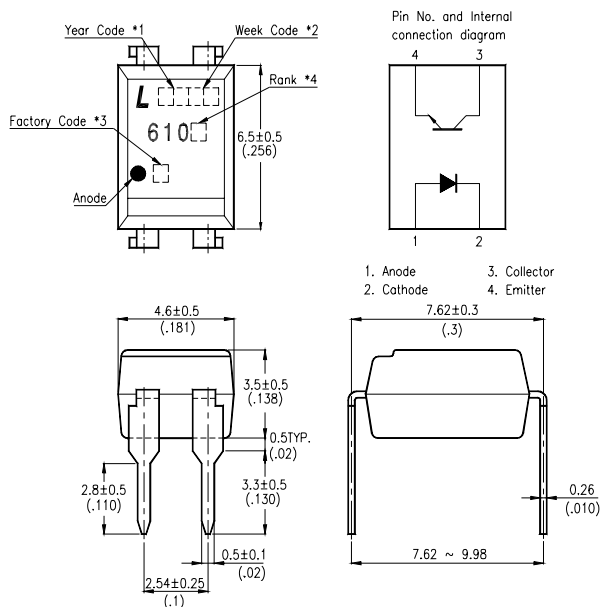


FEATURES

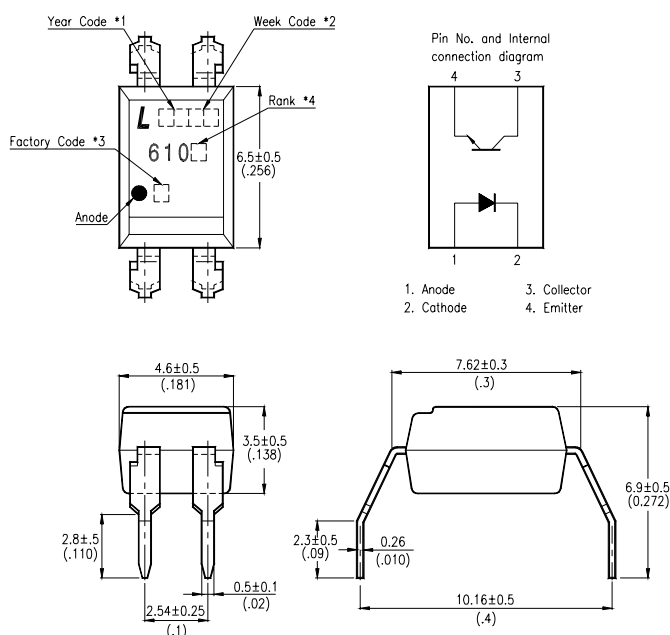
- * High current transfer ratio
 - at 10 mA: 40~320%
 - at 1 mA: 60% typical (>13)
- * Low CTR degradation
- * High input-output isolation voltage
 - ($V_{iso} = 5,000V_{rms}$)
- * High collector-Emitter voltage, $V_{CEO}=70V$
- * Dual-in-line package :
 - LTV-610
- * Wide lead spacing package :
 - LTV-610M
- * Surface mounting package :
 - LTV-610S
- * Tape and reel packaging :
 - LTV-610S-TA1

OUTLINE DIMENSIONS

LTV-610



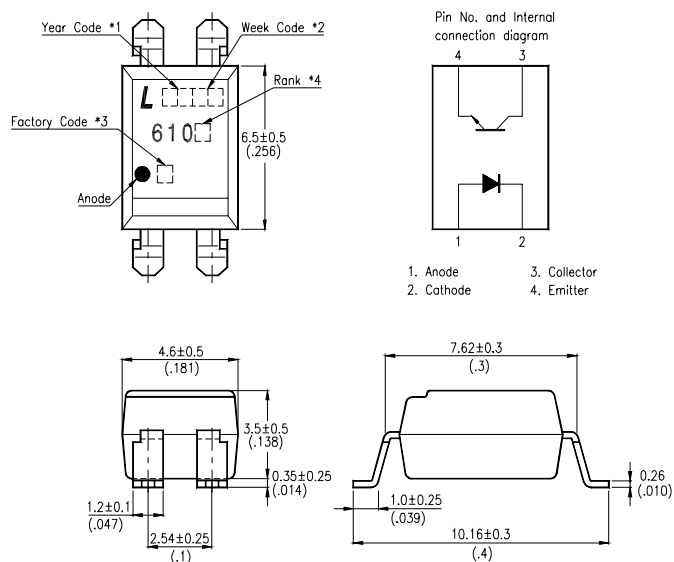
LTV-610M



- *1. Year date code.
- *2. 2-digit work week.
- *3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).
- *4. Rank shall be or shall not be marked.

OUTLINE DIMENSIONS

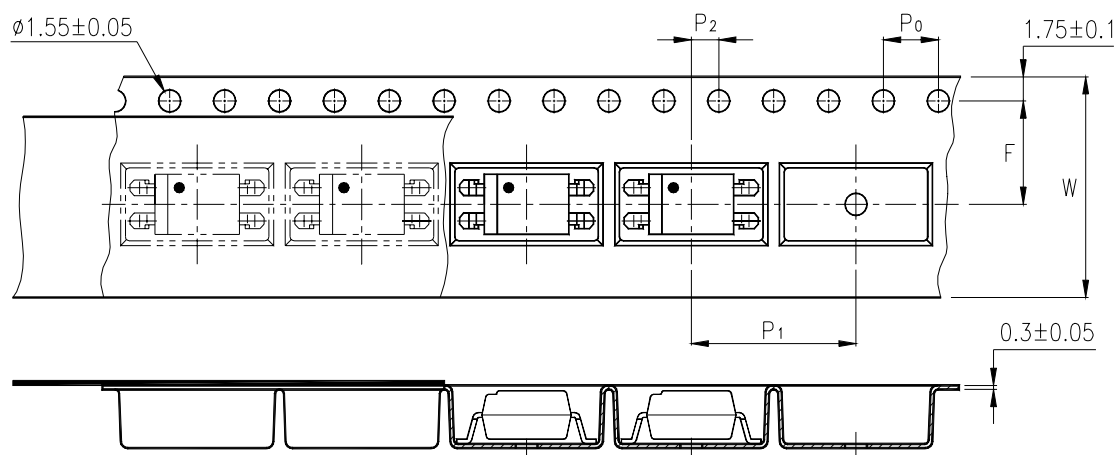
LTV-610S :



- *1. Year date code.
- *2. 2-digit work week.
- *3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).
- *4. Rank shall be or shall not be marked.

TAPING DIMENSIONS

LTV-610S-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	7.5 ± 0.1 (.295)
Distance of compartment to compartment	P_2	2 ± 0.1 (.079)
	P_1	12 ± 0.1 (.472)

ABSOLUTE MAXIMUM RATING

(Ta = 25°C)

PARAMETER		SYMBOL	RATING	UNIT
INPUT	Forward Current	I _F	60	mA
	Reverse Voltage	V _R	6	V
	Power Dissipation	P	100	mW
OUTPUT	Collector - Emitter Voltage	V _{CEO}	70	V
	Emitter - Collector Voltage	V _{ECO}	7	V
	Collector Current	I _C	50	mA
	Collector Power Dissipation	P _C	150	mW
Total Power Dissipation		P _{tot}	200	mW
*1	Isolation Voltage	V _{iso}	5,300	V _{rms}
Operating Temperature		T _{opr}	-55 ~ +100	°C
Storage Temperature		T _{stg}	-55 ~ +150	°C
*2	Soldering Temperature	T _{sol}	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 _F	—	1.25	1.65	V	I _F =60mA
	Reverse Current	I _R	—	0.01	10	μA	V _R =6V
	Terminal Capacitance	C _O	—	13	—	pF	V _R =0, f=1MHz
OUTPUT	Collector-Emitter Leakage Current	I _{CEO}	—	—	100	nA	V _{CE} =20V, I _F =0
	Collector-Emitter Breakdown Voltage	BV _{CEO}	70	—	—	V	I _C =0.1mA I _F =0
	Emitter-Collector Breakdown Voltage	BV _{ECO}	7	—	—	V	I _E =10μA I _F =0
TRANSFER CHARACTERISTICS	* Current Transfer Ratio	CTR	40	—	320	%	I _F =10mA, V _{CE} =5V
			13	60	—		I _F =1mA, V _{CE} =5V
	Collector-Emitter Saturation Voltage	V _{CE(sat)}	—	0.25	0.4	V	I _F =10mA I _C =2.5mA
	Isolation Resistance	R _{iso}	10 ¹²	—	—	Ω	DC500V 40 ~ 60% R.H.
	Floating Capacitance	C _f	—	0.6	1	pF	V=0, f=1MHz
	Cut-Off Frequency	f _{co}	—	250	—	kHz	V _{CC} =5V, I _F =10mA R _L =75Ω
	Response Time (Rise)	t _r	—	2	—	μs	
	Response Time (Fall)	t _f	—	2	—	μs	

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

RANK TABLE OF CURRENT TRANSFER RATIO CTR

		A	B	C	D	CONDITIONS
Current Transfer Ratio	CTR	40 ~ 80	63 ~ 125	100 ~ 200	160 ~ 320	IF=10mA, V _{CE} =5V
	(%)	30 (>13)	45 (>22)	70 (>34)	90 (>56)	IF=1mA, V _{CE} =5V

CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

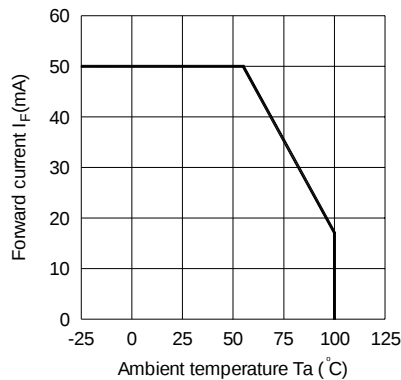


Fig.2 Collector Power Dissipation vs. Ambient Temperature

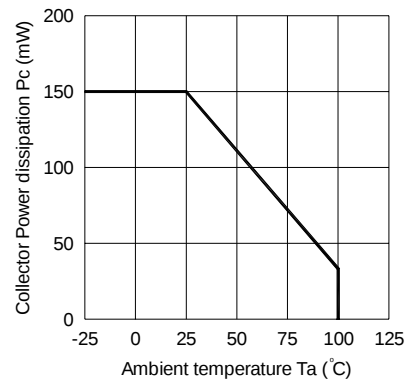


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

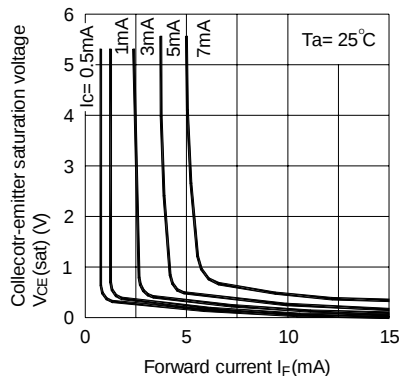


Fig.4 Forward Current vs. Forward Voltage

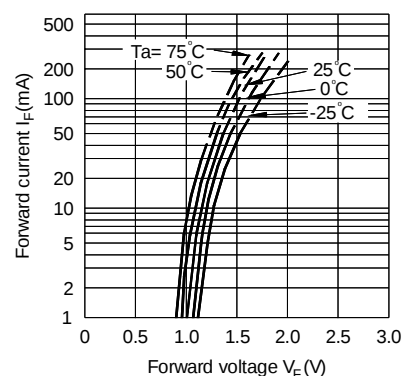


Fig.5 Current Transfer Ratio vs. Forward Current

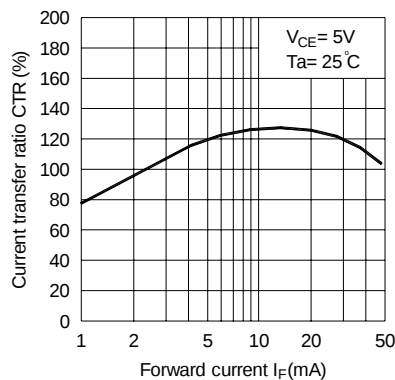
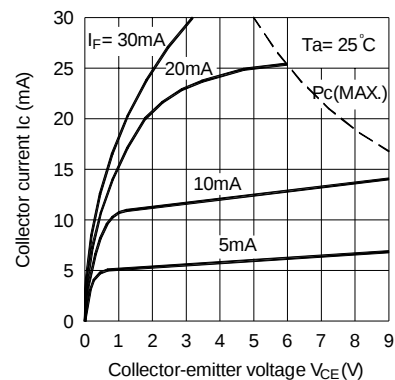


Fig.6 Collector Current vs. Collector-emitter Voltage



CHARACTERISTICS CURVES

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

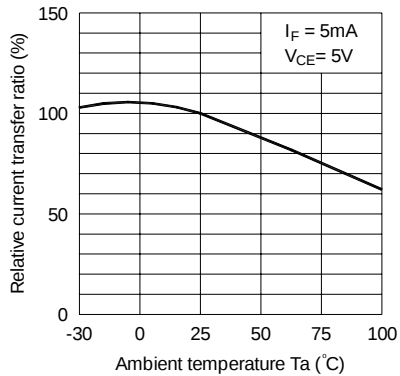


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

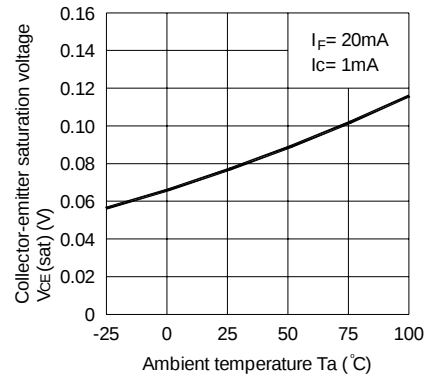


Fig.9 Collector Dark Current vs. Ambient Temperature

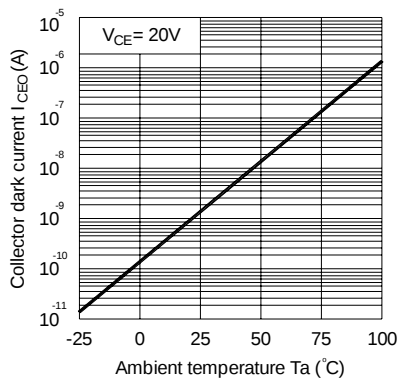


Fig.10 Response Time vs. Load Resistance

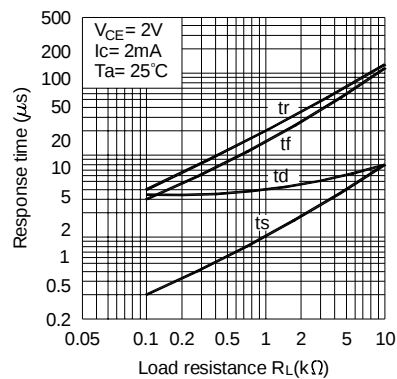
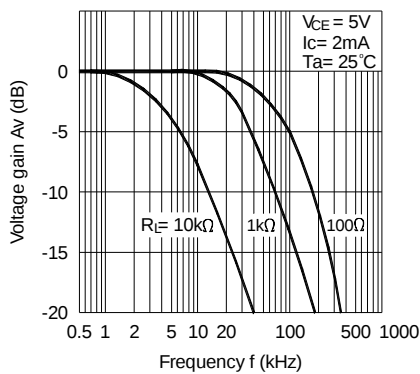
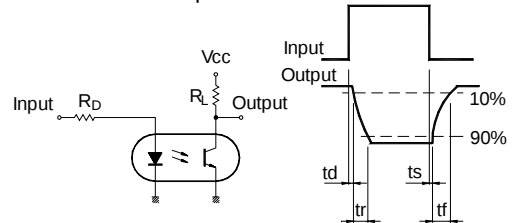


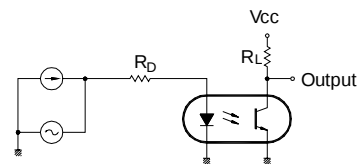
Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response



RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)

Unit : mm

4 PIN

