



EVERLIGHT ELECTRONICS CO., LTD.

# DATA SHEET

**MODEL NO :** EL817

**DATE :** Jun, 01, 2001

**DEPARTMENT :** R&D 2

**REVISION :** 1.2

<b>RECEIVED</b>			
<input checked="" type="checkbox"/> MASS PRODUCTION			
<input type="checkbox"/> PRELIMINARY			
<input type="checkbox"/> CUSTOMER DESIGN			
DEVICE NUMBER : DPC-817-001			
PAGE : 9			
CUSTOMER	DESIGNER	CHECKER	APPROVER

1.1	Add page 2of 9, laser marking content of "EVERLIGHT"	May,16,2001
1.2	Add page 1of 9 - "FIMKO approved (NO.FI16763)"	Jun,01,2001
REV	DESCRIPTION	RELEASE DATE

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FAX : 886-2-22676244,22676189,22676306

<http://www.everlight.com>



## Photocoupler

MODEL NO. : EL817

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### Features:

- Current transfer ratio  
(CTR:MIN.50% at  $I_F = 5\text{mA}$  ,  $V_{CE} = 5\text{V}$ )
- High isolation voltage between input and output ( $V_{iso} = 5000\text{ V rms}$ )
- Compact dual-in-line package  
EL817:1-channel type
- UL approved (NO. E214129)
- VDE approved (NO. 132249)
- SEMKO approved (NO. 0101083/01)
- NEMKO approved (NO.P00102385)
- DEMKO approved (NO.310352-01)
- FIMKO approved (NO.FI16763)
- CSA approved (NO. CA5A1-98)
- BSI approved (NO. 8593)



### Applications

- Computer terminals
  - System appliances, measuring instruments
  - Registers, copiers, automatic vending machines
  - Cassette type recorder
  - Electric home appliances, such as fan heaters, etc.
  - Signal transmission between circuits of different potentials and impedances
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# EVERLIGHT ELECTRONICS CO., LTD

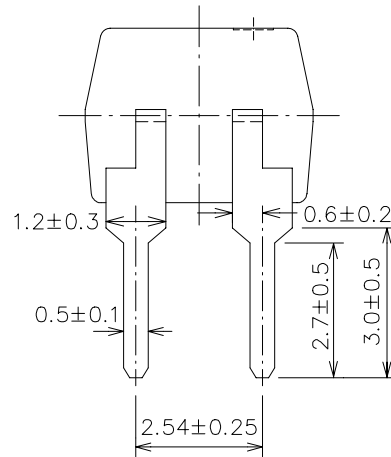
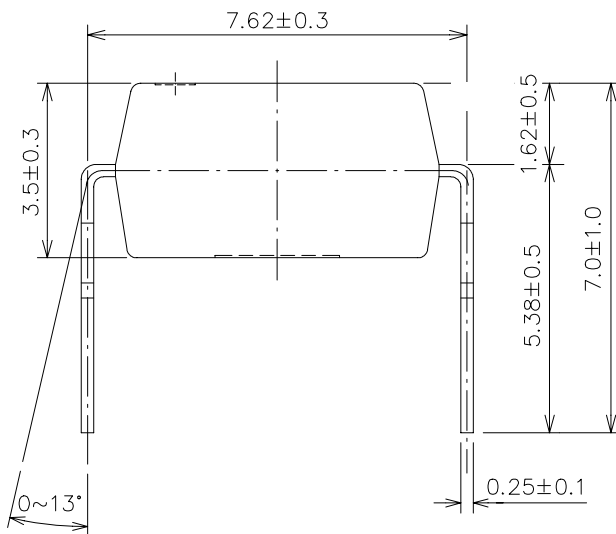
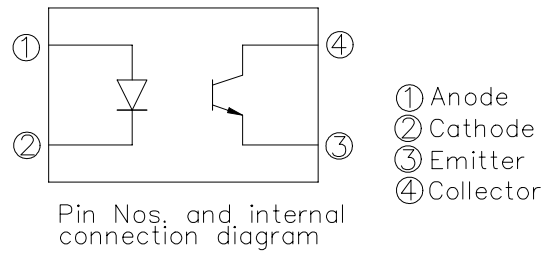
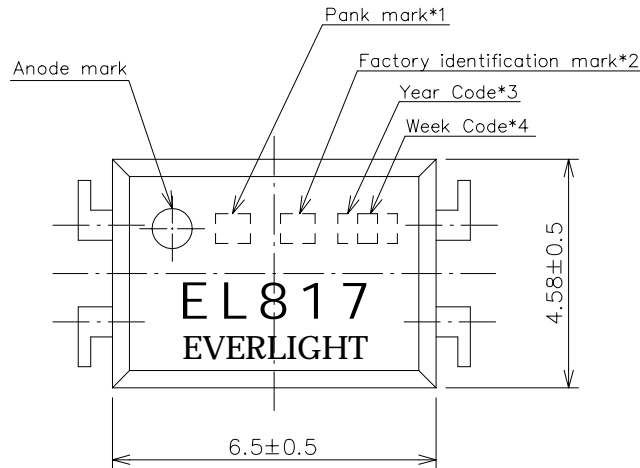
DEVICE NUMBER: DPC-817-001 REV. : 1.2

## Photocoupler

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MODEL NO. : EL817

### Package Dimensions



### Notes:

1. Rank shall be or shall not be marked
2. Factory code shall be marked (T: Taiwan / C: China)
3. Year date code
4. 2-digit work week
5. All dimensions are in millimeters
6. Specifications are subject to change without notice

**Photocoupler**MODEL NO. : EL817**Absolute Maximum Ratings****( Ta=25°C )**

Parameter		Symbol	Rating	Unit
Input	Forward Current	$I_F$	50	mA
	Reverse Voltage	$V_R$	6	V
	Power Dissipation	$P$	70	mW
Output	Collector Power Dissipation	$P_C$	150	mW
	Collector Current	$I_C$	50	mA
	Collector-Emitter Voltage	$V_{CEO}$	35	V
	Emitter-Collector Voltage	$V_{ECO}$	6	V
Total Power Dissipation		$P_{tot}$	200	mW
*1 Isolation Voltage		Viso	5000	V rms
Operating Temperature		Topr	-30~+100	°C
Storage Temperature		Tstg	-55~+125	°C
*2 Soldering Temperature		Tsol	260	°C

\*1 AC for 1 minute, R.H= 40~ 60%RH

-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

**Photocoupler**MODEL NO. : EL817**Electro-Optical Characteristics****(Ta=25°C)**

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward	$V_F$	-	1.2	1.4	V	$I_F=20mA$
	Reverse Current	$I_R$	-	-	10	uA	$V_R=4V$
	Terminal	$C_t$	-	30	250	pF	$V=0, f=1kHz$
Output	Collector Dark current	$I_{CEO}$	-	-	100	nA	$V_{CE}=20V$
	Collector-Emitter breakdown voltage	$BV_{CEO}$	35	-	-	V	$I_c=0.1mA$
Transfer Characteristics	Current Transfer ratio	CTR	50	-	600	%	$I_F=5mA, V_{CE}=5V$
	Collector-Emitter saturation voltage	$V_{CE(sat)}$	-	0.1	0.2	V	$I_F=20mA, I_c=1 mA$
	Isolation resistance	$R_{ISO}$	$5 \times 10^{10}$	$10^{11}$	-	$\Omega$	DC500V, 40~60%R.H
	Floating capacitance	$C_f$	-	0.6	1.0	pF	$V=0, f=1MHz$
	Cut-off frequency	$f_c$	-	80	-	kHz	$V_{CE}=5V, I_c=2 mA$ $R_L=100\Omega, -3dB$
	Rise time	$t_r$	-	4	18	us	$V_{CE}=2V$ $I_c=2mA, R_L=100\Omega$
	Fall time	$t_f$	-	3	18	us	



Photocoupler

MODEL NO.: EL817

Supplement

Rank Table of Current Transfer Ratio CTR

Model No.	Rank mark	CTR (%)	Condition
EL817		50 to 600	$I_F = 5 \text{ mA}$ $V_{CE} = 5 \text{ V}$ $T_a = 25^\circ\text{C}$
EL817	L	50 to 100	
EL817	A	80 to 160	
EL817	B	130 to 260	
EL817	C	200 to 400	
EL817	D	300 to 600	

Fig.1 Forward Current vs. Ambient Temperature

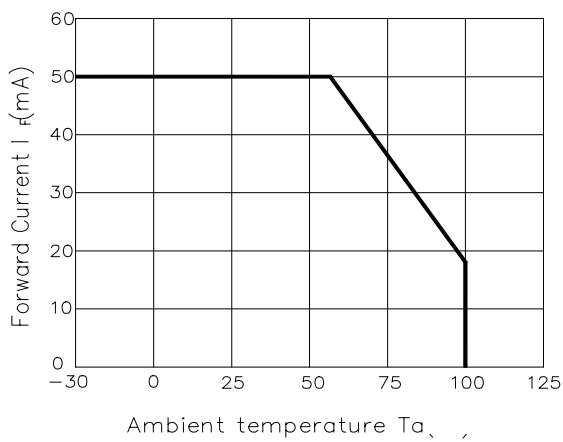
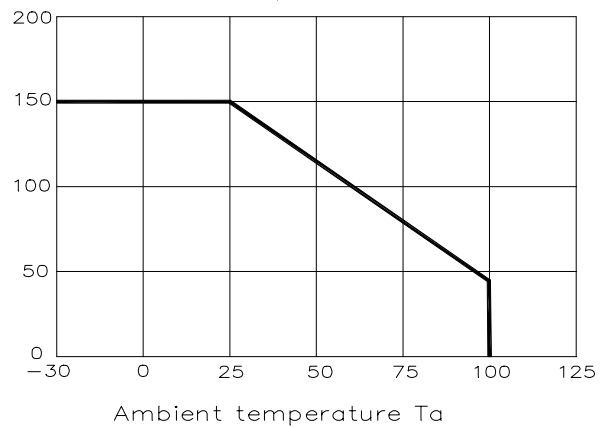


Fig.2 Collector Power Dissipation vs. Ambient Temperature



**Photocoupler**

MODEL NO. : EL817

Fig. 3

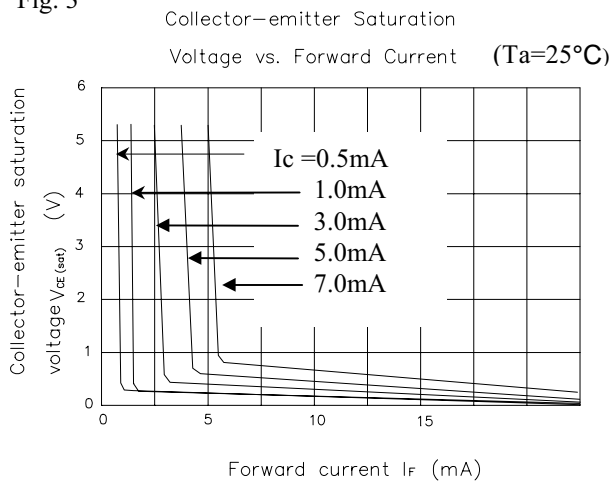


Fig.4

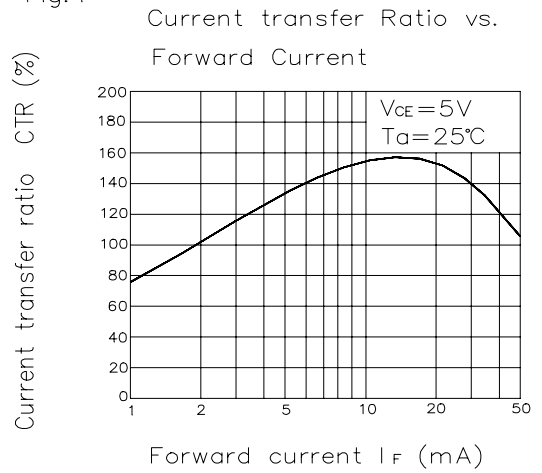


Fig.5 Forward Current vs. Forward Voltage

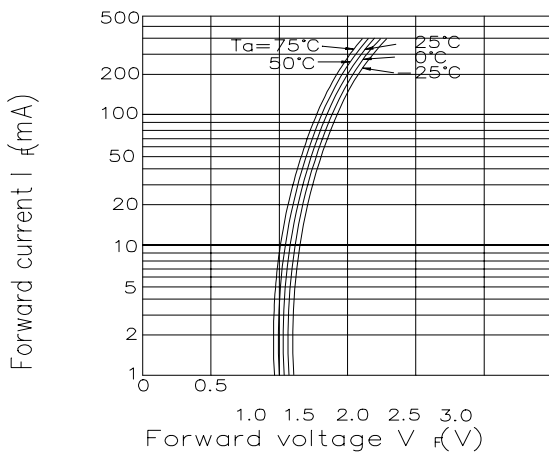


Fig.6

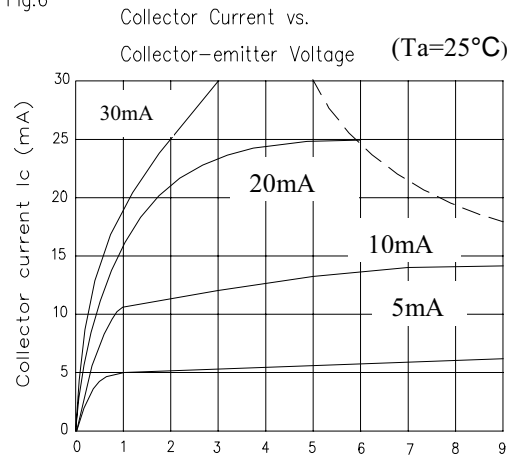


Fig.7

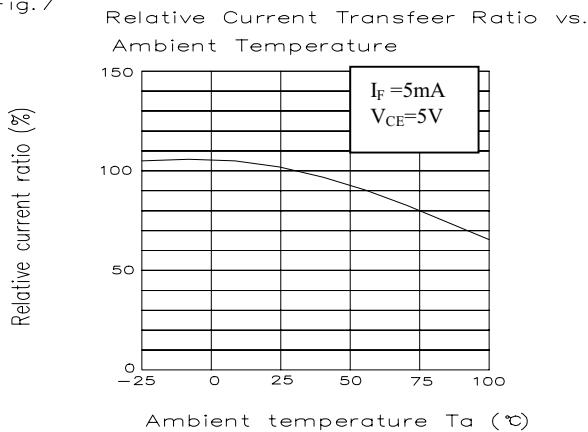
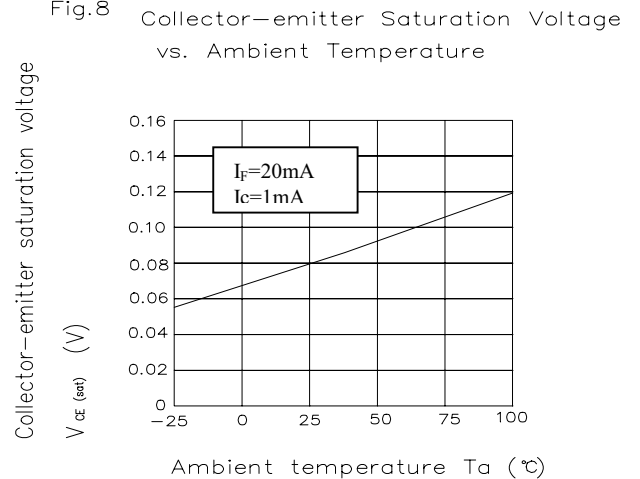


Fig.8



**Photocoupler**

MODEL NO. : EL817

Fig.9

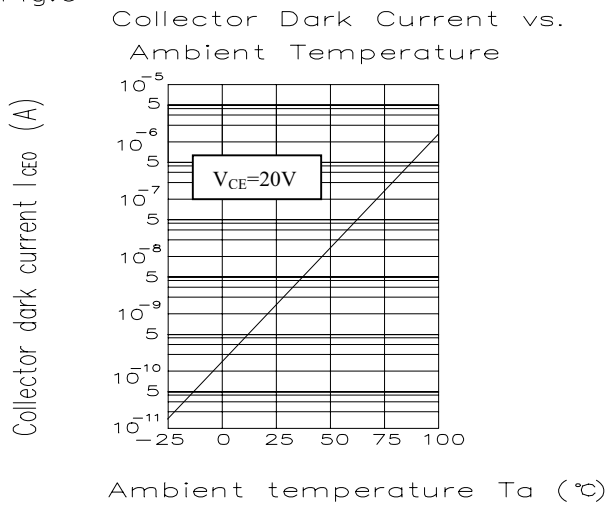


Fig.10

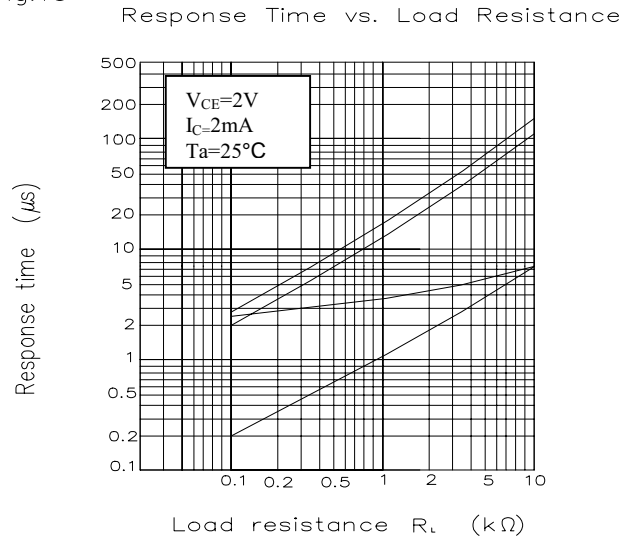
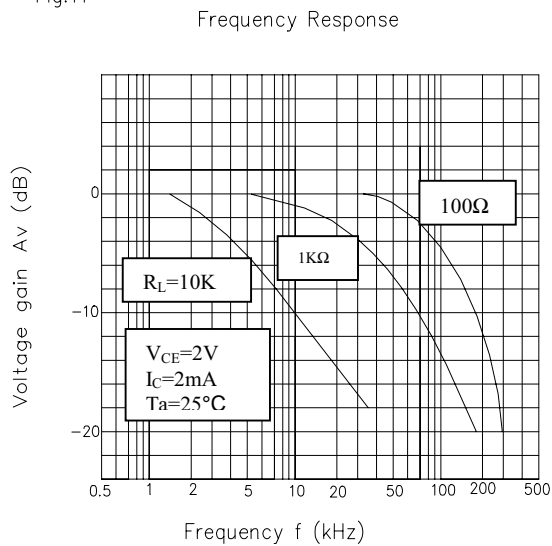


Fig.11







Photocoupler

MODEL NO.: EL817

RELIABILITY PLAN

- The reliability of products shall be satisfied with items listed below.

Confidence level : 90 % , LTPD : 10 %

Classification	Test Item	Description & Condition	(Acc.) Sample	Failure Criteria	Reference Standard
Endurance test	Operation Life *	Ta = 25 ± 3°C IR: If = 50 mA Pt: Pc = 130 mW ( Vf=1.4v) , 1000 hrs	0 / 22	CTR shift > 1.2  Vf > U* 1.0 Ir > U * 1.0 Vce(sat) >U*1.0  BVceo < L*1.0 BVeco < L*1.0  L :Low Spec.Limit  U : Up Spec. Limit	MIL-S-750 : 1026 MIL-S-883 : 1005 JIS C 7021 : B-1
	High Temperature / High Humidity Reverse Bias (H3TRB)	Ta = 85 ± 3°C , Humi. = 85 % rh Pt: 80% * Vce (max rating) , 1000 hrs	0 / 22		JIS C 7021 : B-11
	High Temperature Reverse Bias (HTRB)	Ta = 105 ± 3°C Pt: 100% * Vce (Max rating) , 1000 hrs	0 / 22		JIS C 7021 : B-8
	Low Temperature Storage	Ta = -50 ± 3°C , 1000 hrs	0 / 22		JIS C 7021 : B-12
	High Temperature Storage	Ta = 125 ± 3°C , 1000 hrs	0 / 22		JIS C 7021 : B-10 MIL-S-883 : 1008
	Auto clamp	P = 15 PSIG , Ta = 121 °C , Humi. = 100 % rh , 48 hrs	0 / 22		JESD 22-A102-B
	Environmental Test	Temperature Cycling (Air toAir)	125°C ~ - 55 °C 30 ~ 30 min , 100 cycles		0 / 22
Thermal Shock (Liquid to Liquid)		125 ~ - 55°C t (dwell) = 5 min t (trans.) = 10 sec , 100 cycles	0 / 22	MIL-S-202 : 107D MIL-S-750 : 1051 MIL-S-883 :1011	
Solder Resistance		Ta = 260 ± 3°C t (dwell) = 10 ± 1 sec	0 / 22	MIL-S-750 : 2031 JIS C 7021 : A-1	
Solder Ability		Ta = 230 ± 3 °C t (dwell) = 5 ± 1 sec	0 / 22	MIL-S-883 : 2003 JIS C 7021 : A-2	

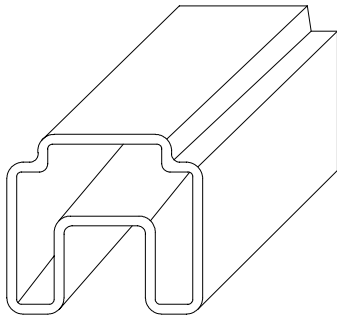


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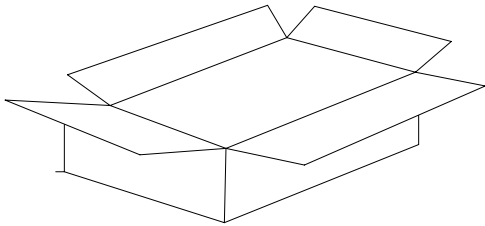
MODEL NO.: EL817

■ Packing Specifications

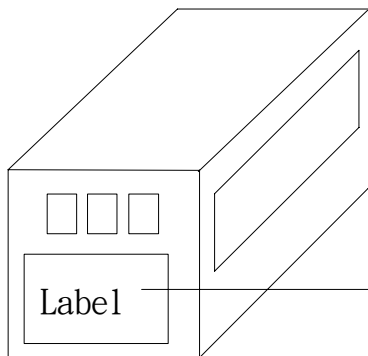
1. Tube



2. Inner Carton



3. Outside Carton



EVERLIGHT

CPN:

P/N:



EL817

QTY:



CAT:

HUE:

REF:

LOT NO:

MADE IN TAIWAN



● Packing Quantity

- 1. 100 Pcs/ Per Tube
- 2. 25 Tubes / Inner Carton
- 3. 12 Inner Cartons / Outside Carton