

Infrared Products

Explanation of Part Number:

H I R B 5 - 4 3 D - C
 ① ② ③ ④ ⑤ ⑥ ⑦

1. Infrared products kinds:

HIR: infrared emitter.
 HPD: photo diode.
 HPT: photo transistor.

2. Shape distinguish:

B: bell (round) type.
 R: rectangular type.
 MIB: miniature bell type.
 CL: chip SMD type.

3. Identification No:

4. Lens appearance:

1: black (cut visible light).
 2: colored clear.
 4: water clear.

5. Lead frame type:

2: no reflector cup, short lead, 2.29mm pitch.
 3: big reflector cup, long lead, 2.54mm pitch.
 4: small reflector cup, long lead, 2.54mm pitch.
 5: side look, big dice use, 2.54mm pitch.
 8: side look use, 2.54mm pitch.
 9: dual dice use, 2.54mm pitch.
 MIB, CL type no lead frame.

6. Dice kinds:

according to chip characteristic distinguish.
 A, B, C.... see below table.

7. View angle:

A, B, C... (C>B>A).

Infrared emitter:

Ta=25°C

| type | Material | Absolute Maximum Rating | | | | Electro-Optical Characteristics | | | | | | | |
|------|---------------|-------------------------|----------------|-----------------|----------------|---------------------------------|------|----------------|-----------------|----------------|----------------|----|----------------|
| | | P _D | I _F | I _{FM} | V _R | forward voltage | | | reverse current | | wavelength | | |
| | | | | | | typ | Max | I _F | Max | V _R | λ _p | Δλ | I _F |
| C | GaAlAs/GaAs | 135 | 80 | 1000 | 5 | 1.21 | 1.40 | 20 | 10 | 5 | 940 | 50 | 50 |
| D | GaAlAs/GaAs | 150 | 100 | 1500 | 5 | 1.18 | 1.35 | 20 | 10 | 5 | 940 | 50 | 50 |
| E | GaAlAs/GaAs | 170 | 100 | 1000 | 5 | 1.35 | 1.50 | 20 | 10 | 5 | 880 | 70 | 50 |
| G | GaAlAs/GaAlAs | 170 | 100 | 1000 | 4 | 1.47 | 1.60 | 20 | 10 | 4 | 850 | 45 | 50 |
| L1 | GaAlAs/GaAlAs | 390 | 150 | 1000 | 4 | 1.70 | 2.10 | 150 | 10 | 4 | 850 | 45 | 150 |
| H | GaAlAs/GaAlAs | 170 | 100 | 1000 | 4 | 1.50 | 1.70 | 20 | 10 | 4 | 875 | 45 | 50 |
| P | GaAlAs/GaAlAs | 170 | 100 | 1000 | 5 | 1.70 | 2.00 | 20 | 10 | 4 | 770 | 30 | 20 |
| unit | | mW | mA | mA | V | V | V | mA | uA | V | nm | nm | mA |

I_{FM} condition : 0.1% duty cycle, pulse width=10us.

Photo diode:

Ta=25°C

| type | Absolute Maximum Rating | | | | Electro-Optical Characteristics | | | | | | | |
|------|-------------------------|----------------|----------------|-----------------|---------------------------------|-----------------|-----|----------------|------------------|----------------|----------------------|----------------|
| | sensitive area | P _D | V _R | V _{oc} | I _{sc} | forward voltage | | | responsive speed | | terminal capacitance | wavelength |
| | | | | | | typ | Max | I _F | T _r | T _f | C _t | λ _p |
| A | 7.16 | 150 | 33 | 350 | 35 | 1.3 | 1.6 | 100 | 45 | 45 | 72 | 900 |
| C | 1.55 | 100 | 30 | 410 | 16 | 1.3 | 1.8 | 100 | 10 | 10 | 42 | 900 |
| D | 0.19 | 50 | 20 | 390 | 2 | 1.0 | 1.5 | 40 | 6 | 6 | 50 | 900 |
| E | 0.66 | 70 | 30 | 410 | 7 | 1.0 | 1.5 | 40 | 10 | 10 | 42 | 900 |
| unit | mm ² | mW | V | mV | uA | V | V | mA | ns | ns | pf | nm |

Photo transistor:

Ta=25°C

| type | Absolute Maximum Rating | | | | Electro-Optical Characteristics | | | | | | |
|------|-------------------------|------------------|------------------|----------------|---------------------------------|------------------|------------------|-----------------|----------------|----------------|----------------|
| | P _c | V _{CEO} | V _{ECO} | I _c | dark current | | responsive speed | | | | Wavelength |
| | | | | | I _{CEO} | V _{CEP} | Typ | V _{CE} | I _c | R _L | λ _p |
| B | 150 | 30 | 5 | 50 | 100 | 10 | 15/20 | 5 | 1 | 1000 | 900 |
| D | 150 | 30 | 5 | 50 | 100 | 10 | 15/20 | 5 | 1 | 1000 | 900 |
| E | 250 | 15 | 5 | 70 | 100 | 10 | 40/60 | 5 | 10 | 1000 | 900 |
| H | 300 | 30 | 5 | 25 | 100 | 20 | 15/18 | 5 | 1 | 1000 | 900 |
| J | 300 | 30 | 5 | 25 | 100 | 20 | 15/18 | 5 | 0.1 | 10000 | 570 |
| unit | mW | V | V | mA | nA | V | us | V | mA | Ω | nm |