

Photo DMOS-FET Relay

Description

The **LT211SC** 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 MOS FETs on the output side.

Features

- SOP package 4 Pin type in miniature design (4.4×4.3×2.0mm / .173×.169×.083inch)
- Low driver power requirements (TTL/CMOS Compatible)
- Short circuit protection (Latch type)
- 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

Outline Dimensions

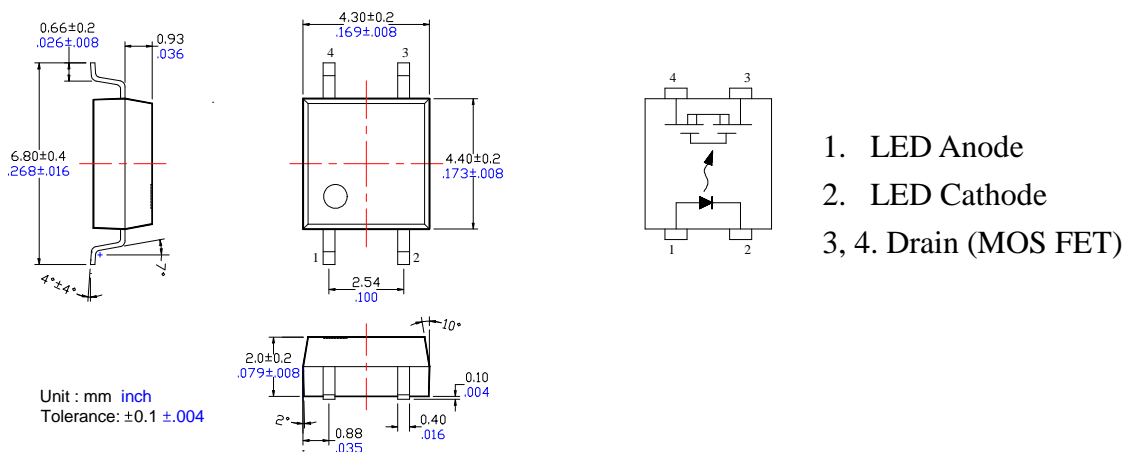


Photo DMOS-FET Relay Specifications

Part Name: LT211SC

(Load voltage: 350V / Load current: 120mA)

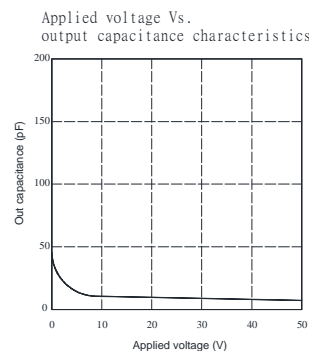
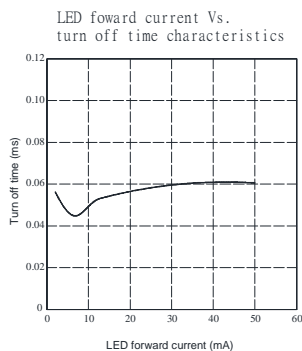
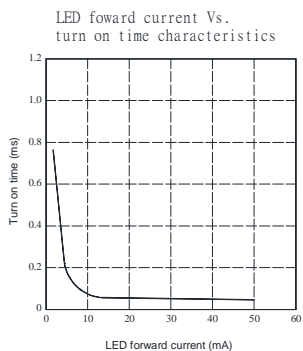
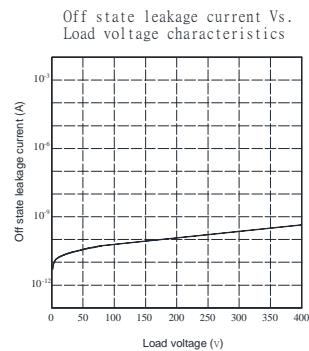
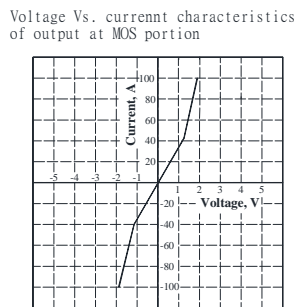
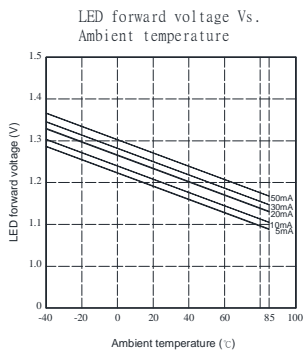
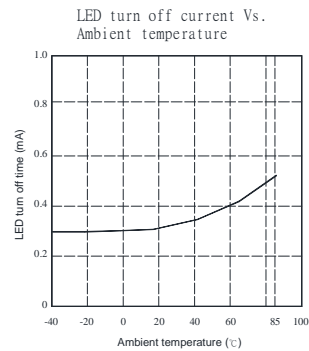
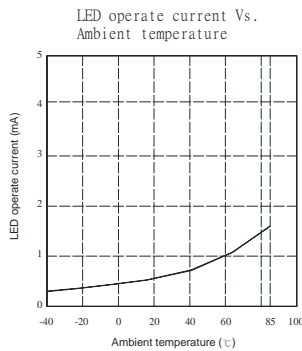
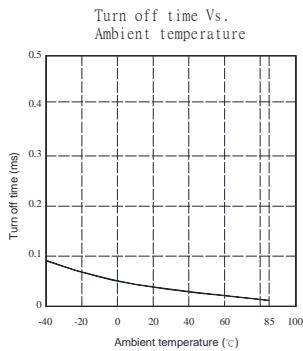
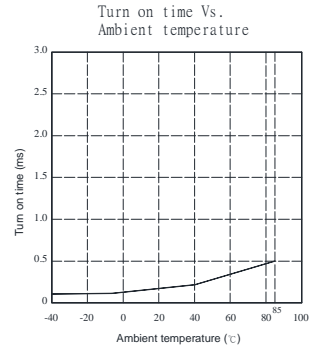
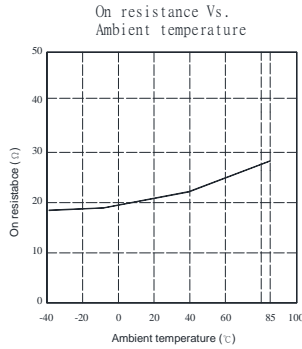
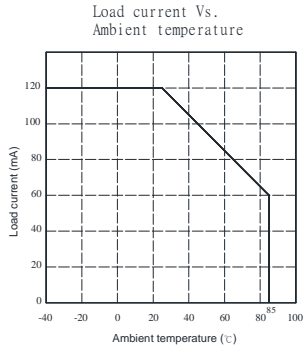
Absolute Maximum Ratings (Ambient Temperature: 25°C)

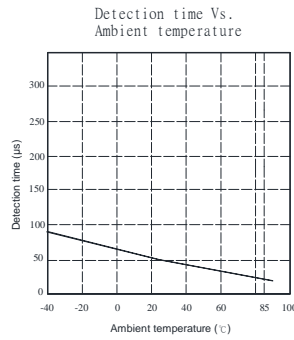
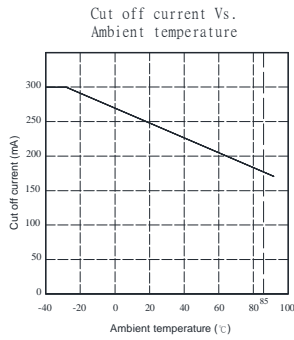
Item		Symbol	Value	Units	Note
Input	Continuous LED Current	I _F	50	mA	
	Peak LED Current	I _{FP}	1000	mA	f=100Hz, duty=1%
	LED Reverse Voltage	V _R	5	V	
	Input Power Dissipation	P _{In}	75	mW	
Output	Load Voltage	V _L	350	V(AC peak or DC)	
	Load Current	I _L	120	mA	
	Peak Load Current	I _{Peak}	0.6	A	100ms(1 pulse)
	Output Power Dissipation	P _{out}	300	mW	
Total Power Dissipation		P _T	350	mW	
I/O Breakdown Voltage		V _{I/O}	1500	V _{rms}	RH=60%, 1min
Operating Temperature		T _{Opr}	-40 to +85	°C	
Storage Temperature		T _{Stg}	-40 to +100	°C	
Pin Soldering Temperature		T _{Sol}	260	°C	10 sec max.

Electrical Specifications (Ambient Temperature: 25°C)

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	2.0	mA		
	Recovery LED Current	I _{F Off}		0.35	0.5	mA		
	Recovery LED Voltage	V _{F Off}	0.7			V		
Output	On-Resistance	R _{On}		22	28	Ω	I _F =5mA, 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}		41		pF	V _L =0, f=1MHz	
	Over current protection							
	Cut off current	I _{shut}		180	240	mA	I _F = 5 mA Within 5ms on time	
Transmis sion	Turn-On Time	T _{On}		0.3	0.5	ms	I _F =5mA, I _L =100mA,	
	Turn-Off Time	T _{Off}		0.05	0.2	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





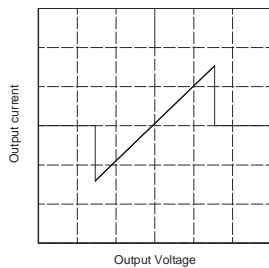
●RECOMMENDED OPERATING CONDITIONS			
Please following conditions to ensure proper device operation and resetting.			
Item	Symbol	Recommended value	Unit
Input LED current	I _F	5~10	mA

Short-circuit protection function

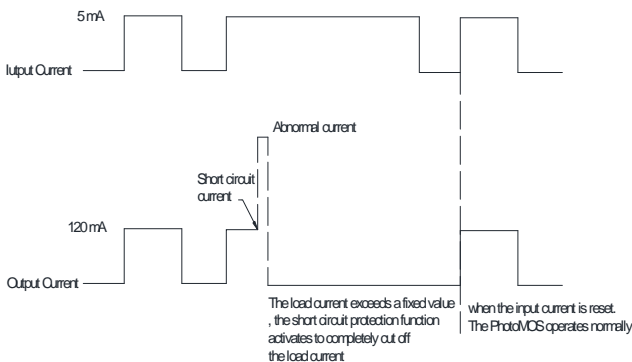
When the load current exceeds a fixed value, the short circuit protection function activates to completely cut off the load current and keep the Photo MOS Relay turned off. In the Photo MOS Relay ,The short circuit protection instantaneously completely cuts of the load current. This function protects any circuits that follow the Photo MOS Relay from excess current and prevents it from becoming damaged. Turn off the input current, and restart, Photo mos relay function to restore. To make the short circuit protection complete, make sure that the input current is at least I_F = 5 mA.

Output voltage and current characteristics

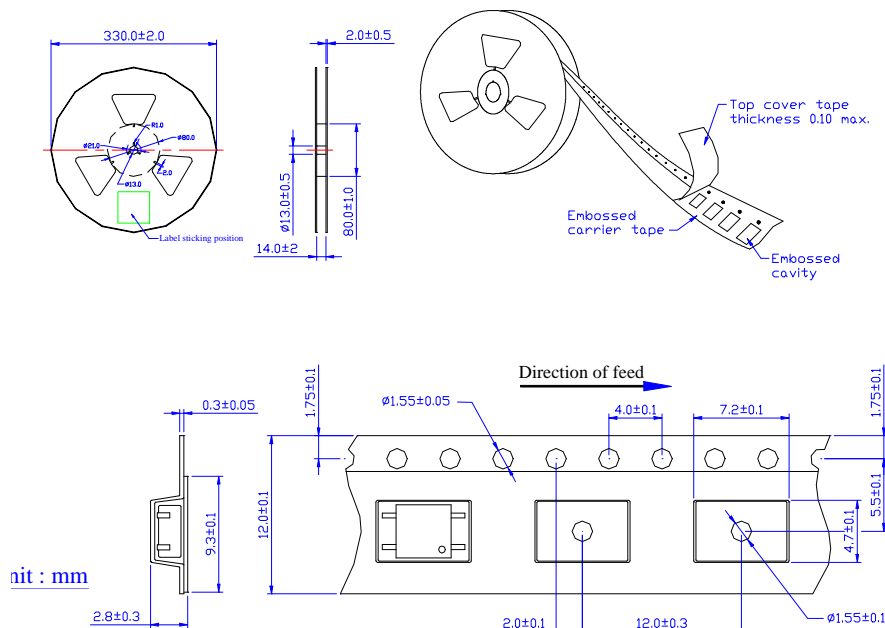
V-I characteristics of short circuit protection circuit



Action flow chart

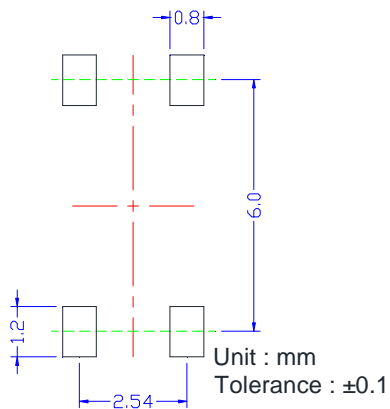


Taping Specifications for Surface Mount Devices



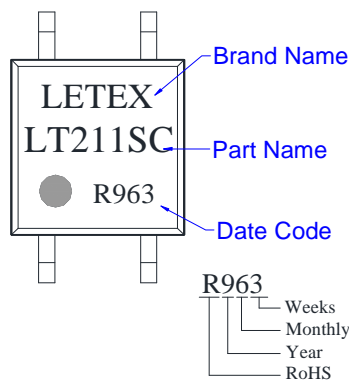
Recommended Mounting Pad

(Top view)



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.
 4. Packaging: 2,000pcs per reel, 2 reel per box, 5 boxes per carton.