



# THE DATASHEET OF AC38S-Q

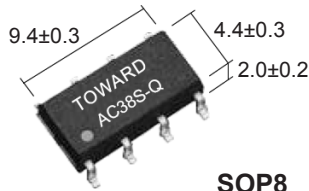


**Part Number: AC38S-Q**  
**AEC-Q101 Certified - 2 Form A - PhotoDMOS Relays**  
**Product Data Sheet**

**AEC-Q101**

**600 VOLTS**

**PICTURE**



**SOP8**

Drawings not to scale.  
 All dimensions in mm nominal. Pitch: 2.54 mm

**✓RoHS Compliant**

**FEATURES**

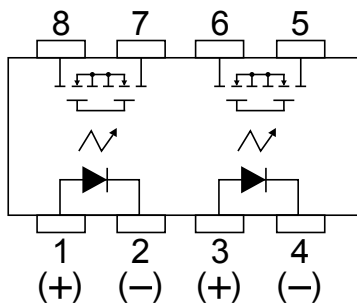
- **TOWARD** PhotoDMOS Relays
- AEC-Q101 Certification for Automotive Applications
- 600 Volt, 70 mA
- On-Resistance 40 Ω (Typical)
- I/O Breakdown Voltage: SOP 1500 Vrms Min.
- Max LED Current 3.0 mA
- Tape and Reel, add R1 (Example: AC38S-Q-R1)

**PART IDENTIFICATION**

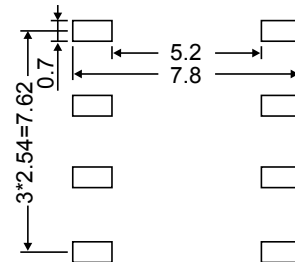
	SOP TYPE	QUANTITY
AC38S-Q	Tape & Reel	Tube 50
	Feed direction: Pin No. 5, 6, 7, 8	Tape 1000
	AC38S-Q-R1	

**CIRCUIT DIAGRAM**

(TOP VIEW)



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



• Recommended Soldering Pattern  
 For Reflow Soldering

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 All dimensions in mm nominal.

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Rev: 0 - Date: Aug/18/2016 - Signature: BR

An ISO 9001 Certified Company

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**AEC-Q101**
**600 VOLTS**

ABSOLUTE MAXIMUM RATINGS			AMBIENT TEMPERATURE: 25°C
ITEM	SYMBOL	VALUE	
Input	Continuous LED Current	$I_F$	50 mA
	Peak LED Current	$I_{FP}$	500 mA
	LED Reverse Voltage	$V_R$	5 V
	Input Power Dissipation	$P_{in}$	75 mW
Output	Load Voltage	$V_L$	600 V (AC peak or DC)
	Load Current	$I_L$	70 mA (1Ch) 60 mA (2Ch)
	Peak Load Current (1 ms, 1 shot)	$I_{Peak}$	200 mA
	Output Power Dissipation	$P_{Out}$	300 mW (1Ch) 450 mW (2Ch)
Total Power Dissipation	$P_T$	350 mW (1Ch) 500 mW (2Ch)	
I/O Breakdown Voltage	$V_{I/O}$	1500 Vrms Min	
Operating Temperature	$T_{Opr}$	-40°C ~ +105°C	
Storage Temperature	$T_{Stg}$	-40°C ~ +125°C	

ELECTRICAL SPECIFICATIONS				AMBIENT TEMPERATURE: 25°C			
ITEM	SYMBOL	MIN	TYP	MAX	UNITS	CONDITIONS	
Input	LED Forward Voltage	$V_F$	0.9	1.17	1.3	V	$I_F = 10 \text{ mA}$
	Operation LED Current	$I_{F On}$		1	5	mA	
	Recovery LED Voltage	$V_{F Off}$	0.5	1		V	
Output	On-Resistance Drain to Drain	$R_{On}$		40	60	$\Omega$	$I_F = 5 \text{ mA}$ , $I_L = \text{Rated Current}$ Time to flow is within 1 sec.
	Off-State Leakage Current	$I_{Leak}$			1	$\mu\text{A}$	$V_L = 600 \text{ V}$
	Output Capacitance	$C_{Out}$		47		pF	$V_L = 0 \text{ V}$ , $f = 1 \text{ MHz}$
Transmission	Turn-On Time	$T_{On}$		0.2	0.5	ms	$I_F = 5 \text{ mA}$
	Turn-Off Time	$T_{Off}$		0.08	0.2	ms	$I_L = \text{Rated Current}$
Coupled	I/O Insulation Resistance	$R_{I/O}$	$10^9$			$\Omega$	
	I/O Capacitance	$C_{I/O}$		1.3		pF	$f = 1 \text{ MHz}$

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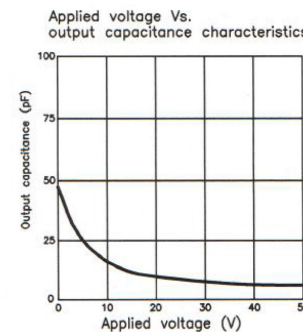
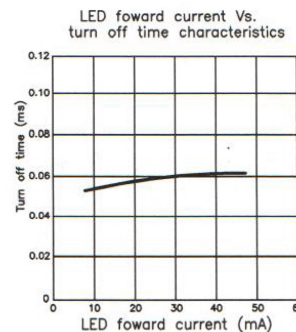
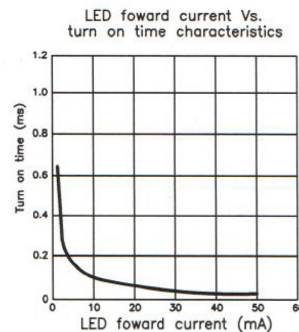
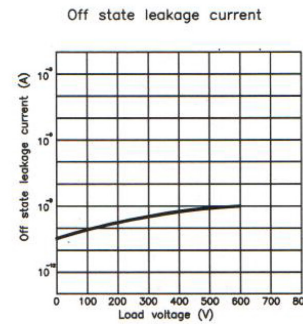
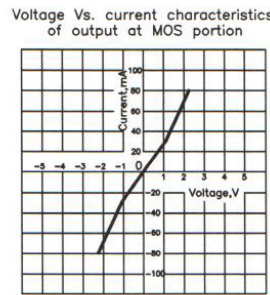
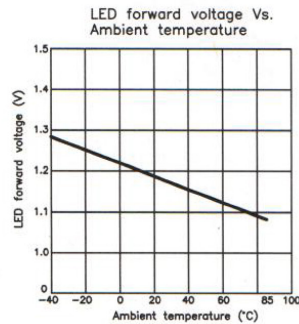
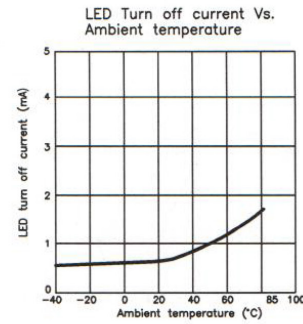
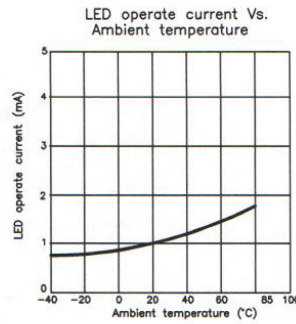
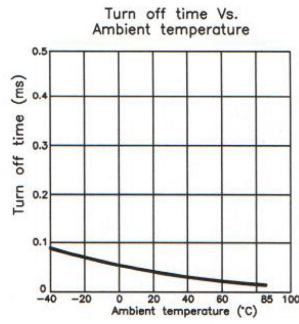
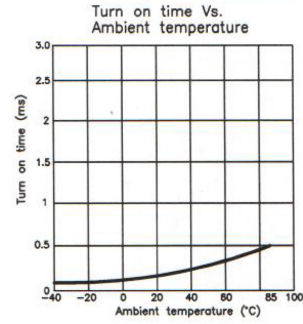
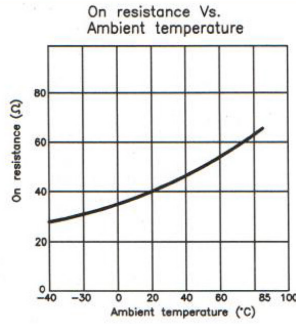
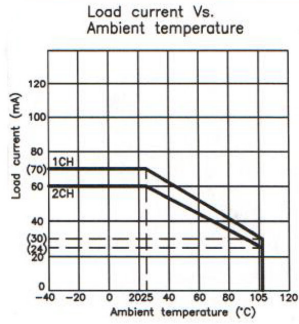
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**AEC-Q101**      **600 VOLTS**

**GRAPHS**



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