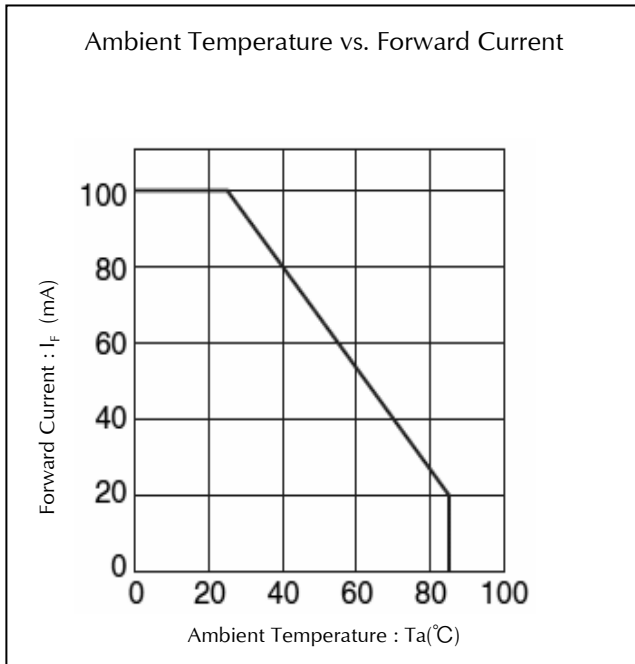
| Rank | I _E (mW/sr) | | Condition |
|------|------------------------|------|-----------------------|
| | MIN. | MAX. | |
| A | 1.5 | 3.0 | I _F = 50mA |
| B | 2.1 | 4.2 | |
| C | 3.0 | 6.0 | |
| D | 4.2 | 8.4 | |
| E | 6.0 | 12.0 | |

Please contact our sales staff concerning rank designation.

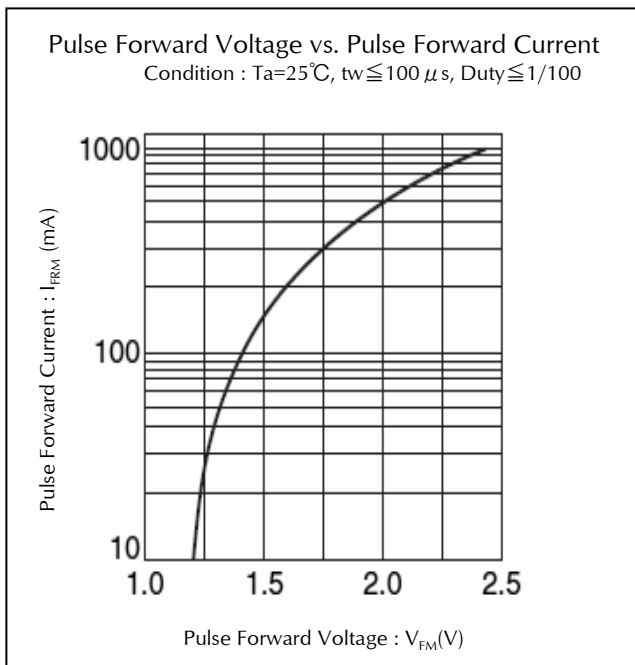
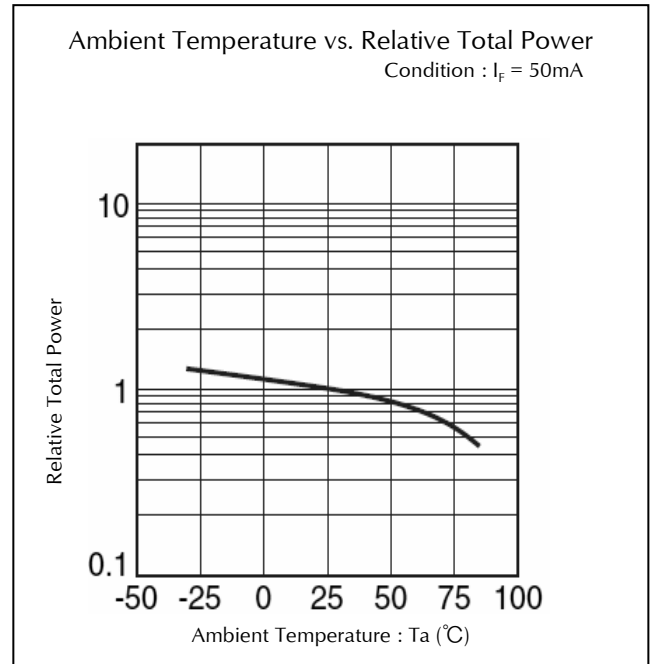
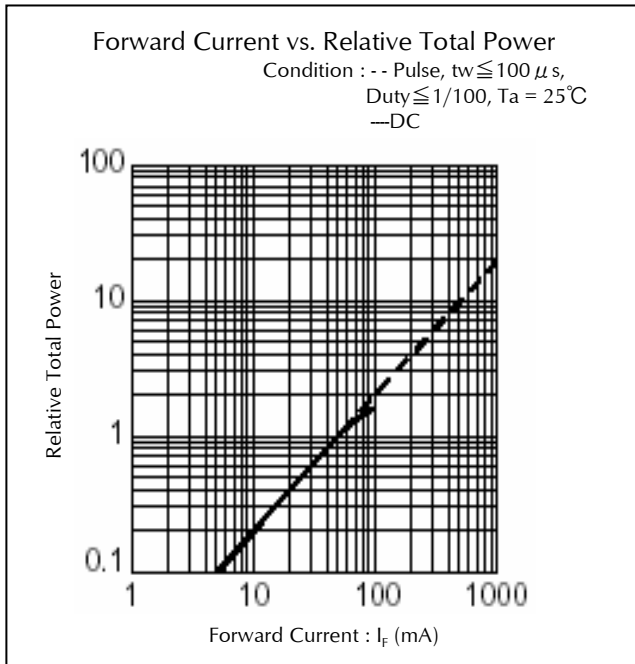
Technical Data



Technical Data

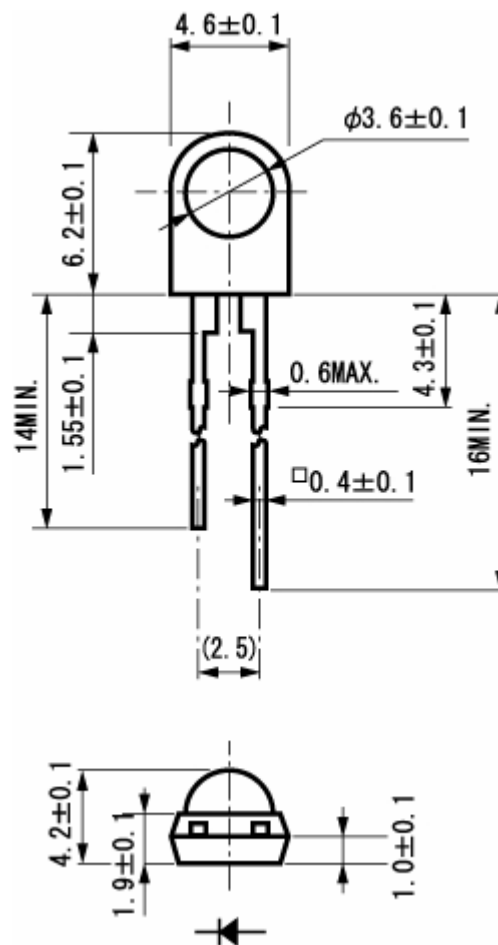


Technical Data



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, If = Maximum Rated Current | 1,000 h | 0/25 |
| Resistance to Soldering Heat | EIAJ ED-4701/300(302) | 265±5°C, 3mm from package base | 10s | 0/25 |
| 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 | 0/25 |
| Wet High Temp. Storage Life | EIAJ ED-4701/100(103) | Ta = 60±2°C, RH = 90±5% | 1,000 h | 0/25 |
| High Temp. Storage Life | EIAJ ED-4701/200(201) | Ta = Maximum Rated Storage Temperature | 1,000 h | 0/25 |
| Low Temp. Storage Life | EIAJ ED-4701/200(202) | Ta = Minimum Rated Storage Temperature | 1,000 h | 0/25 |
| Lead Tension | EIAJ ED-4701/400(401) | 10N, 1time (□0.4 and Flat Package : 5N) | 10s | 0/10 |
| Vibration, Variable Frequency | EIAJ ED-4701/400(403) | 98.1m/s ² (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction | 2 h | 0/10 |

Failure Criteria

| Items | Symbols | Conditions | Failure criteria |
|---------------------|----------------|-----------------------------------------------------|-----------------------------------------------------------------|
| Luminous Intensity | Iv | If Value of each product Luminous Intensity | Testing Min. Value < Spec. Min. Value x 0.5 |
| Forward Voltage | V _F | If Value of each product Forward Voltage | Testing Max. Value ≥ Spec. Max. Value x 1.2 |
| Reverse Current | I _R | V _R = Maximum Rated Reverse Voltage V | Testing Max. Value ≥ Spec. Max. Value x 2.5 |
| Cosmetic Appearance | - | - | Occurrence of notable decoloration, deformation and cracking |

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