

Photo DMOS-FET Relay

Description

The **LTU520** is a 1-From A and 1-Form B solid state relay in a 8 pin DIP 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

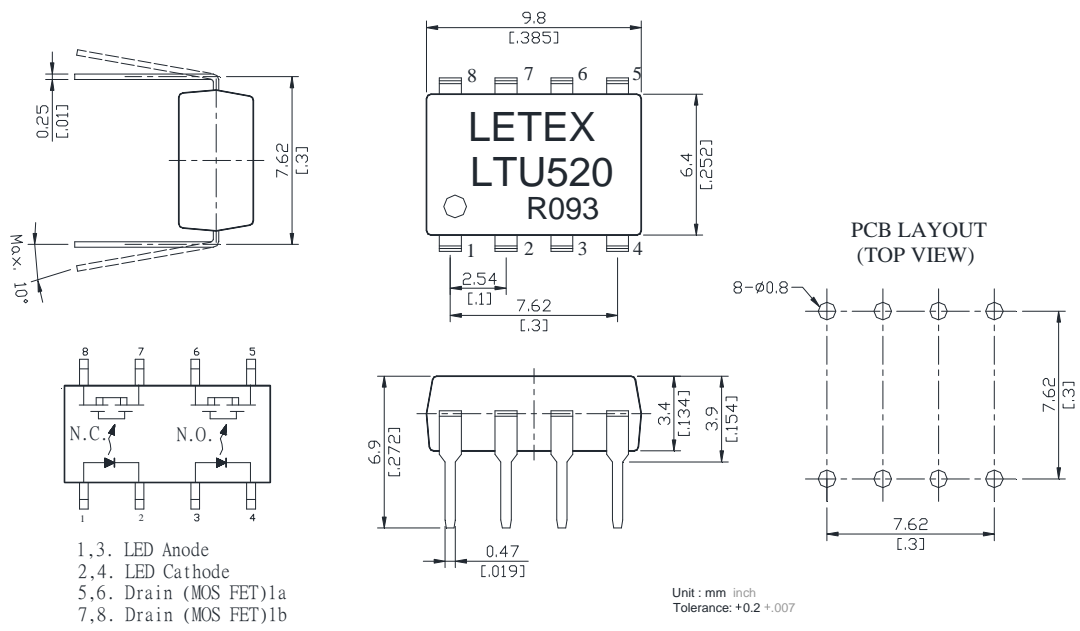


Photo DMOS-FET Relay Specifications

Part Name: LTU520

Absolute Maximum Ratings (Ambient Temperature: 25°C)

Item		Symbol	Value	Units	Note
Input	Continuous LED Current	IF	50	mA	
	Peak LED Current	IFP	1000	mA	f=100Hz, duty=1%
	LED Reverse Voltage	VR	5	V	
	Input Power Dissipation	PIn	75	mW	
Output	Load Voltage	VL	400	V(AC peak or DC)	
	Load Current	IL	120	mA	
	Peak Load Current	I _{Peak}	0.6	A	1ms(1 pulse)
	Output Power Dissipation	P _{out}	450	mW	
Total Power Dissipation		PT	500	mW	
I/O Breakdown Voltage		VI/O	3750	Vrms	RH=60%, 1min
I/O Breakdown Voltage(Suffix-V)		VI/O	5000	Vrms	RH=60%, 1min
Operating Temperature		T _{Opr}	-40 to +85	-40 to +85	
Storage Temperature		T _{Stg}	-40 to +100	-40 to +100	
Pin Soldering Temperature		T _{Sol}	260	260	10 sec max.

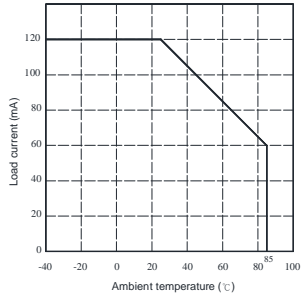
Electrical Specifications (Ambient Temperature: 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input	LED Forward Voltage	V _F		1.2	1.5	V	I _F =10mA
	Operation LED Current	I _{F On}		0.5	5.0	mA	
	Recovery LED Current	I _{F Off}		0.35	0.8	mA	
	Recovery LED Voltage	V _{F Off}	0.5			V	
Output	On-Resistance	R _{On}		20(N.O.)	30(N.O.)	Ω	I _F =10mA (N.O.) I _F =0mA (N.C) I _L =100mA Time to flow is within 1 sec.
				20(N.C.)	50(N.C.)		
	Off-State Leakage Current	I _{Leak}			1(N.O.) 10(N.C.)	uA	
Output Capacitance		C _{Out}		150		pF	I _F =5mA, V _L =0, f=1MHz
Transmission	Turn-On Time	T _{On}		0.5(N.O.)	1.0(N.O.)	ms	I _F =10mA, I _L =100mA
				0.02(N.C.)	0.5(N.C.)		
	Turn-Off Time	T _{Off}		0.03(N.O.)	0.2(N.O.)	ms	
				0.5(N.C.)	3.0(N.C.)		
Coupled	I/O Isolation Resistance	R _{I/O}	10 ¹⁰			Ω	DC500V
	I/O Capacitance	C _{I/O}		0.8		pF	f=1MHz

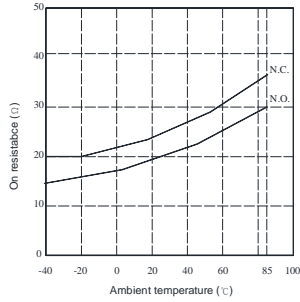


Reference Data

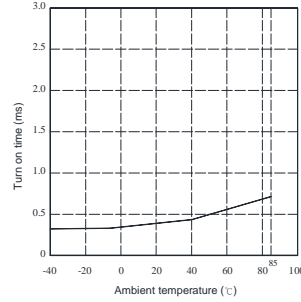
Load current Vs. Ambient temperature



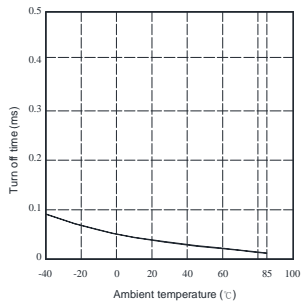
On resistance Vs. Ambient temperature



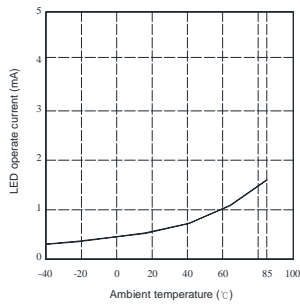
Turn off time Vs. Ambient temperature



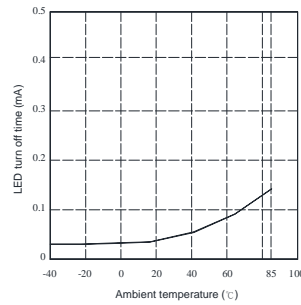
Turn on time Vs. Ambient temperature



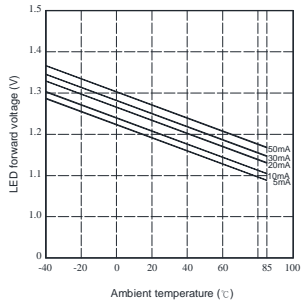
LED operate current Vs. Ambient temperature



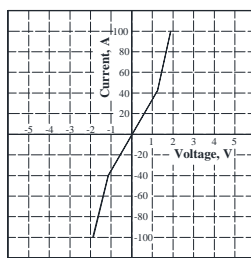
LED turn off current Vs. Ambient temperature



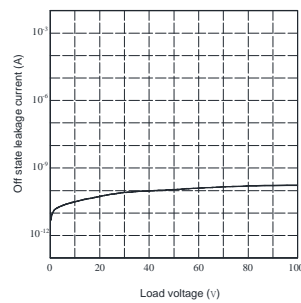
LED forward voltage Vs. Ambient temperature



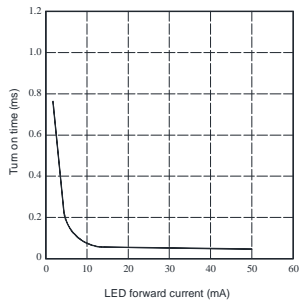
Voltage Vs. current characteristics of output at MOS portion



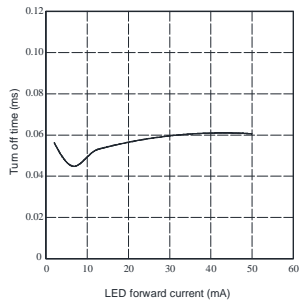
Off state leakage current



LED forward current Vs. turn on time characteristics



LED forward current Vs. turn off time characteristics



Applied voltage Vs. output capacitance characteristics

