Photo DMOS-FET Relay

Description

The **LT315** is a miniature 2-Form A solid state relay in a 8 pin SOP package that employs optically coupled MOSFET technology to provide 1500V of input to output isolation. The Input of optical coupler been controlled by a highly efficient GaAlAs infrared LED and MOS FETs on the output side.

Features

- SOP package 8 Pin type in miniature design (4.4×9.4×2.0mm / .173×.37×.083inch)
- Low driver power requirements (TTL/CMOS Compatible)
- 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
- Data communication equipment
- Factory automotive equipments

Photo DMOS-FET Relay Specifications

Part Name: LT315

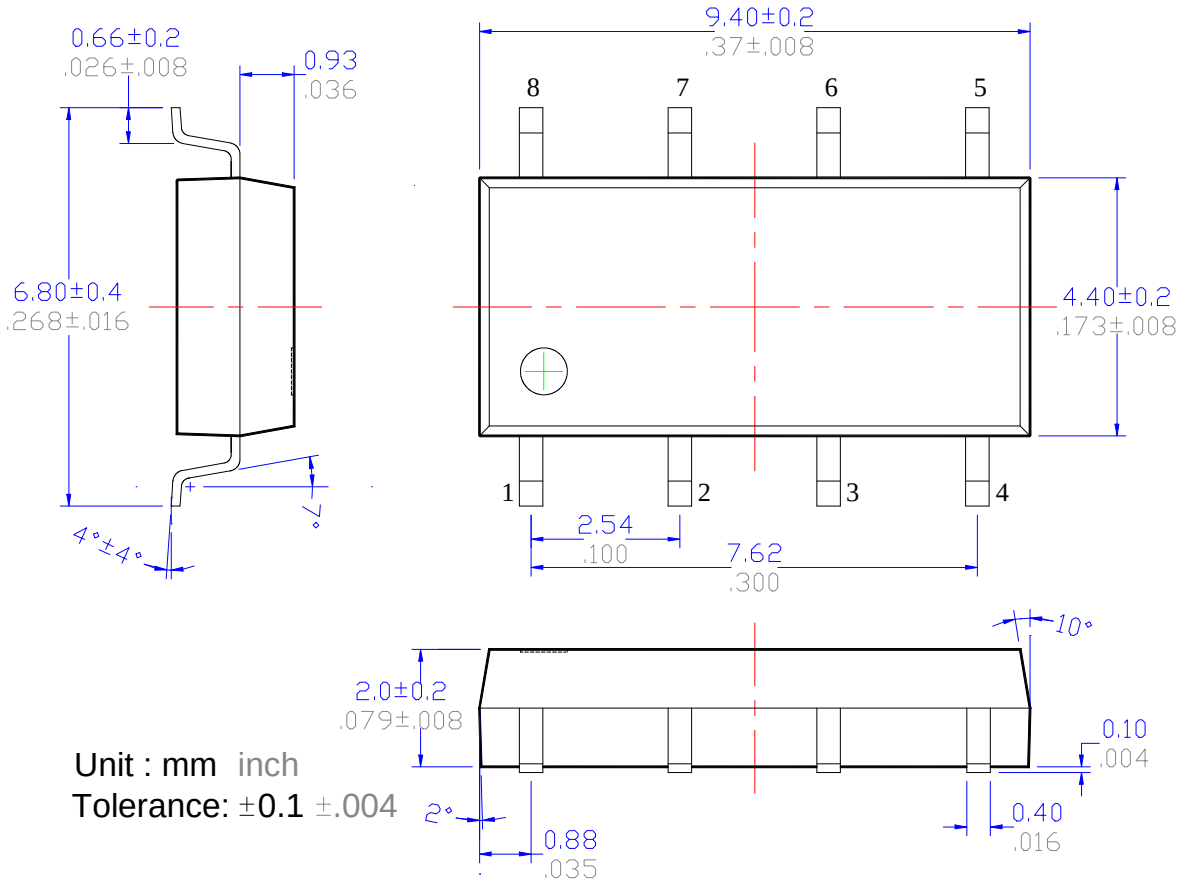
(Load voltage: 60V / Load current: 400mA)

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	400	mA	
	Peak Load Current	I_{Peak}	1.0	A	100ms(1 pulse)
	Output Power Dissipation	Pout	400	mW	
Total Power Dissipation		P_T	450	mW	
I/O Breakdown Voltage		$V_{I/O}$	1500	Vrm	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.

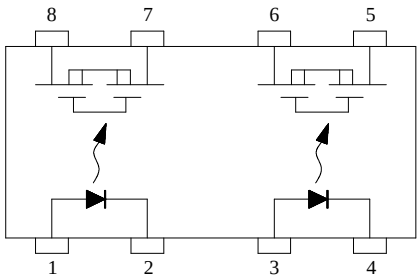
Electrical Specifications (Ambient Temperature: 25℃)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input	LED Forward Voltage	V_F		1.2	1.4	V	I_F=10mA
	Operation LED Current	$I_{F\,On}$		0.5	3.0	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}		0.8	2.0	Ω	I_F=5mA,I_L=100mA, Time to flow is within 1 sec.
	Off-State Leakage Current	I_{Leak}			1	μA	V_L=Rating
	Output Capacitance	C_{Out}		115		pF	V_L=0, f=1MHz
Transmission	Turn-On Time	T_{On}		0.65	2.0	ms	I_F=5mA, I_L=100mA
	Turn-Off Time	T_{Off}		0.08	0.2	ms	
Coupled	I/O Isolation Resistance	$R_{I/O}$	10^9			Ω	DC500V
	I/O Capacitance	$C_{I/O}$		0.8	1.5	pF	f=1MHz



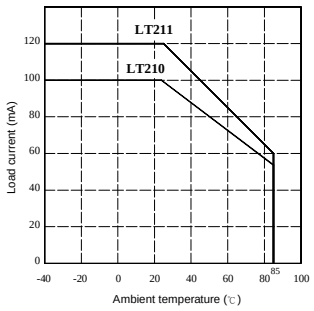
Unit : mm inch
Tolerance: ±0.1 ±.004

Schematic

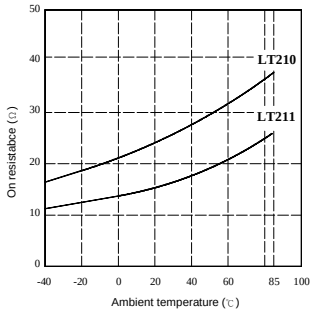


1,3. LED Anode
2,4. LED Cathode
5,6,7,8. MOS FET

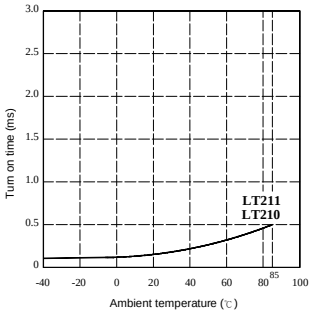
Load current Vs.
Ambient temperature



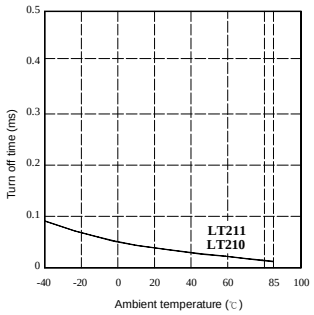
On resistance Vs.
Ambient temperature



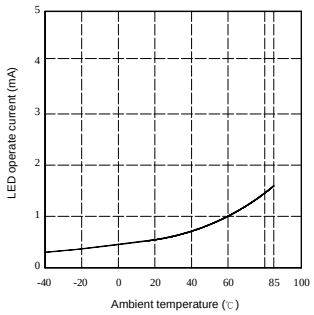
Turn on time Vs.
Ambient temperature



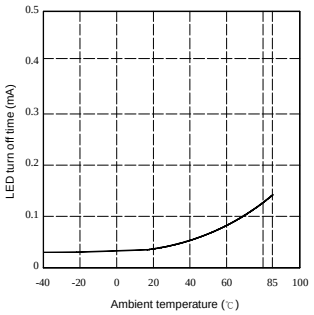
Turn off time Vs.
Ambient temperature



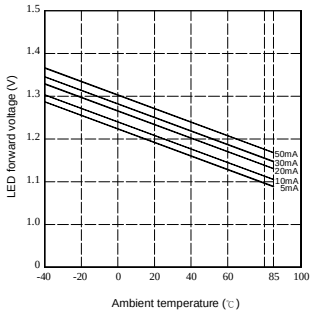
LED operate current Vs.
Ambient temperature



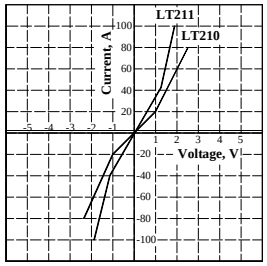
LED turn off current Vs.
Ambient temperature



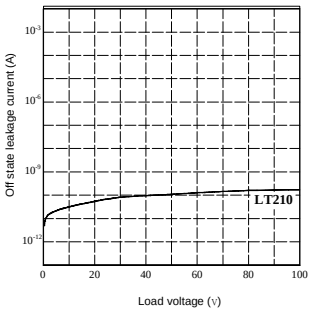
LED forward voltage Vs.
Ambient temperature



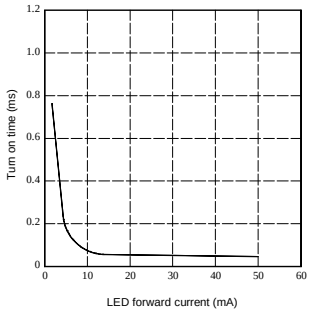
Voltage Vs. currennt characteristics
of output at MOS portion



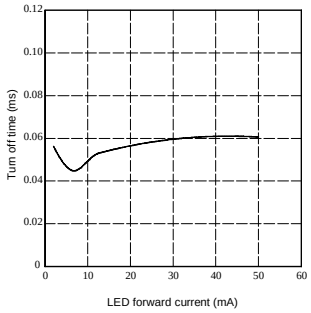
Off state leakage current



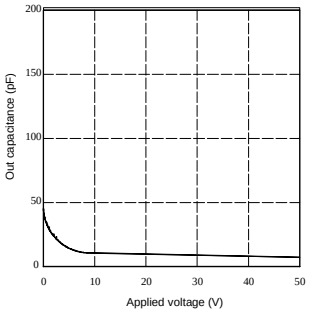
LED foward current Vs.
turn on time characteristics



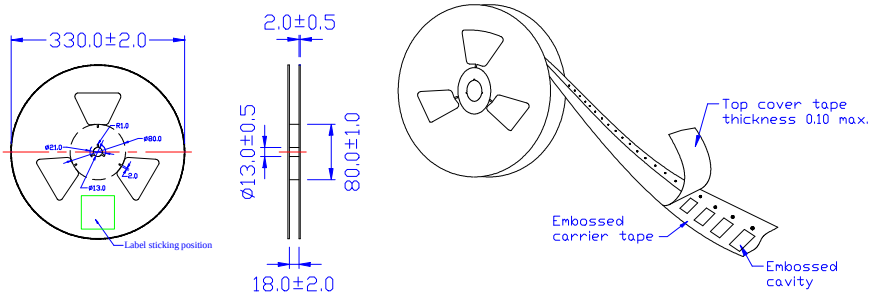
LED foward current Vs.
turn off time characteristics

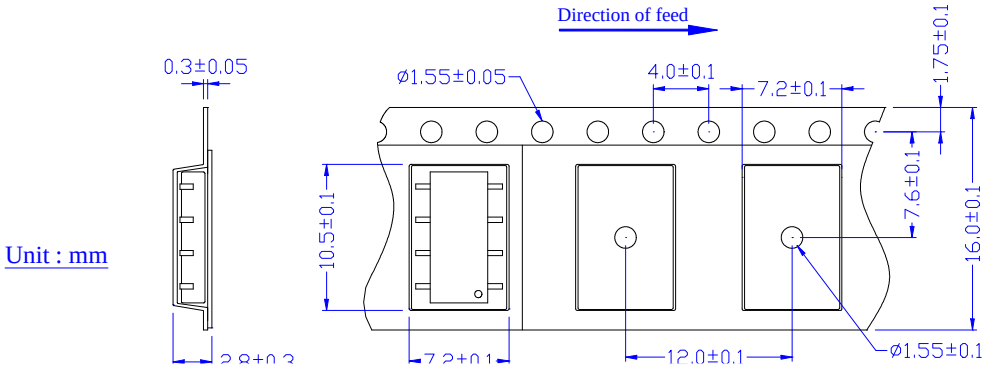


Applied voltage Vs.
output capacitance characteristics



Taping Specifications for Surface Mount Devices

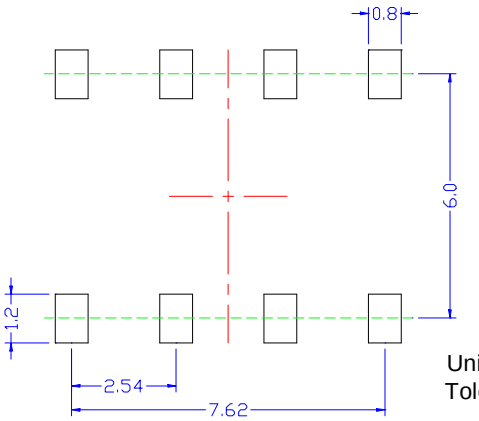




Unit : mm

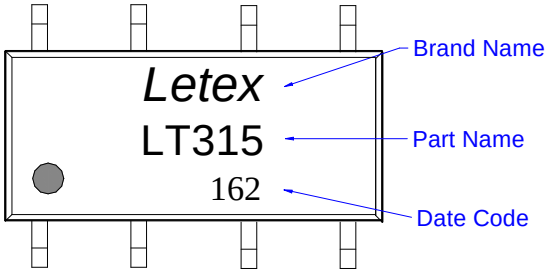
Recommended Mounting Pad

(Top view)

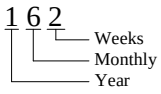


Marking

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



Unit : mm
Tolerance : ± 0.1



Notes：

1. There shall be 400 mm of leader minimum what may consist of carrier and cover tape follower.
2. Devices are pockets in accordance with IEC standard IEC286-3 (JIS C 0806) and specifications given above.
3. Packaging：2,000pcs per reel, 2 reel per box, 5 boxes per carton.