1 Description

The C236S-HT series is a miniature 1-Form A solid state relay in a 4-pin SOP package that employs optically coupled MOSFET technology to provide 1500V of input to output isolation. The optically coupled input is controlled by a highly efficient GaALAs infared LED and MOSFETs on the output side.
Operating Temperature: -40 ~ +105 350mA Max.

Device Information

Part Series	Package	Body Size (mm)
C236S-HT	SOP	4.4 x 4.3 x 2.0

Device Package

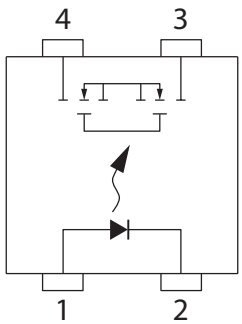
2 Features

- SOP package 4 Pin type in miniature design (4.4 x 4.3 x 2.0 mm / .173 x .169 x .083 inches)
- Low driver power requirements (TTL/CMOS Compatible)
- No moving parts
- High reliability
- Arc-Free with no snubbing circuits
- 1500 Vrms Input/Output isolation
- UL No. FPQU2.E351594 approved
- Tape & Reel version approved

3 Applications

- Telecommunications (PC, electronic notepad)
- Measuring and Testing equipment
- Industrial control
- Security equipment
- High speed inspection machines

4 Schematic

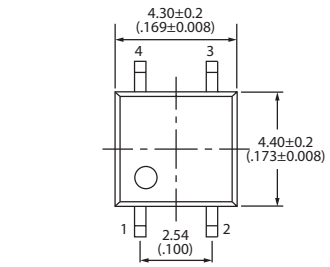


1. LED Anode
2. LED Cathode
3, 4. Drain (MOS FET)

5 Device Package Details

5.1 Outside Dimensions

Millimeters (Inches)

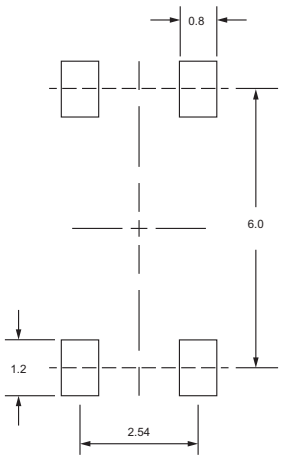


5.2 Device Marking

Notes:
YWW = Y: Year code / W: Week code

5.3 Recommended Mounting Pad

Units: Millimeters / Tolerance: ±0.1



6 Specifications

6.1 Absolute Maximum Ratings

Parameters		Symbol	Rating	Unit
Input	Continuous LED Current	I_F	50	mA
	Peak LED Current (f=100 Hz, duty=1%)	I_{FP}	1000	mA
	LED Reverse Voltage	V_R	5	V
	Input Power Dissipation	P_{In}	75	mW
Output	Load Voltage	V_L	60	V (AC peak or DC)
	Load Current	I_L	350	mA
	Peak Load Current (100 ms; 1 pulse)	I_{Peak}	4.0	A
	Output Power Dissipation	P_{out}	350	mW
Total Power Dissipation		P_T	400	mW
I/O Breakdown Voltage (RH=60%, 1 min)		$V_{I/O}$	1500	Vrms
Operating Temperature		T_{opr}	-40 to +105	°C
Storage Temperature		T_{stg}	-40 to +105	°C
Pin Soldering Temperature (10 sec. max)		T_{sol}	260	°C

6.2 Electro-Optical Characteristics

Parameters		Symbol	Conditions	Min.	Typ.	Max.	Unit
Input	LED Forward Voltage	V_F	I_F=10mA		1.2	1.4	V
	Operation LED Current	$I_{F\,ON}$			0.5	2.0	mA
	Recovery LED Current	$I_{F\,OFF}$			0.35	0.5	mA
	Recovery LED Current	V_{FOFF}		0.7			V
Output	On-Resistance	R_{on}	I_F=5mA, I_L=100mA Time to flow is within 1 sec.		0.13	0.5	Ω
	Off-State Leakage Current	I_{LEAK}	V_L=Rating			1.0	μA
	Output Capacitance	C_{out}				115	pF
Trans-mission	Turn-On Time	T_{ON}	I_F=5mA, I_L=100mA		1.0	1.3	ms
	Turn-Off Time	T_{OFF}			0.6	0.8	ms
Coupled	I/O Isolation Resistance	$R_{I/O}$	DC500V	10^{10}			Ω
	I/O Capacitance	$C_{I/O}$	f=1MHz		0.8	1.5	pF

Notes:
Ta=25°C

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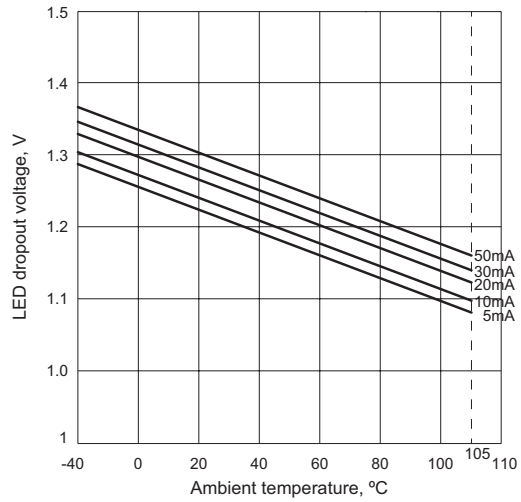
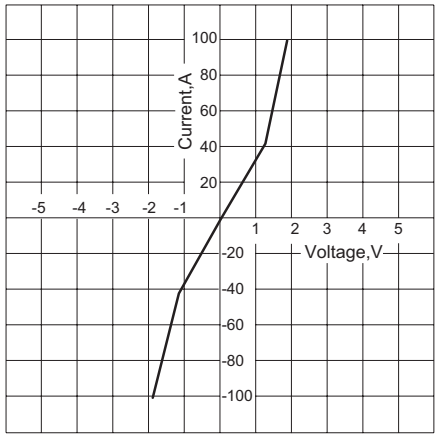
7 C208S Series Graphs

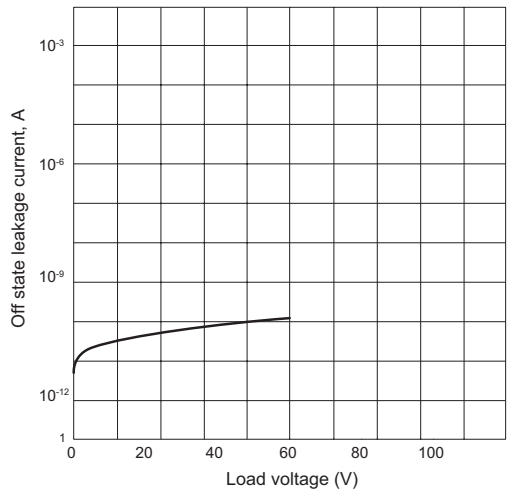
LED Forward Voltage Vs. Ambient Temperature



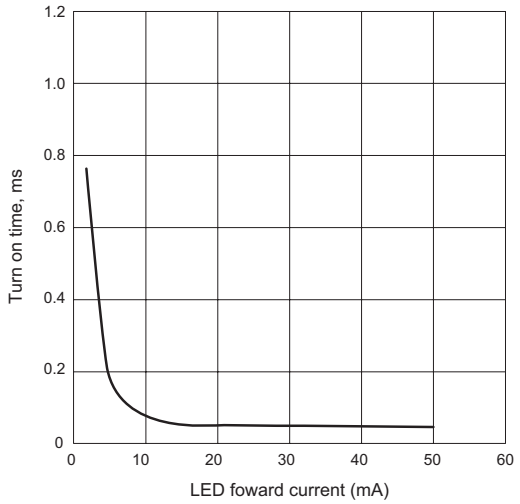
Voltage Vs. Current Characteristics of Output at MOSFET Portion



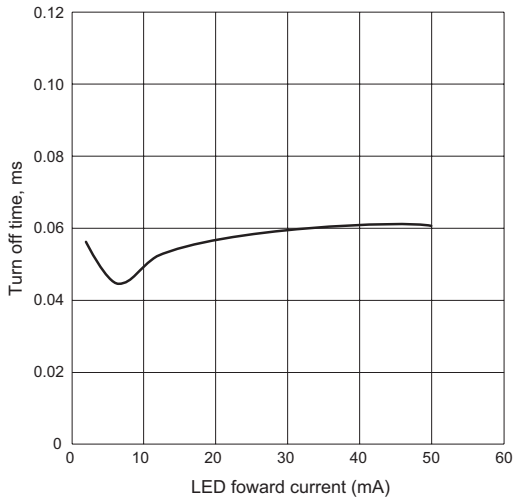
Off-State Leakage Current Vs. Load Voltage



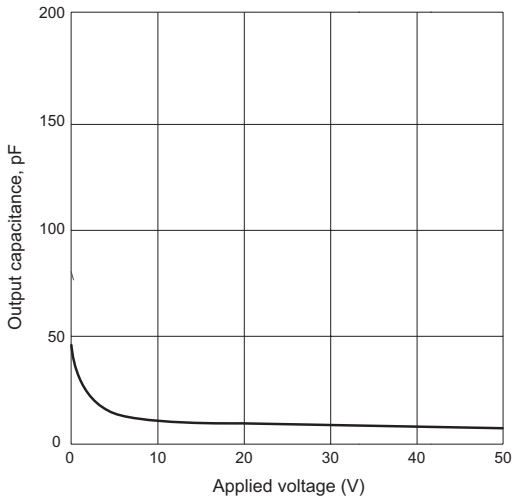
LED Forward Current Vs. Turn-On Time Characteristics



LED Forward Current Vs. Turn-Off Time Characteristics

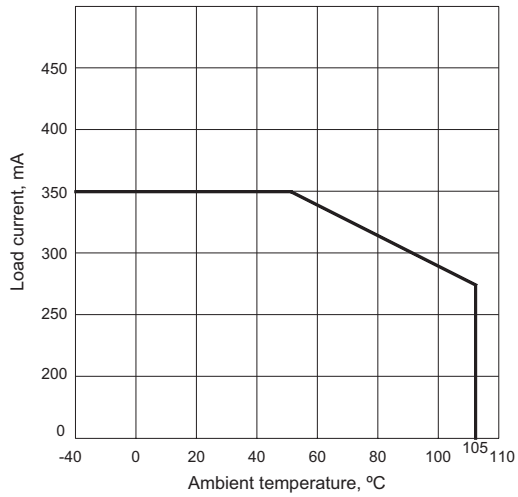


Applied Voltage Vs. Output Capacitance Characteristics

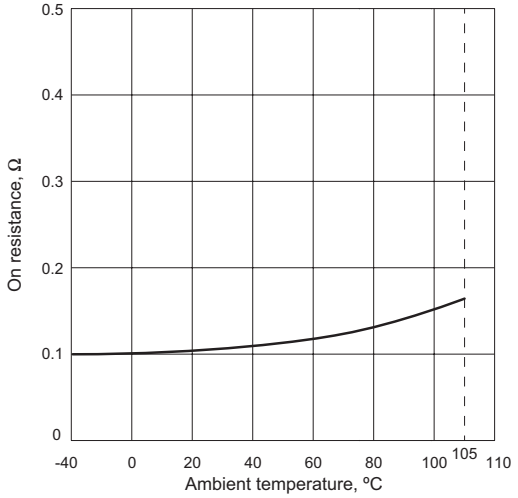


7 C236S-HT Series Graphs

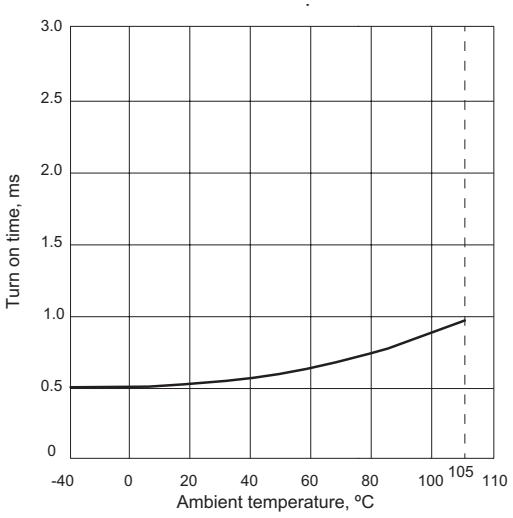
Load Current Vs. Ambient Temperature



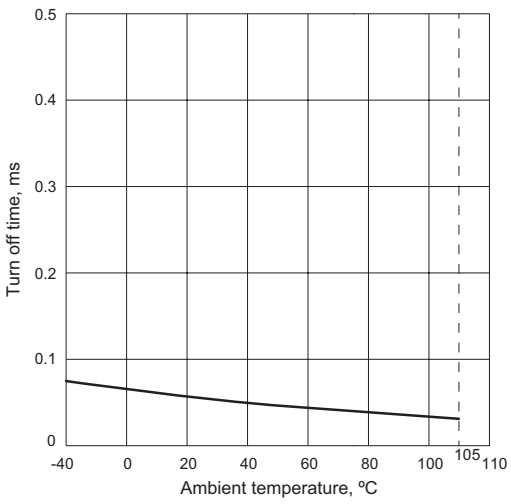
On-Resistance Vs. Ambient Temperature



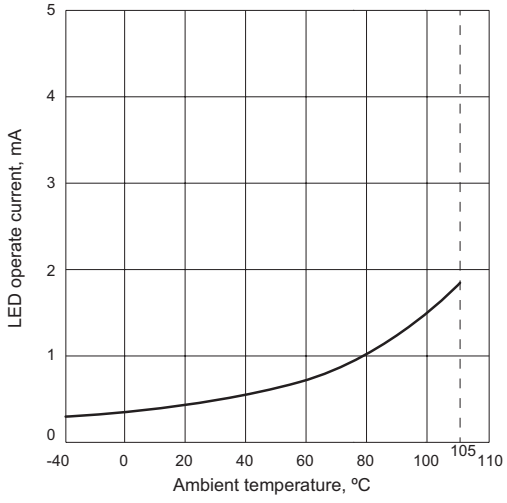
Turn-On Time Vs. Ambient Temperature



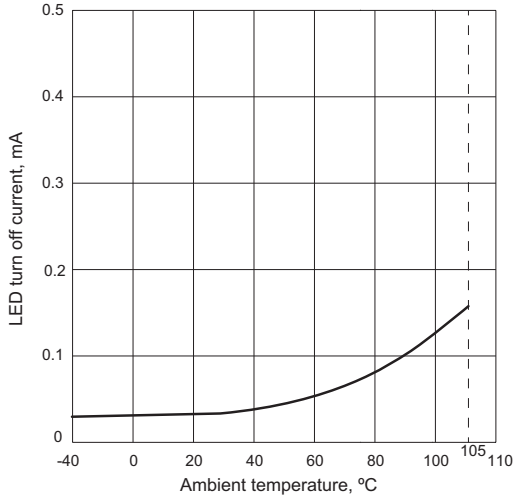
Turn-Off Time Vs. Ambient Temperature



LED Operate Current Vs. Ambient Temperature



LED Turn-Off Current Vs. Ambient Temperature



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8 Recommended Soldering Conditions

Infrared Reflow Soldering

- Peak reflow soldering: 260°C or below (package surface temperature)
- Time of peak reflow temperature: 10 seconds
- Time of temperature higher than 230°C: 30-60 seconds
- Time to preheat temperature from 180~190°C: 60-120 seconds
- Number of reflows: Two
- Flux: Rosin flux containing small amount of chlorine
  (The flux with a maximum chlorine content of 0.2 Wt% is recommended.)