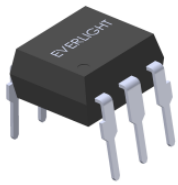
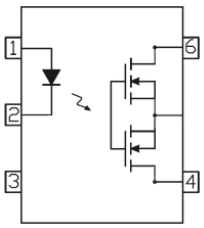
DATASHEET

5 PIN DIP TYPE FORM A SSR
EV6330A(P5)(PF)-G Series Datasheet (Preliminary)



Schematic



Pin Configuration

1, LED Anode

2, LED Cathode

4, 6 MOSFET Drain

Features

- Compliance Halogens Free
  (Br < 900 ppm, Cl < 900 ppm, Br+Cl < 1500 ppm)
- Compliance with EU REACH
- The product itself will remain within RoHS compliant version
- Normally open signal pole signal throw relay
- Low operating current
- 3300V output withstand voltage
- Wide operating temperature range of -40°C to 125°C
- High isolation voltage between input and output (Viso=5000 Vrms)
- UL and cUL
- VDE
- Pb free
- SEMKO
- NEMKO
- DEMKO
- FIMKO
- CQC
- CTI ≥ 600V

This is a preliminary specification intended for design purposes and subject to change without prior notice.

Description

The EV6330A(P5)(PF)-G are solid state relays containing an infrared LEDs on the light emitting side (input side) optically coupled to a high voltage output detector circuit. The detector consists of a photovoltaic diode array and MOSFETs on the output side. They can enable AC/DC and DC only output connections. The single channel configuration is equivalent to 1 form A EMR. They are packaged in 5 pin DIP and available in surface mount SMD option.

Applications

- EV/Battery Management System
- Measurement Equipment
- I/O Modules
- Industrial Controls

• Automotive

Absolute Maximum Ratings (T_A=25°C, unless otherwise specified) *6

Parameter		Symbol	Rating	Unit
Input	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	5	V
	Peak Forward Current*1	I_{FP}	1	A
	Power Dissipation	P_{in}	100	mW
Output	Load Voltage*2	V_L	3300	V
	Continuous Load Current	I_L	20	mA
	Pulse Load Current*3	I_{LPeak}	0.1	A
	Power Dissipation	P_{out}	550	mW
Total Power Dissipation		P_T	550	mW
Isolation Voltage*4		V_{iso}	3750	Vrms
Storage Temperature		T_{STG}	-40 to 150	°C
Operating Temperature		T_{OPR}	-40 to 125	°C
Soldering Temperature*5		T_{SOL}	260	°C

Notes:
*1 f =100Hz, Duty Cycle = 0.1%
*2 Indicate the peak AC and DC values
*3 100ms (1 shot), V_L = DC or Peak AC
*4 AC for 1 minute, R.H. = 40 ~ 60% R.H. In this test, pins 1, 2, 3 are shorted together, and pins 4,6 are shorted together.
*5 For 10 seconds
*6 Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability. The absolute maximum Ratings are stress only TA=25oC unless otherwise specified. Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratingIn case in which a continual DC bias is applied between the input and output , the output-side MOSFET may deteriorate due to the voltage.

Recommended Operating Conditions (T_A=25℃)

Please use under recommended operating conditions to obtain expected characteristics

Parameter	Symbol	Min.	Max.	Unit
Forward current	I_F	10	30	mA
Load voltage	V_L	-	2640	V
Continuous load current	I_L	-	10	mA
Operating temperature	T_{OPR}	-40	110	°C

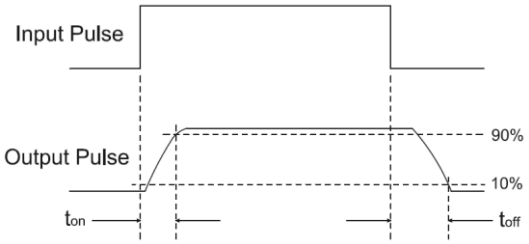
Electro-Optical Characteristics (T_A=25℃)

	Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F = 10mA	-	1.5	1.8	V
	Reverse Current	I_R	V_R = 5V	-	-	10	μA

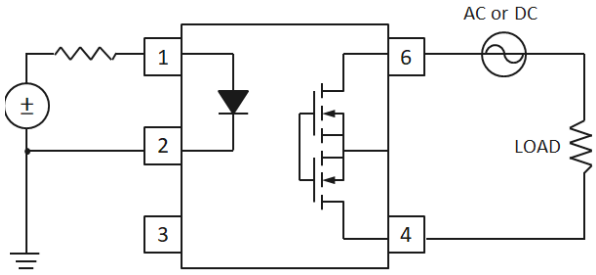
Note: Reverse Voltage(VR) Condition is applied to IR test only The device is not designed for reverse operation

	Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output	Off State Leakage Current	I_{leak}	I_F = 0mA, V_L = 2640V	-	-	100	μA
	On Resistance*	$R_{d(ON)}$	I_F = 10mA, I_L = 20mA t = 1s	-	120	200	Ω
Transfer Characteristics	LED turn on Current	$I_{F(on)}$	I_L = 20mA	-	-	5	mA
	LED turn off current	$I_{F(off)}$	I_L = 0.01mA	0.01	-	-	mA
	Turn On Time	T_{on}	I_F = 10 mA, V_L =20 V R_L = 200Ω	-	-	5	ms
	Turn Off Time	T_{off}		-	-	3	ms
	Isolation Resistance	R_{I-O}	V_{I-O} = 500V DC	5×10^{10}	-	-	Ω
	Isolation Capacitance	C_{I-O}	V = 0V, f = 1MHz	-	1.5	-	pF

Turn on/Turn off Time



Note:
* On resistance test



Typical Electro-Optical Characteristics Curves

Order Information

Part Number

EV6330AY(Z)(P5)(PF)-VG

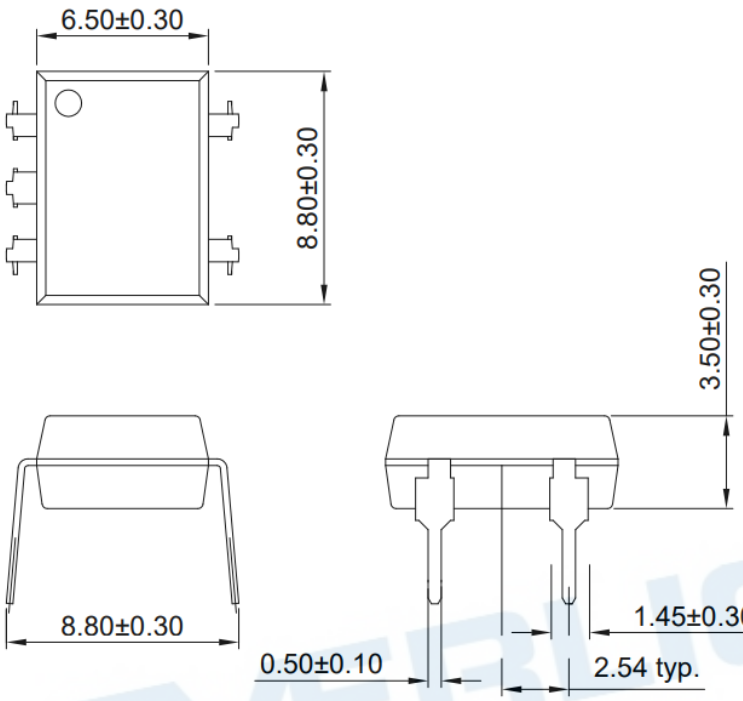
Note:

Y = Lead form option (S1, or none)
Z = Tape and reel option (TA, TB, or none).
P5 = 5 pin type
PF = Customer code
V = VDE safety approved (optional)
G = Halogens free

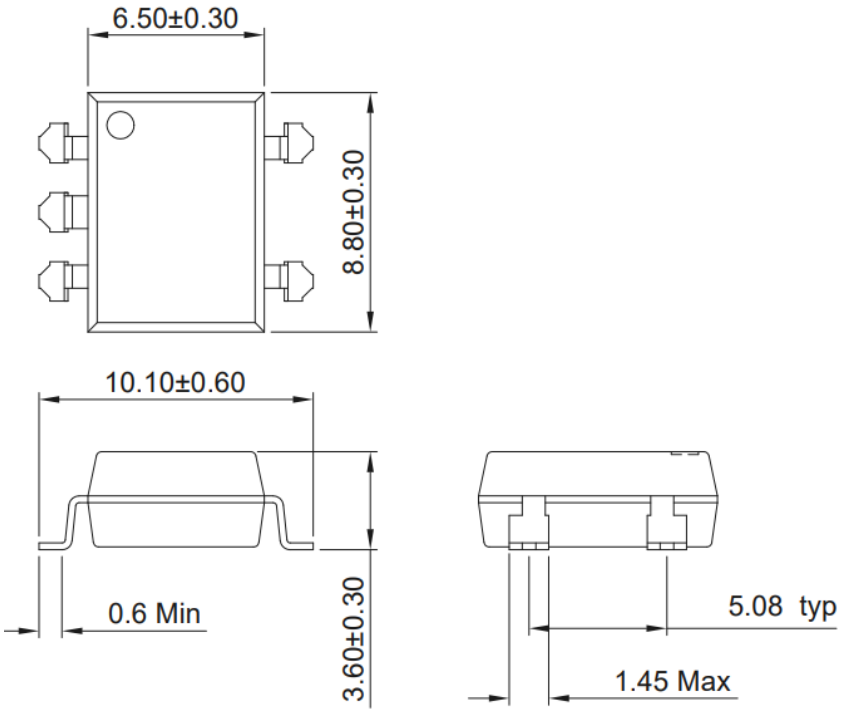
Option	Description	Packing quantity
None	Standard DIP-5	50 units per tube
S1 (TA)	Surface mount lead form (low profile) + TA tape & reel option	1000 units per reel
S1 (TB)	Surface mount lead form (low profile) + TB tape & reel option	1000 units per reel

Package Dimension

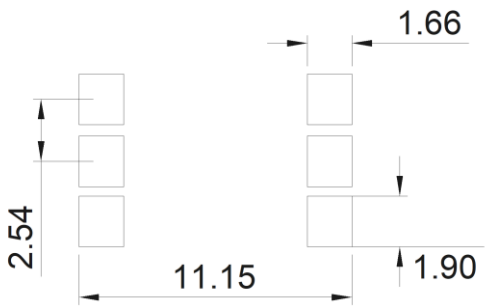
Standard DIP Type



Option S1 Type



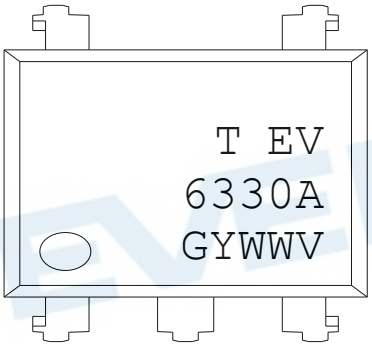
Recommended pad layout for surface mount leadform



Notes

Suggested pad dimension is just for reference only.
Please modify the pad dimension based on individual need.

Device Marking

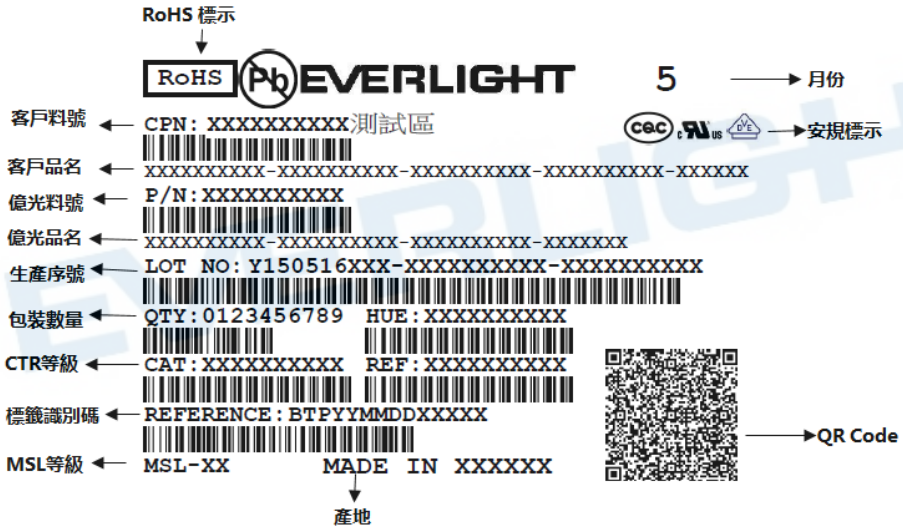


Notes

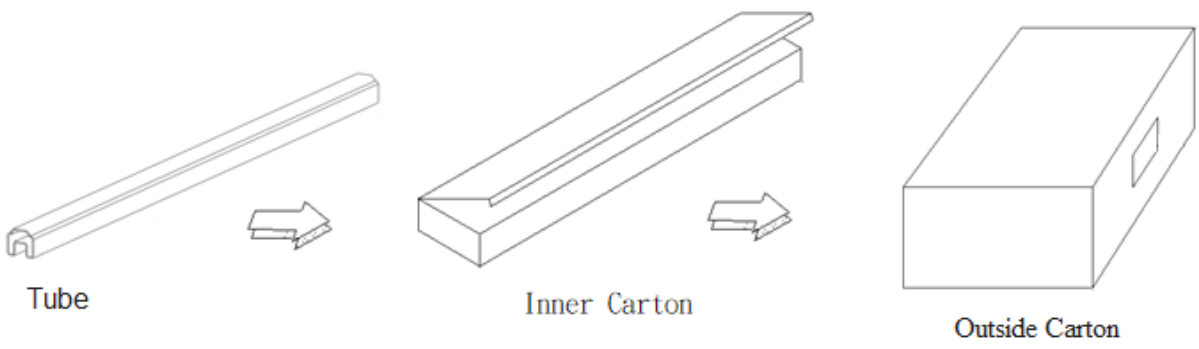
T	denotes Factory No code : made in China T : made in Taiwan
EV	denotes Everlight
6330A	denotes Part Number
G	denotes Green Part (optional)
Y	denotes 1 digit Year code
WW	denotes 2 digit Week code
V	denotes VDE(optional)

Label form

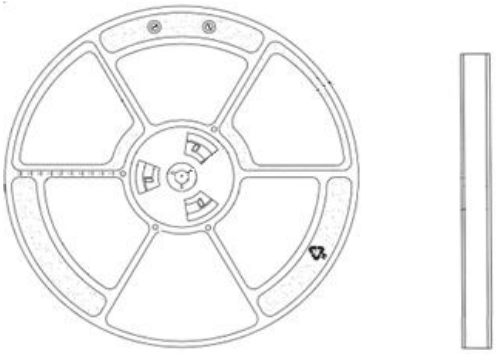
or



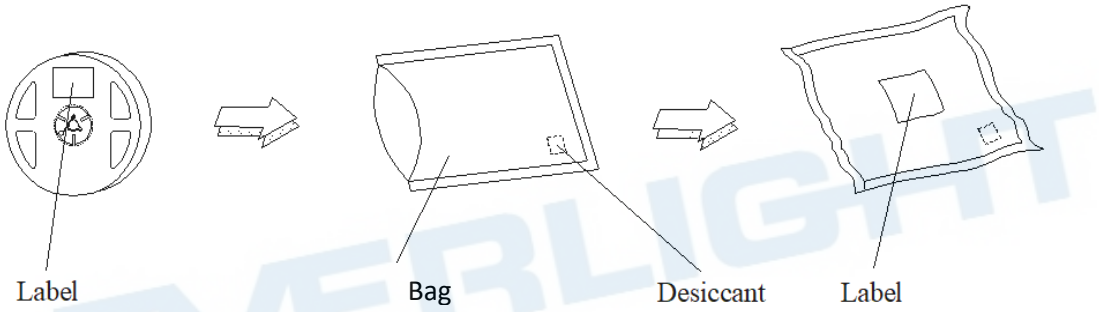
TUBE Dimension

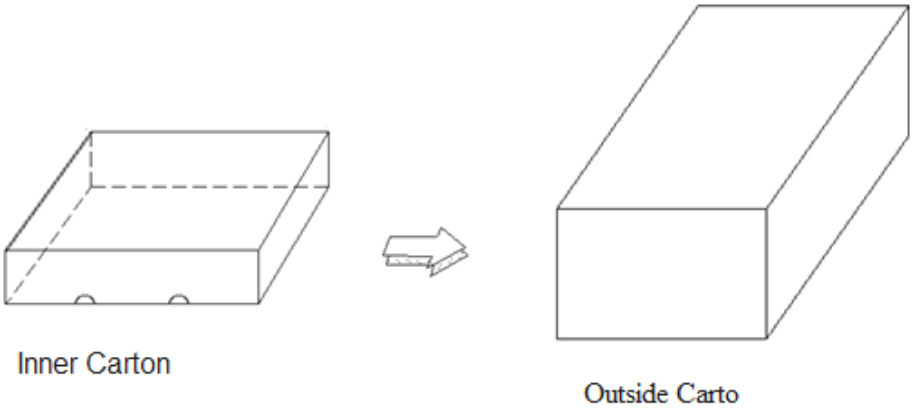


Reel Dimension



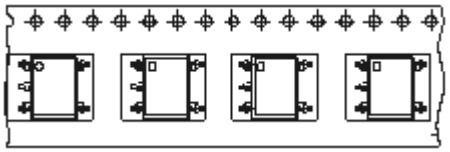
Moisture Resistant Packaging





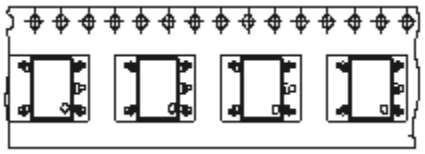
Tape & Reel Packing Specifications

Option TA



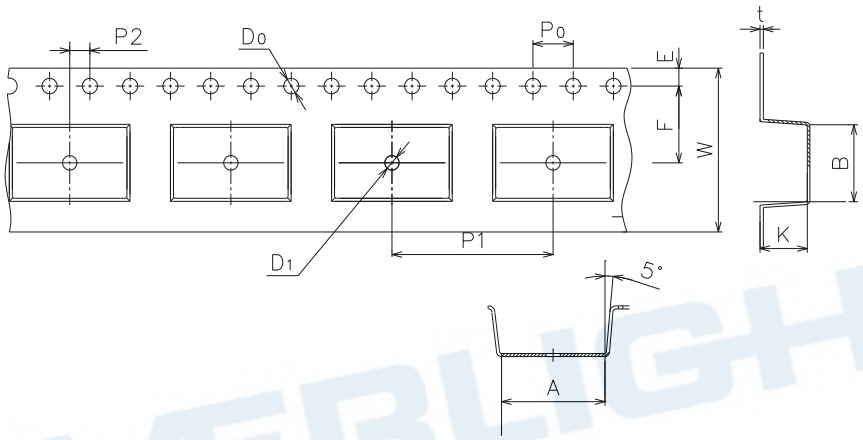
Direction of feed from reel

Option TB



Direction of feed from reel

Tape Dimensions

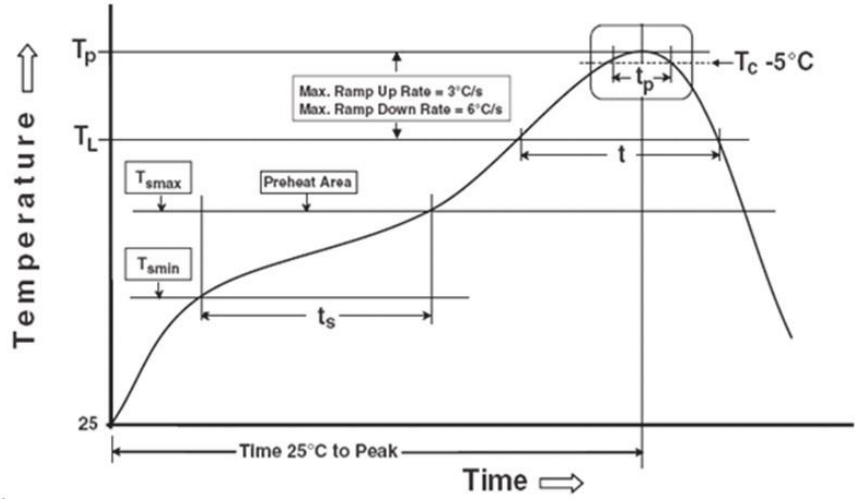


Dimension No.	A	B	Do	D1	E	F
Dimension(mm)	10.80±0.3	9.20±0.3	1.5+0.3	1.5 +0.3	1.75±0.3	7.5±0.3
Dimension No.	Po	P1	P2	t	W	K
Dimension(mm)	4.0±0.3	12.0±0.3	2.0±0.3	16.0±0.3	4.5±0.3	0.40±0.2

Precautions for Use

1. Soldering Condition

1.1 (A) Maximum Body Case Temperature Profile for evaluation of Reflow Profile



Note: Reference: IPC/JEDEC J-STD-020D

Preheat	
Temperature min (T_{smin})	150 °C
Temperature max (T_{smax})	200°C
Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds
Average ramp-up rate (T_{smax} to T_p)	3 °C/second max
Other	
Liquidus Temperature (T_L)	217 °C
Time above Liquidus Temperature (t_L)	60-100 sec
Peak Temperature (T_P)	260°C
Time within 5 °C of Actual Peak Temperature: T_P - 5°C	30 s
Ramp- Down Rate from Peak Temperature	6°C /second max.
Time 25°C to peak temperature	8 minutes max.
Reflow times	3 times

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Precautions for General Storage

- Avoid storage locations where devices may be exposed to moisture or direct sunlight.
- Follow the precautions printed on the packing label of the device for transportation and storage.
- Keep the storage location temperature and humidity within a range of 5°C to 35°C and 20 % to 60 %,respectively.
- Do not store the products in locations with poisonous gases (especially corrosive gases) or in dusty conditions.
- Store the products in locations with minimal temperature fluctuations. Rapid temperature changes during storage can cause condensation, resulting in lead oxidation or corrosion, which will deteriorate the solderability of the leads.
- When restoring devices after removal from their packing, use anti-static containers.
- Do not allow loads to be applied directly to devices while they are in storage.
- If devices have been stored for more than two years under normal storage conditions, it is recommended that you check the leads for ease of soldering prior to use.

DISCLAIMER

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
3. When using this product, please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from 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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