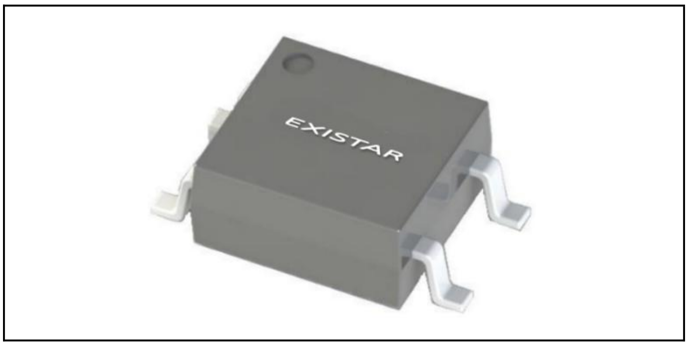
PHOTOCOUPLER

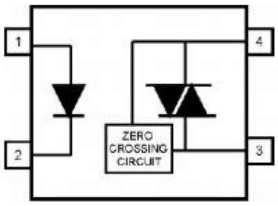
SOP4



Product features

- Halogens Free
  (Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm)
- Peak breakdown voltage
  EXM306X: 600V
- High isolation voltage between inputs and output
  (Viso=3750 V rms)
- Zero voltage crossing
- Pb free and RoHS compliant
- Compliance with EU REACH

Schematic



PinConfiguration
1. Anode
2. Cathode
3. Termina
4. Termina

Product Description

- The EXM306X devices consist of a GaAs infrared emitting diode optically coupled to a monolithic silicon detector performing the function of a zero voltage crossing bilateral triac driver.
- They are designed for use with a discrete power triac in the interface of logic systems to equipment powered from 110 to 240 VAC lines.

Product Applications

- Solenoid/valve controls
- Lighet controls
- Temperature controls
- Static power switch
- AC Motor starters
- AC motor drivers
- E.M. contactors
- Solid state relays

Ordering Information

Part Number	Package	Packing quantity
EXM306X	SOP4	3500 / Reel

Electrical-Optical characteristics

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rated Value	Unit
Input	Forward current	I_F	60	mA
	Peak forward current (1us pulse, 300pps)	$I_{F(PK)}$	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	100	mW
	Derating factor (above Ta = 85°C)		-	mW /°C
Output	Off-state Output Terminal Voltage	V_{DRM}	600	V
	Peak Repetitive Surge Current (pw=100μs,120pps)	I_{TSM}	-	A
	On-State RMS Current	$IT_{(RMS)}$	70	mA(RMS)
	Power dissipation	P_c	300	mW
	Derating factor (above Ta = 85°C)		–	mW /°C
Total Consume Power		P_{TOT}	–	mW
Isolation Voltage(1*)		V_{iso}	3750	Vrms
Operating temperature		T_{OPR}	-40 to +110	℃
Storage temperature		T_{STG}	-55 to +150	℃
Soldering temperature(2*)		T_{SOL}	260	℃

Notes:
1* AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1, 2 are shorted together, and pins 3, 4 are shorted together.
2* Soldering time is 10 seconds

Electrical Characteristics(Ta=25℃ unless specified otherwise)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
In put	Forward voltage	V_F	-	-	1.5	V	I_F=30mA
	Reverse current	I_R	-	-	10	μA	V_R=6V
Out put	Peak Blocking Current	I_{DRM}	-	-	100	nA	V_{DRM} = Rated V_{DRM} I_F = 0 mA
	Peak On-state Voltage	V_{TM}	-	-	3	V	I_{TM}=100 mA peak, I_F=Rated I_{FT}
	Critical Rate of Rise off-state Voltage	dv/dt	1000	-	-	V/μs	V_{PEAK} =Rated V_{DRM}, I_F=0mA
	Inhibit Voltage (MT1-MT2 voltage above which device will not trigger)	V_{INH}	-	-	20	V	I_F = Rated I_{FT}
	Leakage in Inhibited State	I_{DRM2}	-	-	1000	μA	I_F = Rated I_{FT},V_{DRM} = Rated V_{DRM},off state

Transfer Characteristics level table (Ta=25℃ unless specified otherwise)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
LED Trigger Current	EXM3062	I_{FT}	-	-	10	mA	Main terminal Voltage=3V
	EXM3063		-	-	5		
	EXM3064		-	-	3		
Holding Current		I_H	-	280	-	μA	

Characteristic Curves

Figure1. Forward Current VS Forward Voltage

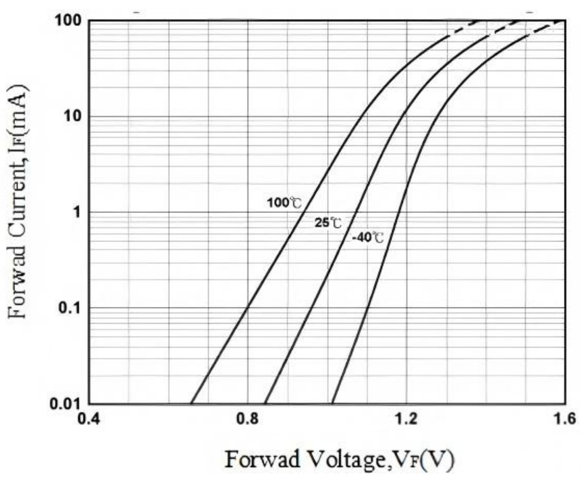


Figure2. On-State Characteristics

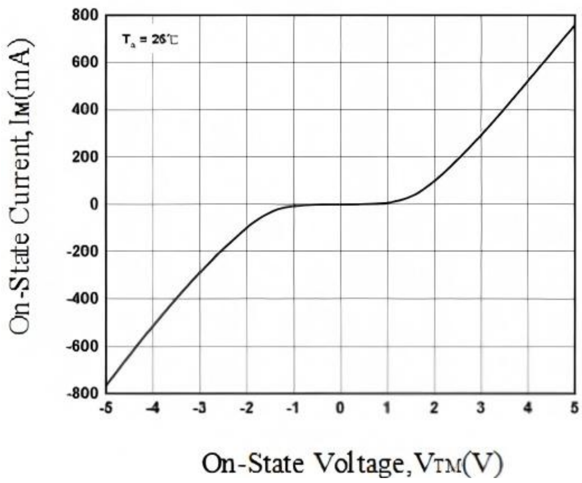


Figure3. Normalized Holding Current vs Ambient Temperature

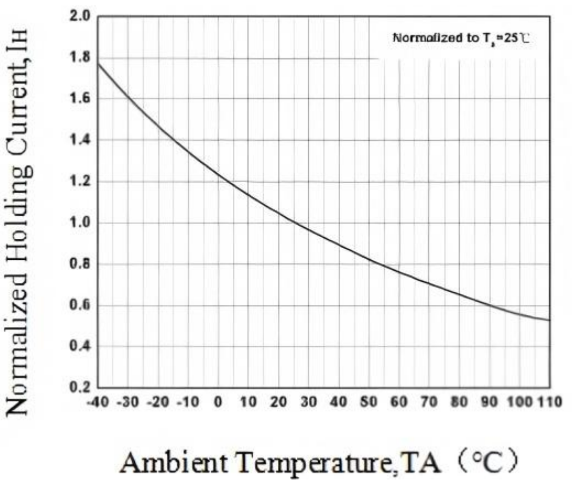


Figure4. Leakage Current vs Ambient Temperature

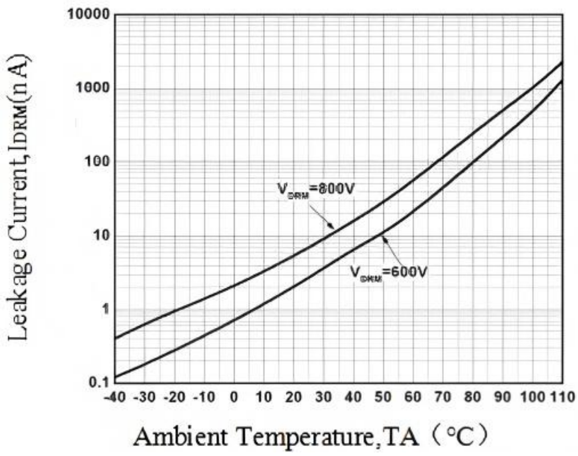


Figure5. LED Current Required trigger vs LED Pulse Width

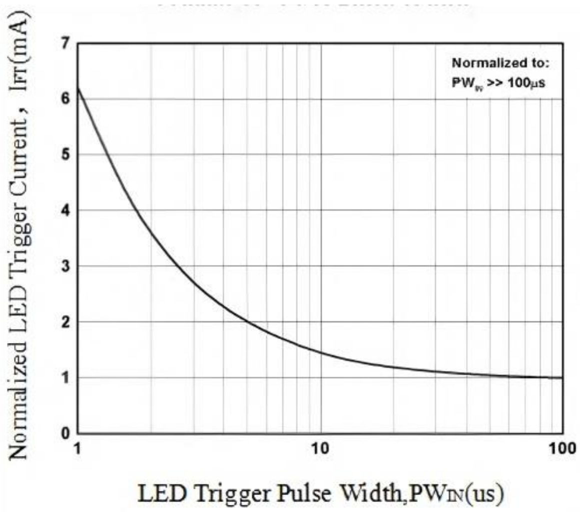


Figure6. Normalized LED Trigger Current vs Ambient Temperature

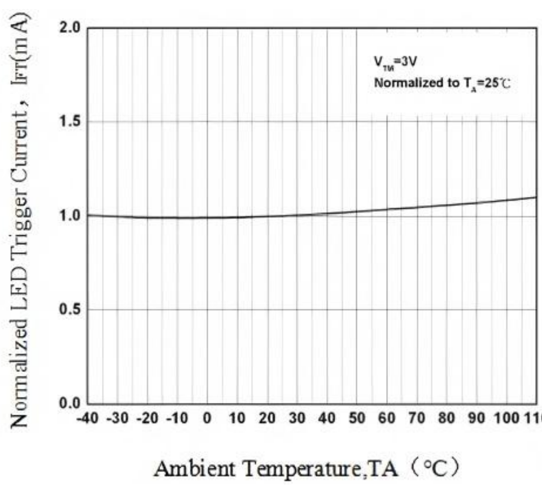


Figure7. Normalized Inhibit Voltage vs Ambient Temperature

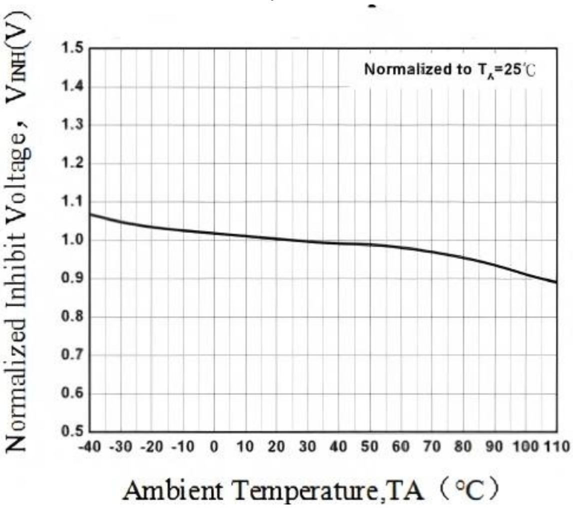


Figure8. Leakage in Inhibit state vs Ambient Temperature

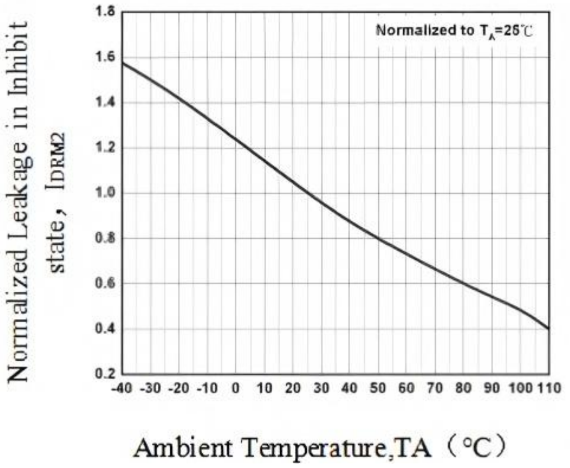


Figure9. Off-State Output Terminal Voltage vs Ambient Temperature

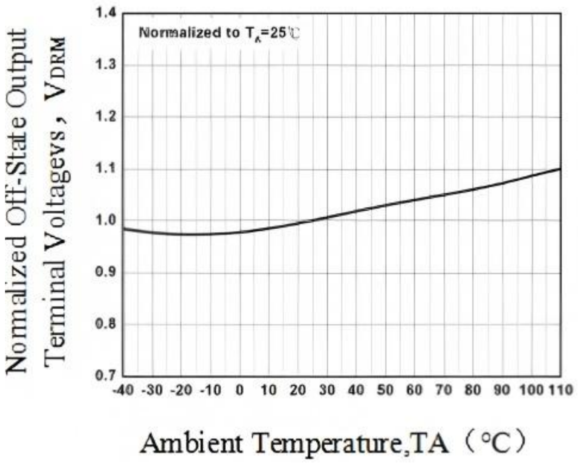
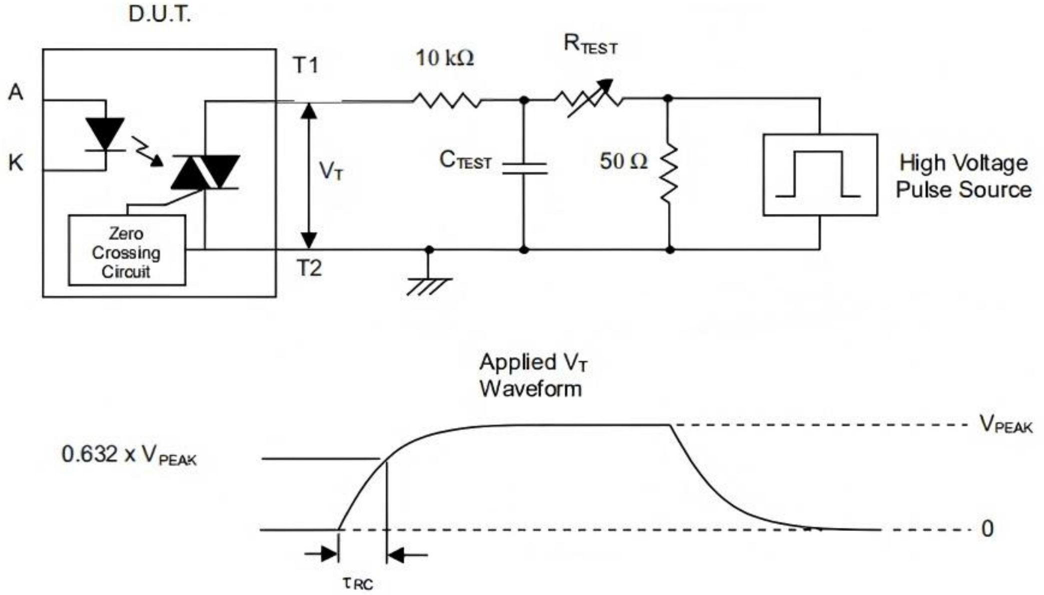


Figure10. Static dv/dt Test Circuit & Waveform



Measurement Method

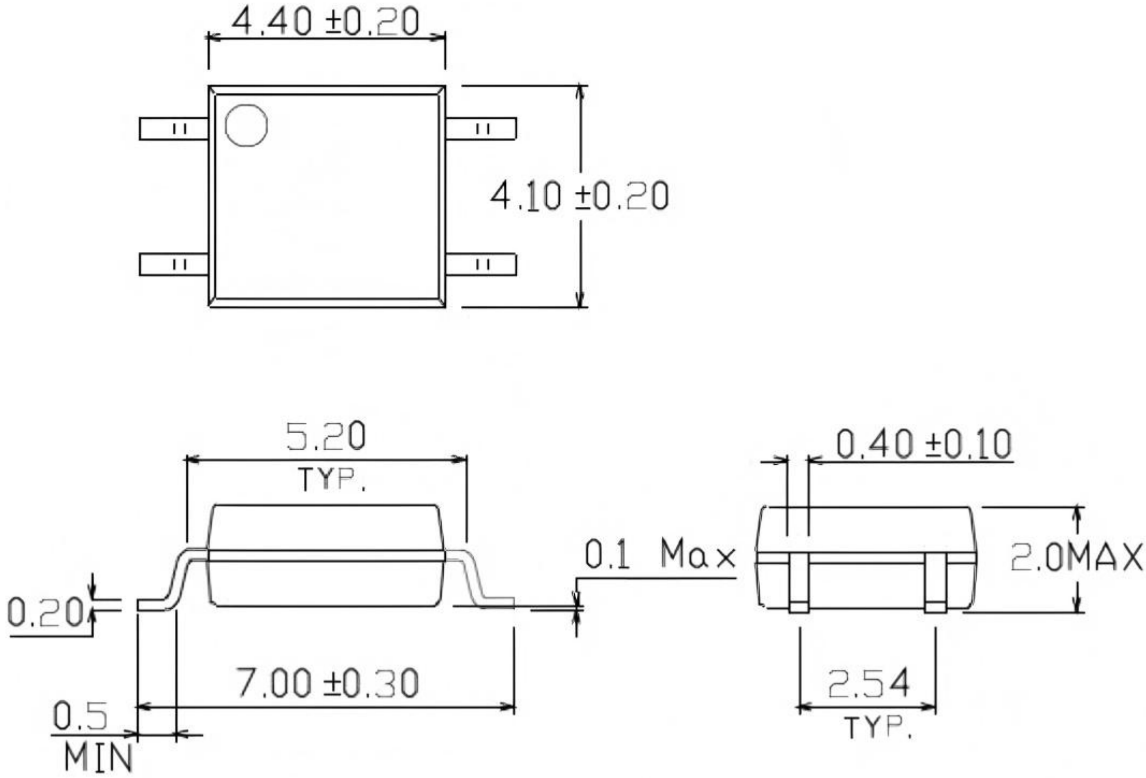
The high voltage pulse is set to the required VPEAK value and applied to the D.U.T. output side through the RC circuit above. LED current is not applied.The waveform VT is monitored using a x100 scope probe.By varying RTEST, the dv/dt (slope) is increased, until the D.U.T. is observed to trigger (waveform collapses). The dv/dt is then decreased until the D.U.T. stops triggering.At this point, ƮRC is recorded and the dv/dt calculated.

$dv/dt=0.632*V_{PEAK}/\tau RC$

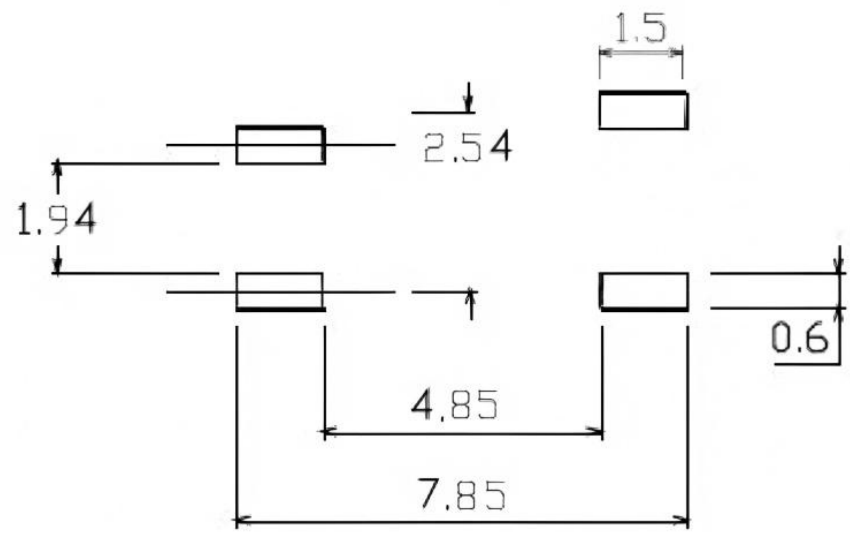
For example, V_{PEAK} = 600 V for EXM306X series. The dv/dt value is calculated as follows:

$dv/dt= 0.632*400/\tau RC$

Package Drawing(Unit:mm)



Surface patch type PIN foot pad layout



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