

FEATURES

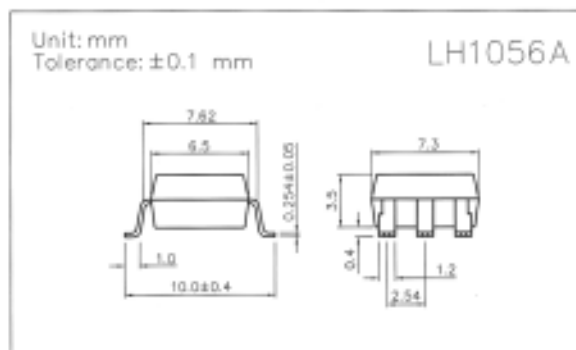
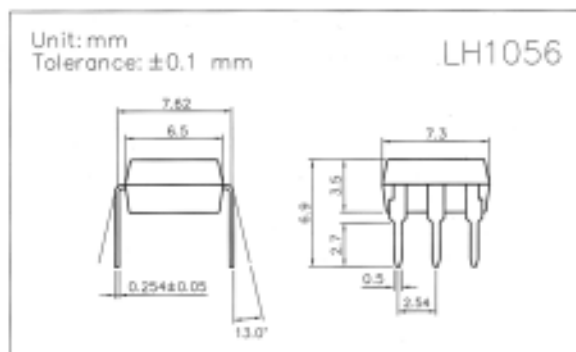
- Normally Open, Single Pole Single Throw
- Control 350 VAC or DC Voltage
- Switch 130 mA Loads
- LED Control Current, 2mA
- Low ON-Resistance
- dv/dt , >500 V/ms
- Isolation Test Voltage, 3750 VAC_{RMS}
- UL, CSA, FCC compatible
- Applications
 - Telecommunications
 - Telecom Switching
 - Tip/Ring Circuits
 - Modem Switching (Laptop, Notebook, Pocket Size)
 - Hookswitch
 - Dial Pulsing
 - Ground Start
 - Ringer Injection
 - Instrumentation
 - Multiplexers
 - Data Acquisition
 - Electronic Switching
 - I/O Subsystems
 - Meters (Watt-Hour, Water, Gas)
 - Medical Equipment
 - High Voltage Test Equipment
 - TRIAC Driver
 - Motor Control
 - Security
 - Aerospace
 - Industrial Controls

DESCRIPTION

The LH1056 is a single pole single throw (SPST), normally open (NO), Mos Relay. The relay can control AC or DC loads currents up to 130 mA, with a supply voltage up to 350 V. The device is packaged in a six pin SMD and dual-in line package. Those package offer an insulation dielectric withstand of 3750 VAC_{RMS}.

The coupler consists of a AlGaAs LED that is optically coupled to a dielectrically isolated photodiode array which drives two series connected high voltage MOS transistors. The typical ON-Resistance is 20Ω at 25 mA and is linear up to 50mA. The incremental resistance drops to less than 20Ω beyond 50 mA while reducing internal power dissipation at high load currents.

● Turn on/Turn off time



Absolute Maximum Ratings (T_A = 25°C)

Emitter (Input)

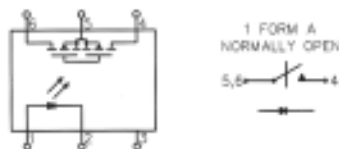
Reverse Voltage.....	5.0V
Continuous Forward Current.....	50mA
Peak Forward Current (1s).....	1A
Power Dissipation.....	100mW
Derate Linearly from 25°C.....	1.3mW/°C

Detector (Output)

Output Breakdown Voltage.....	±350V
Continuous Load Current.....	±130mA
Power Dissipation.....	500mW

General Characteristics

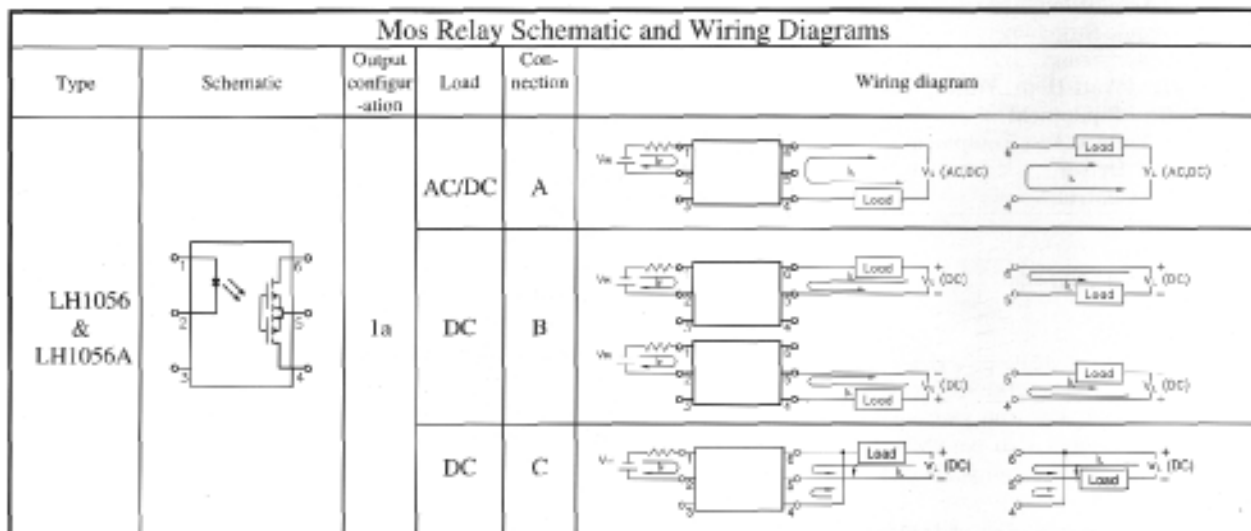
Isolation Test Voltage.....	3750VAC _{RMS}
Isolation Resistance	
V _{IO} = 500V, T _A = 25°C.....	≥10 ¹⁰ Ω
Total Power Dissipation.....	550mW
Derate Linearly from 25°C.....	2.5mW/°C
Storage Temperature Range.....	-40 to +150°C
Operating Temperature Range.....	-40 to +85°C
Junction Temperature.....	100°C
Soldering Temperature, 2mm from case, 10 sec... ..	260°C



Characteristics

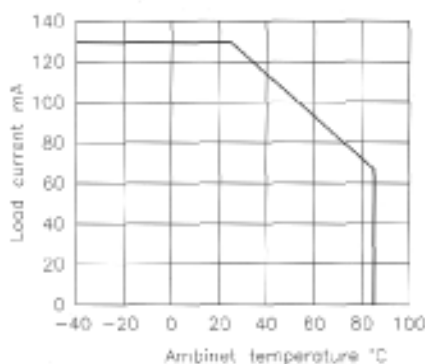
($T_A = 25^\circ\text{C}$)

Description	Symbol	Min.	Typ.	Max.	Unit	Test Condition	
Emitter (Input)							
Forward Voltage	V_F		1.8	2.0	V	$I_F = 10\text{ mA}$	
Operation Input Current	I_{PON}			5	mA	$V_L = \pm 20\text{ V}$, $I_L = 100\text{ mA}$, $t = 10\text{ ms}$	
Recovery Input Current	I_{FOFF}	0.2			mA	$V_L = \pm 20\text{ V}$, $I_L = < 5\ \mu\text{A}$	
Detector (output)							
Output Breakdown Voltage	V_B	350			V	$I_B = 50\ \mu\text{A}$	
Output Off-State Leakage	$I_{T(OFF)}$		0.2	1	μA	$V_T = 100\text{ V}$, $I_F = 0\text{ mA}$	
I/O Capacitance	C_{ISO}		6		pF	$I_F = 0$, $f = 1\text{ MHz}$	
ON Resistance	Con- nection	A		20	24	Ω	$I_L = 100\text{ mA}$, $I_F = 10\text{ mA}$
		B		10	12		
		C		5	6		
Turn-on Time	T_{ON}		0.3	1.0	ms	$I_F = 10\text{ mA}$, $V_L = \pm 20\text{ V}$	
Turn-off Time	T_{OFF}		0.7	1.5	ms	$t = 10\text{ ms}$, $I_L = \pm 100\text{ mA}$	

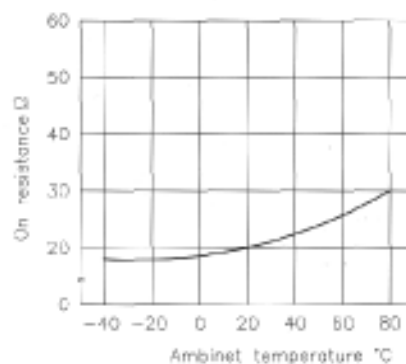


DATA CURVE

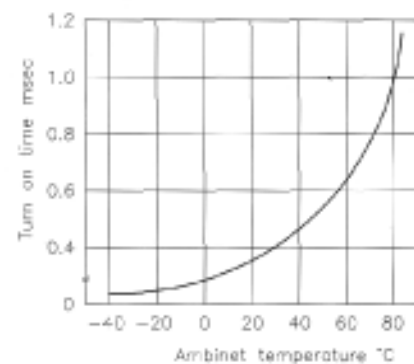
Load current vs. ambient temperature
Allowable ambient temperature:
-40°C to + 85°C



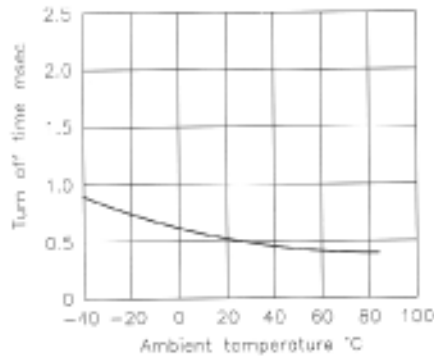
On resistance vs. ambient temperature
Across terminals 4 and 6 pin
LED current: 5 mA
Continuous load current: 130 mA(DC)



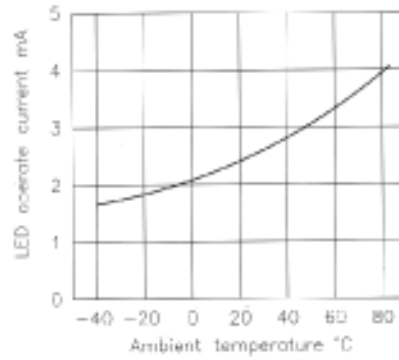
Turn on time vs. ambient temperature
Load voltage 350 V(DC)
LED current : 5 mA
Continuous load current: 130 mA(DC)



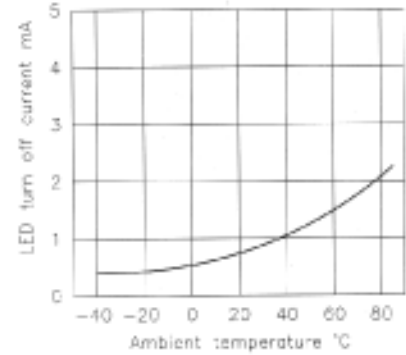
Turn off time vs. ambient temperature
LED current: 5mA; Load voltage: 350V(DC)
Continuous load current: 130mA(DC)



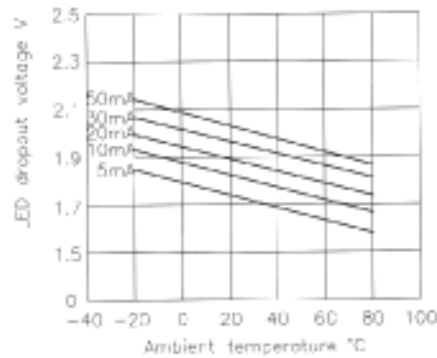
LED operate vs. ambient temperature
Load voltage: 350V(DC)
Continuous load current: 130mA(DC)



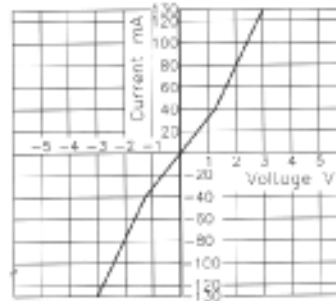
LED turn off current vs. ambient temperature
Load voltage: 350V(DC)
Continuous load current: 130mA(DC)



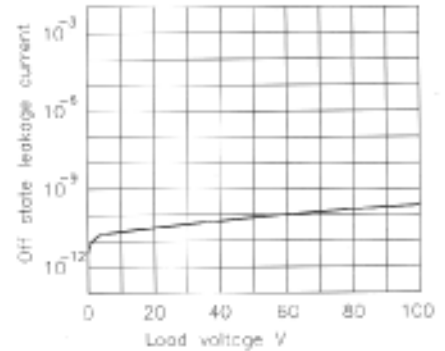
LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA



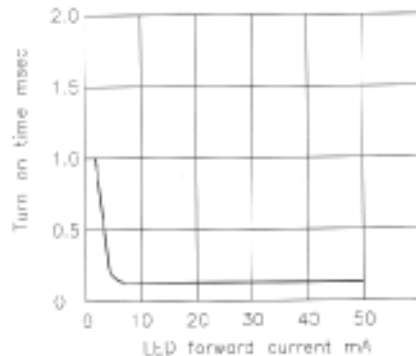
Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 4 and 6pin
Ambient temperature: 25°C



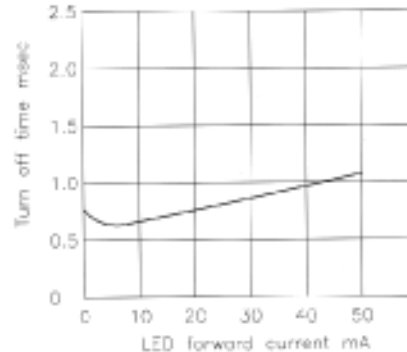
Off state leakage current
Across terminals 4 and 6pin
Ambient temperature: 25°C



LED forward current vs. turn on time
Across terminals 4 and 6pin; Load voltage: 350V(DC); Continuous load current: 130mA(DC); Ambient temperature: 25°C



LED forward current vs. turn off time
Across terminals 4 and 6pin; Load voltage: 350V(DC); Continuous load current: 130 mA(DC); Ambient temperature: 25°C



Applied voltage vs. output capacitance
Across terminals 4 and 6pin
Frequency: 1MHz; Ambient temperature: 25°C

