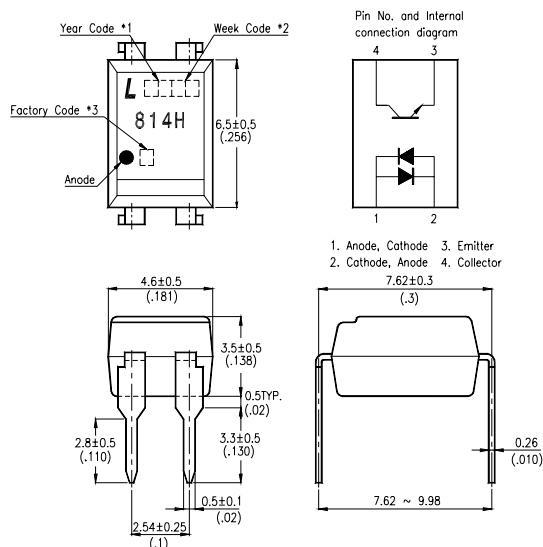


## FEATURES

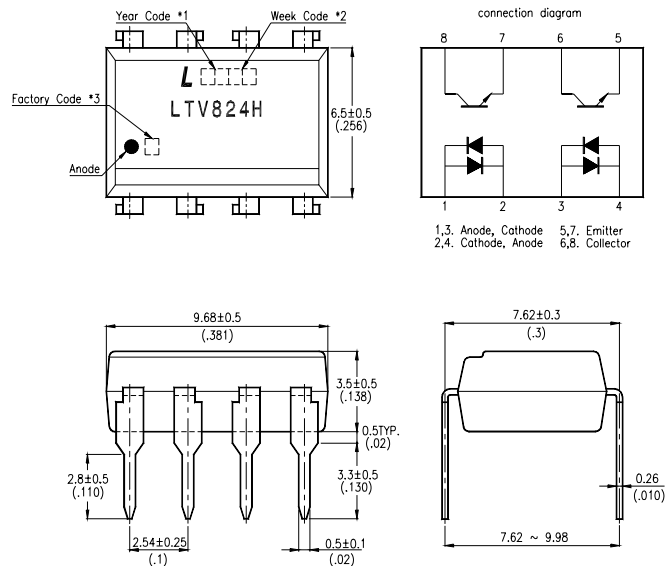
- \* AC input response
- \* High input current  
(  $I_F$  : MAX. 150mA )
- \* High input-output isolation voltage  
(  $V_{iso}$  = 5,000Vrms )
- \* Low collector dark current  
(  $I_{CEO}$  : MAX.  $10^{-7}$ A at  $V_{CE} = 20V$  )
- \* Current transfer ratio  
( CTR : MIN. 20% at  $I_F = \pm 100mA$ ,  $V_{CE} = 2V$  )
- \* Dual-in-line package :
  - LTV-814H : 1-channel type
  - LTV-824H : 2-channel type
  - LTV-844H : 4-channel type
- \* Wide lead spacing package :
  - LTV-814HM : 1-channel type
  - LTV-824HM : 2-channel type
  - LTV-844HM : 4-channel type
- \* Surface mounting package :
  - LTV-814HS : 1-channel type
  - LTV-824HS : 2-channel type
  - LTV-844HS : 4-channel type
- \* Tape and reel packaging :
  - LTV-814HS-TA1, LTV-824HS-TA1
- \* UL approved ( No. E113898 ) only 814H
- \* TUV approved ( No. R9653630 )
- \* CSA approved ( No. CA91533 )
- \* VDE approved ( No. 094722 ) only 814H

## OUTLINE DIMENSIONS

### LTV-814H :



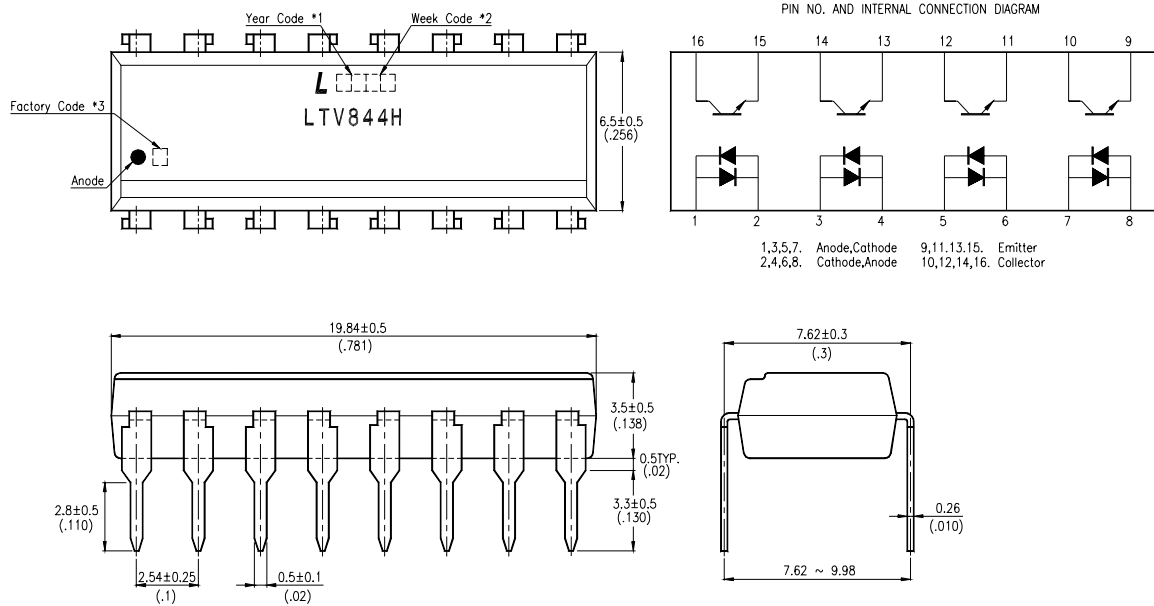
### LTV-824H :



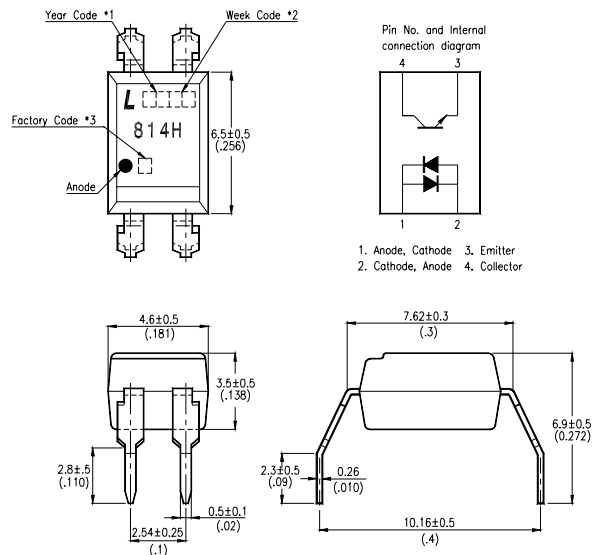
- \*1. Year date code.
- \*2. 2-digit work week.
- \*3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

## OUTLINE DIMENSIONS

### LTV-844H :



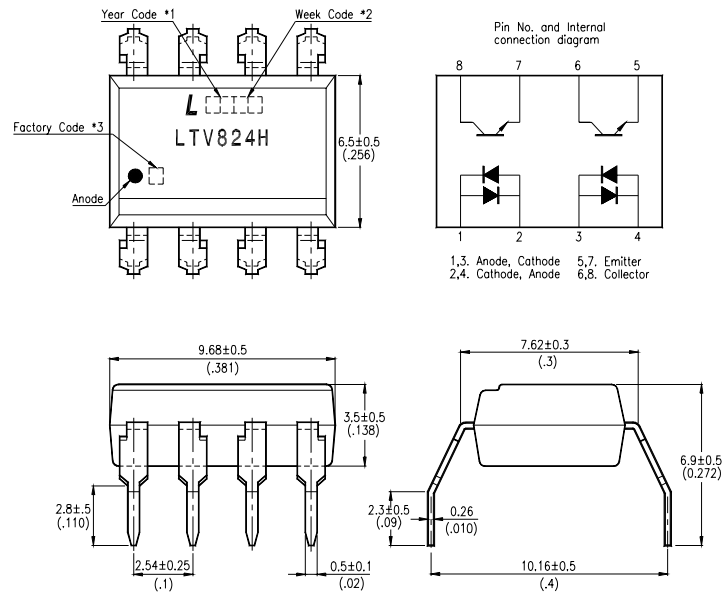
### LTV-814HM :



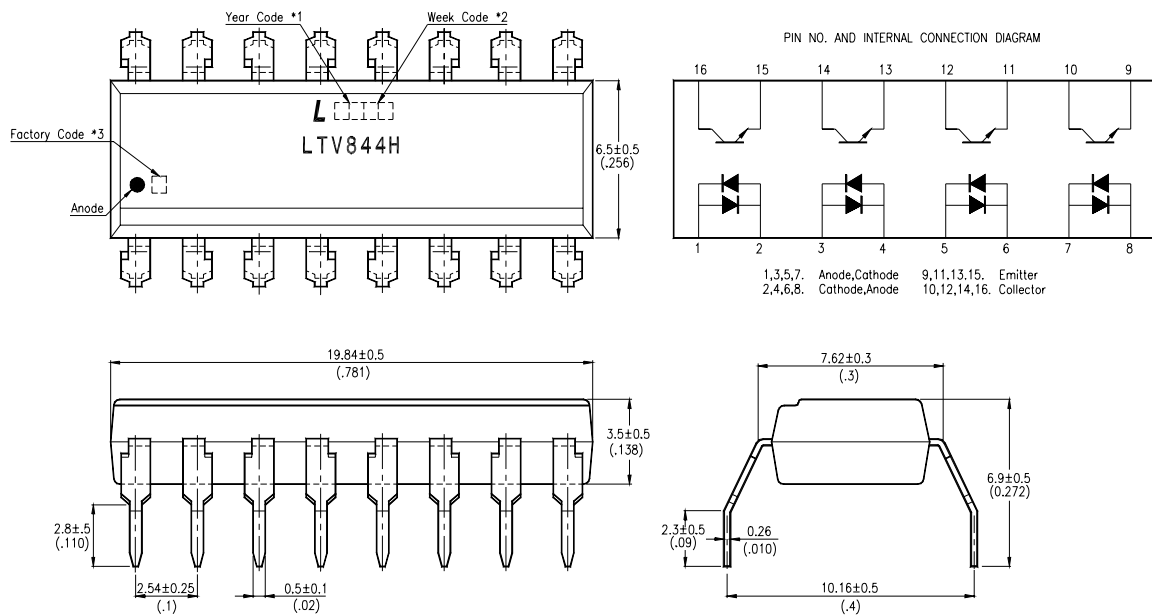
- \*1. Year date code.
- \*2. 2-digit work week.
- \*3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

## OUTLINE DIMENSIONS

### LTV-824HM :



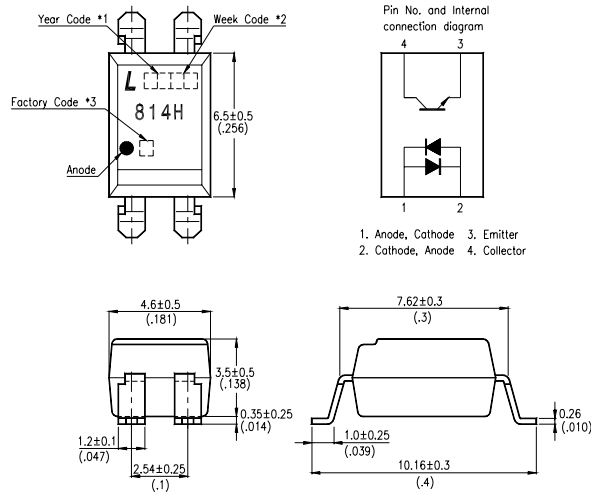
### LTV-844HM :



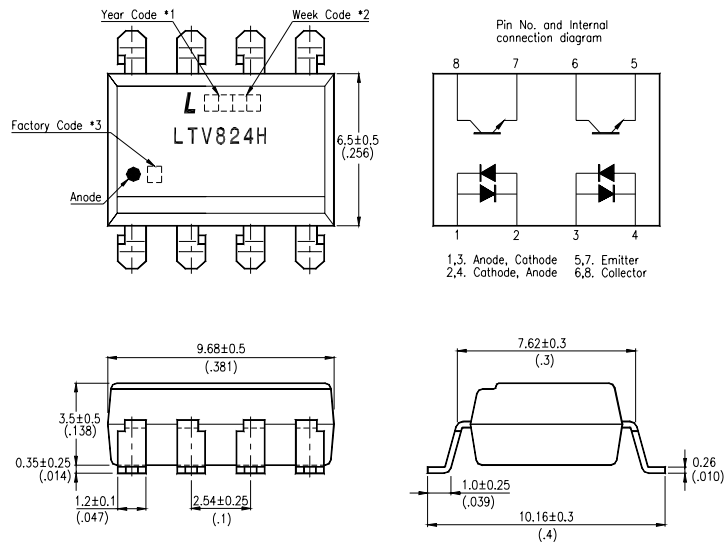
- \*1. Year date code.
- \*2. 2-digit work week.
- \*3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

## OUTLINE DIMENSIONS

### LTV-814HS :



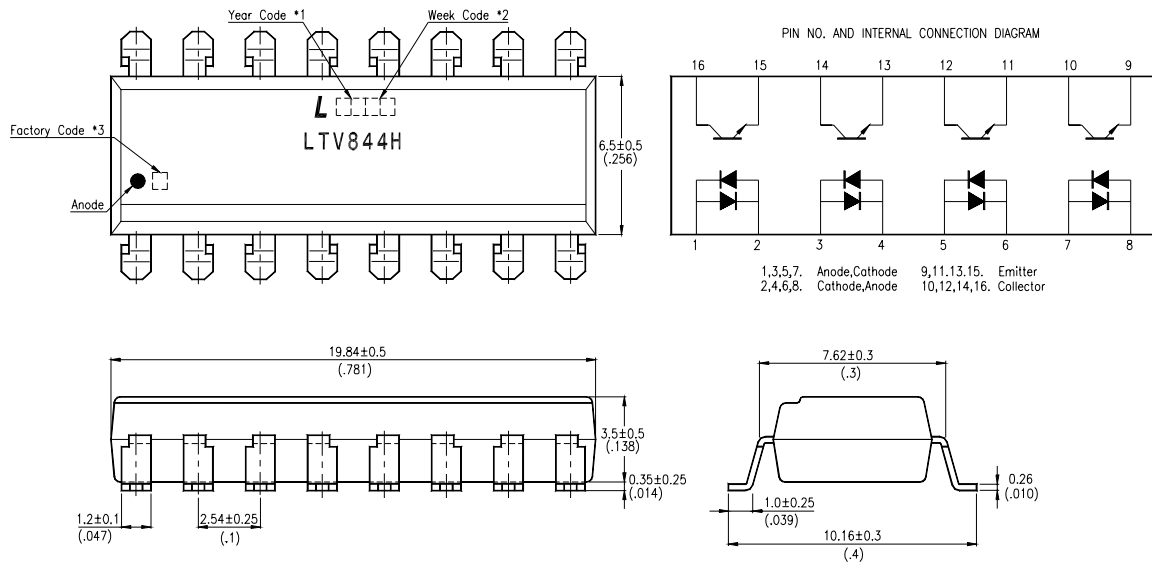
### LTV-824HS :



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

## OUTLINE DIMENSIONS

### LTV-844HS :



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

## TAPING DIMENSIONS

### LTV-814HS-TA1 :



### LTV-824HS-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>	±150	mA
	Power Dissipation	P	230	mW
OUTPUT	Collector - Emitter Voltage	V <sub>CEO</sub>	35	V
	Emitter - Collector Voltage	V <sub>ECO</sub>	6	V
	Collector Current	I <sub>C</sub>	80	mA
	Collector Power Dissipation	P <sub>C</sub>	160	mW
Total Power Dissipation		P <sub>tot</sub>	320	mW
*1	Isolation Voltage	V <sub>iso</sub>	5,000	V <sub>rms</sub>
Operating Temperature		T <sub>opr</sub>	-30 ~ +100	°C
Storage Temperature		T <sub>stg</sub>	-55 ~ +125	°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 and 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 <sub>F</sub>	—	1.4	1.7	V	I <sub>F</sub> =±100mA
	Terminal Capacitance	C <sub>t</sub>	—	50	400	pF	V=0, f=1KHz
OUTPUT	Collector Dark Current	I <sub>CEO</sub>	—	—	100	nA	V <sub>CE</sub> =20V, I <sub>F</sub> =0
	Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	35	—	—	V	I <sub>C</sub> =0.1mA I <sub>F</sub> =0
	Emitter-Collector Breakdown Voltage	BV <sub>ECO</sub>	6	—	—	V	I <sub>E</sub> =10μA I <sub>F</sub> =0
TRANSFER CHARACTERISTICS	Collector Current	I <sub>C</sub>	20	—	80	mA	I <sub>F</sub> =±100mA V <sub>CE</sub> =2V
	* Current Transfer Ratio	CTR	20	—	80	%	
	Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	—	0.1	0.2	V	I <sub>F</sub> =±100mA I <sub>C</sub> =1mA
	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>	—	0.6	1	pF	V=0, f=1MHz
	Cut-Off Frequency	f <sub>c</sub>	15	80	—	KHz	V <sub>CE</sub> =5V, I <sub>C</sub> =2mA R <sub>L</sub> =100Ω, -3dB
	Response Time (Rise)	t <sub>r</sub>	—	4	18	μs	V <sub>CE</sub> =2V, I <sub>C</sub> =2mA R <sub>L</sub> =100Ω
Response Time (Fall)	t <sub>f</sub>	—	3	18	μs		

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

## CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

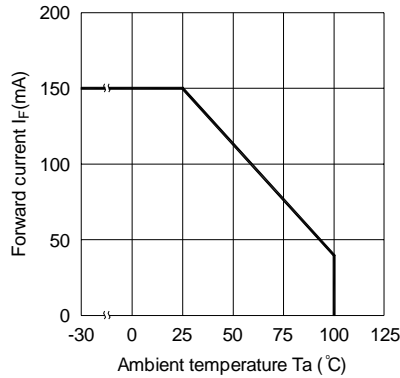


Fig.2 Collector Power Dissipation vs. Ambient Temperature

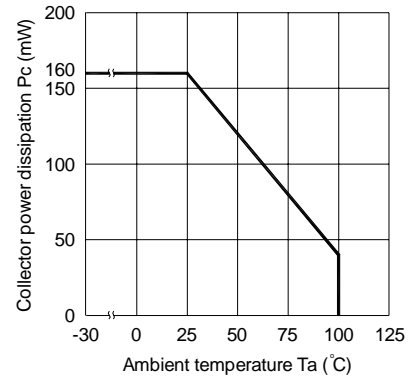


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

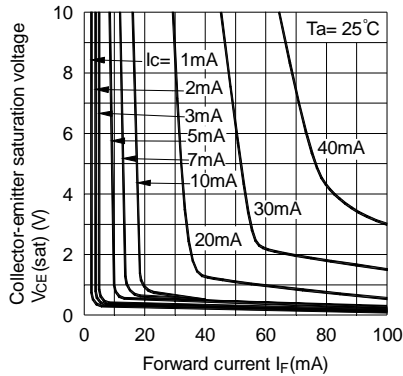


Fig.4 Forward Current vs. Forward Voltage

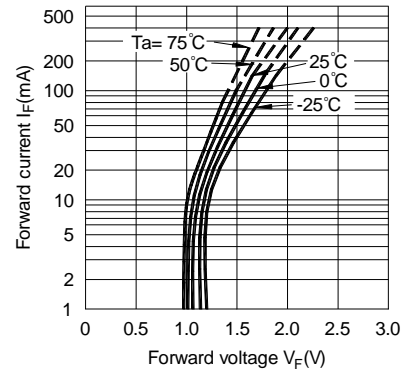


Fig.5 Current Transfer Ratio vs. Forward Current

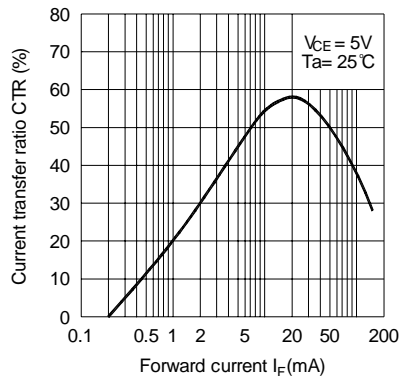
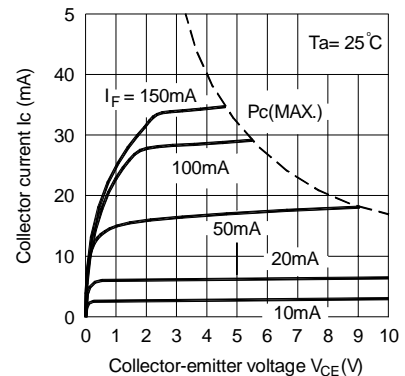


Fig.6 Collector Current vs. Collector-emitter Voltage



## CHARACTERISTICS CURVES

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

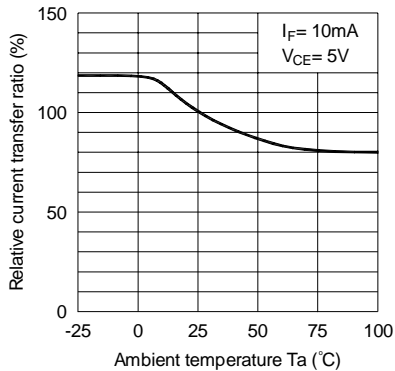


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

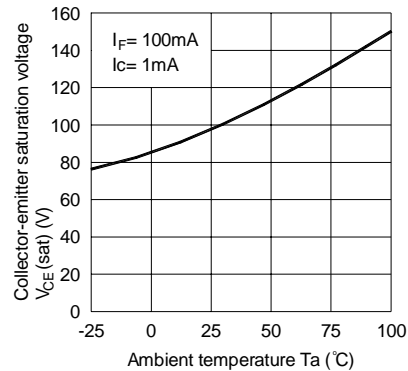


Fig.9 Collector Dark Current vs. Ambient Temperature

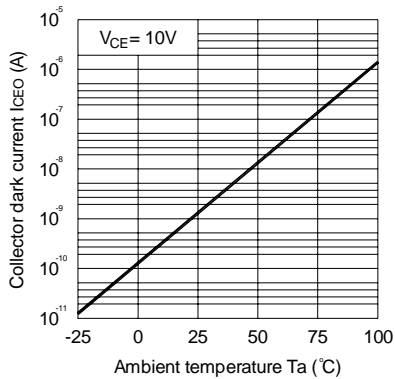


Fig.10 Response Time vs. Load Resistance

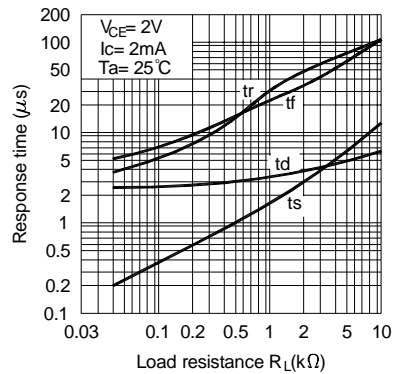
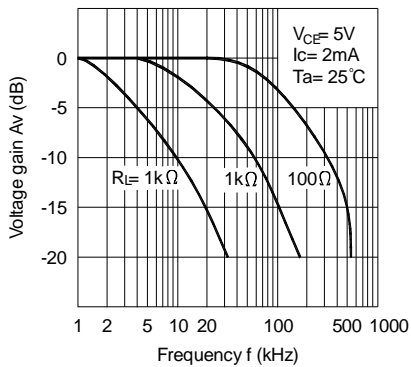
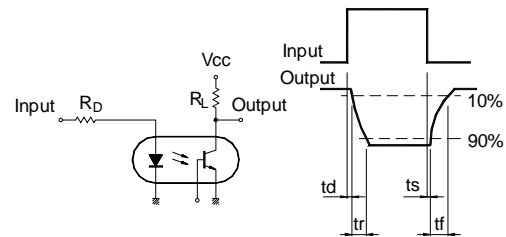


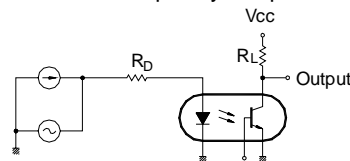
Fig.11 Frequency Response



Test Circuit for Response Time



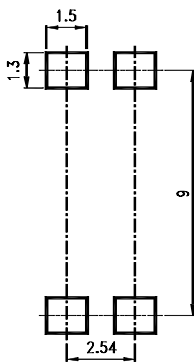
Test Circuit for Frequency Response



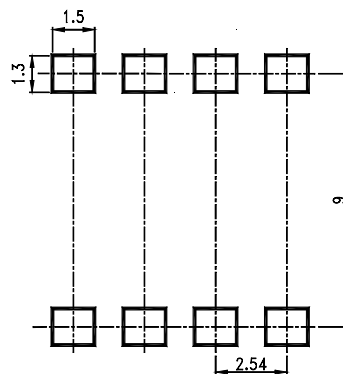
## RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)

Unit : mm

4 PIN



8 PIN



16 PIN

