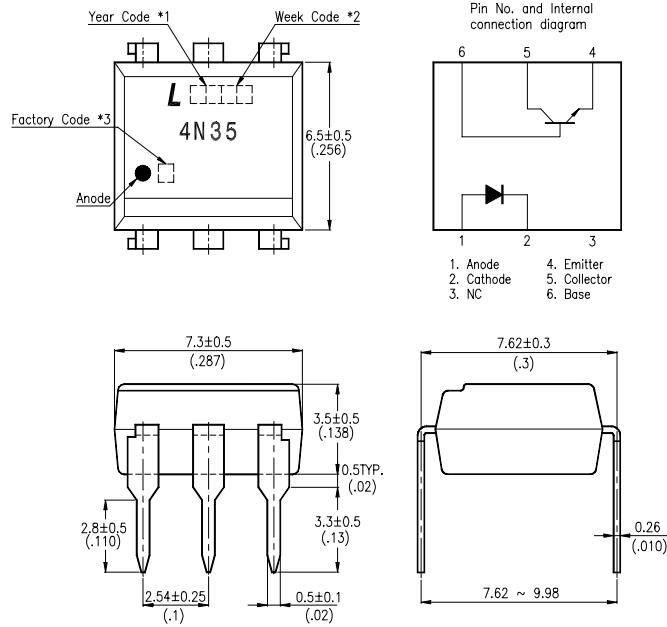


**FEATURES**

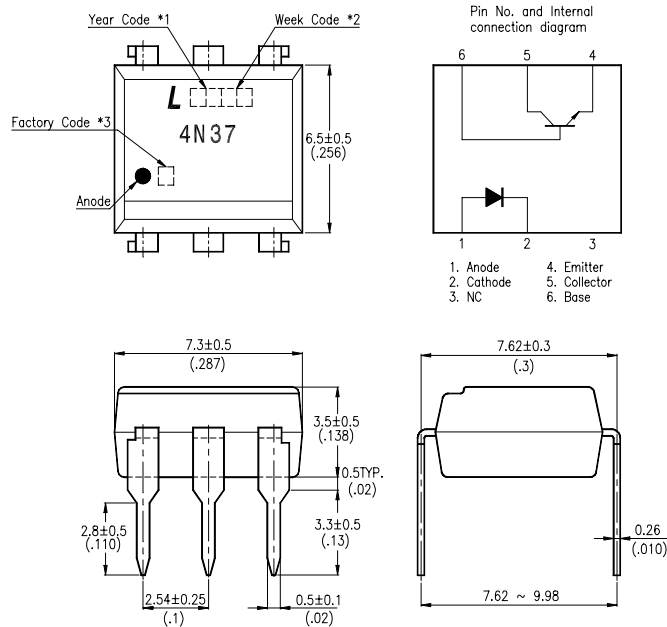
- \* High current transfer ratio  
( CTR : MIN. 100% at  $I_F = 10\text{mA}$ ,  $V_{CE} = 10\text{V}$  )
- \* Response time  
(  $t_{on}$  : TYP.  $3\mu\text{s}$  at  $V_{CC} = 10\text{V}$ ,  $I_C = 2\text{mA}$ ,  $R_L = 100\Omega$  )
- \* Input-output isolation voltage  
4N35 series :  $V_{iso} = 3,550\text{Vrms}$   
4N37 series :  $V_{iso} = 1,500\text{Vrms}$
- \* Dual-in-line package :  
4N35, 4N37
- \* Wide lead spacing package :  
4N35M, 4N37M
- \* Surface mounting package :  
4N35S, 4N37S
- \* Tape and reel packaging :  
4N35S-TA1, 4N37S-TA1
- \* UL approved ( No. E113898 )
- \* TUV approved ( No. R9653630 )
- \* DEMKO approved ( No. 303985 )

## OUTLINE DIMENSIONS

### 4N35 :



### 4N37 :



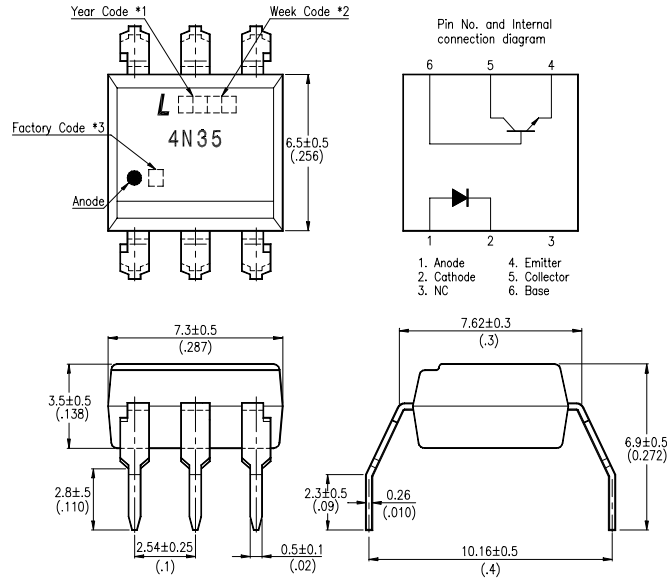
\*1. Year date code.

\*2. 2-digit work week.

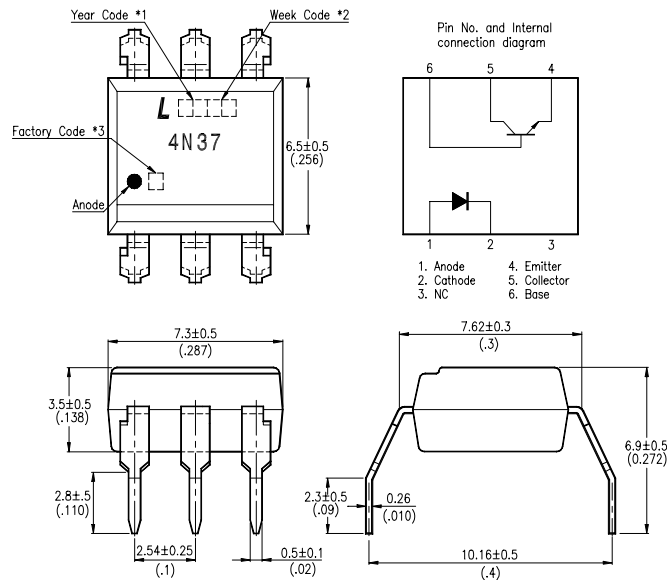
\*3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

## OUTLINE DIMENSIONS

### 4N35M :



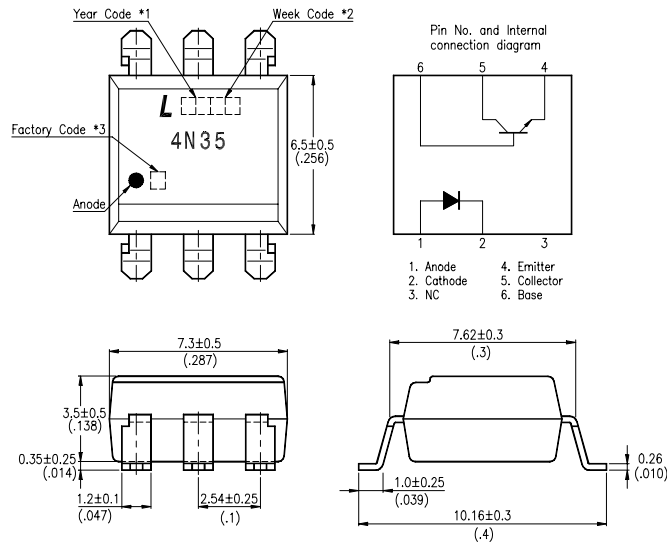
### 4N37M :



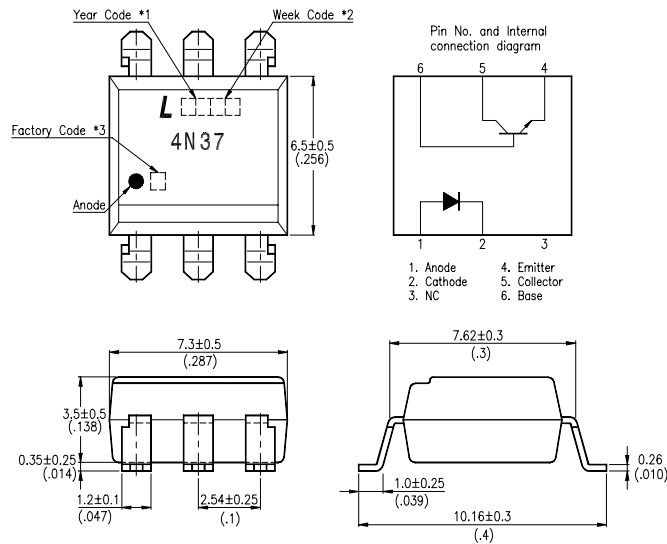
- \*1. Year date code.
- \*2. 2-digit work week.
- \*3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

## OUTLINE DIMENSIONS

### 4N35S :



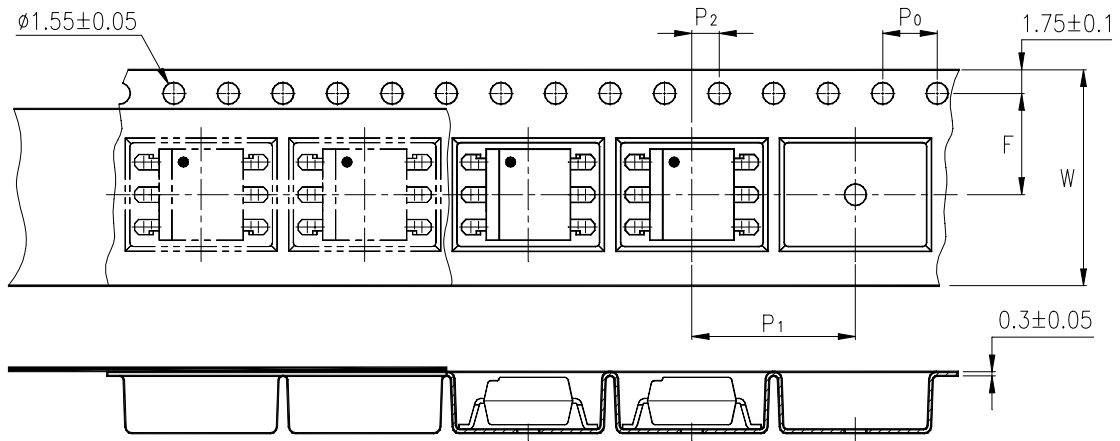
### 4N37S :



- \*1. Year date code.
- \*2. 2-digit work week.
- \*3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

**TAPING DIMENSIONS**

**4N35S-TA1 , 4N37S-TA1 :**



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

**ABSOLUTE MAXIMUM RATING**

( Ta = 25°C )

PARAMETER		SYMBOL	RATING	UNIT
INPUT	Forward Current	I <sub>F</sub>	60	mA
	Reverse Voltage	V <sub>R</sub>	6	V
	Power Dissipation	P	100	mW
OUTPUT	Collector - Emitter Voltage	V <sub>CEO</sub>	30	V
	Emitter - Collector Voltage	V <sub>ECO</sub>	7	V
	Collector - Base Voltage	V <sub>CBO</sub>	70	V
	Collector Current	I <sub>C</sub>	100	mA
	Collector Power Dissipation	P <sub>C</sub>	300	mW
Total Power Dissipation		P <sub>tot</sub>	350	mW
*1 Isolation Voltage	4N35 series	V <sub>iso</sub>	3,550	V <sub>rms</sub>
	4N37 series		1,500	
Operating Temperature		T <sub>opr</sub>	-55 ~ +100	°C
Storage Temperature		T <sub>stg</sub>	-55 ~ +150	°C
*2 Soldering Temperature		T <sub>sol</sub>	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 and base 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 <sub>F</sub>	—	1.2	1.5	V	I <sub>F</sub> =10mA	
	Reverse Current	I <sub>R</sub>	—	—	10	μA	V <sub>R</sub> =4V	
	Terminal Capacitance	C <sub>t</sub>	—	50	—	pF	V=0, f=1KHz	
OUTPUT	Collector Dark Current	I <sub>CEO</sub>	Ta=25°C	—	—	50	nA	V <sub>CE</sub> =10V, I <sub>F</sub> =0
			Ta=100°C	—	—	500	μA	V <sub>CE</sub> =30V, I <sub>F</sub> =0
	Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	30	—	—	V	I <sub>C</sub> =0.1mA I <sub>F</sub> =0	
	Emitter-Collector Breakdown Voltage	BV <sub>ECO</sub>	7	—	—	V	I <sub>E</sub> =10μA I <sub>F</sub> =0	
	Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	70	—	—	V	I <sub>C</sub> =0.1mA I <sub>F</sub> =0	
TRANSFER CHARACTERISTICS	Collector Current	I <sub>C</sub>	10	—	—	mA	I <sub>F</sub> =10mA V <sub>CE</sub> =10V	
	* Current Transfer Ratio	CTR	100	—	—	%		
	Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	—	—	0.3	V	I <sub>F</sub> =50mA I <sub>C</sub> =2mA	
	Isolation Resistance	R <sub>iso</sub>	5×10 <sup>10</sup>	1×10 <sup>11</sup>	—	Ω	DC500V 40 ~ 60% R.H.	
	Floating Capacitance	C <sub>f</sub>	—	1	2.5	pF	V=0, f=1MHz	
	Response Time (Turn-on)	t <sub>on</sub>	—	3	10	μs	V <sub>CC</sub> =10V, I <sub>C</sub> =2mA R <sub>L</sub> =100Ω	
	Response Time (Turn-off)	t <sub>off</sub>	—	3	10	μs		

$$* CTR = \frac{I_C}{I_F} \times 100\%$$

**CHARACTERISTICS CURVES**

Fig.1 Forward Current vs. Ambient Temperature

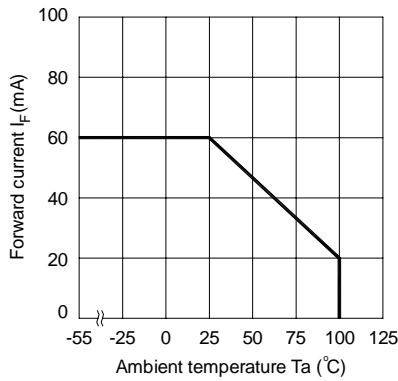


Fig.2 Collector Power Dissipation vs. Ambient Temperature

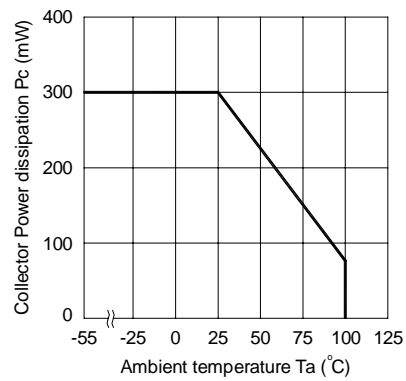


Fig.3 Forward Current vs. Forward Voltage

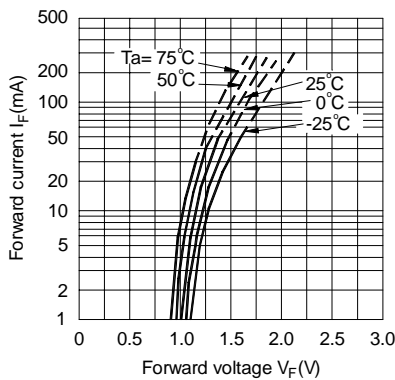


Fig.4 Current Transfer Ratio vs. Forward Current

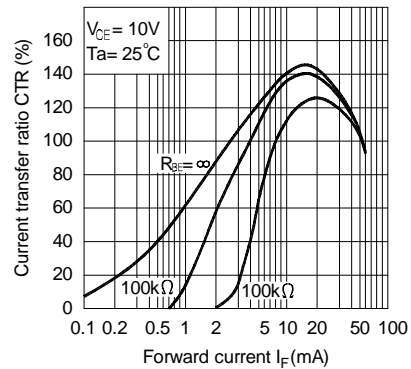


Fig.5 Collector Current vs. Collector-emitter Voltage

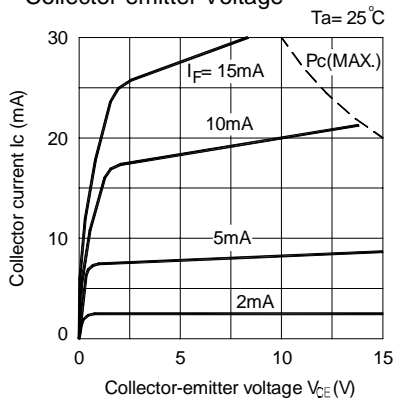
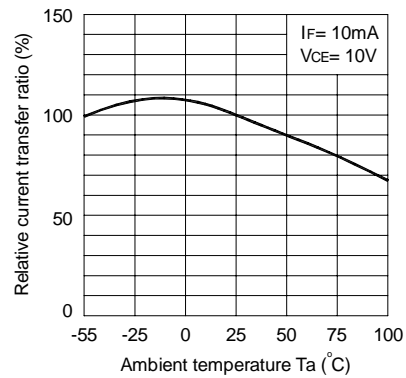


Fig.6 Relative Current Transfer Ratio vs. Ambient Temperature





## CHARACTERISTICS CURVES

Fig.7 Collector-emitter Saturation Voltage vs. Ambient Temperature

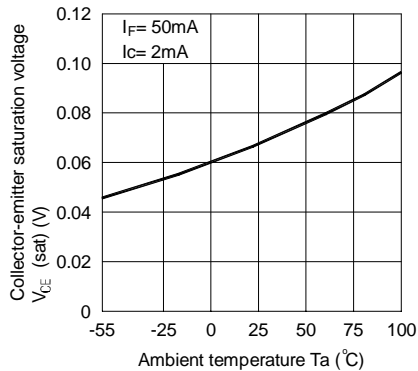


Fig.8 Collector Dark Current vs. Ambient Temperature

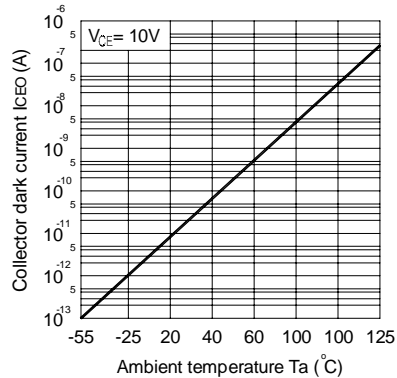


Fig.9 Response Time vs. Load Resistance

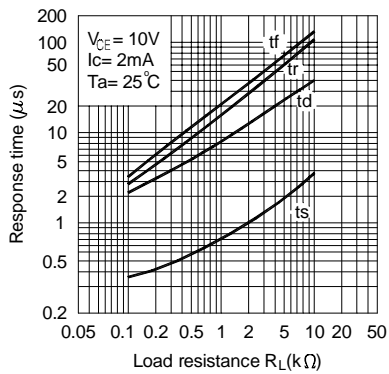


Fig.10 Frequency Response

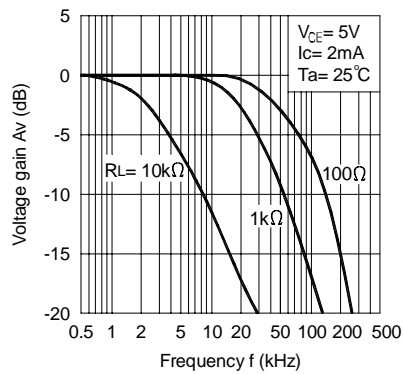
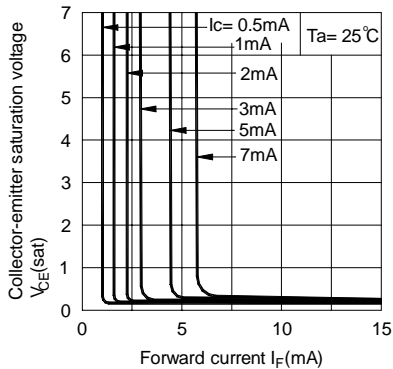
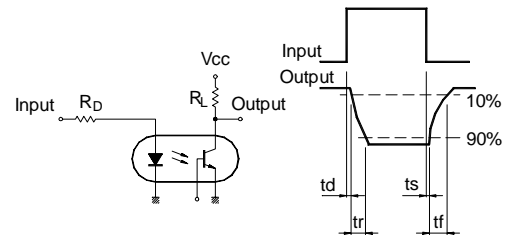


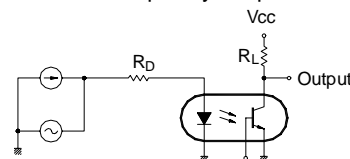
Fig.11 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Response Time



Test Circuit for Frequency Response



**RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)**

Unit : mm

