



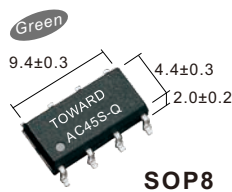
# THE DATASHEET OF AC45S-Q-R1



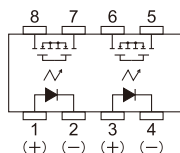
# AC45S-Q

60V • 2 Form A

AEC-Q101  
Certification



SOP8



RoHS compliant

### Features

- Contact Form 2a
- Load Voltage 60 V Max.
- Operation LED Current 3mA Max.
- Load Current 200mA Max.
- On-Resistance 2Ω Typ.
- Output Capacitance 20 pF Typ.

### Application:

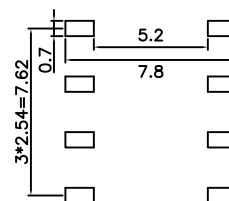
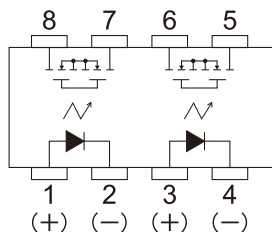
- Automobile BMS Controller
- Energy Storage System Big-
- data storage

### Part Identification

SOP Type		Quantity
Stick	Tape & Reel	Stick 50
	Feed direction : Pin No. 5,6,7,8	Tape 1000
AC45S-Q	AC45S-Q-R1	

### Terminal Identification 電路結構圖

#### Terminal Identification



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

\* Recommended Soldering Pattern  
For Reflow Soldering

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

Item		Symbol	Value
Input 輸入	Continuous LED Current 連續的LED電流	I <sub>F</sub>	50mA
	Peak LED Current LED的峰值電流 (f=100 Hz duty=1%)	I <sub>FP</sub>	500mA
	LED Reverse Voltage 逆向的LED電壓	V <sub>R</sub>	5V
	Input Power Dissipation 容許損失	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	I <sub>L</sub>	200mA(1ch) 160mA(2ch)
	Peak Load Current 峰值負荷電流(1 ms,1 shot)	I <sub>Peak</sub>	600mA
	Output Power Dissipation 電流損耗	P <sub>Out</sub>	300mW(1ch) 450mW(2ch)
Total Power Dissipation 全損耗		P <sub>T</sub>	350mW(1ch) 500mW(2ch)
I/O Breakdown Voltage 入/出力間絕緣電壓		V <sub>I/O</sub>	1500Vrms Min.
Operating Temperature 使用時周圍溫度 *		T <sub>Opr</sub>	-40°C ~ +105°C
Storage Temperature 周圍保存溫度 *		T <sub>Stg</sub>	-40°C ~ +125°C

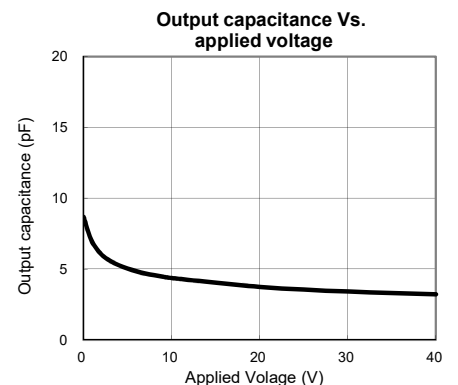
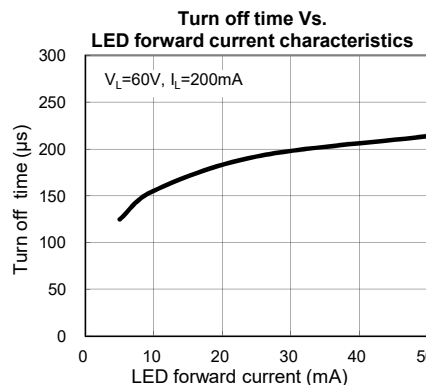
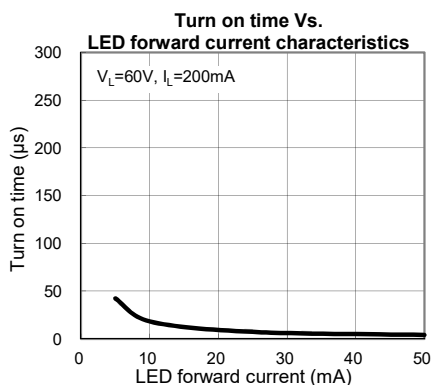
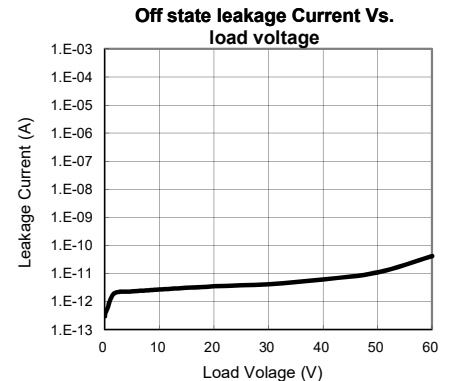
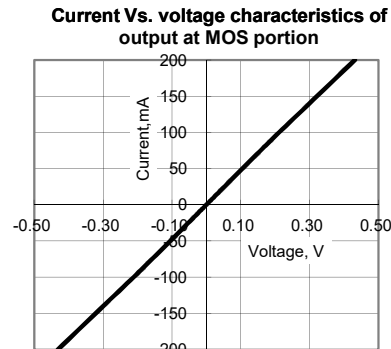
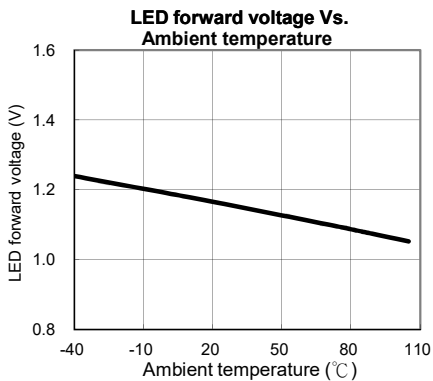
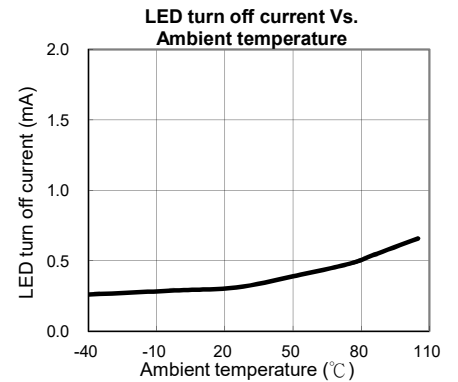
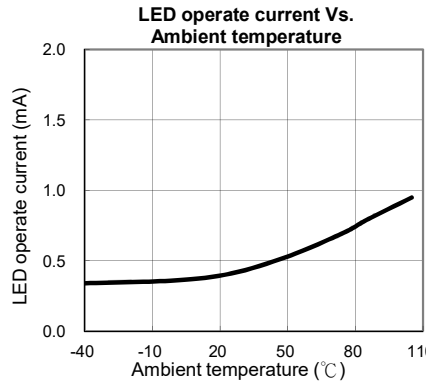
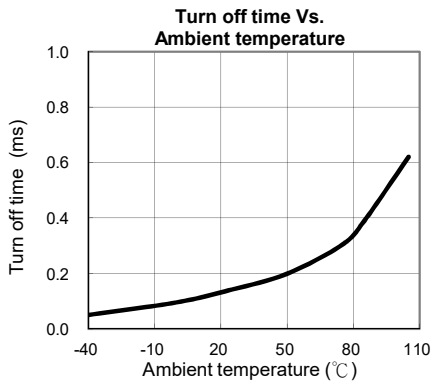
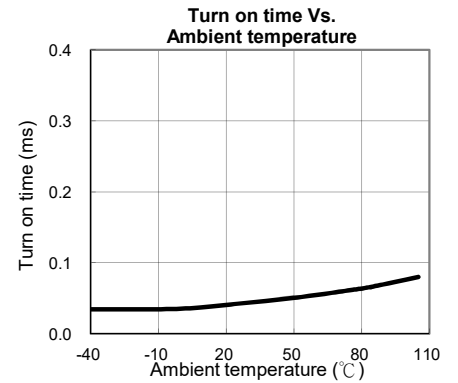
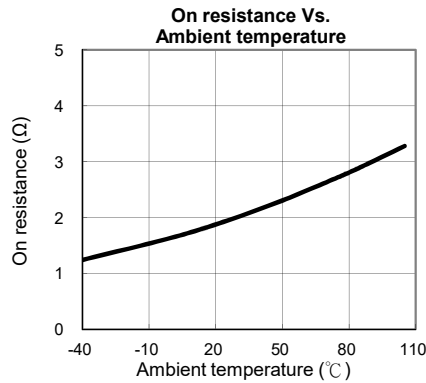
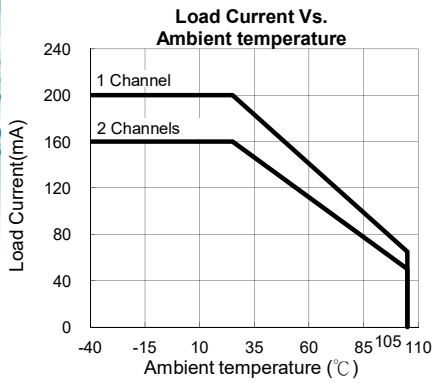
\* The temperature is based on AEC-Q101 certification.

## Recommended Operating Condition 建議使用條件 (Ambient Temperature 周圍溫度: 25°C)

Item	Symbol	Number of used channels	MIN.	TYP.	MAX.	units
Continuous LED Current 連續的 LED電流	I <sub>F</sub>		5	10	15	m A
Load Voltage 負荷電壓	V <sub>L</sub>		---	---	30	V
Load Current 負荷電流	I <sub>L</sub>	1 ch	---	---	100	m A
		2 ch	---	---	80	

## Electrical Specifications LED順向電壓(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>	0.9	1.17	1.3	V	I <sub>F</sub> =10mA
	Operation LED Current LED的動作電流	I <sub>F On</sub>		0.5	3	mA	
	Recovery LED Voltage LED的恢復電壓	V <sub>F Off</sub>	0.5	1		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R <sub>On</sub>		2	5	Ω	I <sub>F</sub> =5mA, I <sub>L</sub> = Rated Current Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態時的電流	I <sub>Leak</sub>			1	uA	V <sub>L</sub> =60V
	Output Capacitance 輸出端容量	C <sub>Out</sub>		20		pF	V <sub>L</sub> =0V, f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T <sub>On</sub>		0.05	0.5	ms	I <sub>F</sub> =5mA I <sub>L</sub> =Rated Current
	Turn-Off Time 復位時間	T <sub>Off</sub>		0.13	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入/出間的絕緣阻抗	R <sub>I/O</sub>	10 <sup>9</sup>			Ω	
	I/O Capacitance 輸入/力端的靜電容量	C <sub>I/O</sub>		1.3		pF	f=1MHz



PhotoDMOS-FET Relay  
General-Purpose

## AEC-Q101 Test Report

Station	Test Item		Test Condition	Sample Size	Result
1	External Visual	EV	Reference JESD22 B-101	616 ea	PASS
2	High Temperature Reverse Bias	HTRB	125C, total :1000H, Readout: 1000hr	77ea*3 lot (Total 231 ea)	PASS
3	High Temperature Gate Bias	HTGB	125C, total :1000H, Readout: 1000hr	77ea*3 lot (Total 231 ea)	PASS
					PASS
4	PC	Bake	MSL_3 : 125°C, 24hrs	616 ea	PASS
		Soak	MSL_3 : 60°C , 60%RH, 192hrs		PASS
		Reflow	MSL_3 : 260°C , 3 times		PASS
5	Temperature Cycling	TC	-55~125C/15min 30min/cyc 1000 cycles Reference JESD22 A-104, Readout: 500cyc	77ea*3 lot (Total 231 ea)	PASS
6	TC Delamination Test	TCDT	After TCT 100% C-SAM	77ea*3 lot (Total 231 ea)	PASS
7	Autoclave	AC	96 hours, TA = 121°C, RH = 100%, 15psig.	77ea*3 lot (Total 231 ea)	PASS
8	High Humidity High Temp. Reverse Bias	H <sup>3</sup> TRB	1000 hours at TA = 85°C/85% RH with part reverse biased at 80% of rated breakdown voltage up to a maximum of 100V or limit of chamber. Readout: 1000hr	77ea*3 lot (Total 231 ea)	PASS
9	Power and Temperature Cycle	PTC	Reference JESD22 A-105 TCT : -40~125/10min, 750cyc ; 5min on/5min off 6000cys	77ea*3 lot (Total 231 ea)	PASS
10	D.P.A.	DPA	Random sample of parts that have successfully completed H3TRB or HAST, and TC.	2ea*2 lots	PASS
11	ESD	HBM	>2000V level per pins *Reference AEC Q101-001	30ea *1 lot	PASS
	ESD	CDM	*Reference AEC Q101-005	30ea *1 lo	PASS
12	Resistance to Solder Heat	RSH	270°C± 5°C +2/-0 seconds *Reference JESD22 B-106	30ea *1 lot	PASS
13	Die shear	DS	MIL-750-2017	5ea*1 lot	PASS

## Looking for pricing, stock, or lifecycle information?

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- [Bright Toward Industrial Co., Ltd. Information](#)

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