Photo DMOS-FET Relay

Description

The **LU610** is a 1-Form B solid state relay in a 4 pin SMD package that employs optically coupled MOSFET technology to provide 3750V/5000V of input to output isolation. The optically coupled input is controlled by a highly efficient GaAlAs infrared LED and MOS FETs on the output side.

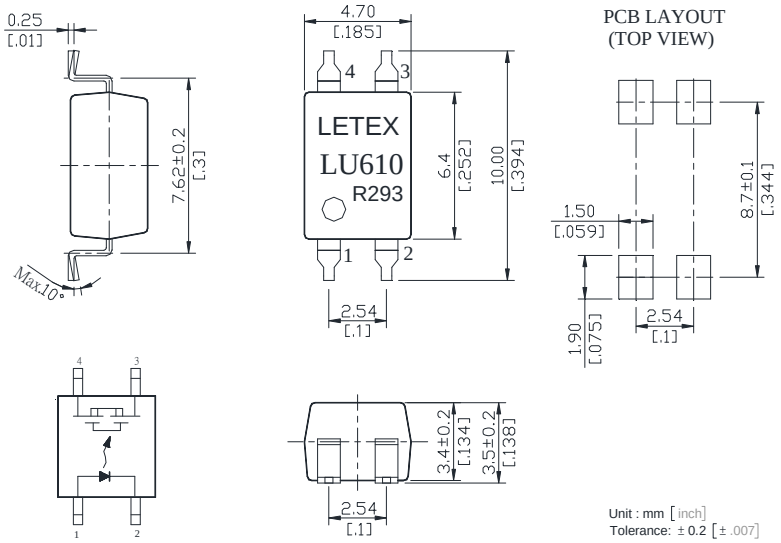
Features

- Low driver power requirements (TTL/CMOS Compatible)
- Contact form: Normally-On (1b)
- Load voltage: 400V max.
- On-Resistance: 50Ω max.
- 3750Vrms Input/Output isolation
- Tape & Reel version available

Applications

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

Outline Dimensions



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

Photo DMOS-FET Relay Specifications

Part Name: LU610

(Load voltage: 400V / Load current: 120mA)

Absolute Maximum Ratings (Ambient Temperature: 25℃)

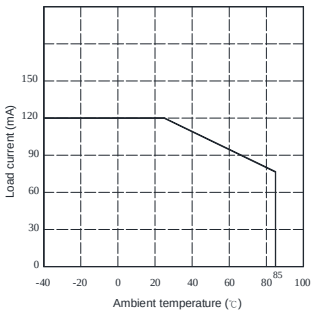
Item		Symbol	Value	Units	Note
Input	Continuous LED Current	I_F	50	mA	
	Peak LED Current	I_{FP}	1000	mA	f=100Hz, duty=1%
	LED Reverse Voltage	V_R	5	V	
	Input Power Dissipation	P_{In}	75	mW	
Output	Load Voltage	V_L	400	V(AC peak or DC)	
	Load Current	I_L	120	mA	
	Peak Load Current	I_{Peak}	0.3	A	1ms(1 pulse)
	Output Power Dissipation	P_{out}	500	mW	
Total Power Dissipation		P_T	550	mW	
I/O Breakdown Voltage		$V_{I/O}$	3750	Vrms	RH=60%, 1min
I/O Breakdown Voltage(Suffix-V)		VI/O	5000	Vrms	RH=60%, 1min
Operating Temperature		Topr	-40 to +85	℃	
Storage Temperature		Tstg	-40 to +100	℃	
Pin Soldering Temperature		Tsol	260	℃	10 sec max.

Electrical Specifications (Ambient Temperature: 25℃)

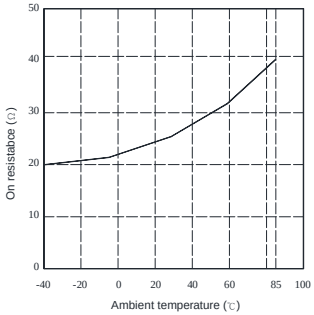
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input	LED Forward Voltage	V_F		1.2	1.5	V	IF=10mA
	Operation LED Current	IFon		0.5	5.0	mA	
	Recovery LED Current	IFoff		0.35	0.5	mA	
	Recovery LED Voltage	VFoff	0.5			V	
Output	On-Resistance	Ron		20	50	Ω	IF=0mA,IL=100mA, Time to flow is within 1 sec.
	Off-State Leakage Current	ILeak			10	uA	IF=5mA,VL=400V
	Output Capacitance	Cout		165		pF	IF=5mA,VL=0, f=1MHz
Transmission	Turn-On Time	Ton		0.02	1.0	ms	IF=10mA, IL=100mA
	Turn-Off Time	Toff		0.5	3.0	ms	
Coupled	I/O Isolation Resistance	$R_{I/O}$	10^{10}			Ω	DC500V
	I/O Capacitance	$C_{I/O}$		0.8		pF	f=1MHz

Reference Data

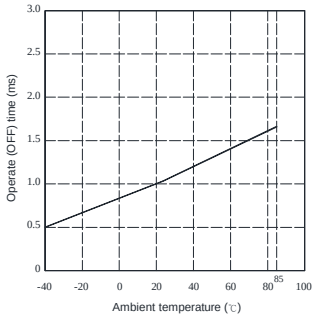
Load current Vs.
Ambient temperature



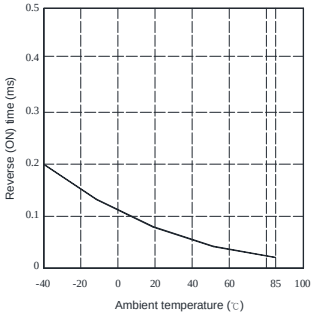
On resistance Vs.
Ambient temperature



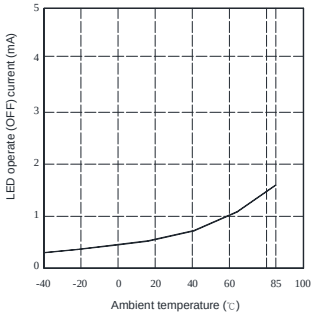
Operate (OFF) time Vs.
Ambient temperature



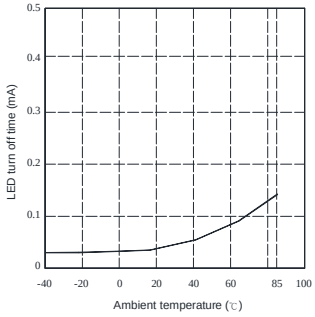
Reverse (ON) time Vs.
Ambient temperature



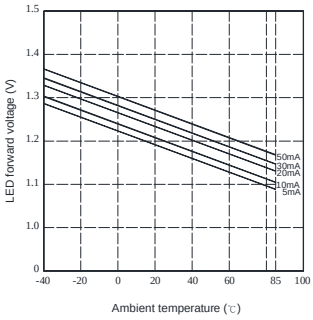
LED operate (OFF) current Vs.
Ambient temperature



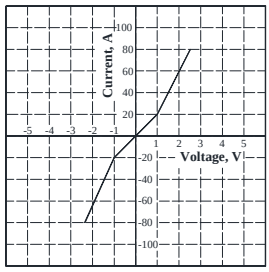
LED turn off current Vs.
Ambient temperature



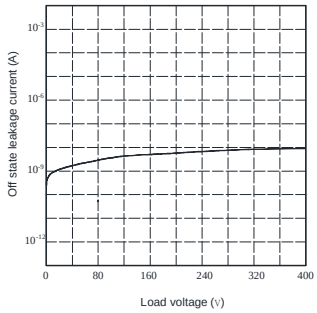
LED forward voltage Vs.
Ambient temperature



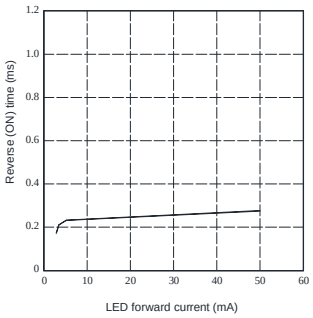
Voltage Vs. currennt characteristics
of output at MOS portion



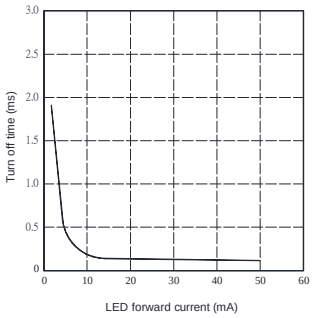
Off state leakage current Vs.
Load voltage characteristics



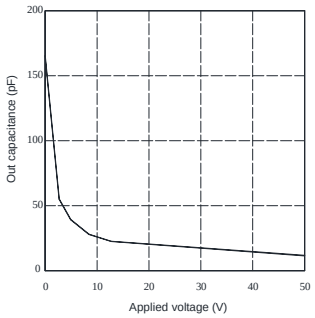
LED foward current Vs.
Reverse (ON) time characteristics



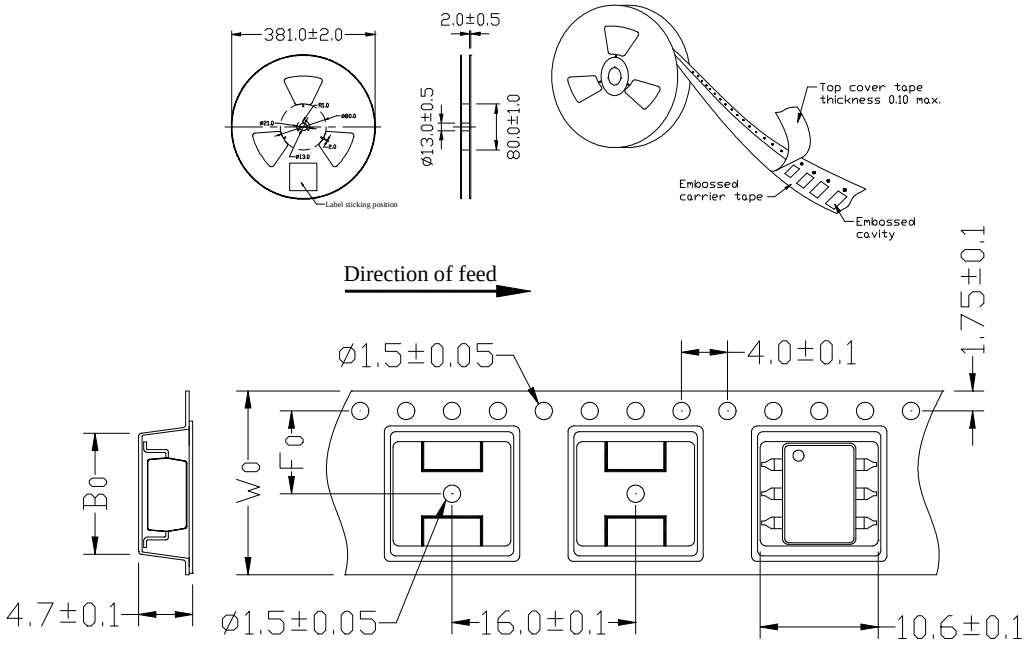
LED foward current Vs.
Operate (OFF) time characteristics



Applied voltage Vs.
output capacitance characteristics



Taping Specifications for Surface Mount Devices

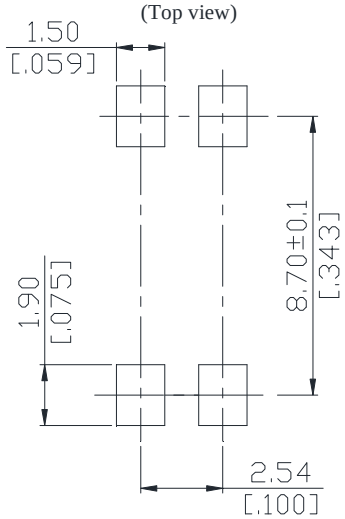


Unit: mm

TYPE	B0±0.1	F0±0.1	W0±0.1	15"REEL/PCS
4P	5.3	7.5	16	1000

Recommended Mounting Pad

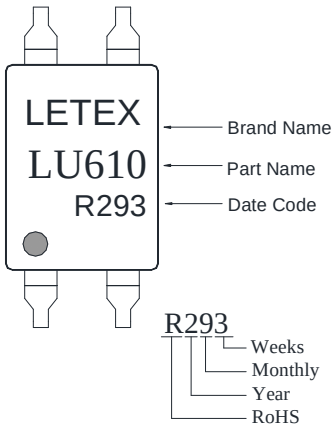
(Top view)



Unit : mm [inch]
Tolerance : ±0.1

Marking

(Each photo MOS Relay shall be marked with the following information)



Note: 1. There shall be leader of 230 mm minimum which may consist of carrier and or cover tape follower by a minimum of 160 mm of carrier tape sealed with cover tape.

2. There shall be a minimum of 160 mm of empty component pockets sealed with cover tape.

3. Devices are pockets in accordance with EIA standard EIA-481-A and specifications given above.