



Description

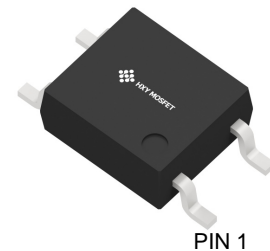
The ELM3063(TA) series devices are optocouplers composed of a GaAs infrared light emitting diode and a single-crystal silicon chip Zero-cross photoelectric bidirectional thyristor.

Features

- Peak breakdown voltage
ELM3063(TA): Min.600V
- 4pin zero-cross optoisolators triac driver outp
- High input-output isolation voltage(Viso = 3,750Vrms)
- Operating Temperature: -40°C~110°C
- Safety approval
UL approved
VDE approved
CQC approved
- RoHS

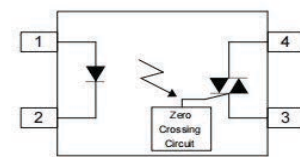
Applications

- Lighting Control
- AC Motor Starter
- Static power switc
- Temperature Controls



PIN 1

SOP-4



Pin Configuration

- 1 Anode
- 2 Cathode
- 3 Terminal
- 4 Terminal

Maximum Rating

Parameter		Symbol	Values	Unit
Input	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	6	V
	Power Dissipation	P	120	mW
	Junction Temperature	T_J	100	
Output	Off-State Output Terminal Voltage	V_{DRM}	600	V
	On state RMS current	$I_{T(RMS)}$	100	mA(RMS)
	Peak Repetitive Surge Current (PW=1ms 120 pps)	I_{TSM}	1	A
	Junction Temperature	T_J	125	
	Collector Power Dissipation	P_C	300	mW
Operating temperature range		T_{op}	40 ~ 110	C
Storage temperature range		T_{stg}	55 ~ 125	C
Total Power consumption		$P_{(W)}$	330	mW
Isolation Voltage ⁽¹⁾		V_{ISO}	5000	Vrms
Soldering Temperature ⁽²⁾		T_{SOL}	260	C

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).For 10 seconds



Electronic Optical Characteristics
(TA = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditon
Input	Forward Voltage	V_F	-	1.2	1.6	V	$I_F=10mA$
	Reverse Current	I_R	-	-	5	μA	$V_R=6V$
Output	Peak Blocking Current, Either Directiot ⁽¹⁾	I_{DRM}	-	10	100	nA	$V_{DRM} = \text{Rated } V_{DRM}$
	Inhibit Voltage (MT1-MT2 voltage above which device will not trigger)	V_{INH}	-	-	20	-	$I_F = \text{Rated } I_F$
	Peak On-State Voltage, Either Dire	V_{TM}	-	-	3	V	$I_{TM}=100mA$ Peak
	Critical rate of Rise of Off-State Voltage ⁽²⁾	dv/dt	1000	-	-	V/ μs	$V_{in}=240Vrms$
Transfer Charact eristics	Led Trigger Current, Crrent Required to Latch Output, Either Direction	I_{FT}	-	-	15	mA	Main Terminal Voltage = 3V
			-	-	10		
			-	-	5		
	Holding Current, Either Direction	I_H	-	280	-	μA	
ZERO CROSSING	Leakage in Inhibited State	I_{DRM2}	-	-	500	μA	$I_{FT}, \text{ Rated}$ $V_{DRM}, \text{ Off State}$

(1)Test voltage must be applied within dv/dt rating.

(2)This is static dv/dt. Commutating dv/dt is a function of the load-driving thyristor(s) only.



Characteristics Curves

Fig.1 Forward current vs Ambient temperature

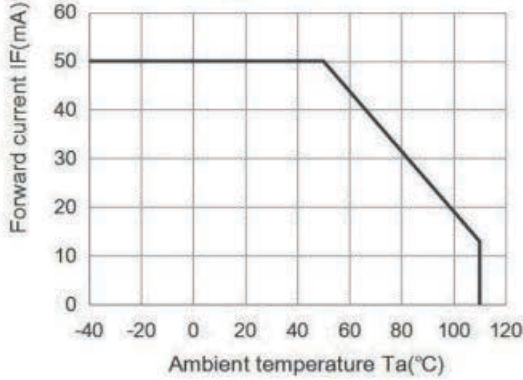


Fig.2 On-state current ITM (A) vs Ambient temperature

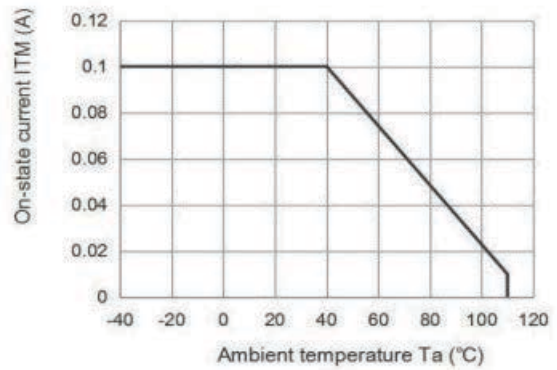


Fig.3 Minimum Trigger Current vs Ambient temperature

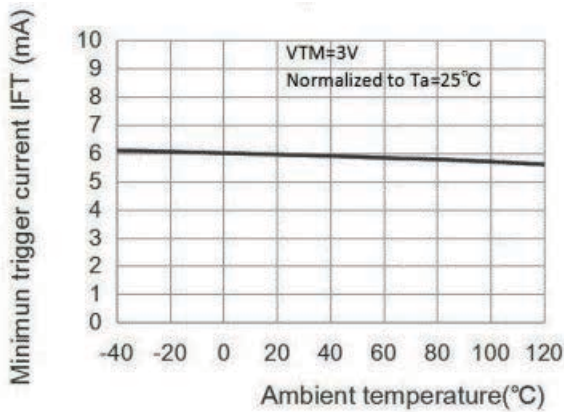


Fig.4 Forward current vs Forward Voltage

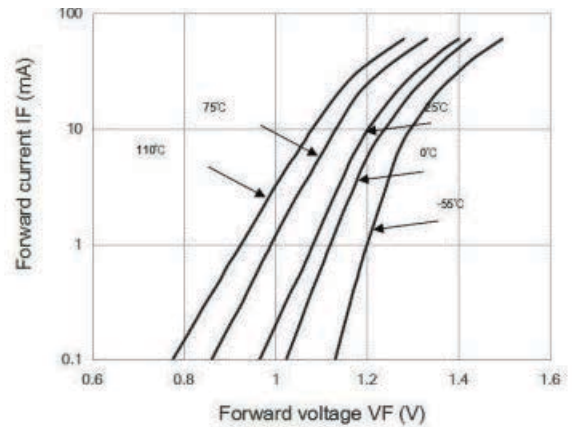


Fig.5 On-state voltage vs Ambient temperature

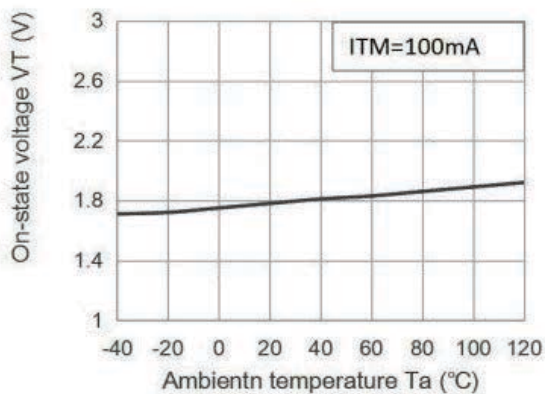


Fig.6 Holding current IH (mA) vs Ambient temperature

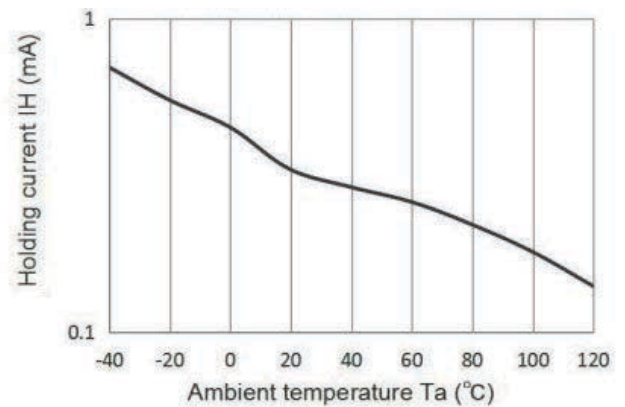




Fig.7 Repetitive peak off-state current vs Temperature

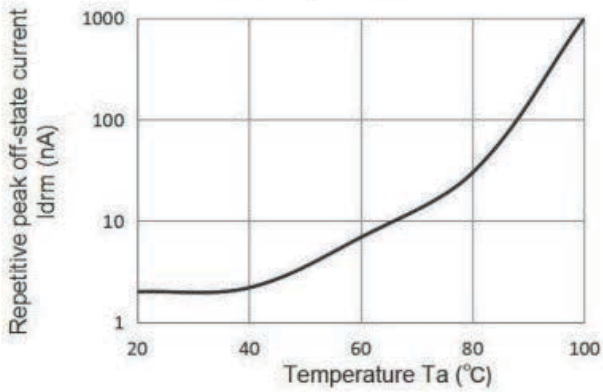


Fig.8 On-state current vs On-state voltage

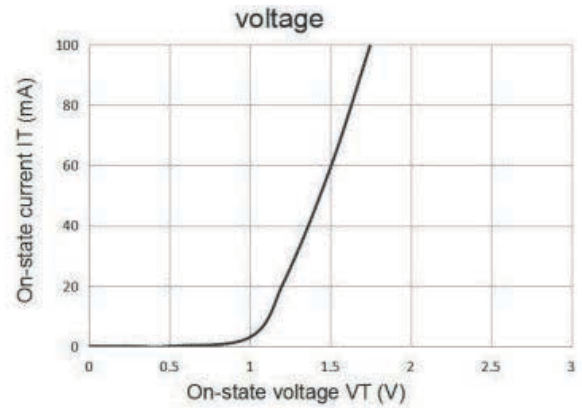


Fig.9 Basic Operation Circuit Medium/High Power Triac Drive Circuit

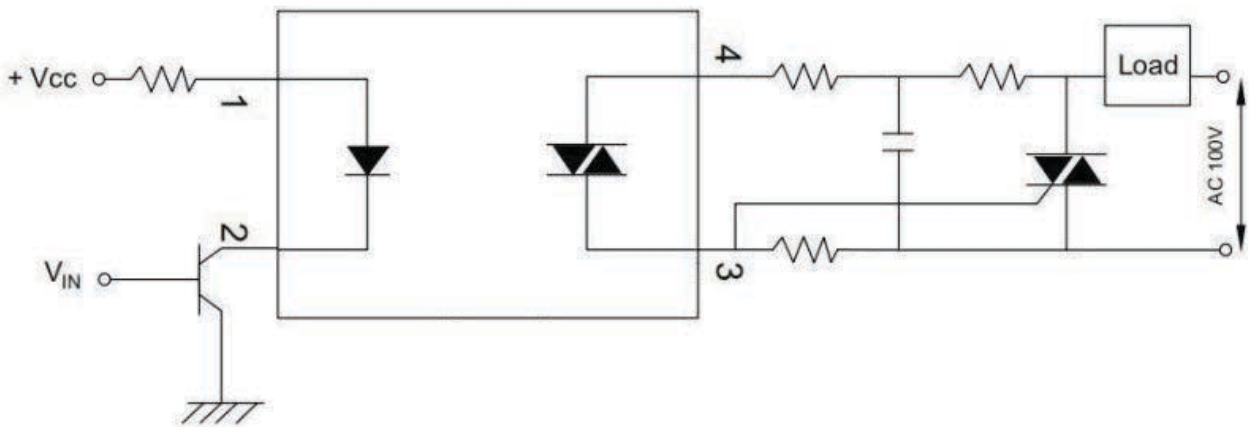
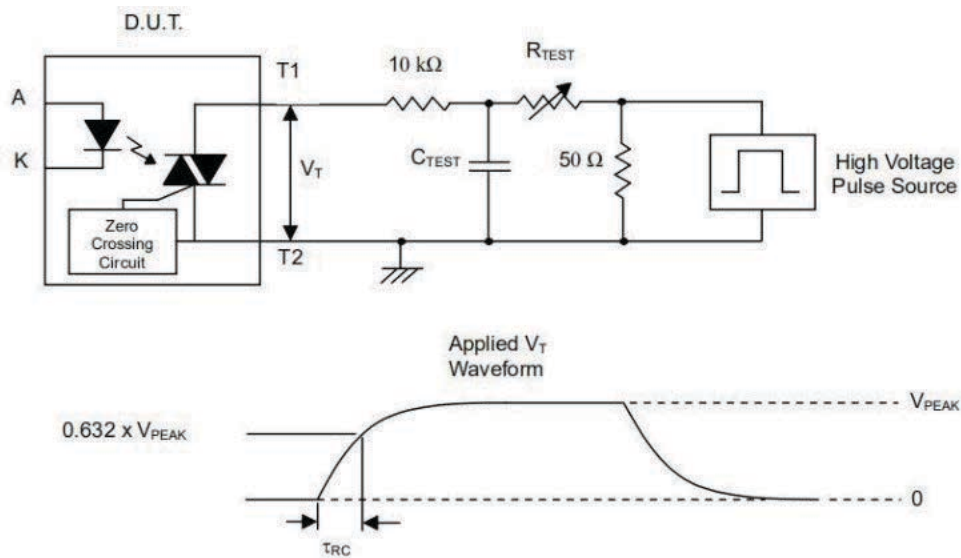
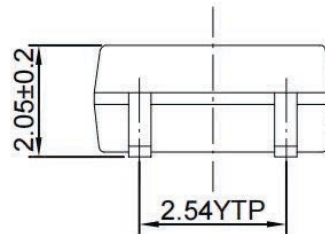
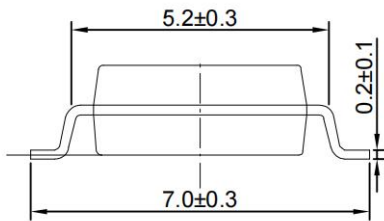
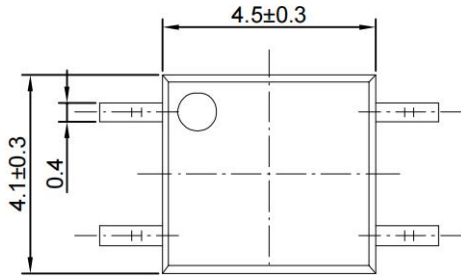


Fig10. Static dv/dt Test Circuit & Wave form



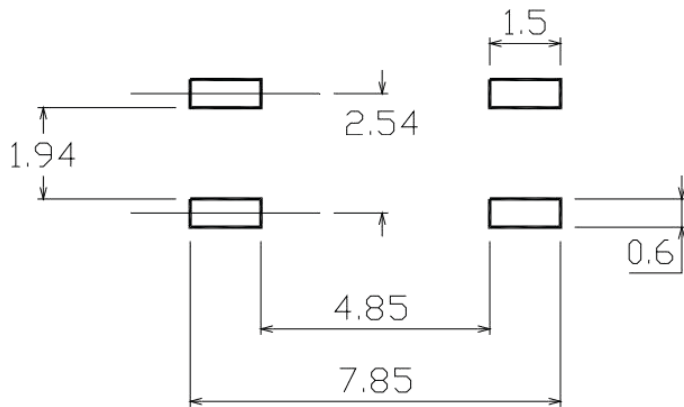


Outline Dimension



Unit: mm
Tolerance: ± 0.1 mm

Recommended solder pad Design



Unit: mm
Tolerance: ± 0.1 mm

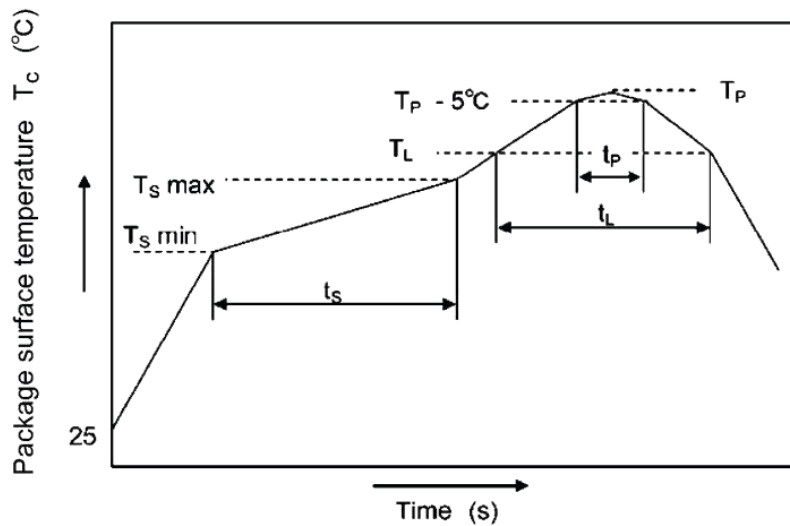


Temperature Profile Of Soldering

1. IR Reflow soldering

(JEDEC-STD-020D compliant)

Profile item	Conditon
Preheat	
-Temperature Min (TSmin)	150°C
-Temperature Max (TSmax)	200°C
-Time (min to max) (ts)	90±30 sec
Soldering zone	
-Temperature (TL)	217°C
-Time (tL)	60-150 sec
Peak Temperature (TP)	260°C
-Time (TP-5°C to TP) (ts)	30 sec
Ramp-up rate	3°C / sec max
Ramp-down rate	3~6°C/ sec



Notes:

One time soldering reflow is recommended within the condition of temperature and time profile shown below. Do not solder more than three times.



2. Wave soldering (JEDEC22A111 compliant)

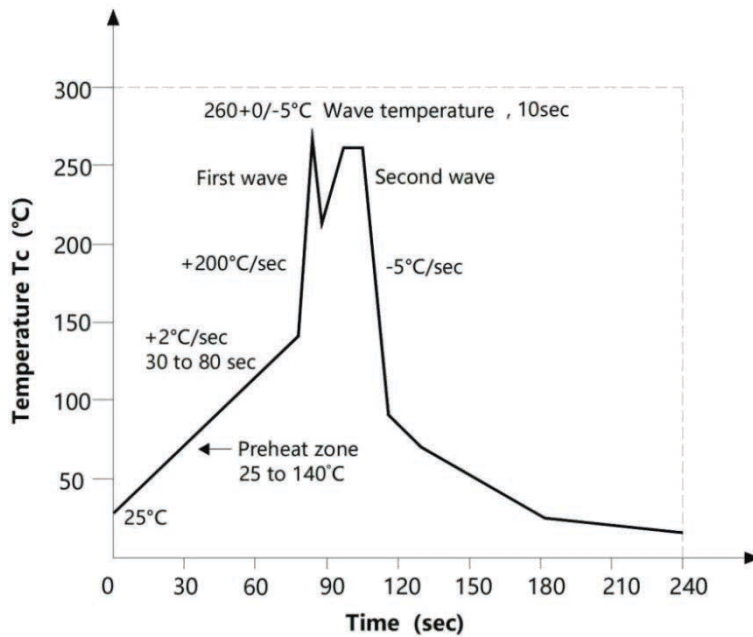
One time soldering is recommended within the condition.

Temperature: $260 \pm 0/-5^\circ\text{C}$.

Time: 10 sec.

Preheat temperature: 25 to 140°C .

Preheat time: 30 to 80 sec.



3. Hand soldering by soldering iron

Allow single lead soldering in every single process. One time soldering is recommended.

Temperature: $380 \pm 0/-5^\circ\text{C}$

Time: 3 sec max.



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