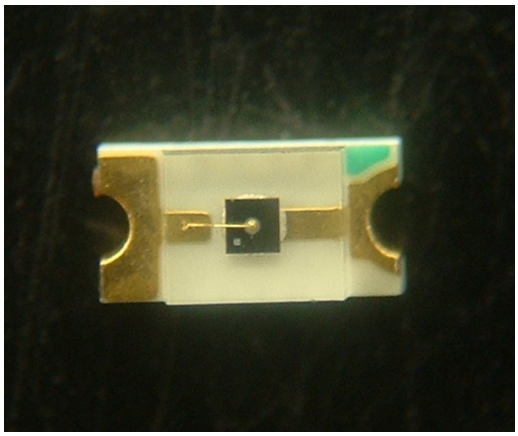
OST-9N15

PHOTO TRANSISTOR

General Description

The OST-9N15 is high sensitivity NPN silicon photo-transistor mounted in a SMD plastic package.



Features

- Compact
- Wide angular response
- Low cost
- Meet RoHS

Applications

- Optical counters
- Optical detectors
- Camera stroboscopes

MAXIMUM RATINGS

(Ta=25℃)

Item	Symbol	Rating	Unit
Power dissipation	Pd	100	mW
Operating temperature.	Topr	-25 ~ +75	℃
Storage temperature.	Tstg	-25 ~ +100	℃
Soldering temperature. *1	Tsol	260	℃

* 1 For MAX. 5 secends at the position of 5mm from the package

ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25℃)

Item	Symbol	Condition	Min	Typ	Max	Unit
C-E breakdown voltage	$V_{(BR)CEO}$	I_C=100uA	30			V
E-C breakdown voltage	$V_{(BR)ECO}$	I_E=100uA	5			V
Collector dark current	I_{CEO}	V_{CE}=20V Ee=0mW/cm^2			100	nA
On state collector current	$I_{(ON)}$	V_{CE}=5V , D=6mm , P_D=0.5mW , I_{LED}=20mA , λ=940nm	1.0	2.0		mA
C-E saturatuon voltage	V_{CE}(sat)	IC=2mA , I_B=100uA			0.3	V
Peak sensitive wavelength	λ p			800		nm
Switching speeds	tr	V_{CC}=5V , I_C=1mA R_L=1000Ω		15		usec
	tf			15		usec
Half angle	Δ θ			±70		deg.

FIG.1 COLLECTOR DARK CURRENT
VS. AMBIENT TEMPERATURE

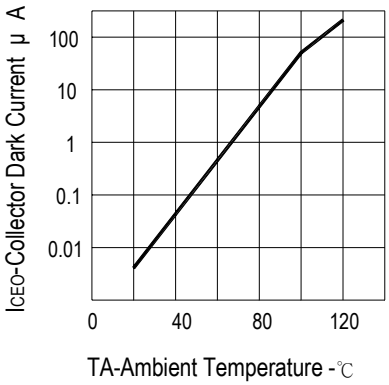


FIG.2 NORMALIZED COLLECTOR CURRENT
VS. AMBIENT TEMPERATURE

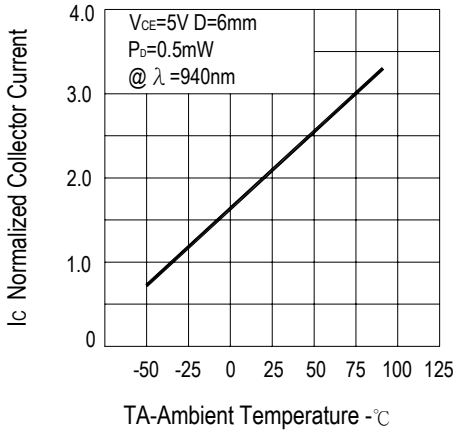


FIG.3 RISE AND FALL TIME
VS. LOAD RESISTANCE

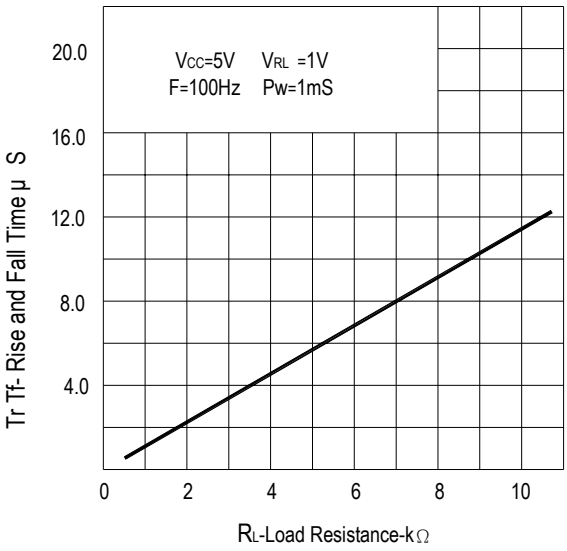
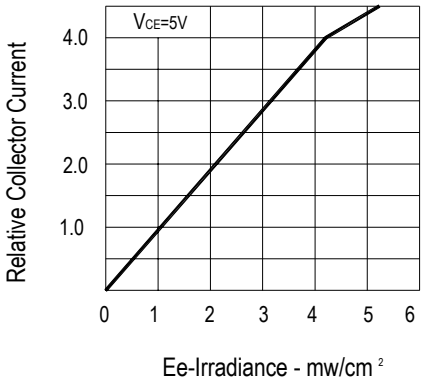
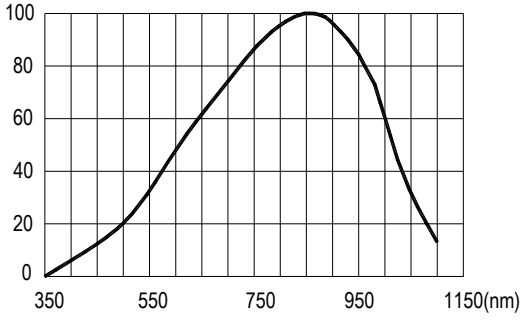


FIG.4 RELATIVE COLLECTOR
CURRENT VS. IRRADIANCE

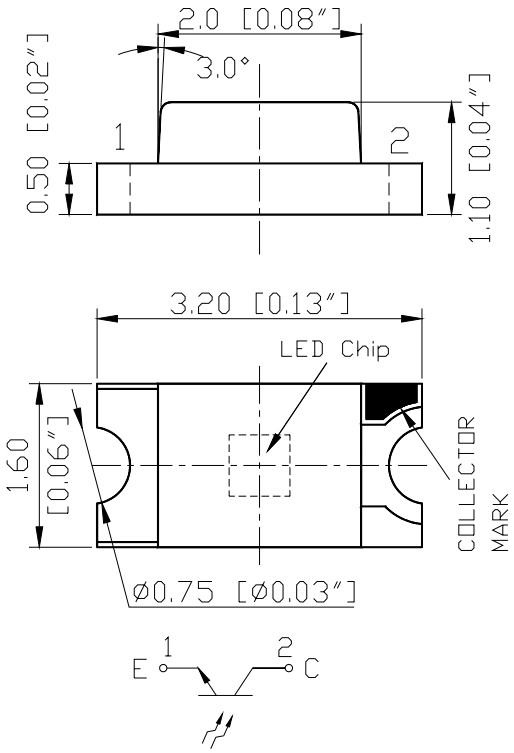


Relative Spectral Response (%)

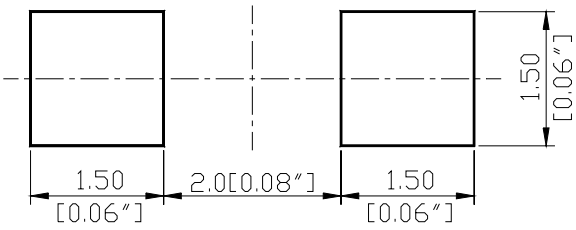


DIMENSIONS

(Unit: mm)



RECOMMEND PAD LAYOUT

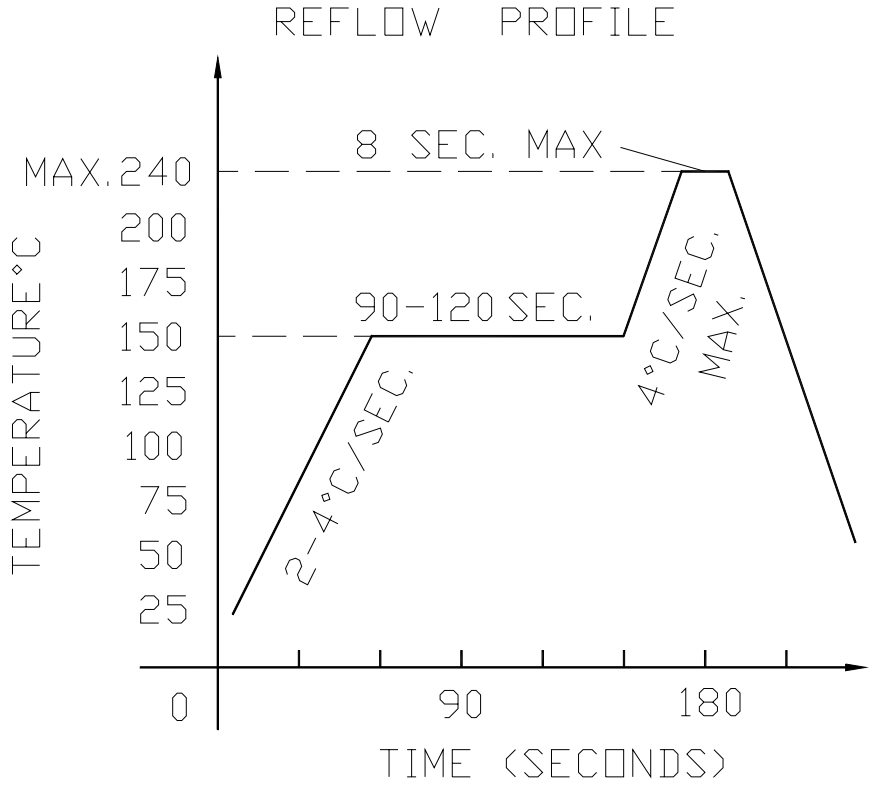


ITEM	MATERIALS
Resin(mold)	Epoxy
Bonding Wire	↓ 30 um Au
Lens color	Water transparent
Printed circuit board	BT (white)
Dice	Silicon

NOTES:

1. All dimensions are in millimeters (inches)
2. Tolerances are ±0.1mm (0.004inch) unless otherwise noted.

■ Reflow Temp / Time

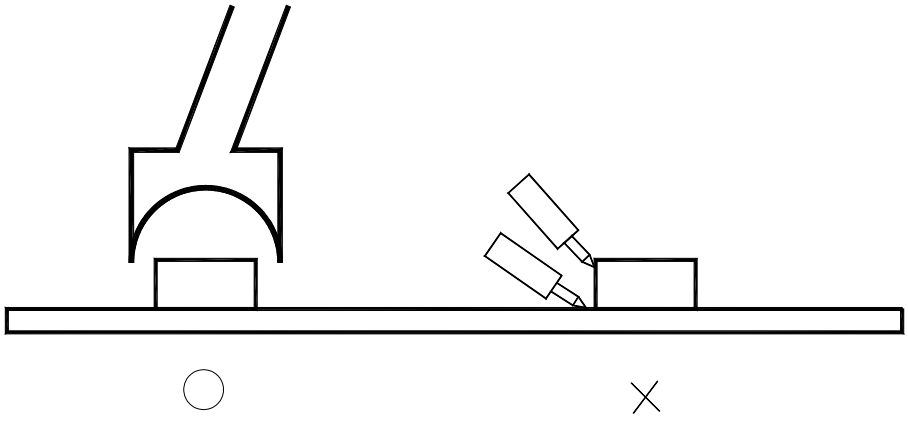


■ Soldering iron

Basic spec is ≦5sec when 260℃. If temperature is higher, time should be shorter (+10℃ → -1sec).Power dissipation of iron should be smaller than 15W, and temperatures should be controllable .Surface temperature of the device should be under 230℃ .

■ Rework

1. Customer must finish rework within 5 sec under 260℃.
2. The head of iron can not touch copper foil
3. Twin-head type is preferred.



■ Test items and results of reliability

Type	Test Item	Test Conditions	Note	Number of Damaged
1	Temperature Cycle	-20℃ 30min 50min ↑ ↓ 100min 80℃ 30min	50 cycle	0/22
2	Thermal Shock	-20℃ 15min ↑ ↓ 80℃ 15min	50 cycle	0/22
3	High Temperature High Humidity test	Ta=85℃ RH=85%	1000 hrs	0/22
4	High Temperature Storage	Ta=80℃	1000 hrs	0/22
5	Low Temperature Storage	Ta=-30℃	1000 hrs	0/22
6	DC Operating Life	V_{CE} = 5V Ta = 25℃ Ee = 1mW / cm^2	1000 hrs	0/22

■ Handling precautions

1. Over-current-proof

   Customer must apply resistors for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

   1. It is recommended to store the products in the following conditions :
      Humidity: 60% R.H. Max.
      Temperature : 5℃~30℃(41℉~86℉)
   2. Shelf life in sealed bag: 12 month at ＜5℃~30℃ and ＜30% R.H. after the package is Opened, the products should be used within a week or they should be keeping to stored at ≦20 R.H. with zip-lock sealed.

3. Baking

   It is recommended to baking before soldering when the pack is unsealed after 72hrs.
   The Conditions are as followings :
   1. 60±3℃ x (12~24hrs) and ＜ 5%RH , taped reel type
   2. 100±3℃ x (45min~1hr) , bulk type
   3. 130±3℃ x (15~30min), bulk type