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PHOTO DIODE SILICON PIN LED LAMPS



Lead-Free Parts

LPD9033

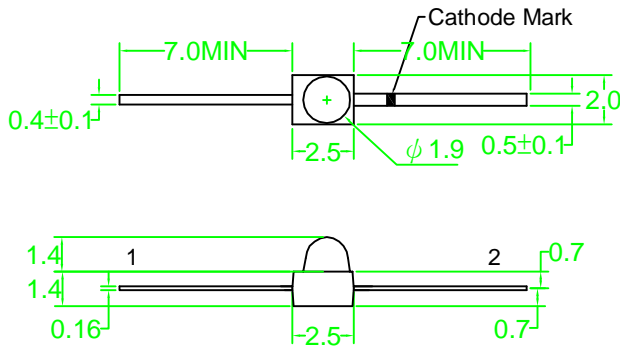
DATA SHEET

DOC. NO : QW0905-LPD9033

REV. : A

DATE : 24 - Nov. - 2014

Package Dimension



1.ANODE
2.CATHODE

Description

The LPD9033 series are silicon planar P/N photodiodes incorporated in plastic package that simultaneously serve as filter and are also Transparent for infrared emission their terminals are soldering tabs arranged in 2.54mm center to center spacing due to their design the diodes can vertically be assembled on pc boards arrays can be realized by multiple arrangement versatile photodetectors are suitable for diodes as well as voltaic cell operation the signal noise ratio is particularly favorable even at low illuminance the P/N photodiode are outstanding for low junction capacitance high cut-off frequency and fast switching times.

They are particularly suitable for IR sound transmission and remote control the cathode of LPD9033 photodiode is marked by a stamping on the package edge

NOTE:1.All dimension are In millimeters tolerance Is ± 0.25 unless otherwise noted
2.Specifications are subject to change without notice

• MAXIMUM RATINGS (TA=25°C)

Characteristic	Symbol	Rating	Unit
Reverse Break Down Voltage	V _{BR}	30	V
Power Dissipation	PD	150	mW
Operating Temperature	T _{opr}	-30 - +60	°C
Storage Temperature	T _{stg}	-40 - +60	°C

• ELECTRICAL CHARACTERISTICS AT (TA=25°C)

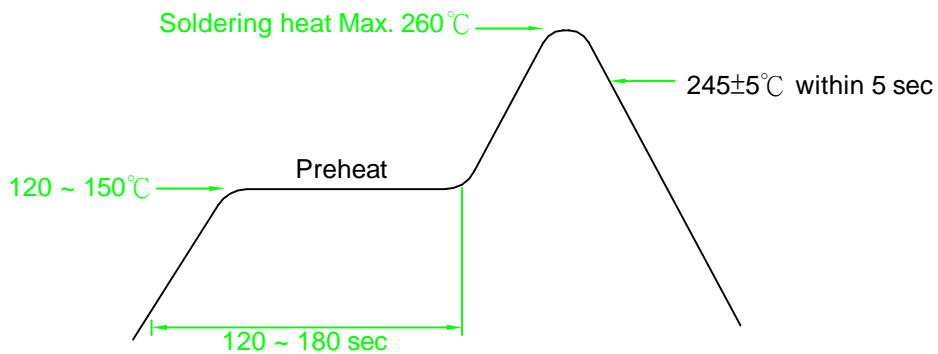
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Dark Current	I _D	V _R =10V E _e =0mW/cm ²	—	1.0	30	nA
Short Circuit Current	I _{sc}	V _R =5V λ P=940nm E _e =0.5mW/cm ²	1.0	2.0	—	uA
Open Circuit Voltage	V _{oc}	λ P=940nm E _e =0.5mW/cm ²	—	350	—	mV
Total Capacitance	C _T	V _R =3V f=1MHZ E _e =0mW/cm ²	—	20	—	pF
Peak Wavelength of Max Sensitivity	λ smax		—	940	—	nm
Rise Time,Fall Time	tr,tf	V _R =10V R _L =1KΩ	—	50	—	ns

Recommended Soldering Conditions

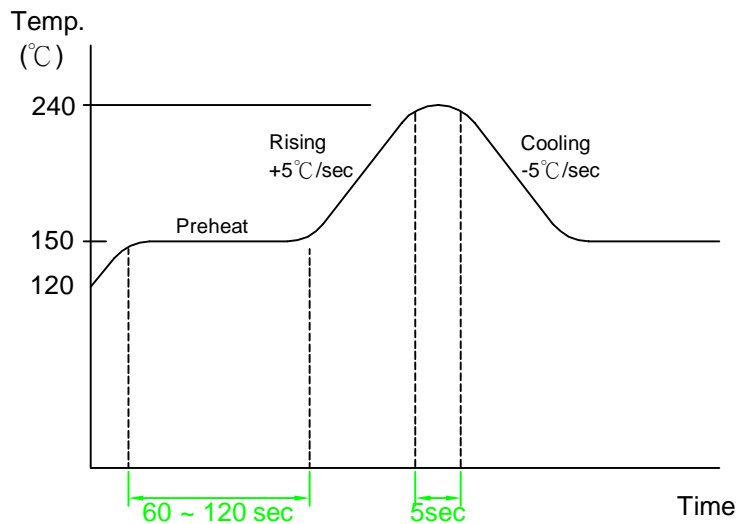
1. Hand Solder

Basic spec is $\leq 280^{\circ}\text{C}$ 3 sec one time only.

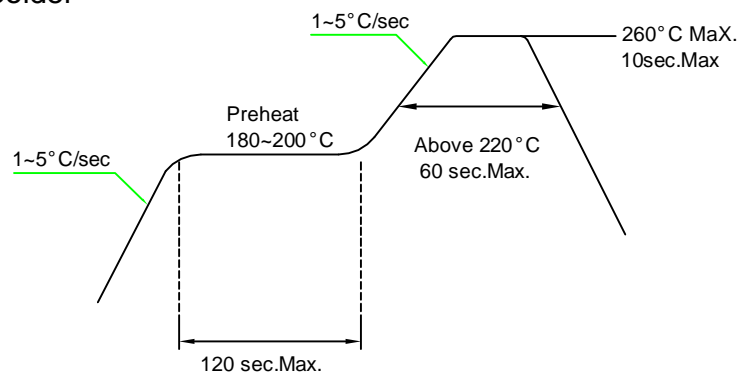
2. Wave Solder



3-1. LEAD Reflow Solder



3-2 PB-Free Reflow Solder



Note: 1. Wave solder and reflow soldering should not be made more than one time.
2. You can just only select one of the soldering conditions as above.

Precautions For Use:**Storage time:**

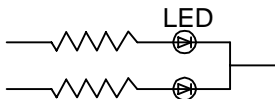
- 1.The operation of Temperatures and RH are : $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$,RH<60%.
- 2.Once the package is opened, the products should be used within a week.
Otherwise, they should be kept in a damp proof box with descanting agent.
Considering the tape life, we suggest our customers to use our products within a year(from production date).
- 3.If opened more than one week in an atmosphere $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$,RH<60%, they should be treated at $60^{\circ}\text{C} \pm 5^{\circ}\text{C}$ fo r 15hrs.

Drive Method:

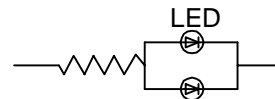
LED is a current operated device, and therefore, requirer some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

Consider worst case voltage variations than could occur across the current limiting resistor. The forwr d current should not be allowed to change by more than 40% of its desired value.

Circuit model A



Circuit model B



(A) Recommended circuit.

(B) The difference of brightness between LED could be found due to the VF-IF characteristics of LED.

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED.

ESD(Electrostatic Discharge):

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.

Reliability Test:

Classification	Test Item	Test Condition	Reference Standard
Endurance Test	Operating Life Test	1.Ta=Under Room Temperature As Per Data Sheet Maximum Rating. 2.If=20mA 3.t=1000 hrs (-24hrs, +72hrs)	MIL-STD-750D: 1026 MIL-STD-883D: 1005 JIS C 7021: B-1
	High Temperature Storage Test	1.Ta=105 °C±5°C 2.t=1000 hrs (-24hrs, +72hrs)	MIL-STD-883D:1008 JIS C 7021: B-10
	Low Temperature Storage Test	1.Ta=-40 °C±5°C 2.t=1000 hrs (-24hrs, +72hrs)	JIS C 7021: B-12
	High Temperature High Humidity Storage Test	1.Ta=65 °C±5°C 2.RH=90 %-95% 3.t=1000hrs ±2hrs	MIL-STD-202F:103B JIS C 7021: B-11
Environmental Test	Thermal Shock Test	1.Ta=105 °C±5°C & -40 °C±5°C (10min) (10min) 2.total 10 cycles	MIL-STD-202F: 107D MIL-STD-750D: 1051 MIL-STD-883D: 1011
	Solderability Test	1.T.Sol=235 °C±5°C 2.Immersion time 2 ±0.5sec 3.Coverage ≥ 95% of the dipped surface	MIL-STD-202F: 208D MIL-STD-750D: 2026 MIL-STD-883D: 2003 IEC 68 Part 2-20 JIS C 7021: A-2
	Temperature Cycling	1.105 °C ~ 25°C ~ -55°C ~ 25°C 30mins 5mins 30mins 5mins 2.10 Cyeles	MIL-STD-202F: 107D MIL-STD-750D: 1051 MIL-STD-883D: 1010 JIS C 7021: A-4
	IR Reflow	1.T=260 °C Max. 10sec.Max. 2. 6 Min	MIL-STD-750D:2031.2 J-STD-020