Photo DMOS-FET Relay

Description

The **LT618** is a 1-Form A solid state relay in an 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.
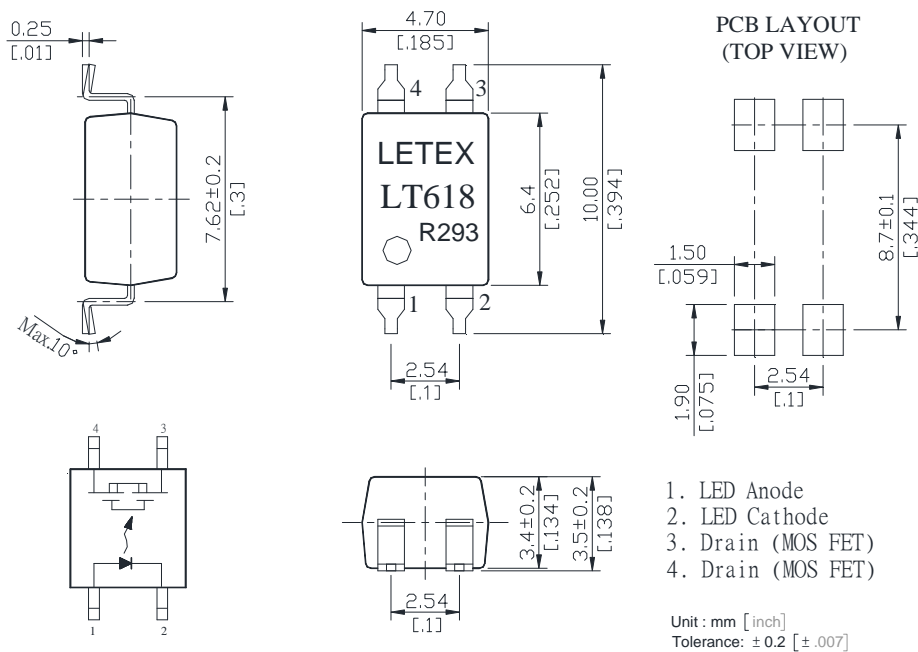
Features

- Low driver power requirements (TTL/CMOS Compatible)
- No moving parts
- High reliability
- Arc-Free with no snubbing circuits
- 3750/5000Vrms Input/Output isolation

Applications

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

Outline Dimensions

PCB LAYOUT
(TOP VIEW)

LETEX
LT618
R293

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

Unit : mm [inch]
Tolerance: ± 0.2 [± .007]

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Photo DMOS-FET Relay Specifications
Part Name: LT618

(Load voltage: 40V / Load current: 2.5A)
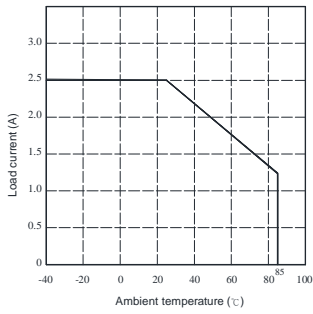
Absolute Maximum Ratings (Ambient Temperature: 25℃)

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	40	V(AC peak or DC)	
	Load Current	I_L	2.5	A	
	Peak Load Current	I_{Peak}	5.0	A	100ms(1 pulse)
	Output Power Dissipation	Pout	450	mW	
Total Power Dissipation		P_T	500	mW	
I/O Breakdown Voltage		$V_{I/O}$	3750	Vrms	RH=60%, 1min
I/O Breakdown Voltage(Suffix-V)		$V_{I/O}$	5000	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	1.5	V	I_F=10mA
	Operation LED Current	$I_{F On}$		0.5	5.0	mA	
	Recovery LED Current	$I_{F Off}$		0.35	0.5	mA	
	Recovery LED Voltage	$V_{F Off}$	0.5			V	
Output	On-Resistance	R_{On}		0.06	0.1	Ω	I_F=10mA,I_L=100mA, Time to flow is within 1 sec.
	Off-State Leakage Current	I_{Leak}			1	uA	V_L=Rating
	Output Capacitance	C_{Out}		100		pF	V_L=0, f=1MHz
Transmission	Turn-On Time	T_{On}		0.8	1.5	ms	I_F=10mA, I_L=100mA,
	Turn-Off Time	T_{Off}		0.02	0.5	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

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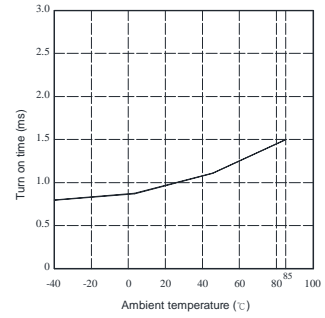
Reference Data

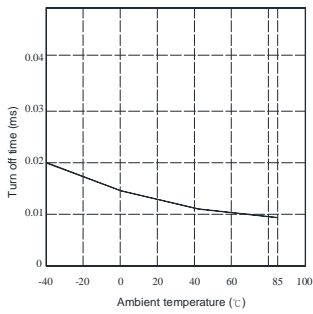### Load current Vs. Ambient temperature

On resistance Vs. Ambient temperature
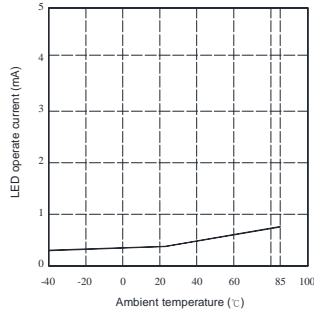

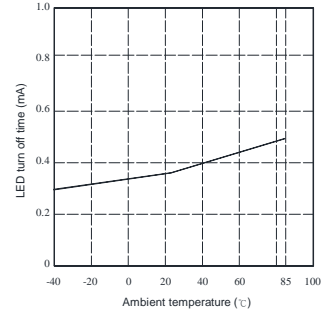### Turn on time Vs. Ambient temperature

Turn off time Vs. Ambient temperature
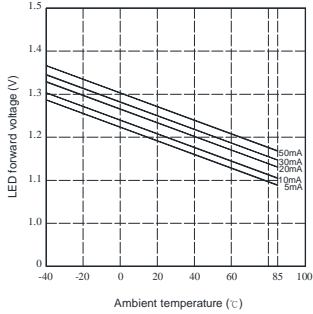

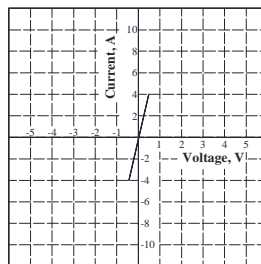### LED operate current Vs. Ambient temperature

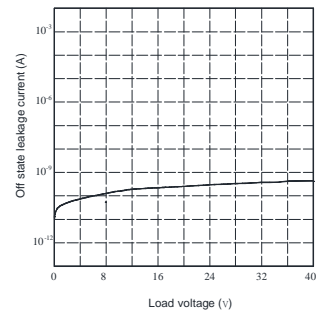### LED turn off current Vs. Ambient temperature

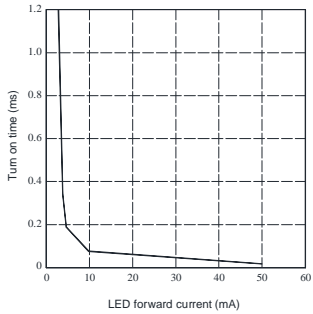### LED forward voltage Vs. Ambient temperature

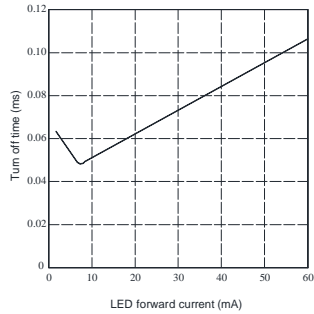### Voltage Vs. currennt characteristics of output at MOS portion

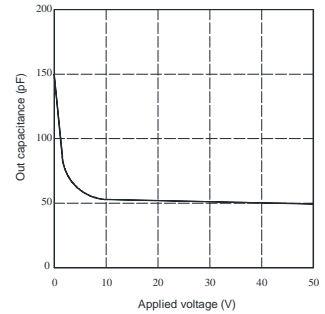### Off state leakage current Vs. Load voltage characteristics

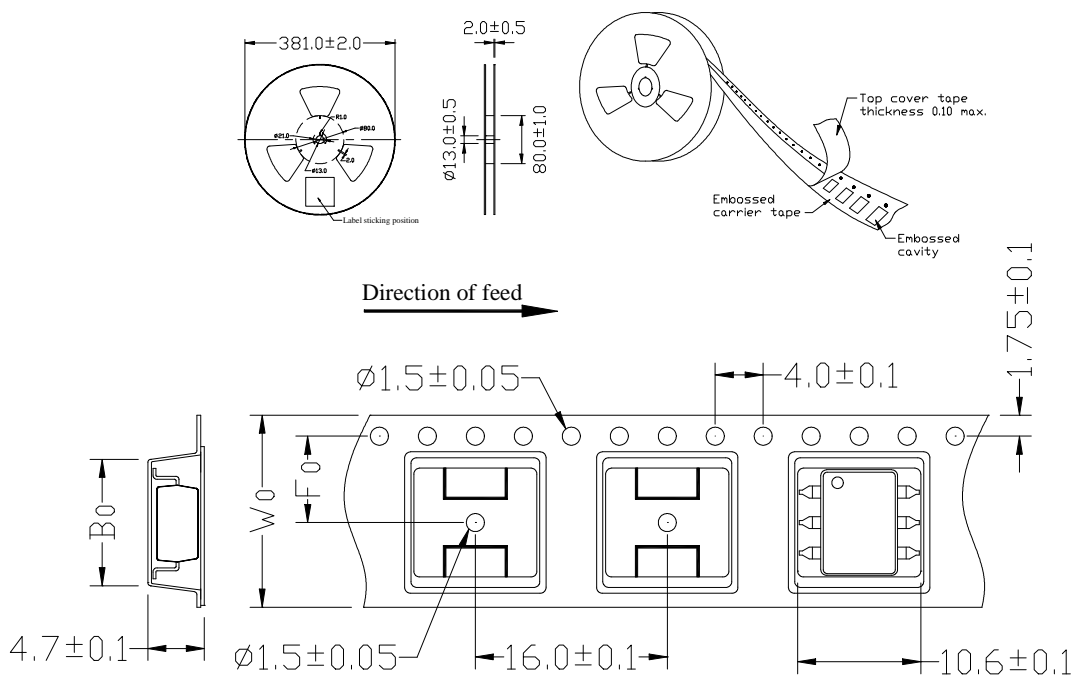### LED foward current Vs. turn on time characteristics

LED foward current Vs. turn off time characteristics

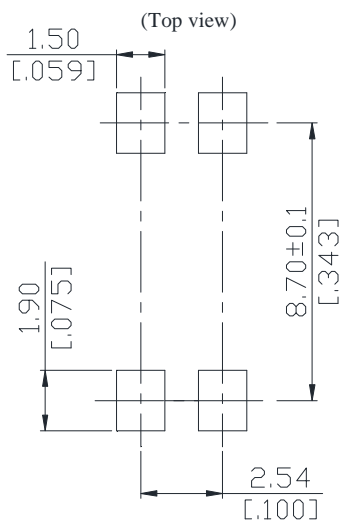### Applied voltage Vs. output capacitance characteristics

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Taping Specifications for Surface Mount Devices

Direction of feed

Unit: mm

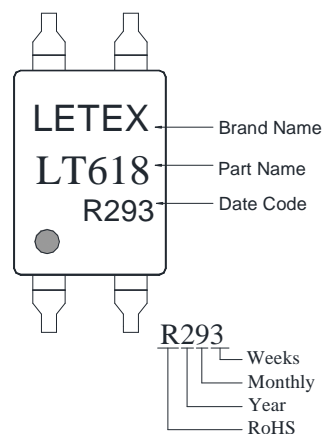| TYPE	B0±0.1	F0±0.1	W0±0.1	15"REEL/PCS
4P	5.3	7.5	16	1000

Recommended Mounting Pad

(Top view)

Unit : mm [inch]
Tolerance : ±0.1

Marking

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

LETEX — Brand Name
LT618 — Part Name
R293 — Date Code

R293
— Weeks
— Monthly
— Year
— RoHS

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.

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