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**LED ARRAY**



Lead-Free Parts

**LA79B-1/G.SE.G.DBK-S2-PF**

# **DATA SHEET**

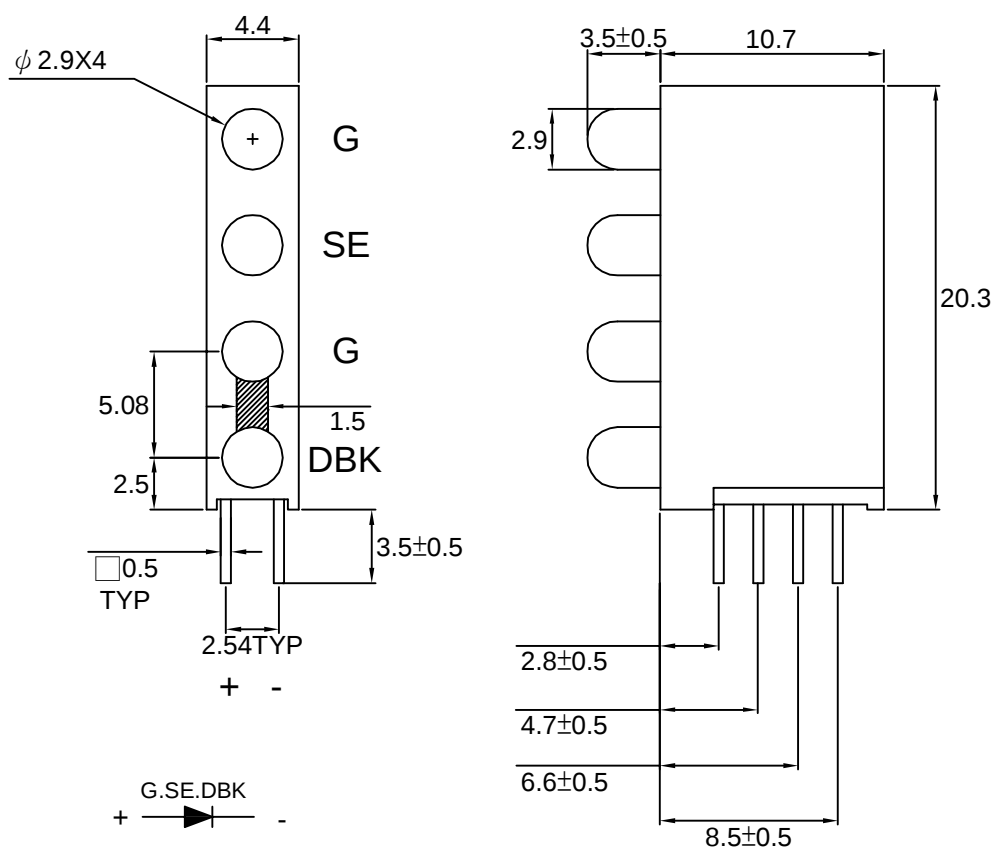
DOC. NO : QW0905-LA79B-1/G.SE.G.DBK-S2-PF

REV. : A

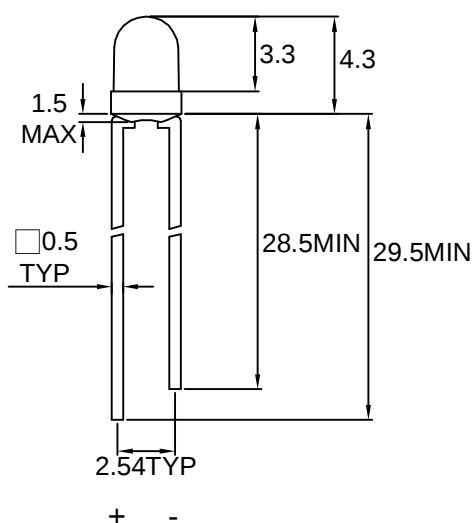
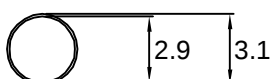
DATE : 04 - Aug. - 2006



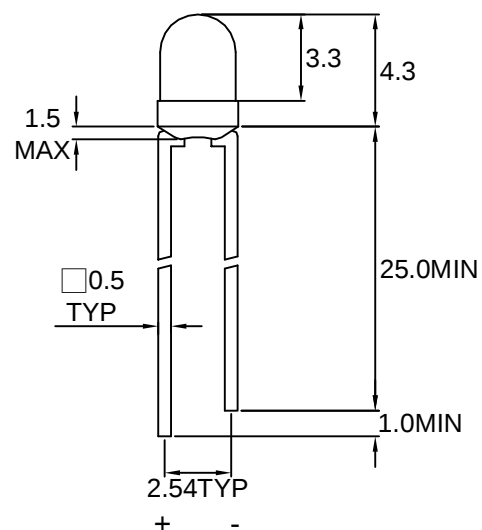
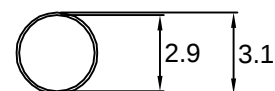
## Package Dimensions



LSE2640/S36-PF



LDBK2640



2. Specifications are subject to change without notice.



**Absolute Maximum Ratings at Ta=25**

| Parameter                               | Symbol           | Absolute Maximum Ratings |    |     | UNIT |
|-----------------------------------------|------------------|--------------------------|----|-----|------|
|                                         |                  | G                        | SE | DBK |      |
| Forward Current                         | I <sub>F</sub>   | 30                       | 20 | 30  | mA   |
| Peak Forward Current<br>Duty 1/10@10KHz | I <sub>FP</sub>  | 120                      | 80 | 100 | mA   |
| Power Dissipation                       | PD               | 100                      | 80 | 120 | mW   |
| Reverse Current @5V                     | I <sub>r</sub>   | 10                       |    | 50  | μA   |
| Electrostatic Discharge( * )            | ESD              | ---                      |    | 150 |      |
| Operating Temperature                   | T <sub>opr</sub> | -20 ~ +80                |    |     |      |
| Storage Temperature                     | T <sub>stg</sub> | -30 ~ +100               |    |     |      |

★Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing these LED. All devices, equipment and machinery must be properly grounded.

**Typical Electrical & Optical Characteristics (Ta=25 )**

| PART NO                  | MATERIAL  | COLOR   |                 | Peak wave length<br>λ Pnm | Spectral halfwidth<br>λ nm | Forward voltage<br>@20mA(V) |      | Luminous intensity<br>@10mA(mcd) |      | Viewing angle<br>2 θ 1/2 (deg) |
|--------------------------|-----------|---------|-----------------|---------------------------|----------------------------|-----------------------------|------|----------------------------------|------|--------------------------------|
|                          |           | Emitted | Lens            |                           |                            | Min.                        | Max. | Min.                             | Typ. |                                |
| LA79B-1/G.SE.G.DBK-S2-PF | GaP       | Green   | Green Diffused  | 565                       | 30                         | 1.7                         | 2.6  | 12                               | 20   | 50                             |
|                          | GaAsP/GaP | Orange  | Orange Diffused | 610                       | 45                         | 1.7                         | 2.6  | 4.5                              | 9.6  | 50                             |

| PART NO           | MATERIAL  | COLOR   |               | Dominant Wave Length<br>λ Dnm | Spectral halfwidth<br>λ nm | Forward voltage<br>@20mA(V) |      | Luminous intensity<br>@20mA(mcd) |      | Viewing angle<br>2 θ 1/2 (deg) |
|-------------------|-----------|---------|---------------|-------------------------------|----------------------------|-----------------------------|------|----------------------------------|------|--------------------------------|
|                   |           | Emitted | Lens          |                               |                            | Typ.                        | Max. | Min.                             | Typ. |                                |
| LA79B-1/DBK-S2-PF | InGaN/GaN | Blue    | Blue Diffused | 470                           | 30                         | 3.5                         | 4.0  | 220                              | 450  | 38                             |

Note : 1.The forward voltage data did not including ±0.1V testing tolerance.  
 2. The luminous intensity data did not including ±15% testing tolerance.



## Typical Electro-Optical Characteristics Curve

### G CHIP

Fig.1 Forward current vs. Forward Voltage

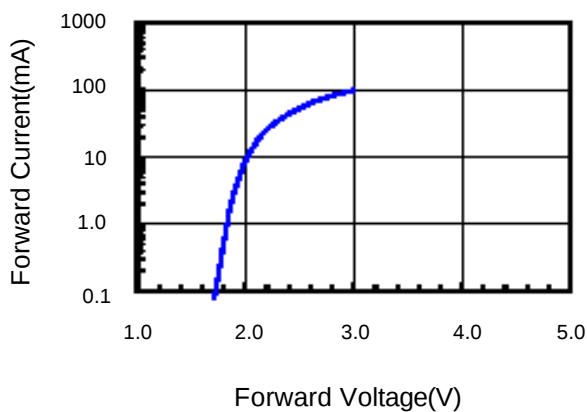


Fig.2 Relative Intensity vs. Forward Current

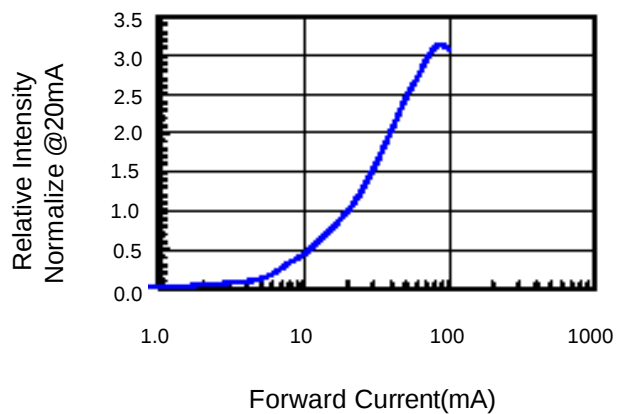


Fig.3 Forward Voltage vs. Temperature

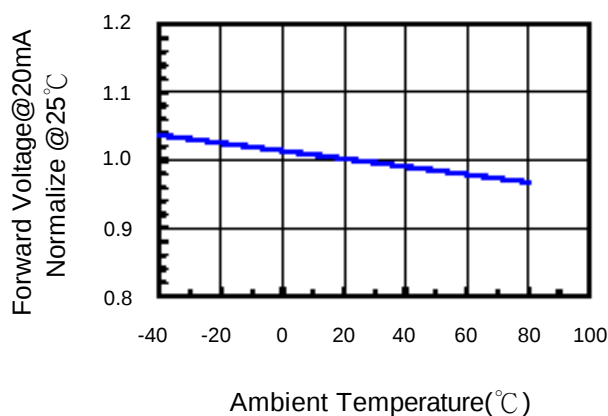


Fig.4 Relative Intensity vs. Temperature

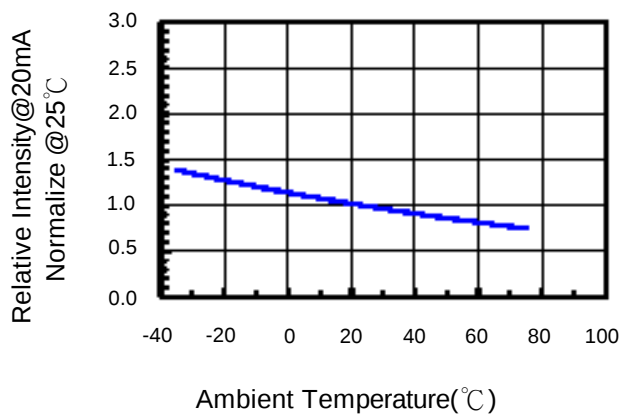
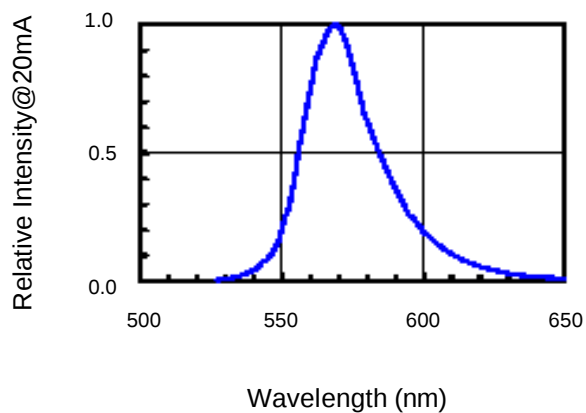


Fig.5 Relative Intensity vs. Wavelength





## Typical Electro-Optical Characteristics Curve

### SE CHIP

Fig.1 Forward current vs. Forward Voltage

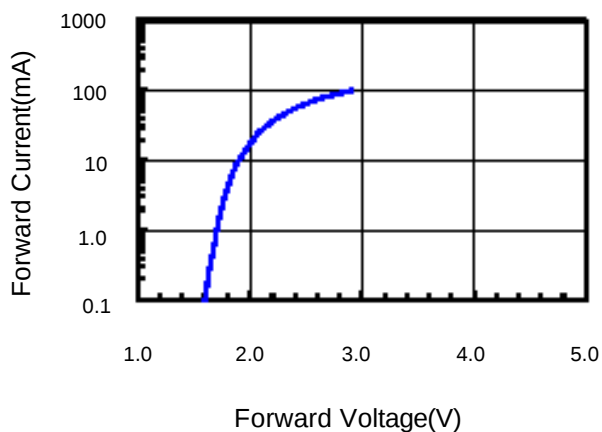


Fig.2 Relative Intensity vs. Forward Current

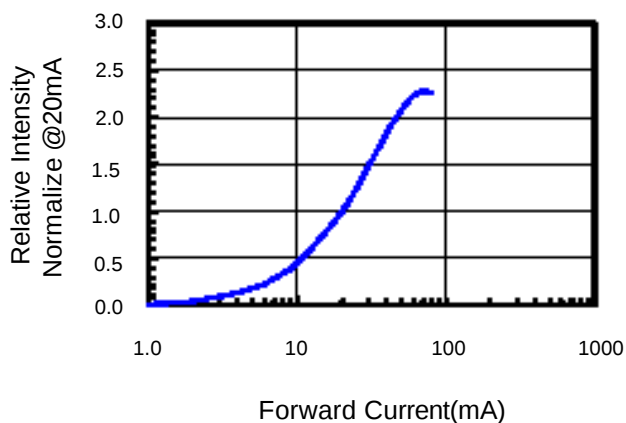


Fig.3 Forward Voltage vs. Temperature

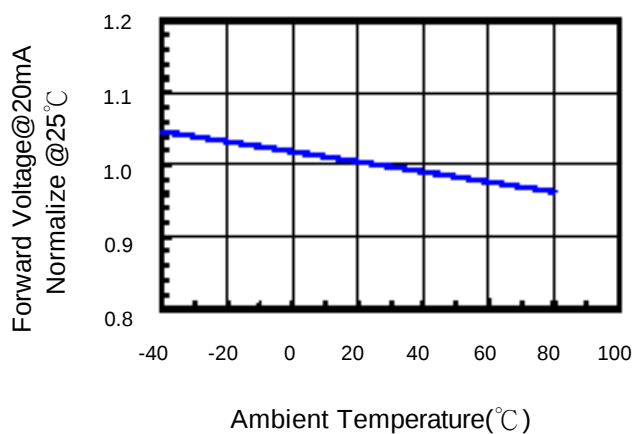


Fig.4 Relative Intensity vs. Temperature

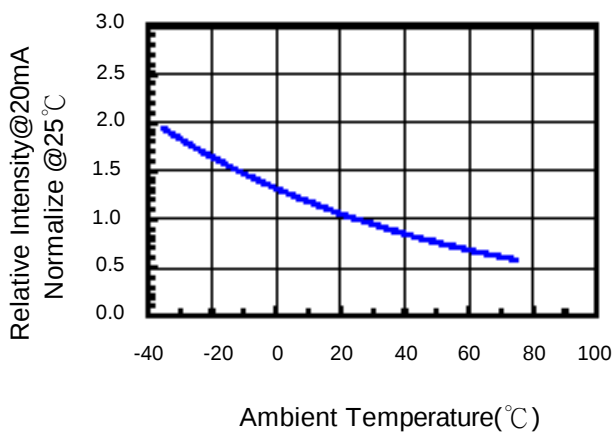
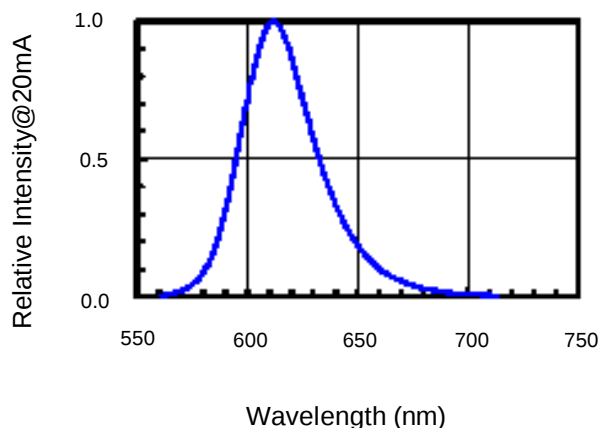


Fig.5 Relative Intensity vs. Wavelength





## Typical Electro-Optical Characteristics Curve

### DBK CHIP

Fig.1 Forward current vs. Forward Voltage

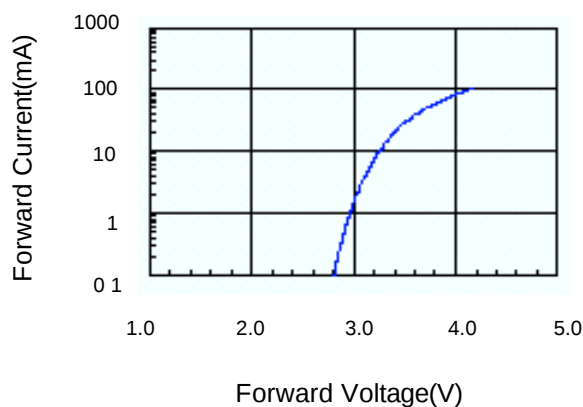


Fig.2 Relative Intensity vs. Forward Current

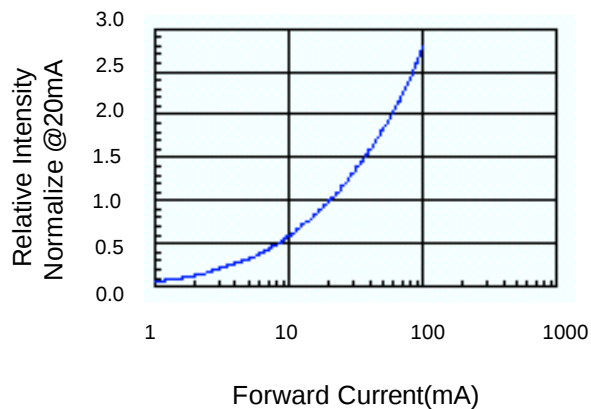


Fig.3 Forward Voltage vs. Temperature

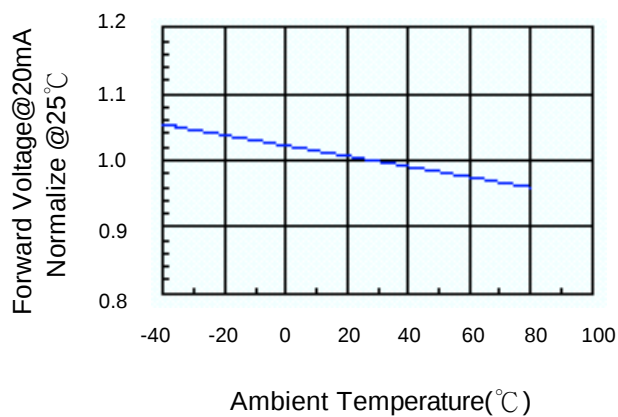


Fig.4 Relative Intensity vs. Temperature

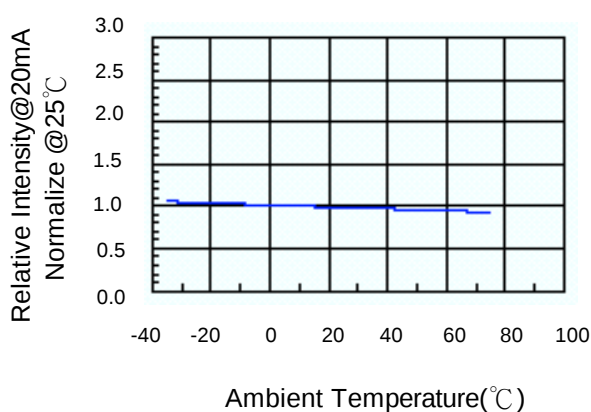
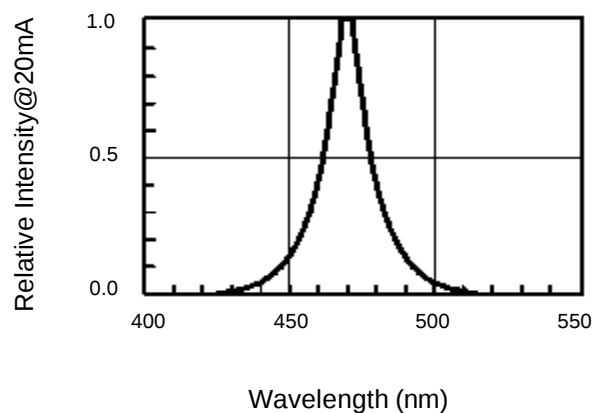


Fig.5 Relative Intensity vs. Wavelength

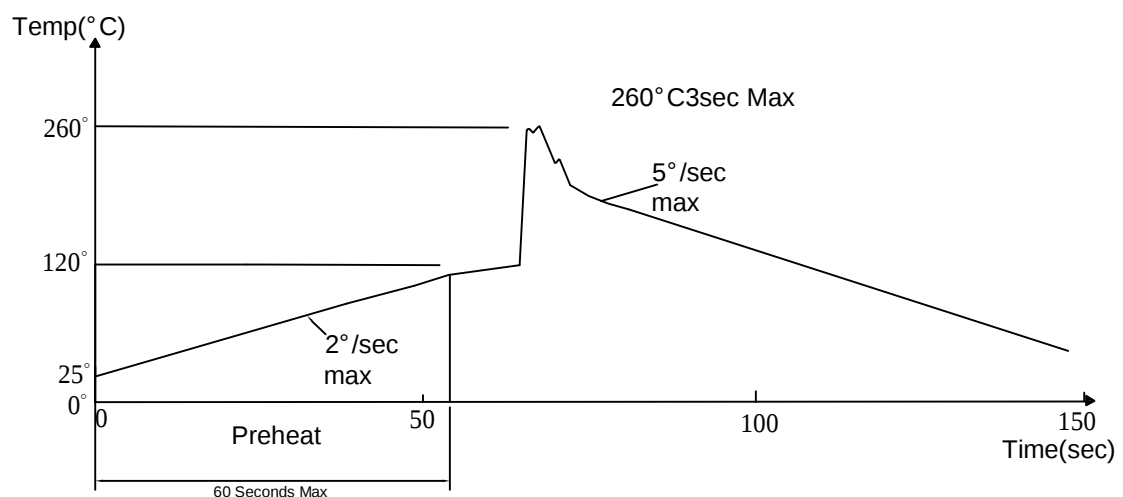


**Soldering Condition(Pb-Free)****1.Iron:**

Soldering Iron:30W Max  
Temperature 350° C Max  
Soldering Time:3 Seconds Max(One Time)  
Distance:2mm Min(From solder joint to case)

**2.Wave Soldering Profile**

Dip Soldering  
Preheat: 120° C Max  
Preheat time: 60seconds Max  
Ramp-up  
2° C/sec(max)  
Ramp-Down:-5° C/sec(max)  
Solder Bath:260° C Max  
Dipping Time:3 seconds Max  
Distance:2mm Min(From solder joint to case)



**Reliability Test:**

| Test Item                           | Test Condition                                                         | Description                                                                                                                                                             | Reference Standard                                                             |
|-------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Operating Life Test                 | 1.Under Room Temperature<br>2.If=20mA<br>3.t=1000 hrs (-24hrs, +72hrs) | This test is conducted for the purpose of determining the resistance of a part in electrical and thermal stressed.                                                      | MIL-STD-750: 1026<br>MIL-STD-883: 1005<br>JIS C 7021: B-1                      |
| High Temperature Storage Test       | 1.Ta=105 °C±5°C<br>2.t=1000 hrs (-24hrs, +72hrs)                       | The purpose of this is the resistance of the device which is laid under condition of high temperature for hours.                                                        | MIL-STD-883:1008<br>JIS C 7021: B-10                                           |
| Low Temperature Storage Test        | 1.Ta=-40 °C±5°C<br>2.t=1000 hrs (-24hrs, +72hrs)                       | The purpose of this is the resistance of the device which is laid under condition of low temperature for hours.                                                         | JIS C 7021: B-12                                                               |
| High Temperature High Humidity Test | 1.Ta=65 °C±5°C<br>2.RH=90%~95%<br>3.t=240hrs ±2hrs                     | The purpose of this test is the resistance of the device under tropical for hours.                                                                                      | MIL-STD-202:103B<br>JIS C 7021: B-11                                           |
| Thermal Shock Test                  | 1.Ta=105 °C±5°C & -40 °C±5°C (10min) (10min)<br>2.total 10 cycles      | The purpose of this is the resistance of the device to sudden extreme changes in high and low temperature.                                                              | MIL-STD-202: 107D<br>MIL-STD-750: 1051<br>MIL-STD-883: 1011                    |
| Solder Resistance Test              | 1.T.Sol=260 °C±5°C<br>2.Dwell time= 10 ±1sec.                          | This test intended to determine the thermal characteristic resistance of the device to sudden exposures at extreme changes in temperature when soldering the lead wire. | MIL-STD-202: 210A<br>MIL-STD-750: 2031<br>JIS C 7021: A-1                      |
| Solderability Test                  | 1.T.Sol=230 °C±5°C<br>2.Dwell time=5 ±1sec                             | This test intended to see soldering well performed or not.                                                                                                              | MIL-STD-202: 208D<br>MIL-STD-750: 2026<br>MIL-STD-883: 2003<br>JIS C 7021: A-2 |