KLY0605S

The KLY0605S 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 infrared LED and MOSFETs on the output side.

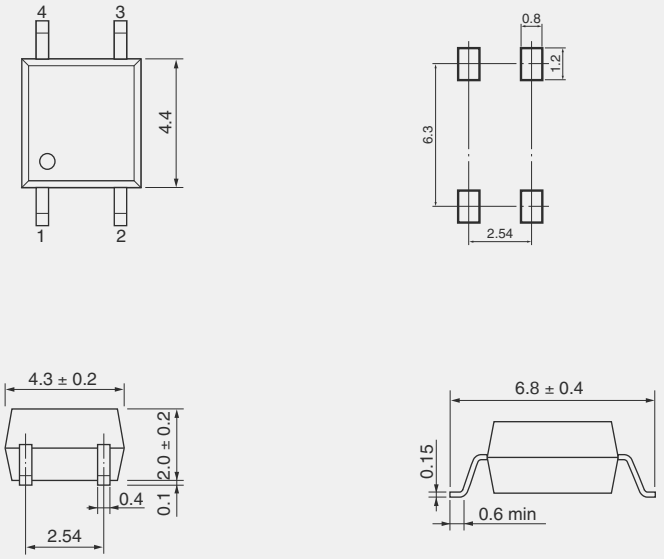
Features

- SOP package 4 Pin type in miniature design (4.4×4.3×2.0mm)
- Low driver power requirements (TTL/CMOS Compatible)
- No moving parts
- High reliability
- Arc-Free with no snubbing circuits
- 1500Vrms Input/Output isolation
- Tape & Reel version available

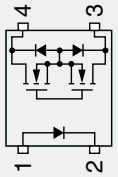
Applications

- Telecommunications (PC, Electronic notepad)
- Measuring and Testing equipment
- Industrial control
- Security equipments
- High speed inspection machine

DIMENSIONS in Inches (Millimeters)



TERMINAL IDENTIFICATION



1: Anode (LED) 3,4: Drain (MOSFET)
2: Cathode (LED)

(Load voltage: 60V / Load current: 500mA)

Absolute Maximum Ratings (Ambient Temperature: 25℃)

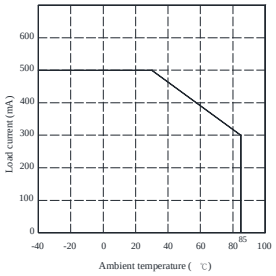
Item		Symbol	Value	Units	Note
Input	Continuous LED Current	I_F	50	mA	
	Peak LED Current	I_{FP}	1000	mA	f=100Hz, duty=1%
	LED Reverse Voltage	V_R	5	V	
	Input Power Dissipation	P_{In}	75	mW	
Output	Load Voltage	V_L	60	V(AC peak or DC)	
	Load Current	I_L	500	mA	
	Peak Load Current	I_{Peak}	1.5	A	100ms(1 pulse)
	Output Power Dissipation	P_{out}	450	mW	
Total Power Dissipation		P_T	500	mW	
I/O Breakdown Voltage		$V_{I/O}$	1500	Vrms	RH=60%, 1min
Operating Temperature		T_{opr}	-40 to +85	℃	
Storage Temperature		T_{stg}	-40 to +100	℃	
Pin Soldering Temperature		T_{sol}	260	℃	10 sec max.

Electrical Specifications (Ambient Temperature: 25℃)

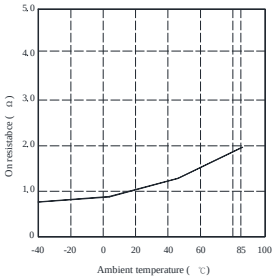
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input	LED Forward Voltage	V_F		1.2	1.4	V	I_F=10mA
	Operation LED Current	I_{Fon}		0.8	2.0	mA	
	Recovery LED Current	I_{Foff}		0.35	0.5	mA	
	Recovery LED Voltage	V_{Foff}	0.7			V	
Output	On-Resistance	R_{on}		0.8	1.6	Ω	I_F=5mA,I_L=100mA, Time to flow is within 1 sec.
	Off-State Leakage Current	I_{Leak}			1.0	uA	V_L=Rating
	Output Capacitance	C_{out}		28		pF	V_L=0, f=1MHz
Transmission	Turn-On Time	T_{on}		0.35	0.5	ms	I_F=5mA, I_L=100mA,
	Turn-Off Time	T_{off}		0.1	0.3	ms	
Coupled	I/O Isolation Resistance	$R_{I/O}$	10^{10}			Ω	DC500V
	I/O Capacitance	$C_{I/O}$		0.8	1.5	pF	f=1MHz

Reference Data

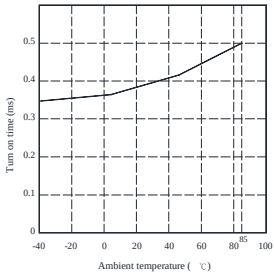
Load current Vs.
Ambient temperature



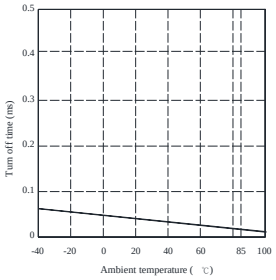
On resistance Vs.
Ambient temperature



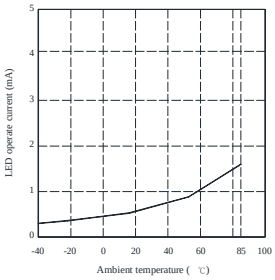
Turn on time Vs.
Ambient temperature



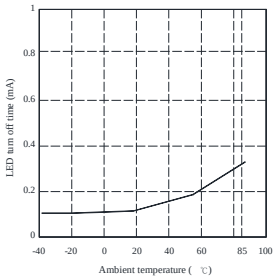
Turn off time Vs.
Ambient temperature



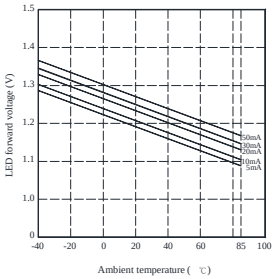
LED operate current Vs.
Ambient temperature



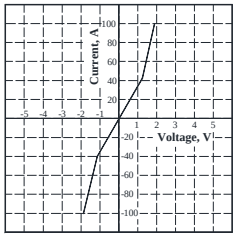
LED turn off current Vs.
Ambient temperature



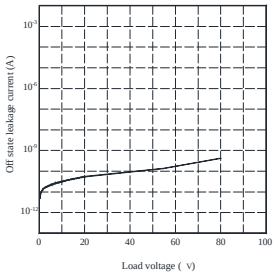
LED forward voltage Vs.
Ambient temperature



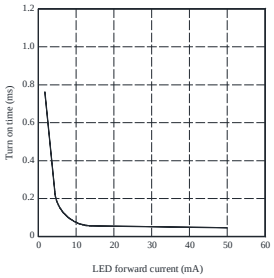
Voltage Vs. currennt characteristics
of output at MOS portion



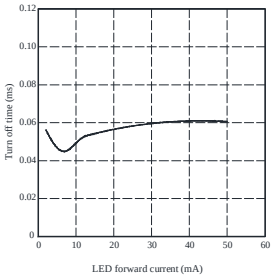
Off state leakage current Vs.
Load voltage characteristics



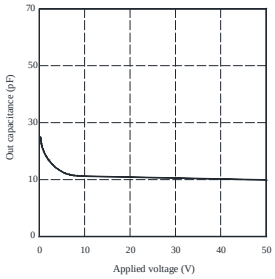
LED foward current Vs.
turn on time characteristics



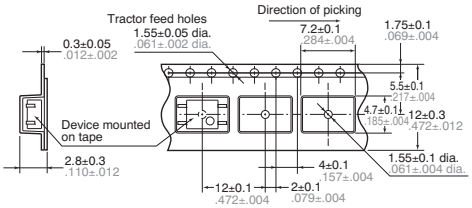
LED foward current Vs.
turn off time characteristics

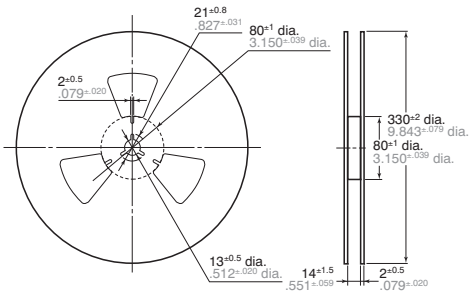


Applied voltage Vs.
output capacitance characteristics

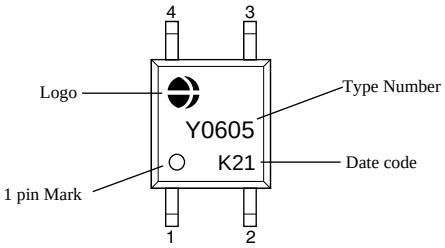


Tape & Reel Packing Specifications

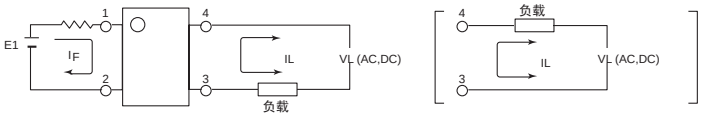




Device Marking

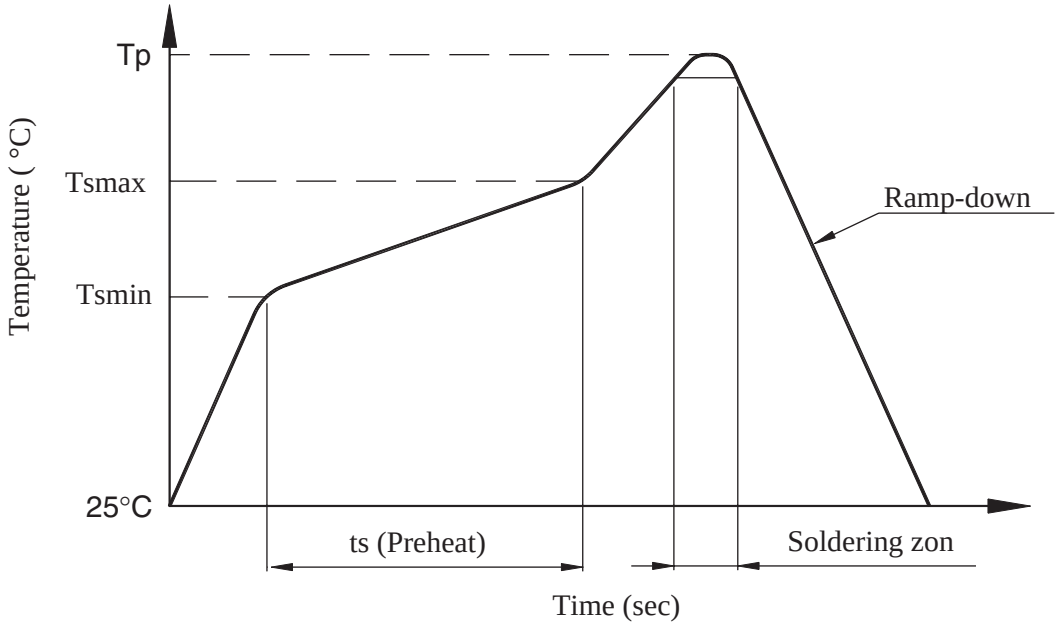


Schematic and Wiring Diagrams



Part No	Package	Tube	Tape and reel	Units/Box	Contact From
KLY0605S	SOP4	100pcs		2000pcs	
KLY0605S-TL	SOP4		2000pcs	2000pcs	Picked from 1/2-pin sid
KLY0605S-TR	SOP4		2000pcs	2000pcs	Picked from 3/4-pin sid

Lead Free recommended IR Reflow condition



Profile Feature	Pb-Sn solder assembly	Lead Free assembly
Preheat condition (Tsmin-Tsmax / ts)	100°C ~ 150°C 60 ~ 120 sec	150°C ~ 200°C 60 ~120 sec
Melt soldering zone	183°C 60 ~ 120 sec	217°C 30 ~ 90 sec
Peak temperature (Tp)	240 +0/-5°C	250 +0/-5°C
Ramp-down rate	6°C/sec max.	6°C/sec max.

Recommended Wave Soldering condition

Profile Feature	For all solder assembly
Peak temperature (Tp)	Max 260°C for 10 sec