OPTO INTERRUPTER

SIT311

Features

▪Non-contact switching.

▪For direct PC board or dual-in-line socket mounting.

▪Fast switching speed.

Application

▪Scanner

▪Edge,Position Detections

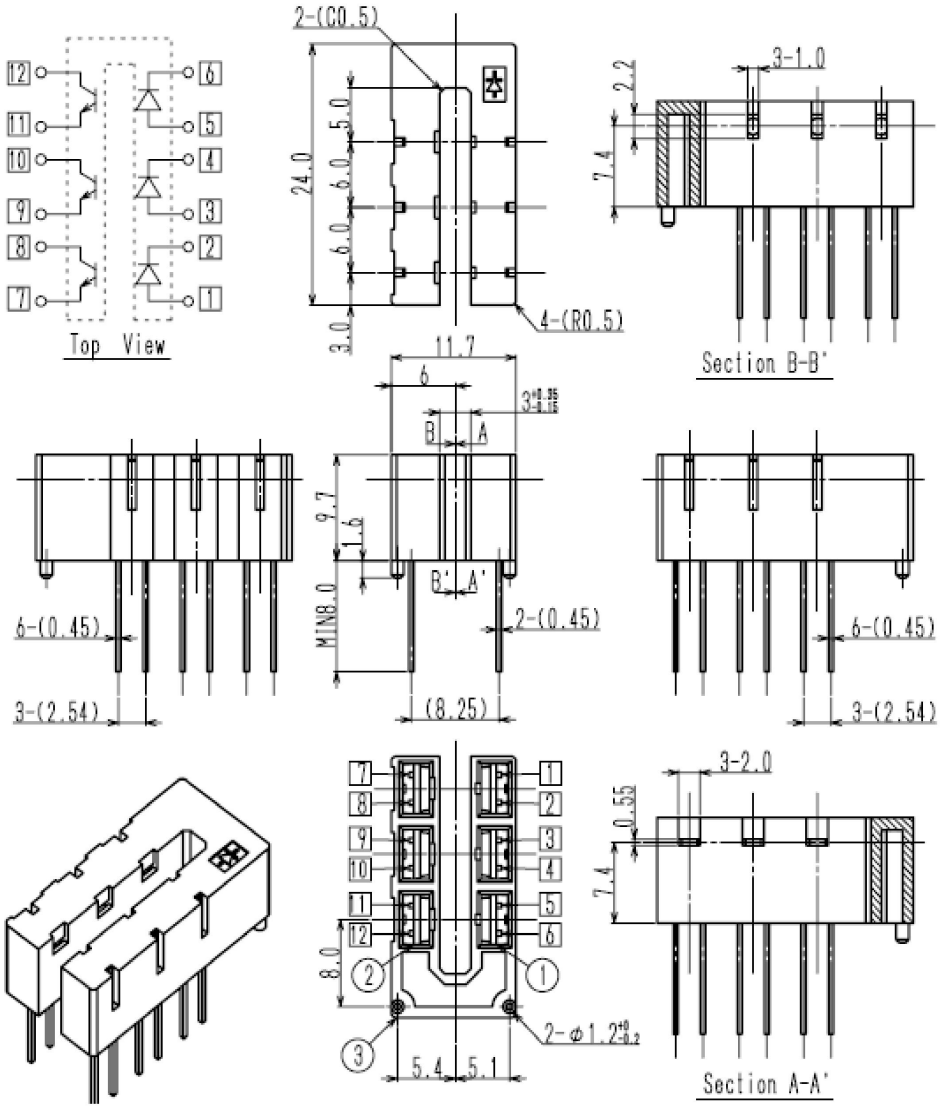
▪FAX machine

▪Counter

Description

The SIT311 series consist of Gallium Arsenide infrared emitting diode and a NPN sillicon phototransistor mounted in a black plastic housing. Phototransistor switching takes place whenever an opaque object passes through the slot. These series are designed for direct soldering into PC board or mounting in standard dual-in-line socket.

PACKAGE DIMENSIONS



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25mm(.010") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.

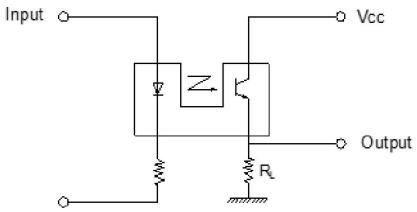
ABSOLUTE MAXIMUM RATINGS AT TA =25℃

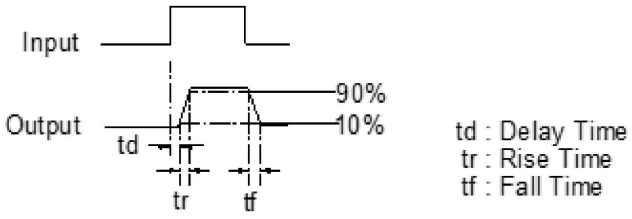
项目 Parameter		记号 Symbol	额定值 Limits	单位 Unit
发光侧 Input LED	容许损失 Power dissipation	P_D	100	mW
	顺电流 Forward current	I_F	60	mA
	逆电压 Reverse voltage	V_R	5	V
	脉冲顺电流 *1 Pulse FO. Current	I_{FP}	1	A
受光侧 Output detector	集电极耗散功率 Collector dissipation	P_C	100	mW
	集电极电流 Collector current	I_C	40	mA
	集电极-发射极间电压 Collector-Emitter voltage	V_{CEO}	30	V
	发射极-集电极间电压 Emitter-Collector voltage	V_{ECO}	5	V
顺电流温度低减率 *2 Rate of decrease of TEMP. for FO. Current		$\triangle I_F/\triangle T_a$	-0.8	mA/℃
耗散功率温度低减率 *2 Rate of decrease of TEMP. for collector dissipation		$\triangle P_C/\triangle T_a$	-1.33	mW/℃
工作温度 *3 Operating temperature		Topr	-30 ~ +85	℃
保存温度 *3 Storage temperature		Tstg	-30 ~ +100	℃
焊接温度 *4 Soldering temperature		Tsol	260	℃

ELECTRICAL OPTICAL CHARACTERISTICS AT TA=25℃

项目 Parameter		记号 Symbol	条件 Test Conditions	最小值 Min.	标准值 Typ.	最大值 Max.	单位 Units
发光侧 IN PUT	顺电流 Forward voltage	V_F	I_F=20mA	-	1.2	1.4	V
	逆电流 Reverse current	I_R	V_R=5V	-	-	10	μA
	峰值波长 Peak wavelength	λ_P	I_F=20mA	-	940	-	nm
受光侧 OUT PUT	暗电流 Dark current	I_{CEO}	V_{CE}=10V,E_V=0lx	-	1	100	nA
	感光峰值波长 Peak SENS. Wavelength	λ_P	-	-	880	-	nm
动作特性 TRANSMISSION	光电流 Light current	I_C	V_{CE}=5V,I_F=20mA,Non-shading	0.5	-	10	mA
	漏电流 Leak current	I_{CEOD}	VCE=5V,IF=20mA,shading	-	0.5	10	nA
	饱和电压 C-E SAT. voltage	V_{CE}（sat）	I_F=20mA,I_C=0.1mA	-	0.15	0.4	V
	上升时间 Rise time	tr	V_{CC}=5V,I_C=2mA,R_L=100Ω	-	4	-	μs
	下降时间 Fall time	tf		-	5	-	μs

应答时间测定回路





Packing Quantity Specification

1. 23Pcs/1Type,48 Type/1Box

2. 4Boxes/1Carton

Label Form Specification

- PRODUCT: Part Number
- CODE NO.: Product Serial Number
- QTY: Packing Quantity
- LOT No: Lot Number
- REMARKS:Remarks

Notes

Lead Forming

1. During lead frame bending, the lead frame should be bent at a distance more than 3mm from bottom of the epoxy.

Note: Must fix lead frame and do not touch epoxy before bending to avoid Photo Interrupter broken.

2. Lead forming should be done before soldering.

3. Avoid stressing the Photo Interrupter package during leads forming. The stress to the base may damage the characteristics of Photo Interrupter, or it may break the Photo Interrupter.

4. Cut the Photo Interrupter lead frame at room temperature. Cutting the lead frame at high temperatures may cause failure of the Photo Interrupter.

5. When mounting the Photo Interrupter onto a PCB, the PCB holes must be aligned exactly with the lead position of the Photo Interrupter. If the Photo Interrupter are mounted with stress at The leads, it causes deterioration of the epoxy resin and this will degrade the Photo Interrupter.

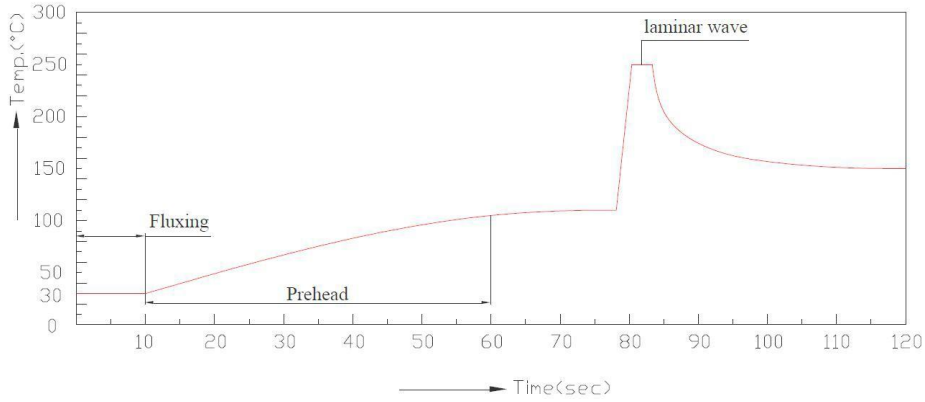
Soldering

1. Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.

2. Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	300°C Max. (30W Max.)	Preheat temp.	100°C Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max
Distance	3mm Min.(From solder joint to epoxy bulb)	Distance	3mm Min. (From solder joint to epoxy bulb)

3. Recommended soldering profile



4. Avoiding applying any stress to the lead frame while the Photo Interrupter are at high temperature particularly when soldering.

5. Dip and hand soldering should not be done more than one time

6. After soldering the Photo Interrupter, the epoxy bulb should be protected from mechanical shock or vibration until the Photo Interrupter return to room temperature.

7. A rapid-rate process is not recommended for cooling the Photo Interrupter down from the peak temperature.

8. Although the recommended soldering conditions are specified in the above table, dip or hand soldering at the lowest possible temperature is desirable for the Photo Interrupter.

9. Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

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