

# 70 Series

## 60V·1a+1b

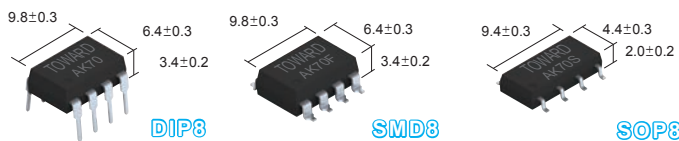


### Features

- Contact Form 1a+1b
- Load Voltage 60V
- Operation LED Current 3.0mA
- Load Current 380mA
- On-Resistance 0.75Ω
- Output Capacitance 45/165pF
- Low Off-State Leakage Current 10μA

### Application

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

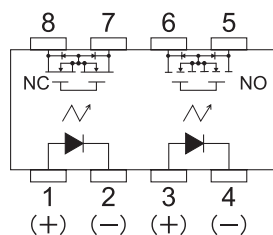


PART NO	PACKAGE	PACKING
AK70	DIP-8	Tube 45pcs
AK70F	SMD-8	Tube 45pcs
AK70S	SOP-8	Tube 50pcs
AK70F-R1	SMD-8	Reel 1000pcs
AK70S-R1	SOP-8	

\* Package & PCB Layout Design, See Page 134

### Terminal Identification

#### AK70(F)(S)



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

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

Item		Symbol	Value	
Outline Package			AK70S	AK70(F)
			1a+1b Type	
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>	60V (AC peak or DC)	
	Load Current 負荷電流 (mA)	I <sub>L</sub>	350	380
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I <sub>PEAK</sub>	1000	1000
	Output Power Dissipation 輸出損耗 (mW)	P <sub>OUT</sub>	400	600
Total Power Dissipation 全損耗 (mW)		P <sub>T</sub>	450	650
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (V <sub>rms</sub> )		V <sub>I/O</sub>	1500	1500
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 )**

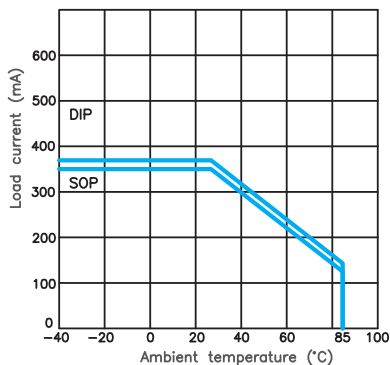
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V <sub>F</sub>	1.0	1.17	1.5	V	I <sub>F</sub> =10mA
	Operation LED Current LED 動作電流	I <sub>F ON</sub>		0.9	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V <sub>F OFF</sub>	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R <sub>ON</sub>		0.75	1.0	Ω	I <sub>F</sub> =5mA(NO) I <sub>F</sub> =0mA(NC),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(NO) 10(NC)	μA	I <sub>F</sub> =0mA(NO) I <sub>F</sub> =5mA(NC),V <sub>L</sub> =60V
	Output Capacitance 輸出端容量	C <sub>OUT</sub>		45(NO) 165(NC)		pF	I <sub>F</sub> =0mA(NO) I <sub>F</sub> =5mA(NC),f=1MHz
Transmission 傳達	Operate Time 動作時間	T <sub>ON</sub> (NO) T <sub>OFF</sub> (NC)		0.2(NO) 0.35(NC)	1.0	ms	I <sub>F</sub> =5mA, I <sub>L</sub> =Rating (for SOP type)
	Release Time 復位時間	T <sub>OFF</sub> (NO) T <sub>ON</sub> (NC)		0.05	0.5	ms	
	Operate Time 動作時間	T <sub>ON</sub> (NO) T <sub>OFF</sub> (NC)		0.2(NO) 0.25(NC)	1.0	ms	I <sub>F</sub> =10mA, I <sub>L</sub> =Rating (for DIP/SMD type)
	Release Time 復位時間	T <sub>OFF</sub> (NO) T <sub>ON</sub> (NC)		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

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。

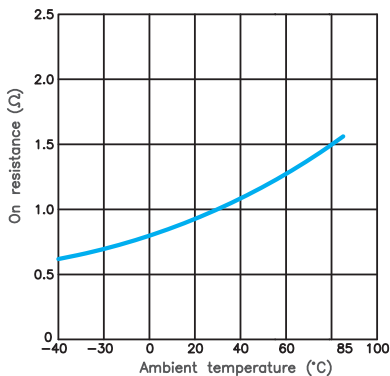
In the interest of continuous development, our companies reserve the right to alter designs within specification range.

General-Purpose

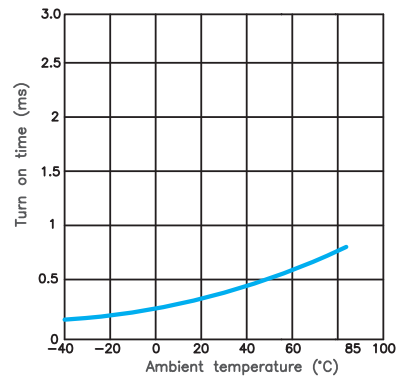
Load current Vs. Ambient temperature



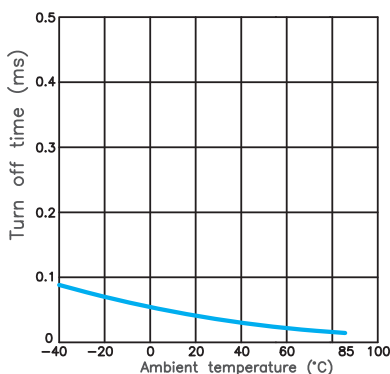
On resistance Vs. Ambient temperature



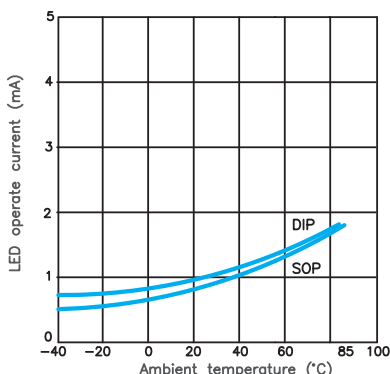
Turn on time Vs. Ambient temperature



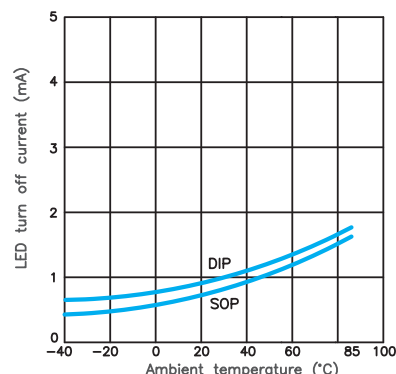
Turn off time Vs. Ambient temperature



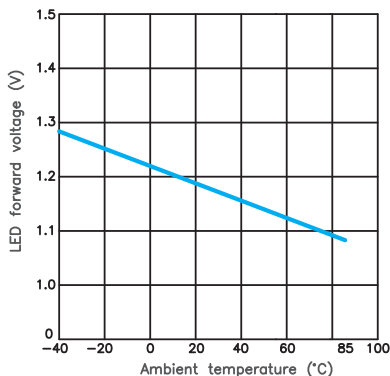
LED operate current Vs. Ambient temperature



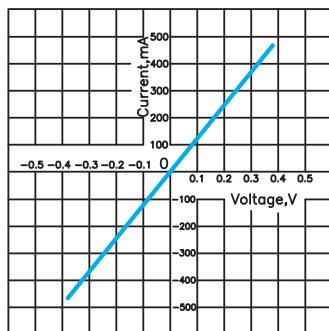
LED Turn off current Vs. Ambient temperature



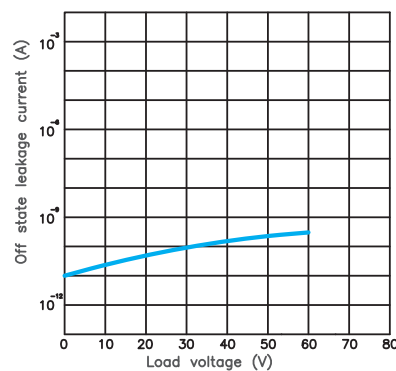
LED forward voltage Vs. Ambient temperature



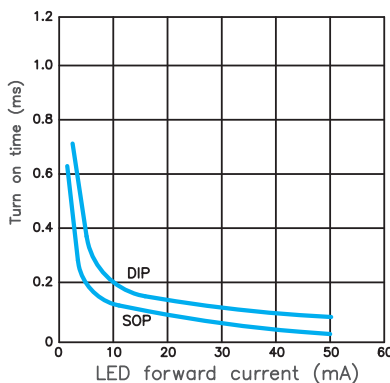
Voltage Vs. current characteristics of output at MOS portion



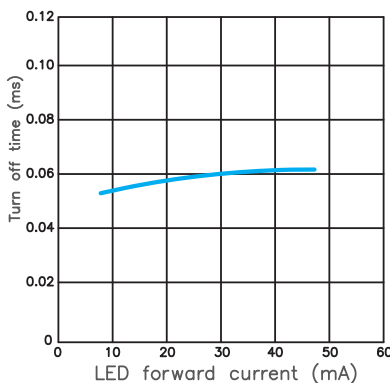
Off state leakage current



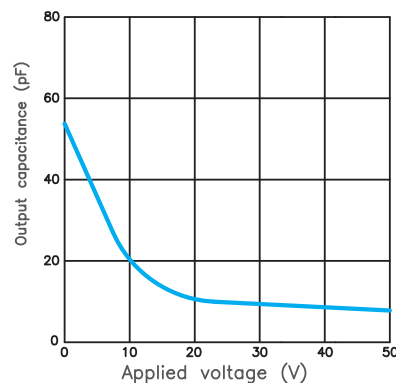
LED forward current Vs. turn on time characteristics



LED forward current Vs. turn off time characteristics



Applied voltage Vs. output capacitance characteristics

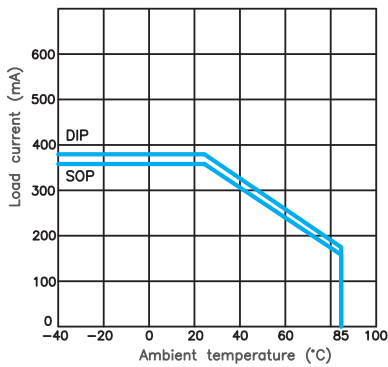


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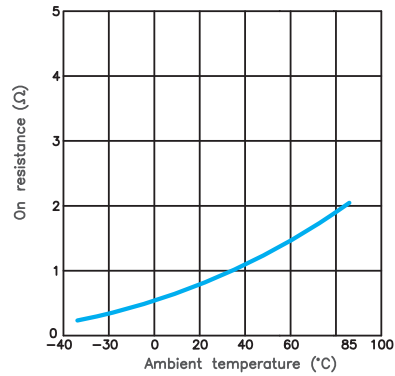
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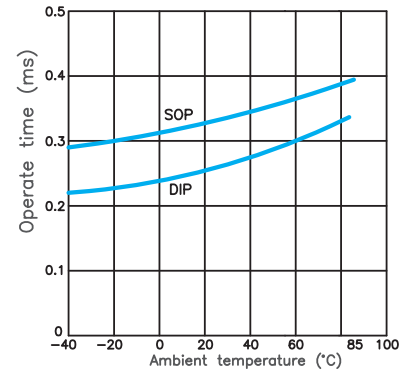
Load current Vs. Ambient temperature



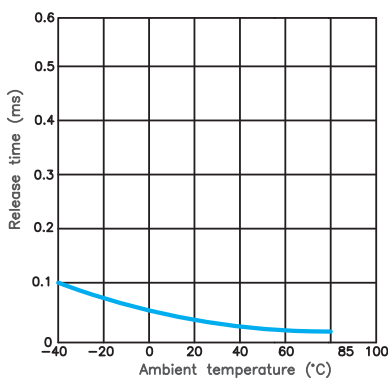
On resistance Vs. Ambient temperature



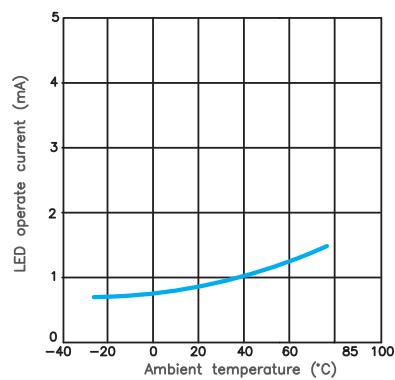
Operate time Vs. Ambient temperature



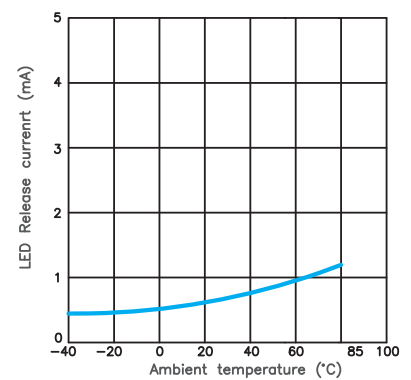
Release time Vs. Ambient temperature



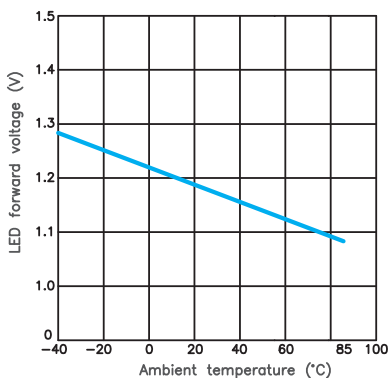
LED operate current Vs. Ambient temperature



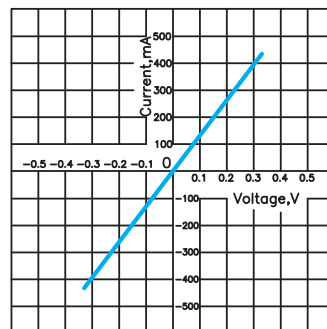
LED Release current Vs. Ambient temperature



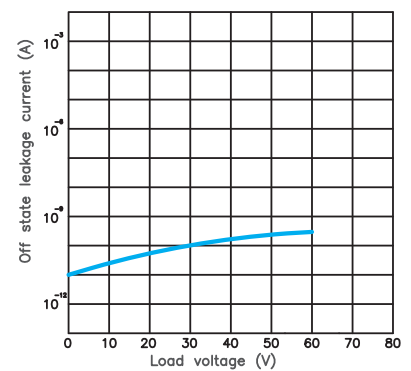
LED forward voltage Vs. Ambient temperature



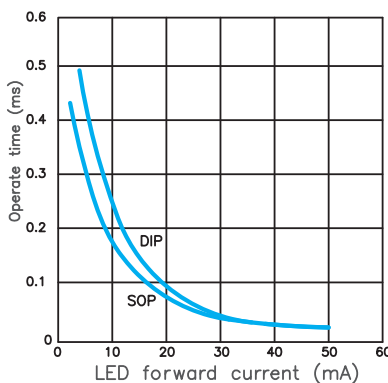
Voltage Vs. current characteristics of output at MOS portion



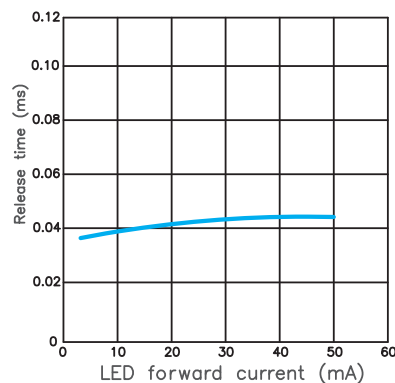
Off state leakage current



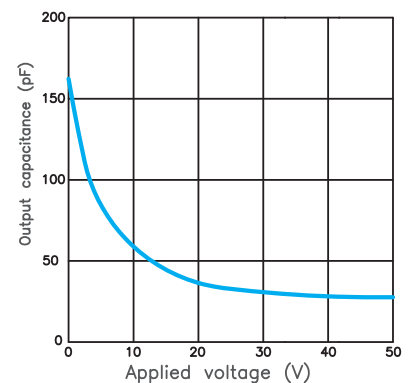
LED forward current Vs. operate time characteristics



LED forward current Vs. release 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 &amp; PC Board Pattern

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

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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

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