

# **High Density Mounting Type Photocoupler**

ITV-817 Series

#### **Features**

· Current transfer ratio

(CTR: MIN. 50% at I<sub>F</sub>=5mA, V<sub>CE</sub>=5V)

· High input-output isolation voltage:

(VISO: 5,000Vrms)

· Compact dual-in-line package

LTV-817: 1-channel type

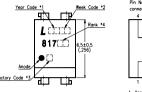
LTV-827 : 2-channel type

- LTV-847 : 4-channel type
- UL approved (No. E113898)
- TUV approved (No. R9653630)
- CSA approved (No. CA91533-1)
- FIMKO approved (No. 202634)
- NEMKO approved (No. P98101945)
- DEMKO approved (No. 307857)
- SEMKO approved (No. 9832157/01-03)
- VDE approved (No. 094722)
- · Options available :
- -Leads with 0.4"(10.16mm)spacing (M Type)
- -Leads bends for surface mounting(S Type)
- -Tape and Reel of Type I for SMD(Add"-TA"Suffix)
- -Tape and Reel of Type II for SMD(Add"-TA1"Suffix)
- -VDE 0884 approvals (Add"-V"Suffix)

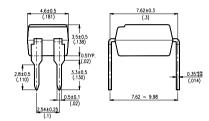
#### **Applications**

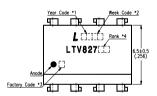
- 1. Computer terminals.
- 2. System appliances, measuring instruments.
- 3. Registers, copiers, automatic vending machines.
- 4. Electric home appliances such as fan heaters, etc.
- Signal transmission between circuits of different potentials and impedances.

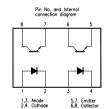
#### **Package Dimensions**

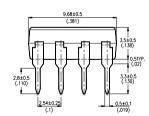


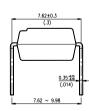


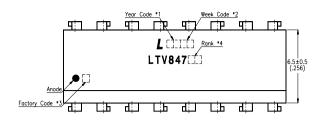


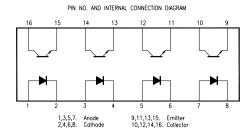


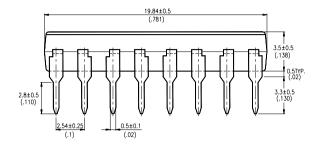


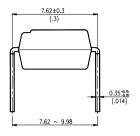












#### Note:

- 1.Year date code.
- 2. 2-digit work week.
- 3. Factory code shall be marked (Z: Taiwan, Y: Thailand).
- 4. Rank shall be or shall not be marked.
- 5. All dimensions are in millimeters (inches).
- 6. Tolerance is  $\pm$  0.25mm (.010") unless otherwise noted.
- 7. Specifications are subject to change without notice.

#### **Ordering Information**

Part Number	Package	Safety Standard Approval	Application part number
LTV-817 LTV-817M LTV-817S LTV-817S-TA LTV-817S-TA1	4-pin DIP 4-pin (leads with 0.4" spacing) 4-pin (lead bends for surface mount) 4-pin (tape and reel packaging of type I) 4-pin (tape and reel packaging of type II)	UL approved TUV approved CSA approved FIMKO approved NEMKO approved	LTV-817
LTV-827 LTV-827M LTV-827S LTV-827S-TA LTV-827S-TA1	8-pin DIP 8-pin (leads with 0.4" spacing) 8-pin (lead bends for surface mount) 8-pin (tape and reel packaging of type I) 8-pin (tape and reel packaging of type II)	SEMKO approved     DEMKO approved	LTV-827
LTV-847 LTV-847M LTV-847S	16-pin DIP 16-pin (leads with 0.4" spacing) 16-pin (lead bends for surface mount)		LTV-847
LTV817-V LTV817M-V LTV817S-V LTV817STA-V LTV817STA1-V	4-pin DIP 4-pin (leads with 0.4" spacing) 4-pin (lead bends for surface mount) 4-pin (tape and reel packaging of type I) 4-pin (tape and reel packaging of type II)	VDE approved	LTV-817
LTV827-V LTV827M-V LTV827S-V LTV827STA-V LTV827STA1-V	8-pin DIP 8-pin (leads with 0.4" spacing) 8-pin (lead bends for surface mount) 8-pin (tape and reel packaging of type I) 8-pin (tape and reel packaging of type II)		LTV-827
LTV847-V LTV847M-V LTV847S-V	16-pin DIP 16-pin (leads with 0.4" spacing) 16-pin (lead bends for surface mount)		LTV-847

	Parameter	Symbol	Rating	Unit
	Forward Current	lF	50	mA
Input	Reverse Voltage	VR	6	V
	Power Dissipation	Р	70	mW
Output	Collector-Emitter Voltage	VCEO	35	V
	Emitter-Collector Voltage	Veco	6	V
	Collector Current	Ic	50	mA
	Collector Power Dissipation	Pc	150	mW
Total Power	Dissipation	Ptot	200	mW
Operating Te	emperature	Topr	-30~+100	°C
Storage Tem	perature	Tstg	-55~+125	$^{\circ}$
*1.Isolation Volt	age	Viso	5	KVrms
*2.Soldering Te	mperature	Tsol	260	°C

<sup>\*1.</sup> AC for 1 minute, R.H. = 40 ~ 60%

#### **Electrical/Optical Characteristics**

(Ta=25°C)

	Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
	Forward Voltage	VF	_	1.2	1.4	V	IF=20mA	
Input	Reverse Current	IR	1	_	10	μΑ	V <sub>R</sub> =4V	
-	Terminal Capacitance	Ct	_	30	250	pF	V=0, f=1KHz	
Output	Collector Dark Current	Iceo	_	_	100	nA	VcE=20V	
	Collector-Emitter Breakdown Voltage	BVcEo	35	-	ı	V	Ic=0.1mA	
ō	Emitter-Collector Breakdown Voltage	BVeco	6	_	-	V	Iε=10 μ A	
	*Current Transfer Ratio	CTR	50	_	600	%	F=5mA, VcE=5V RBE=∞	
SS	Collector Current	Ic	2.5	_	30	mA		
Characteristics	Collector-emitter Saturation Voltage	VCE(sat)	_	0.1	0.2	V	IF=20mA, Ic=1mA	
rac	Isolation Resistance	Riso	5 × 10 <sup>10</sup>	1011	_	Ω	DC500V, 40~60% R.H.	
) ha	Floating Capacitance	Cf	_	0.6	1.0	pF	V=0, f=1MHz	
Transfer (	Cut-off Frequency	fc	_	80	-	KHz	VcE=5V, Ic=2mA RL=100 Ω, -3dB	
	Response Time (Rise)	tr	_	4	18	μs	VcE=2V, Ic=2mA	
Ľ.	Response Time (Fall)	tf	_	3	18	μs	RL=100 Ω	

<sup>\*</sup>CTR=  $\frac{Ic}{IF} \times 100\%$ 

## ■ Supplement

## Rank Table of Current Transfer Ratio CTR

Model No.	Rank Mark	CTR(%)		
LTV-817	L	50~100		
LTV-817	A	80~160		
LTV-817	В	130~260		
LTV-817	С	200~400		
LTV-817	D	300~600		
LTV-817	L or A or B or C or D	50~600		
Conditions	I⊧=5mA VcE=5V Ta=25°C			

<sup>•</sup> Isolation voltage shall be measured using the following method.

<sup>(1)</sup>Short between anode and cathode on the primary side and between collector, emitter and base on the secondary side.

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

<sup>(3)</sup>The waveform of applied volttage shall be a sine wave.

<sup>\*2.</sup> For 10 seconds.

# Typical Electrical/Optical Characteristic Curves (25°C Ambient Temperature Unless Otherwise Noted)

Fig.1 Forword Current vs. Ambient Temperatute

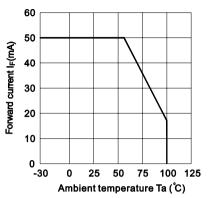


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

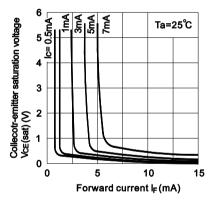


Fig.5 Current Transfer Ratio vs.
Forward Current

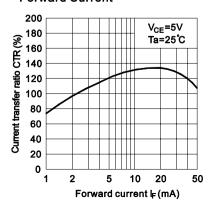


Fig.2 Collector Power Dissiption vs. Ambient Temperature

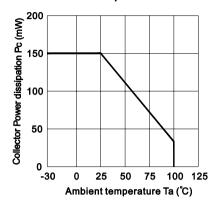


Fig.4 Forward Current vs. Forward Voltage

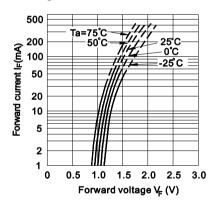


Fig.6 Collector Current vs.

Collector-emitter Voltage

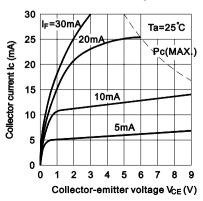


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

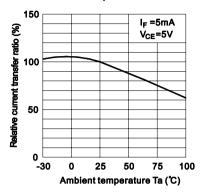


Fig.9 Collector Dark Current vs.
Ambient Temperature

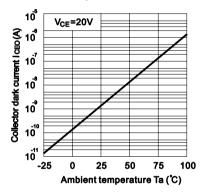


Fig.11 Frequency Response

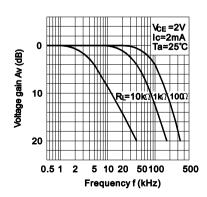


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

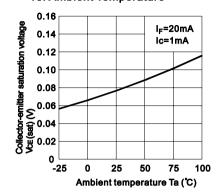
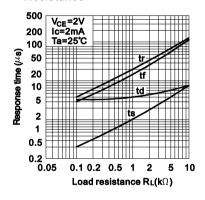
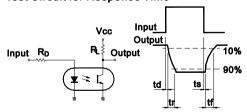


Fig.10 Response Time vs. Load Resistance



**Test Circuit for Response Time** 



Test Circuit for Frequency Response

