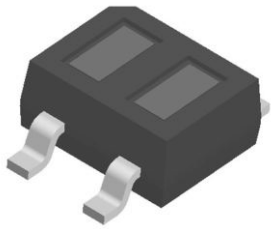
DATASHEET

ITR1201SR10AR/TR



Features

- Fast response time
- High sensitivity
- Cut-Off visible wavelength
- Thin
- Compact
- Pb free
- This product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free(Br < 900ppm, Cl < 900ppm, Br+Cl < 1500ppm).

Description

ITR1201SR10AR/TR is a light reflection switch which includes a GaAs IR-LED and a NPN photo-transistor with a high photosensitive receiver for short distance, operating in the infrared range.

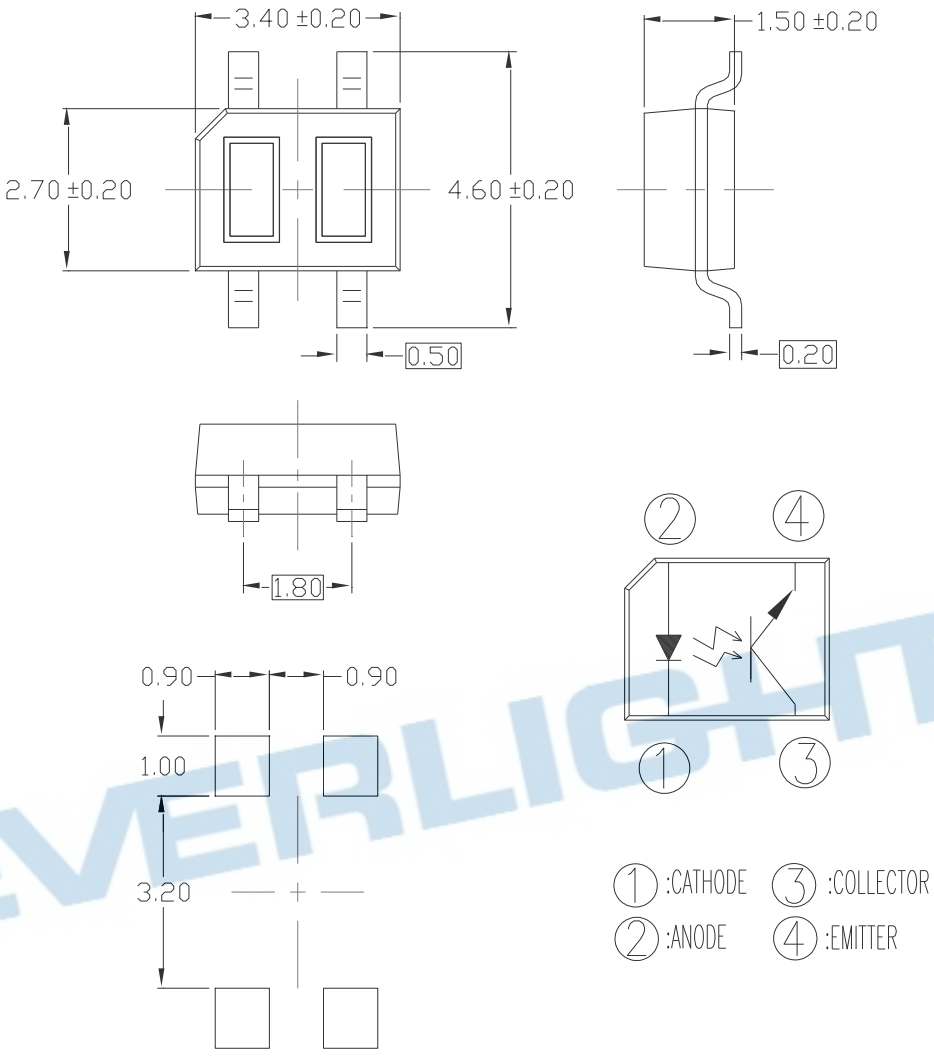
Applications

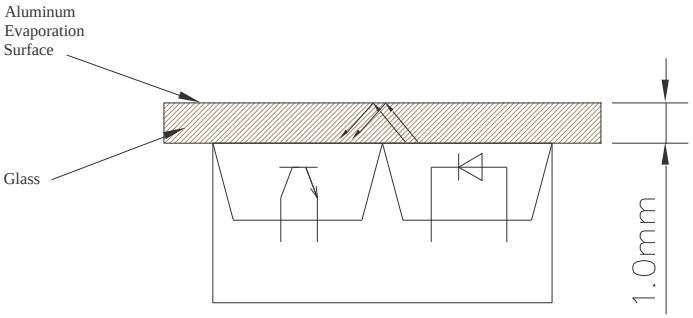
- Printer
- Switch Scanner
- Non-contact Switching

Device Selection Guide

Device No.	Chip Material
IR	AlGaAs
PT	Silicon

Package Dimensions





Notes: 1. All dimensions are in millimeters
2. Tolerances: ±0.15mm

Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Rating	Unit
Input	Power Dissipation at(or below) 25℃ Free Air Temperature	Pd	75	mW
	Reverse Voltage	V_R	5	V
	Forward Current	I_F	50	mA
	Peak Forward Current (*1) Pulse width ≦100μ s, Duty cycle=1%	I_{FP}	1	A
Output	Collector Power Dissipation	P_C	75	mW
	Collector Current	I_C	10	mA
	Collector-Emitter Voltage	B V_{CEO}	30	V
	Emitter-Collector Voltage	B V_{ECO}	5	V
Operating Temperature		Topr	-25~+85	℃
Storage Temperature		Tstg	-40~+100	℃
Lead Soldering Temperature (*2)		Tsol	260	℃

Notes: (＊1) tw=100 μsec. , T=10 msec. (＊2) t=5 Sec

Electro-Optical Characteristics (Ta=25℃)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	V_F	1.1	1.2	1.4	V	I_F=20mA
	Reverse Current	I_R	---	---	10	μA	V_R=6V
	Peak Wavelength	λ_P	---	940	---	nm	I_F=20mA
Output	Dark Current	I_{CEO}	---	---	100	nA	V_{CE}=10V
Transfer Characteristics	Transfer Characteristics	$I_{C(ON)}$	100	---	1000	μA	V_{CE}=5V, I_F=20mA
	Operating Dark Current	I_{CEOD}	---	---	1	μA	V_{CE}=5V, I_F=20mA
	Rise time	t_r	---	15	---	μs	V_{CE}=5V I_C=1mA R_L=1KΩ
	Fall time	t_f	---	15	---	μs	

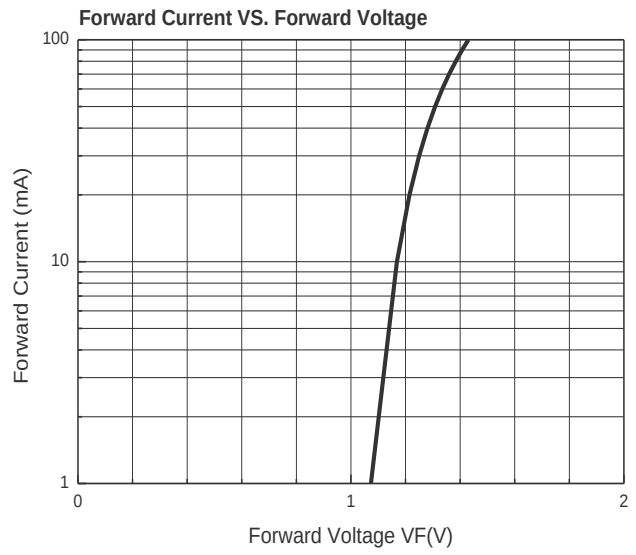
Rank

Conditions: I_F=20mA V_{CE}=5V Unit: μA

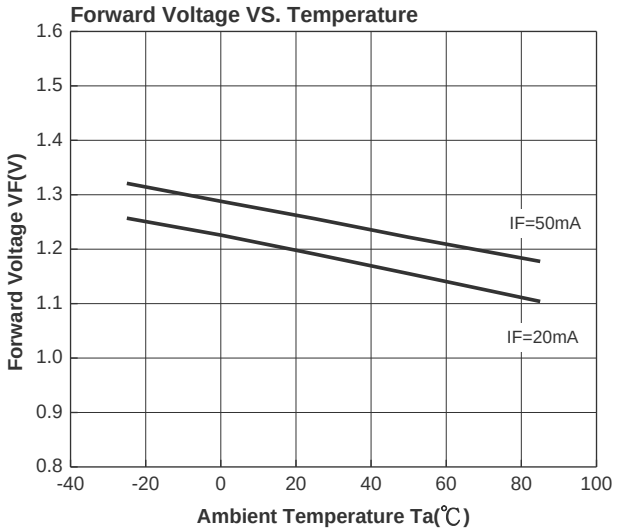
Bin number	Min	Max	Bin number	Min	Max
A1	100	300	C1	500	700
A2	200	400	C2	600	800
B1	300	500	D1	700	900
B2	400	600	D2	800	1000

Typical Electrical/Optical/Characteristics Curves

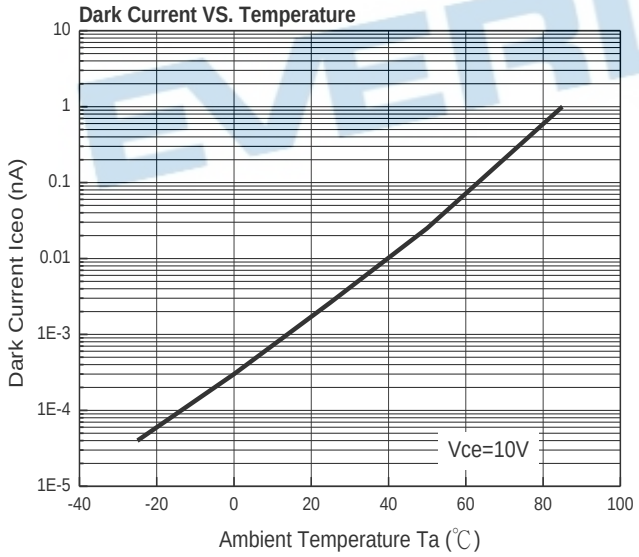
Forward current V.S. Forward Voltage



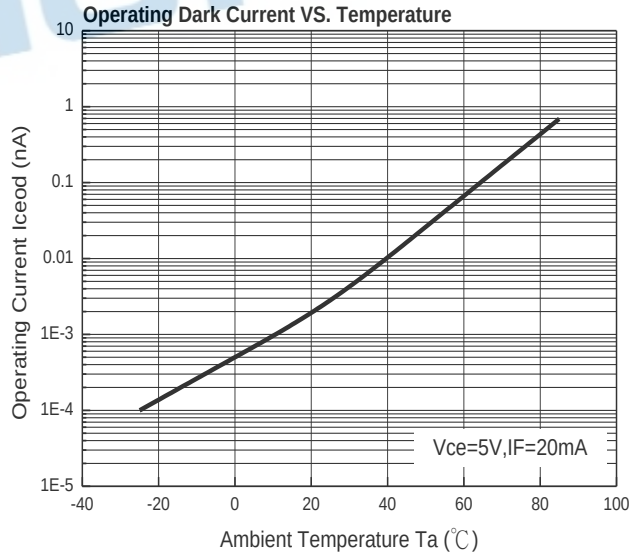
Forward Voltage V.S. Ambient Temperature



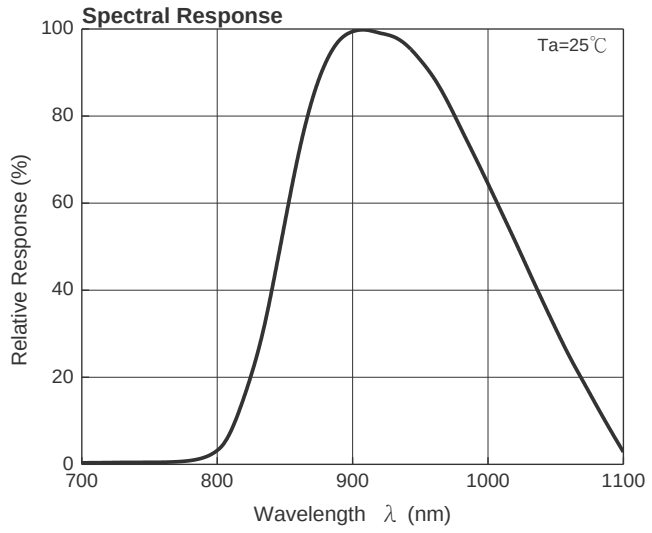
Dark Current V.S. Ambient Temperature



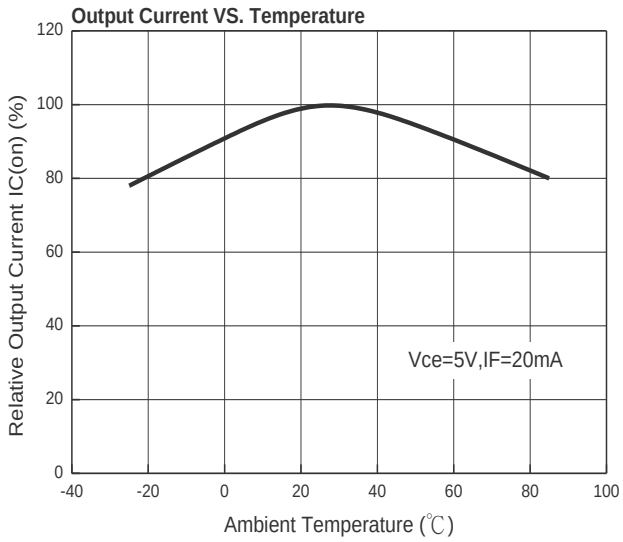
Operating Dark Current V.S. Temperature



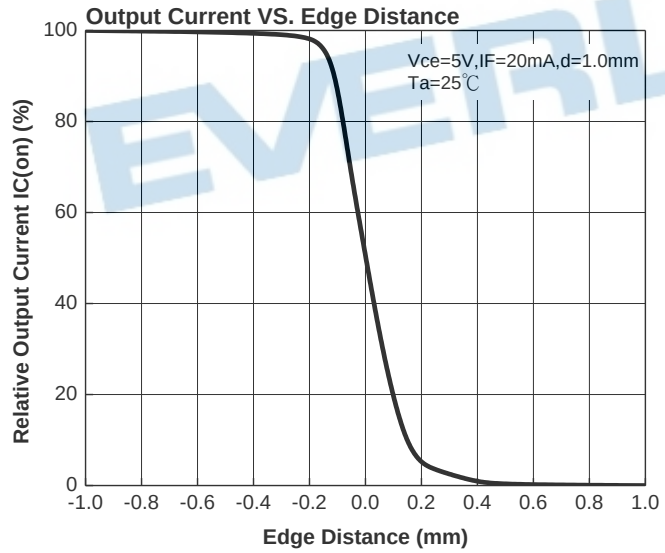
Relative Response V.S. Wavelength



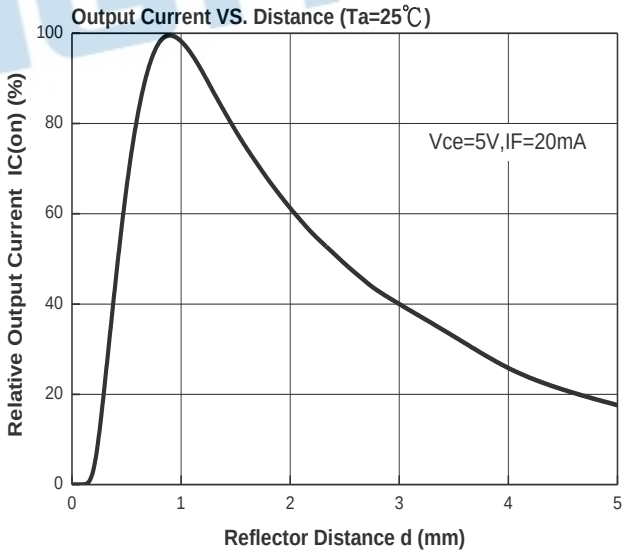
Relative Output Current V.S. Ambient Temperature



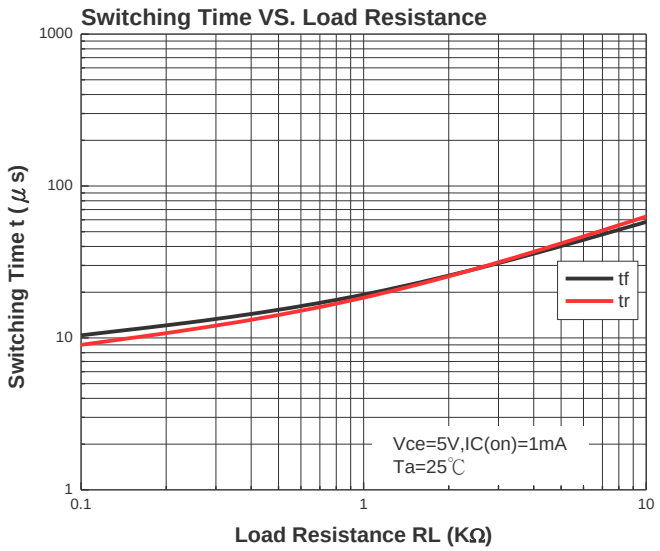
Output Current V.S. Edge Distance



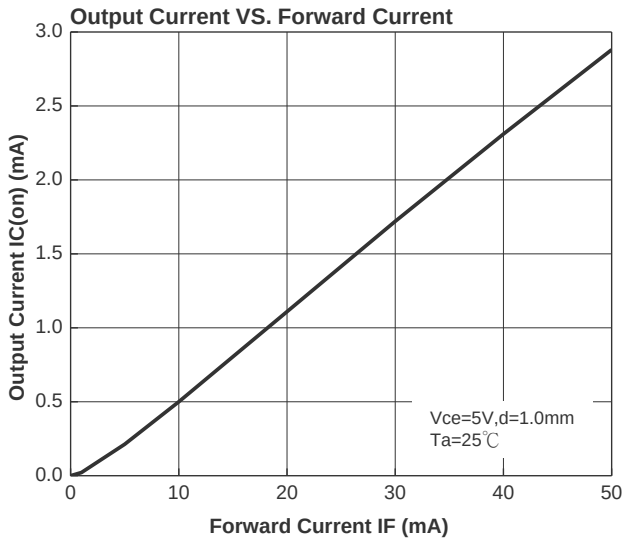
Output Current V.S. Reflector Distance



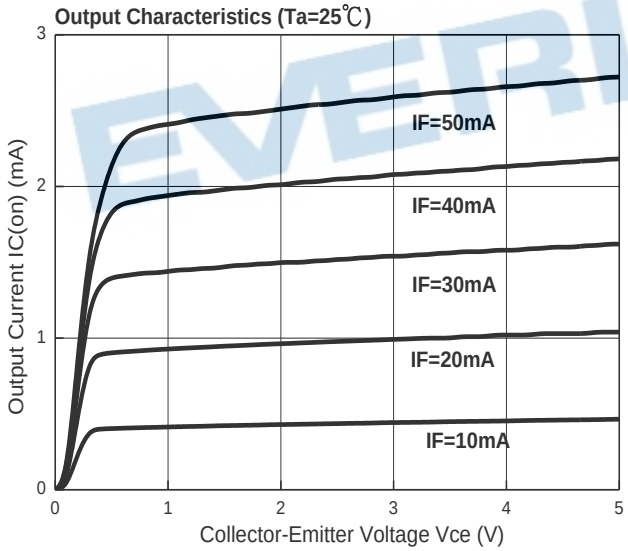
Switching Time V.S. Load Resistance



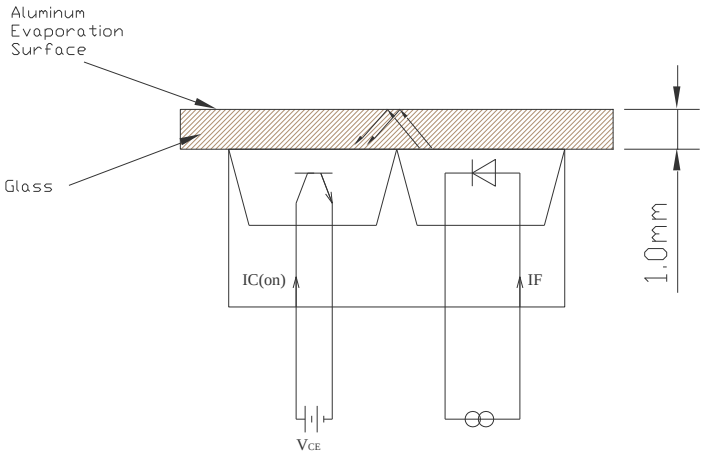
Output Current V.S. Forward Current



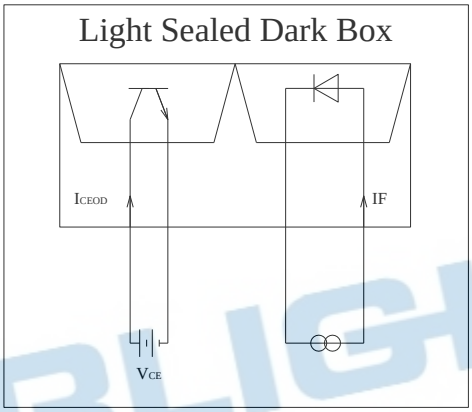
Output Characteristics



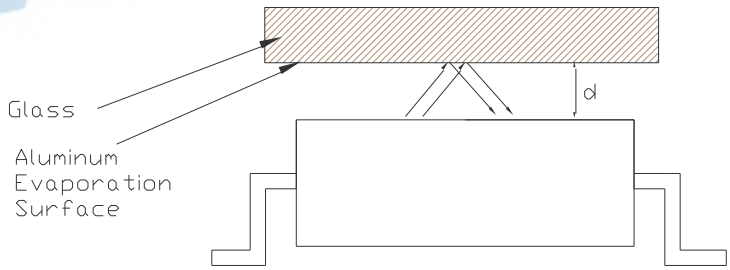
Measuring Specification For Output Current



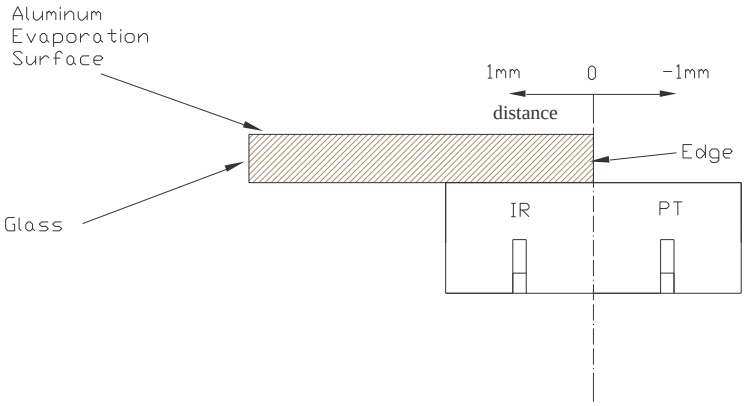
Measuring Circuit For Operating Dark Current



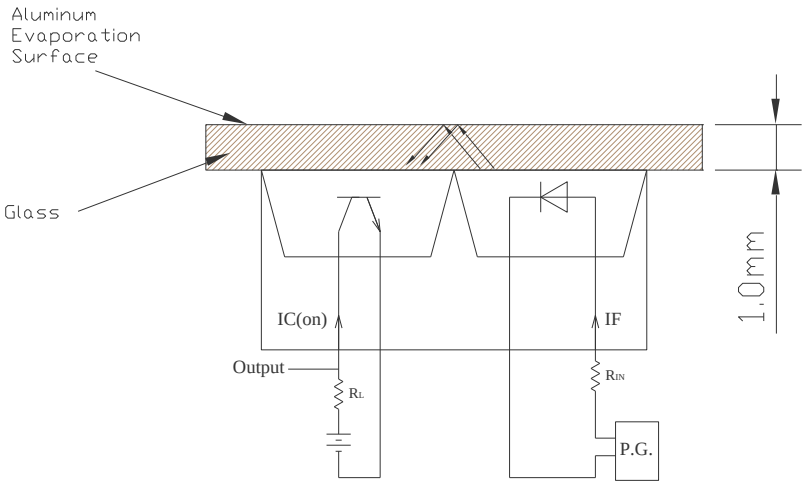
Measuring Specification For Reflector Response

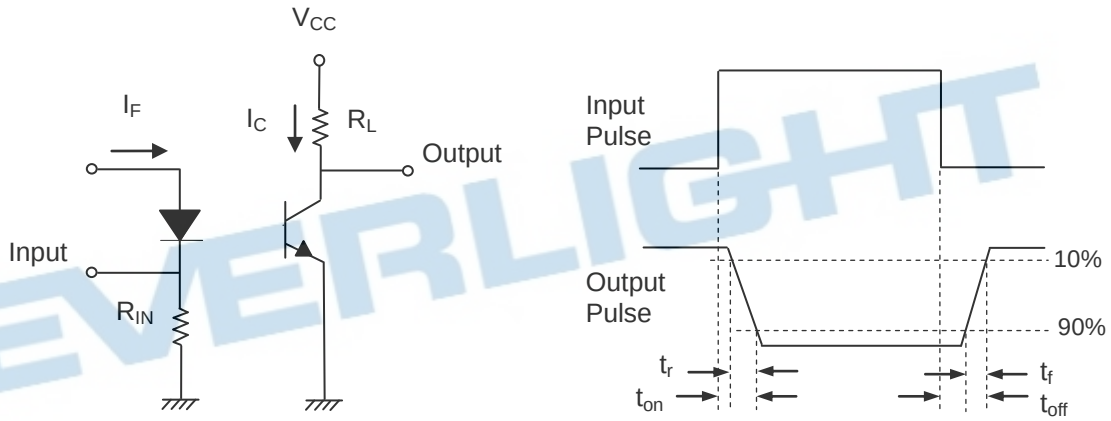


Measuring Specification For Edge Response



Measuring Circuit For Response Time



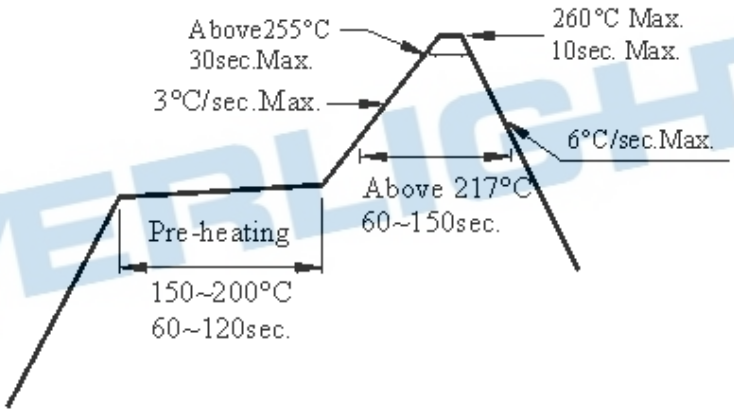


Recommended Method of Storage

1. Over-current-proof
   Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change (Burn out will happen).

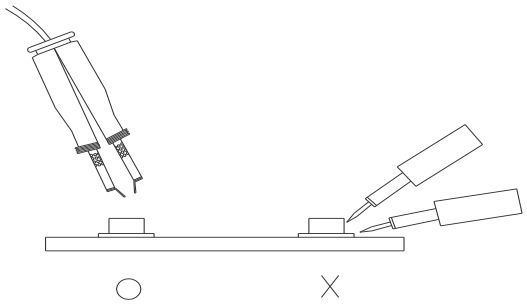
2. Storage
   2.1. Do not open moisture proof bag before the products are ready to use.
   2.2. Before opening the package, the LEDs should be kept at 30℃ or less and 90%RH or less.
   2.3. The LEDs should be used within a year.
   2.4. After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.
   2.5. The LEDs should be used within 168 hours (7 days) after opening the package.
   2.6. If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.Baking treatment : 60±5℃ for 24 hours.

3. Soldering Condition
   3.1. Pb-free solder temperature profile

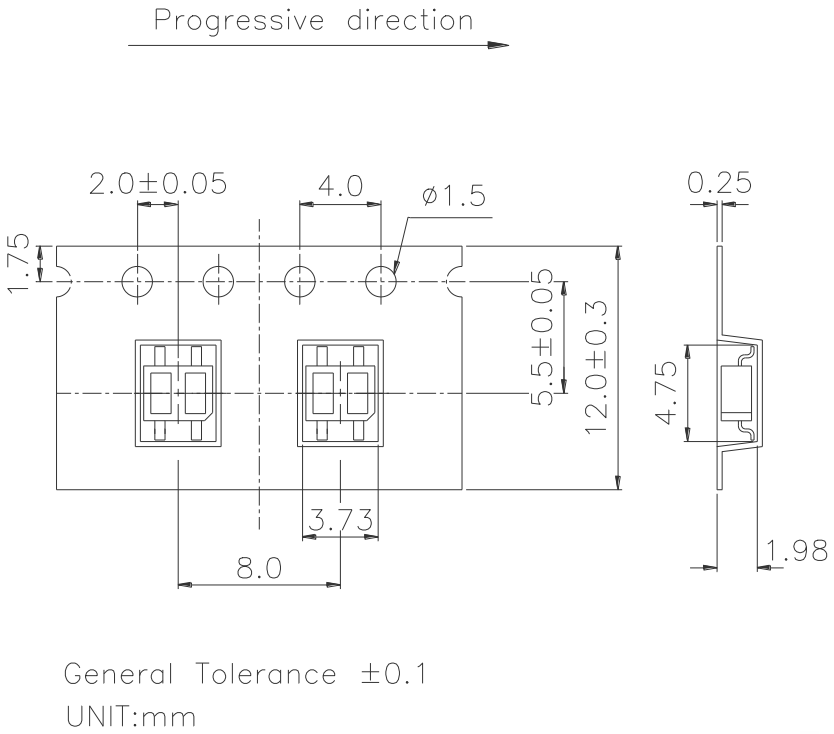


   3.2. Reflow soldering should not be done more than two times.
   3.3. When soldering, do not put stress on the LEDs during heating.
   3.4. After soldering, do not warp the circuit board.

4. Repairing
   Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

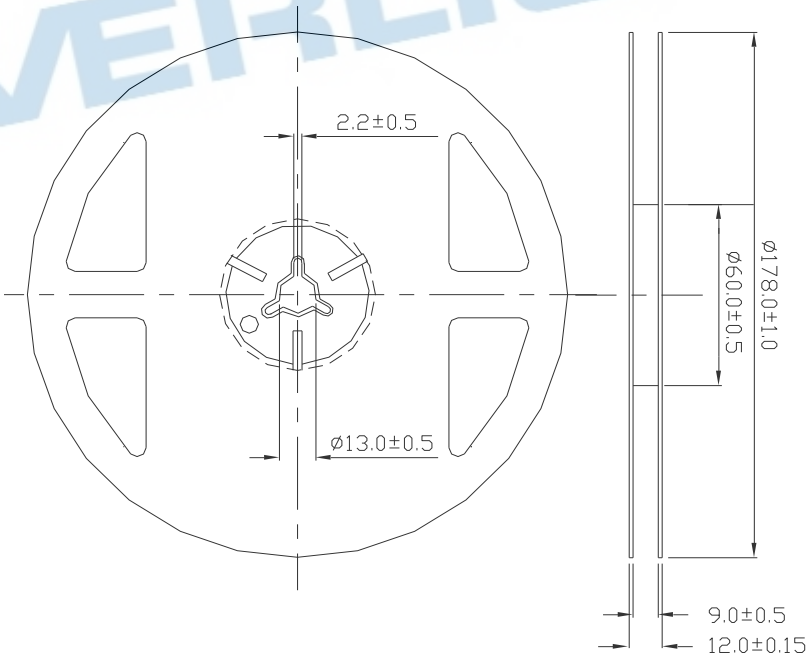


Taping Dimension

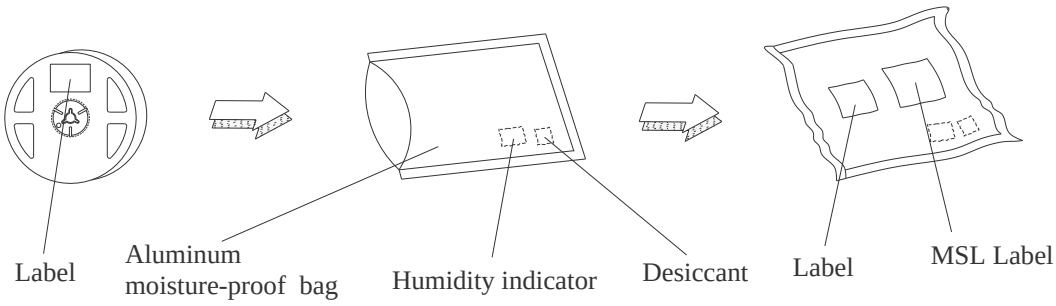


General Tolerance ±0.1
UNIT:mm

Package Dimensions



Moisture Resistant Packaging

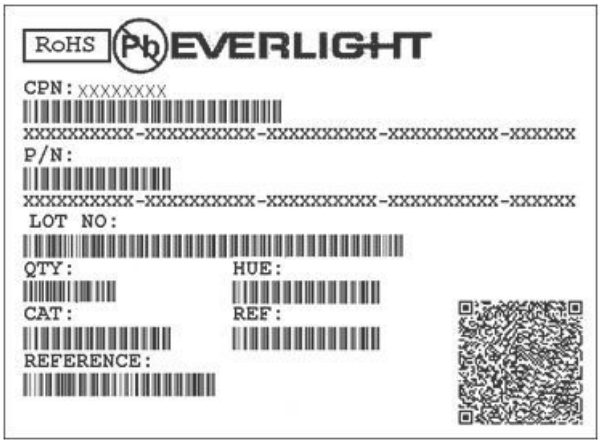


Packing Quantity Specification

1.1000 Pcs/ 1Reel
2.15 Reel /1 Box
3. Box/ 1 Carton

Label Form Specification

CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number
MADE IN TAIWAN: Production Place



Disclaimer

1.EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2.The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3.The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4.When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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