FEATURES

January 2010

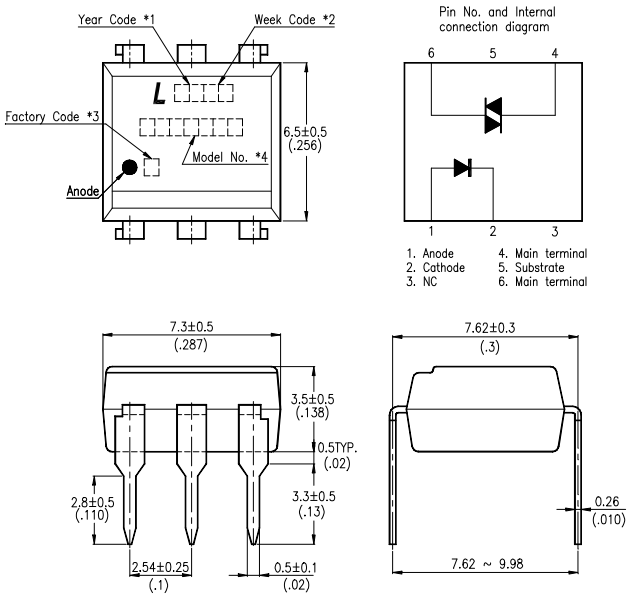
* Isolation voltage between input and output V_{iso} : $5,000V_{rms}$
* 6pin DIP photocoupler, triac driver output
* High repetitive peak off-state voltage V_{DRM} : Min. 400V
* High critical rate of rise of off-state voltage
  (dV/dt : MIN. 100V / μs)
* Dual-in-line package :
  MOC3020, MOC3021, MOC3022, MOC3023
* Wide lead spacing package :
  MOC3020M, MOC3021M, MOC3022M, MOC3023M
* Surface mounting package :
  MOC3020S, MOC3021S, MOC3022S, MOC3023S
* Tape and reel packaging :
  MOC3020S-TA1, MOC3021S-TA1, MOC3022S-TA1, MOC3023S-TA1
* Safety approval
  UL / CSA / FIMKO / VDE* approved
  *Required "V" ordering option

APPLICATIONS

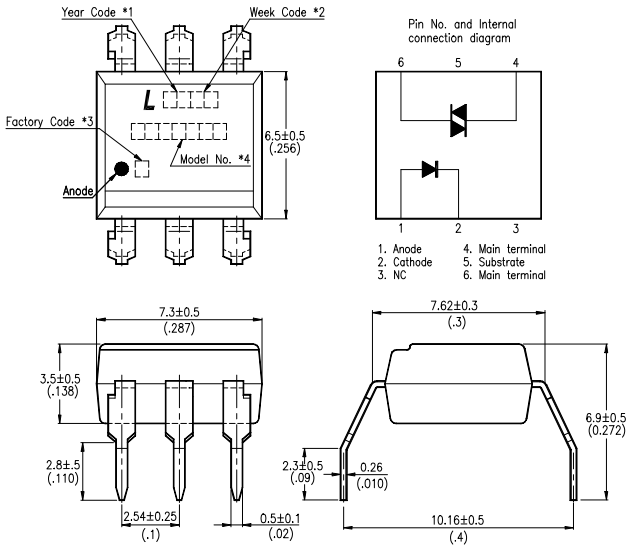
* Motor Controls
* Solid state relays
* For triggering high power thyristor and triac
* Household use equipment

OUTLINE DIMENSIONS

Dual-in-line package :



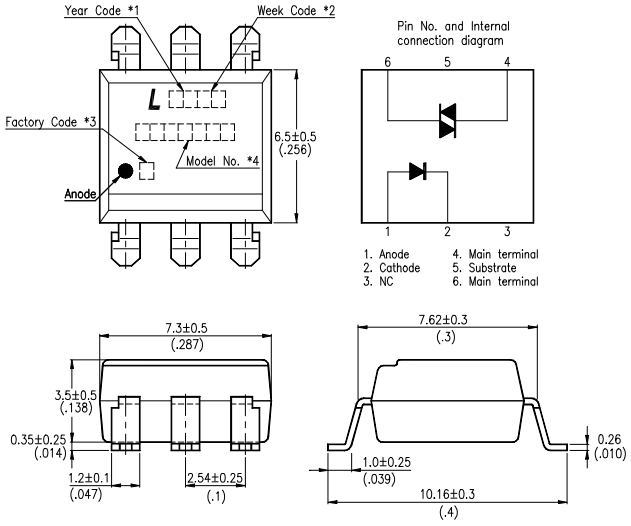
Wide lead spacing package:



*1. Year date code.
*2. 2-digit work week.
*3. Factory identification mark shall be marked.
(Z : Taiwan, Y : Thailand, X : China-TJ, W : China-CZ)
*4. Model No.: MOC3020 ; MOC3021 ; MOC3022 ; MOC3023

OUTLINE DIMENSIONS

Surface mounting package :



*1. Year date code.
*2. 2-digit work week.
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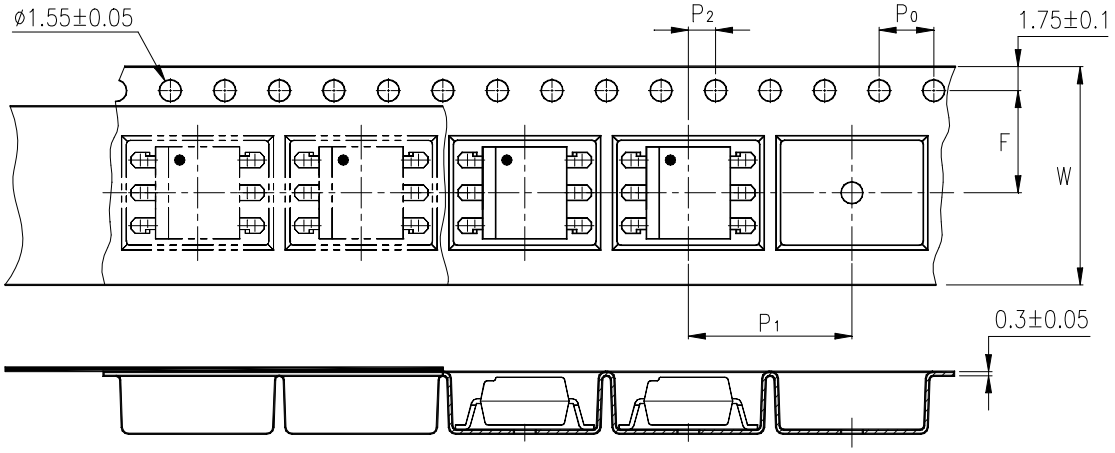
(Z : Taiwan, Y : Thailand, X : China-TJ, W : China-CZ)
*4. Model No.: MOC3020 ; MOC3021 ; MOC3022 ; MOC3023

TAPING DIMENSIONS

Tape and reel package (TYPE II):
MOC3020S-TA1, MOC3021S-TA1, MOC3022S-TA1, MOC3023S-TA1



Description	Symbol	Dimensions in mm (inches)
Tape wide	W	16 ± 0.3 (.63)
Pitch of sprocket holes	P_0	4 ± 0.1 (.15)
Distance of compartment	F P_2	7.5 ± 0.1 (.295) 2 ± 0.1 (.079)
Distance of compartment to compartment	P_1	12 ± 0.1 (.472)

ABSOLUTE MAXIMUM RATING

(Ta = 25°C)

PARAMETER		SYMBOL	RATING	UNIT
INPUT	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	6	V
	Power Dissipation	P_D	70	mW
OUTPUT	Off-State Output Terminal Voltage	V_{DRM}	400	V
	Peak Repetitive Surge Current (PW=1ms, 120pps)	V_{TSM}	1	A
	Collector Power Dissipation	P_C	300	mW
Total Power Dissipation		P_{tot}	330	mW
*1 Isolation Voltage		V_{iso}	5,000	Vrms
Ambient Operating Temperature Range		T_A	-40 ~ +100	°C
Storage Temperature Range		T_{stg}	-55 ~ +150	°C
*2 Soldering Temperature		T_L	260	°C

*1. AC For 1 Minute, R.H. = 40 ~ 60%

Isolation voltage shall be measured using the following method.

(1) Short between anode and cathode on the primary side and between collector, emitter on the secondary side.

(2) The isolation voltage tester with zero-cross circuit shall be used.

(3) The waveform of applied voltage shall be a sine wave.

*2. For 10 Seconds

ELECTRICAL - OPTICAL CHARACTERISTICS

(Ta = 25°C)

PARAMETER			SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
INPUT	Forward Voltage		V_F	—	1.15	1.5	V	I_F=20mA
	Reverse Current		I_R	—	—	10	μA	V_R=6V
OUTPUT	*1 Peak Blocking Current, Either Direction		I_{DRM}	—	10	100	nA	V_{DRM} = 400V
	Peak On-State Voltage, Either Direction		V_{TM}	—	1.7	3	V	I_{TM}=100 mA Peak
	*2 Critical rate of Rise of Off-State Voltage		dv/dt	100	—	—	V/μs	
COUPLED	*3 Led Trigger Current, Current Required to Latch Output, Either Direction	MOC3020	I_{FT}	—	15	30	mA	Main Terminal Voltage = 3V
		MOC3021		—	8	15		
		MOC3022		—	—	10		
		MOC3023		—	—	5		
	Holding Current, Either Direction		I_H	250	—	—	μA	

*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.
*3 All devices are guaranteed to trigger at an I_F value less than or equal to max I_{FT}. Therefore, recommended operating I_F lies between max I_{FT}, 30 mA for MOC3020, 15 mA for MOC3021, 10 mA for MOC3022, 5 mA for MOC3023, and absolute max I_F (50mA)

CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

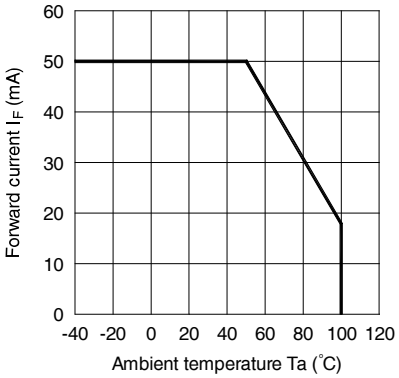


Fig.2 On-state Current vs. Ambient Temperature

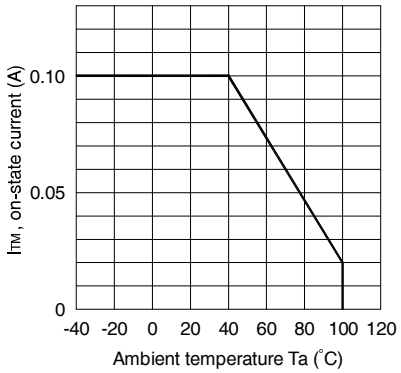


Fig.3 Minimum Trigger Current vs. Ambient Temperature

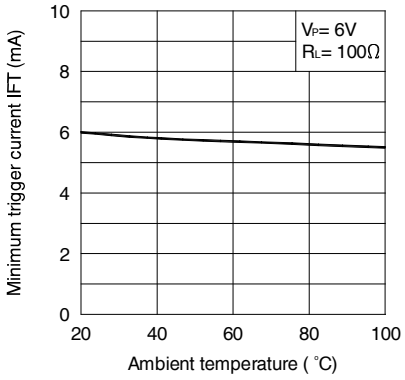


Fig.4 Forward Current vs. Forward Voltage

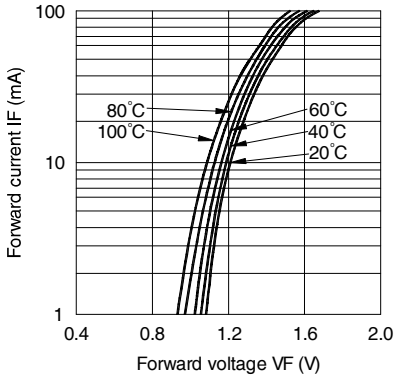


Fig.5 On-state Voltage vs. Ambient Temperature

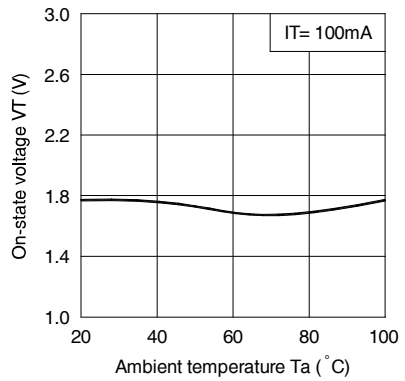
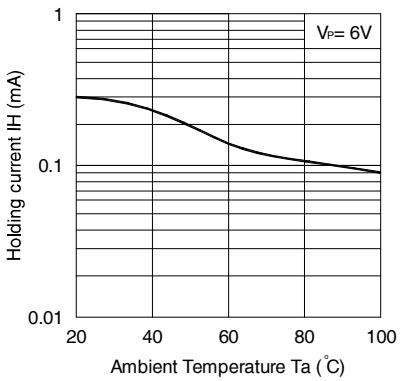


Fig.6 Holding Current vs. Ambient Temperature



CHARACTERISTICS CURVES

Fig.7 Repetitive Peak Off-state Current vs. Temperature

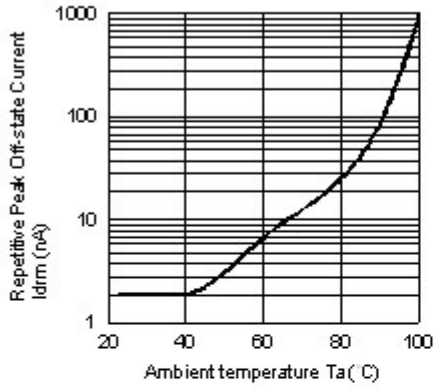
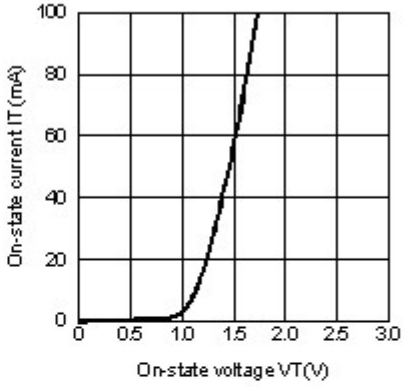
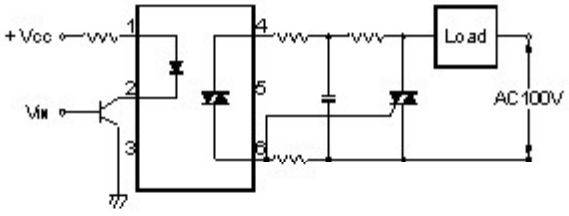


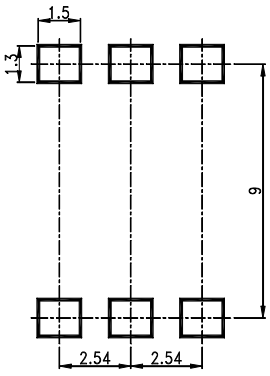
Fig.8 On-state Current vs. On-state Voltage



Basic Operation Circuit
Medium/High Power Triac Drive Circuit



RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)



Unit : mm

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