

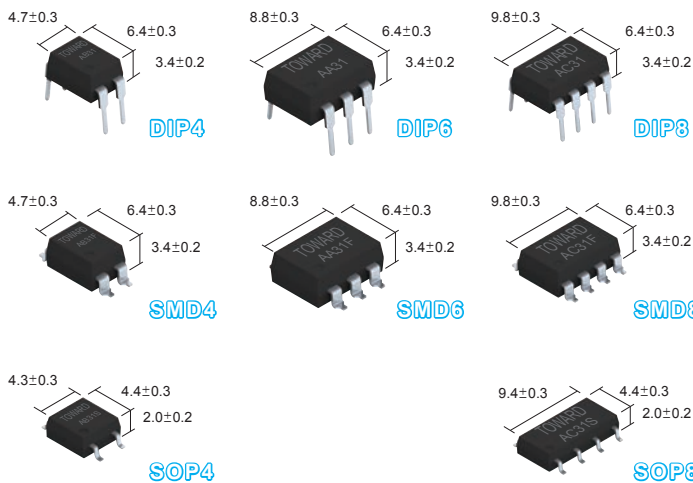
# 31 Series

## 350V·1a/2a



### Features

- Contact Form 1a / 2a
- Load Voltage 350V
- Operation LED Current 3.0mA
- Load Current 130mA
- On-Resistance 17Ω
- Output Capacitance 55pF
- Low Off-State Leakage Current 1.0μA



### Application

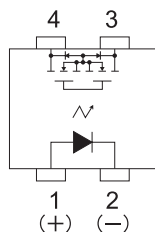
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB31	DIP-4	Tube 90pcs
AA31	DIP-6	Tube 50pcs
AC31	DIP-8	Tube 45pcs
AB31F	SMD-4	Tube 90pcs
AA31F	SMD-6	Tube 50pcs
AC31F	SMD-8	Tube 45pcs
AB31S	SOP-4	Tube 100pcs
AC31S	SOP-8	Tube 50pcs
AB31F-R1	SMD-4	Reel 1000pcs
AA31F-R1	SMD-6	
AC31F-R1	SMD-8	
AB31S-R1	SOP-4	
AC31S-R1	SOP-8	

\* Package & PCB Layout Design, See Page 134

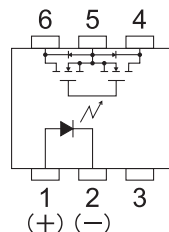
### Terminal Identification

#### AB31(F)(S)



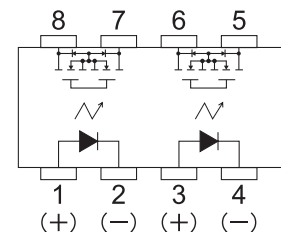
- 1: Anode (LED)  
2: Cathode (LED)  
3,4: Drain (MOS FET)

#### AA31(F)



- 1: Anode (LED)  
2: Cathode (LED)  
3: NC  
4,6: Drain (MOS FET)  
5: Source (MOS FET)

#### AC31(F)(S)



- 1,3: Anode (LED)  
2,4: Cathode (LED)  
5,6,7,8: Drain (MOS FET)

為了持續的改進，敝司有權在不影響規格範圍的情況下修改設計。

In the interest of continuous development, our companies reserve the right to alter designs within specification range.

**Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C )**

Item		Symbol	Value				
			AB31S	AC31S	AB31(F)	AC31(F)	AA31(F)
Outline Package			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I <sub>F</sub>	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I <sub>FP</sub>	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V <sub>R</sub>	5V				
	Input Power Dissipation 輸入損耗	P <sub>IN</sub>	75mW				
Output 輸出	Load Voltage 負荷電壓	V <sub>L</sub>	350V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I <sub>L</sub>	120	100	130	110	130
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I <sub>PEAK</sub>	600	600	600	600	600
	Output Power Dissipation 輸出損耗 (mW)	P <sub>OUT</sub>	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P <sub>T</sub>	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V <sub>I/O</sub>	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V <sub>I/O</sub>	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T <sub>OPR</sub>	-40°C ~ +85°C				
Storage Temperature 保存溫度		T <sub>STG</sub>	-40°C ~ +100°C				

**Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C )**

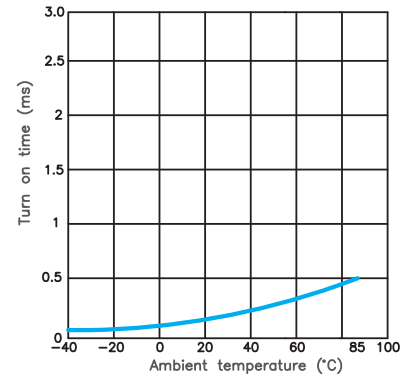
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V <sub>F</sub>	1.0	1.17	1.5	V	I <sub>F</sub> =10mA
	Operation LED Current LED 動作電流	I <sub>F ON</sub>		0.8	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V <sub>F OFF</sub>	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R <sub>ON</sub>		17	24	Ω	I <sub>F</sub> =5mA, I <sub>L</sub> =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I <sub>LEAK</sub>			1.0	μA	V <sub>L</sub> =350V
	Output Capacitance 輸出端容量	C <sub>OUT</sub>		55		pF	V <sub>L</sub> =0V, f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T <sub>ON</sub>		0.25	0.5	ms	I <sub>F</sub> =5mA I <sub>L</sub> =Rating (for SOP type)
	Turn-Off Time 復位時間	T <sub>OFF</sub>		0.05	0.2	ms	
	Turn-On Time 動作時間	T <sub>ON</sub>		0.2	1.0	ms	I <sub>F</sub> =10mA I <sub>L</sub> =Rating (for DIP/SMD type)
	Turn-Off Time 復位時間	T <sub>OFF</sub>		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出力間絕緣阻抗	R <sub>I/O</sub>	10 <sup>9</sup>			Ω	
	I/O Capacitance 輸入 / 出力端靜電容量	C <sub>I/O</sub>		1.3		pF	f=1MHz

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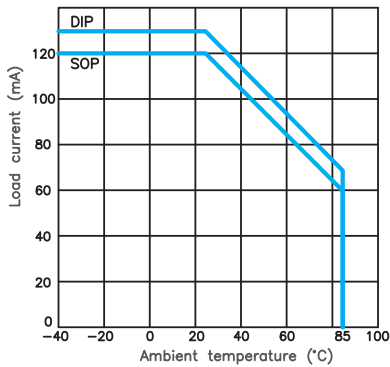
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General-Purpose

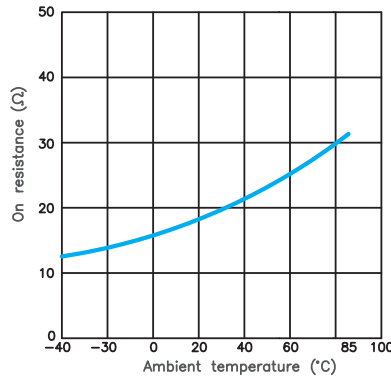
Turn on time Vs. Ambient temperature



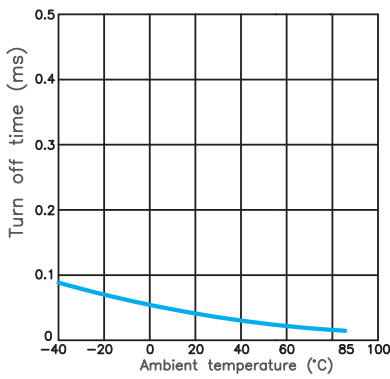
Load current Vs. Ambient temperature



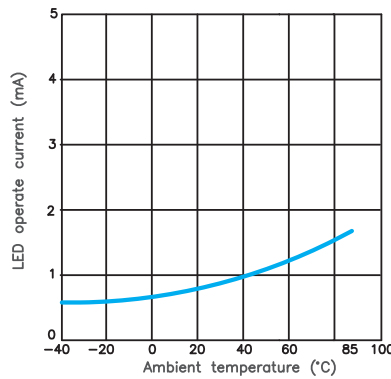
On resistance Vs. Ambient temperature



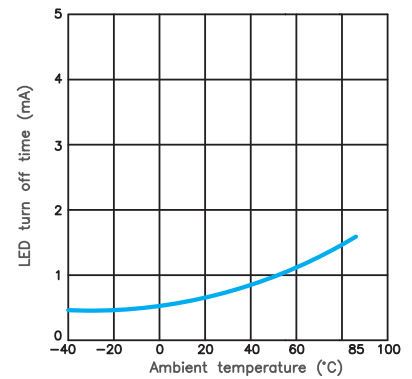
Turn off time Vs. Ambient temperature



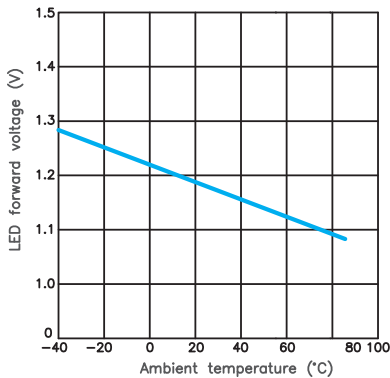
LED operate current Vs. Ambient temperature



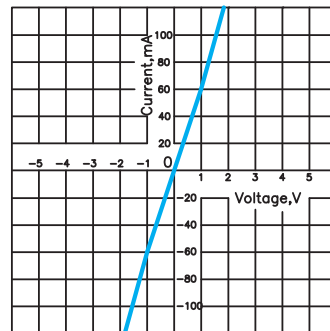
LED Turn off current Vs. Ambient temperature



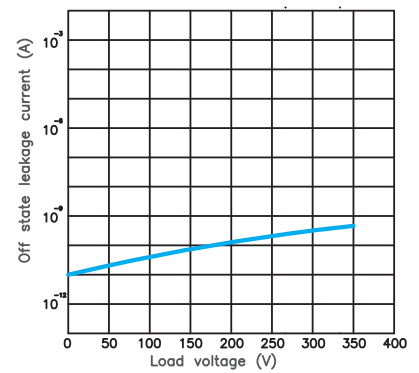
LED forward voltage Vs. Ambient temperature



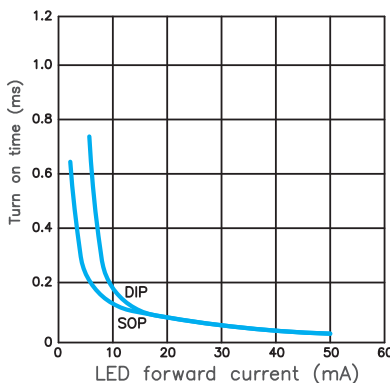
Voltage Vs. current characteristics of output at MOS portion



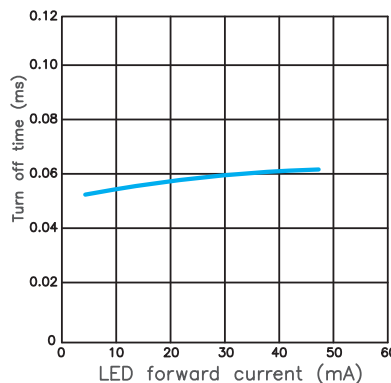
Off state leakage current



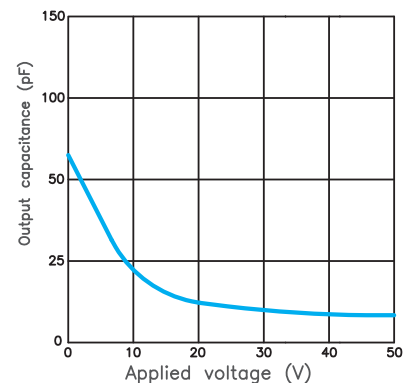
LED forward current Vs. turn on time characteristics



LED forward current Vs. turn off time characteristics


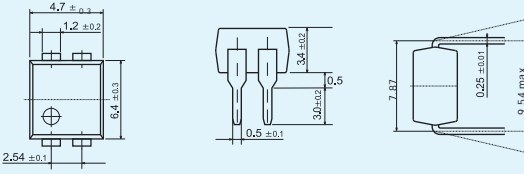
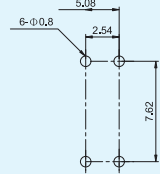

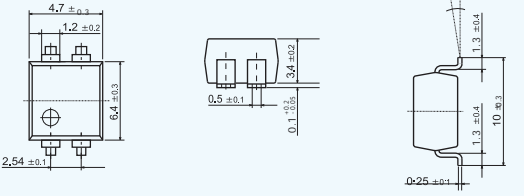
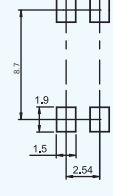

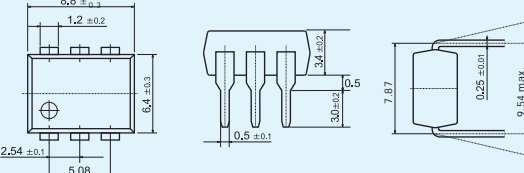
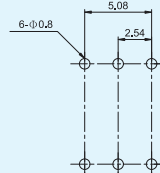

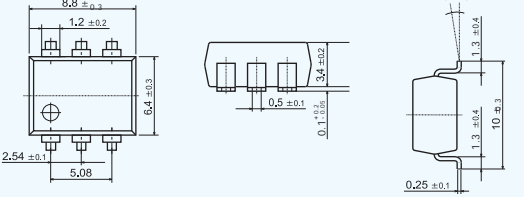
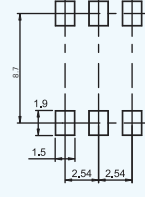

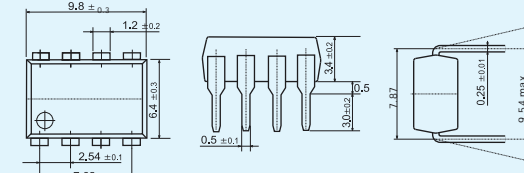
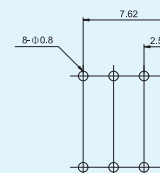

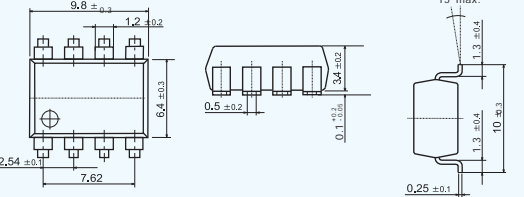
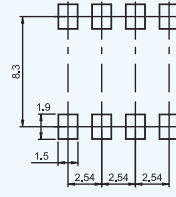

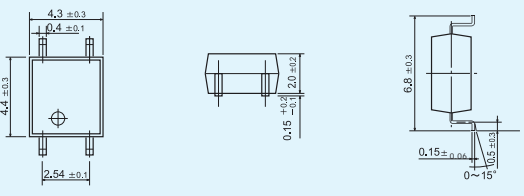
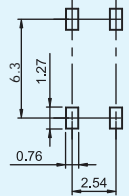

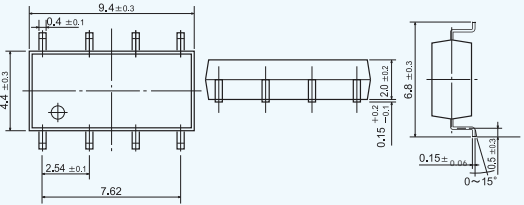
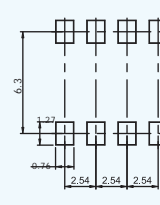


Applied voltage Vs. output capacitance characteristics



為了持續的改進，敝司有權在不影響規格範圍的情況下修改設計。  
In the interest of continuous development, our companies reserve the right to alter designs within specification range.

Package & PC Board Pattern

Package 包裝	Dimensions 外型尺寸圖	PC Board pattern PC 板加工圖
 <p>DIP4</p>		 <p>(Bottom View)</p>
 <p>SMD4</p>		 <p>(Top View)</p>
 <p>DIP6</p>		 <p>(Bottom View)</p>
 <p>SMD6</p>		 <p>(Top View)</p>
 <p>DIP8</p>		 <p>(Bottom View)</p>
 <p>SMD8</p>		 <p>(Top View)</p>
 <p>SOP4</p>		 <p>(Top View)</p>
 <p>SOP8</p>		 <p>(Top View)</p>

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Packing Specifications

Package Type 包裝類型	Tape shape & dimensions 形狀和尺寸	Reel shape & dimensions 圈帶形狀和尺寸	Quantity 數量
4 Pin SOP			1000 pcs
8 Pin SOP			1000 pcs
4 Pin SMD			1000 pcs
6 Pin SMD			1000 pcs
8 Pin SMD			1000 pcs

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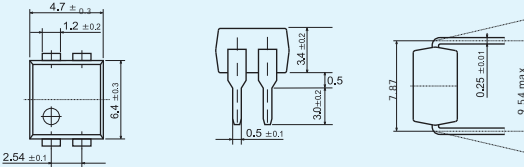
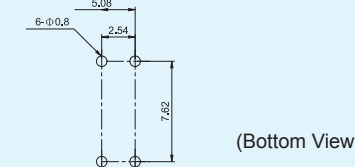

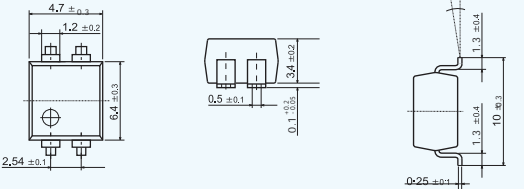
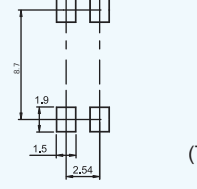

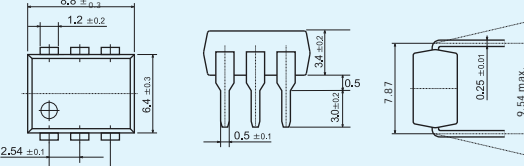
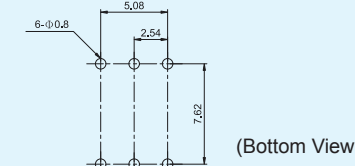

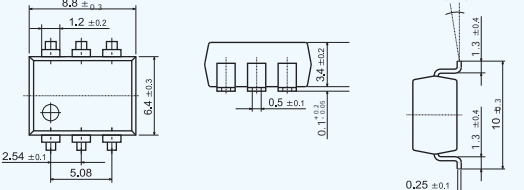
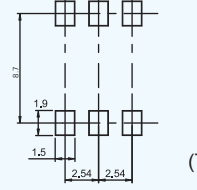

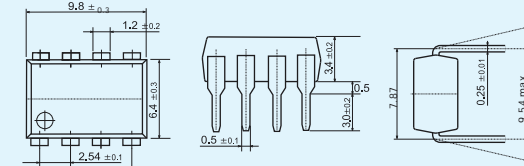
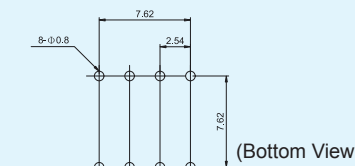

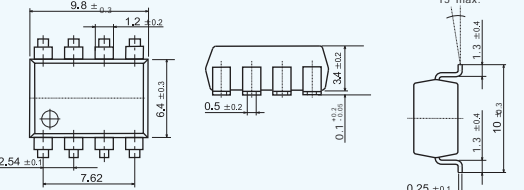
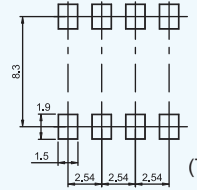
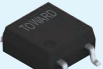
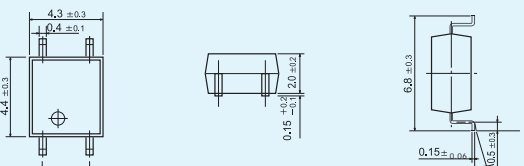
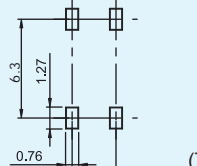

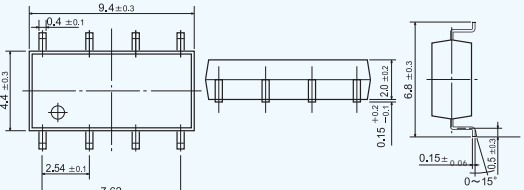
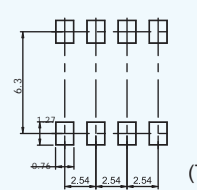
Load Connecting Method

Type 類型	Load 負荷	Connection 接續方法	Feature 特長	
4 pin	AC or DC		Control bi-directional signal 可控制雙向信號	
6 pin	A	AC or DC	Control bi-directional signal 可控制雙向信號	
	B	DC		On-Resistance is 1/2 of A-connection 導通電阻值是 A 接法的 1/2 2-Make-contacts (Source Common)
C	DC		On-Resistance is 1/2 of B-connection 導通電阻值是 B 接法的 1/2	
8 pin	AC or DC		2 input and 2 output 2 入力和 2 出力回路	
			1 input and 2 output 1 入力和 2 出力回路	

為了持續的改進，敝司有權在不影響規格範圍的情況下修改設計。

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 <p>SMD4</p>		 <p>(Top View)</p>
 <p>DIP6</p>		 <p>(Bottom View)</p>
 <p>SMD6</p>		 <p>(Top View)</p>
 <p>DIP8</p>		 <p>(Bottom View)</p>
 <p>SMD8</p>		 <p>(Top View)</p>
 <p>SOP4</p>		 <p>(Top View)</p>
 <p>SOP8</p>		 <p>(Top View)</p>

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8 Pin SOP			1000 pcs
4 Pin SMD			1000 pcs
6 Pin SMD			1000 pcs
8 Pin SMD			1000 pcs

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	B DC		On-Resistance is 1/2 of A-connection 導通電阻值是 A 接法的 1/2 2-Make-contacts (Source Common)
C DC		On-Resistance is 1/2 of B-connection 導通電阻值是 B 接法的 1/2	
8 pin	AC or DC		2 input and 2 output 2 入力和 2 出力回路
			1 input and 2 output 1 入力和 2 出力回路

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