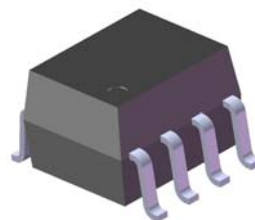


8 PIN SOP PHOTOTRANSISTOR DUAL CHANNEL PHOTOCOUPLER

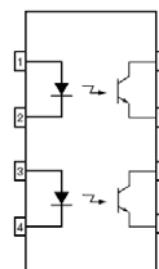
ELD20X / 21X series

Features

- Dual channel coupler
- Current transfer ratios offered in narrow ranges
 - ELD205: 40-80%
 - ELD206: 63-125%
 - ELD207: 100-200%
 - ELD211: > 20%
 - ELD213: > 100%
 - ELD217: > 100%
- High isolation voltage between input and output
Viso = 3750 Vrms
- Operating temperature range of -55 to +110°C
- High BVceo of 80V
- Standard SO-8 footprint package
- Pb free and RoHS compliant.
- UL approved (No. E214129)
- VDE approval (pending)
- SEMKO approved
- NEMKO approved
- DEMKO approved
- FIMKO approved
- CSA approved (No. 2007189)



Schematic



1. Anode
2. Cathode
3. Anode
4. Cathode
5. Emitter
6. Collector
7. Emitter
8. Collector

Description

The ELD20X and ELD21X series contains two infrared emitting diodes optically coupled to two phototransistor detectors.

The devices are packaged in an 8-pin small outline package which conforms to the standard SO-8 footprint.

Applications

- Feedback Control Circuits
- Interfacing and coupling systems of different potentials and impedances
- General Purpose Switching Circuits
- Monitor and Detection Circuits

8 PIN SOP PHOTOTRANSISTOR DUAL CHANNEL PHOTOCOUPLER

ELD20X / 21X series

Absolute Maximum Ratings (T_a=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I _F	60	mA
	Peak forward current (t = 100μs)	I _{FM}	1	A
	Reverse voltage	V _R	6	V
	Power dissipation No derating needed	P _D	90	mW
Output	Collector power dissipation No derating needed	P _C	150	mW
	Collector-Emitter voltage	V _{CEO}	80	V
	Collector-Base voltage	V _{CBO}	80	V
	Emitter-Collector voltage	V _{ECO}	7	V
Total power dissipation		P _{tot}	250	mW
Isolation voltage ^{*1}		V _{iso}	3750	V _{rms}
Operating temperature		T _{opr}	-55~+110	°C
Storage temperature		T _{stg}	-55~+150	°C
Soldering temperature ^{*2}		T _{sol}	260	°C

Notes

*1 AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1, 2 & 3 are shorted together, and pins 4, 5 & 6 are shorted together.

*2 For 10 seconds.

8 PIN SOP PHOTOTRANSISTOR DUAL CHANNEL PHOTOCOUPLER

ELD20X / 21X series

Electrical Characteristics ($T_a=25^{\circ}\text{C}$ unless specified otherwise)

Input

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Forward voltage	V_F	-	1.2	1.5	V	$I_F = 10\text{mA}$
Reverse current	I_R	-	0.1	100	μA	$V_R = 6\text{V}$
Input capacitance	C_{in}	-	25	-	pF	$V = 0, f = 1\text{MHz}$

Output

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Collector-Emitter dark current	I_{CEO}	-	5.0	50	nA	$V_{CE} = 10\text{V}, I_F = 0\text{mA}$
Collector-Emitter breakdown voltage	BV_{CEO}	80	-	-	V	$I_C = 0.1\text{mA}$
Emitter-Collector breakdown voltage	BV_{ECO}	7	-	-	V	$I_E = 0.1\text{mA}$
Collector-Emitter capacitance	C_{CE}	-	10	-	pF	$V_{CE} = 0\text{V}, f = 1\text{MHz}$

Transfer Characteristics

Parameter		Symbol	Min.	Typ.*	Max.	Unit	Condition
Current Transfer Ratio	ELD205	CTR	40	-	80	%	$I_F = 10\text{mA}, V_{CE} = 5\text{V}$
	ELD206		63	-	125		
	ELD207		100	-	200		
	ELD211		20	-	-		
	ELD213		100	-	-		
Current Transfer Ratio	ELD205	CTR	13	30	-	%	$I_F = 1\text{mA}, V_{CE} = 5\text{V}$
	ELD206		22	45	-		
	ELD207		34	70	-		
	ELD217		100	120	-		
Collector-emitter saturation voltage		$V_{CE(sat)}$	-	-	0.4	V	$I_F = 10\text{mA}, I_C = 2.5\text{mA}$
Isolation resistance		R_{IO}	-	10^{11}	-	Ω	$V_{IO} = 500\text{Vdc}$
Input-output capacitance		C_{IO}	-	0.5	-	pF	$V_{IO} = 0, f = 1\text{MHz}$
Turn-on time		T_{on}	-	5.0	-	μs	$V_{CC} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$
Turn-off time		T_{off}	-	4.0	-		
Rise time		T_r	-	1.6	-		
Fall time		T_f	-	2.2	-		

* Typical values at $T_a = 25^{\circ}\text{C}$

8 PIN SOP PHOTOTRANSISTOR DUAL CHANNEL PHOTOCOUPLER

ELD20X / 21X series

Typical Performance Curves

Figure 1. Forward Current vs Forward Voltage

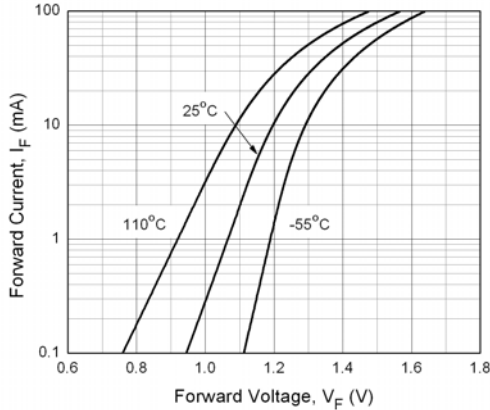


Figure 2. Normalized Collector Current vs. Forward Current

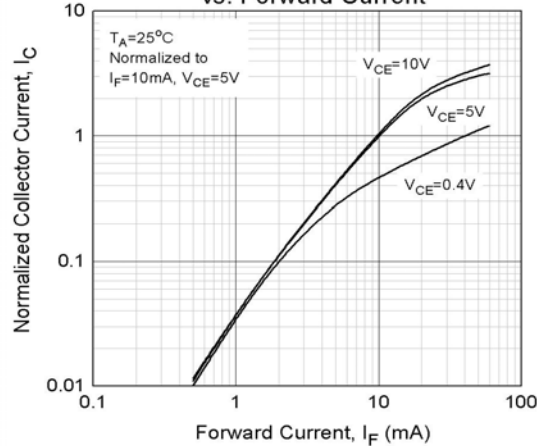


Figure 3. Normalized Collector Current vs Ambient Temperature

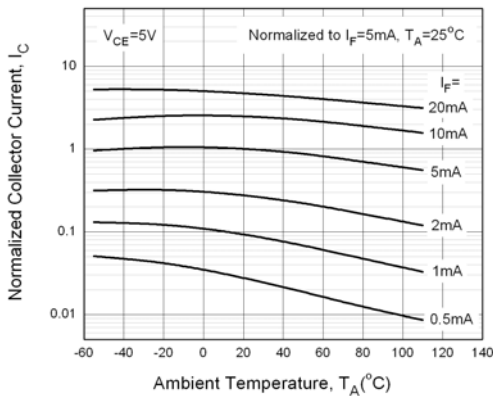


Figure 4. Collector Dark Current vs Ambient Temperature

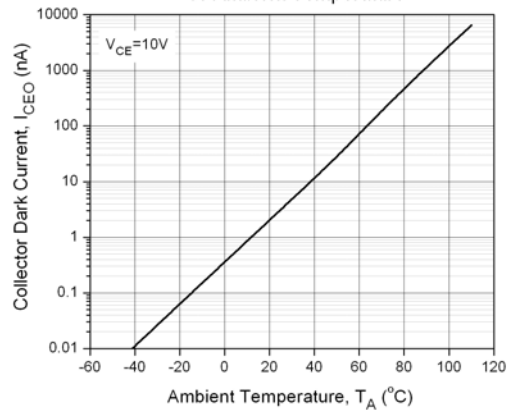


Figure 5. Collector Current vs Collector-Emitter Voltage

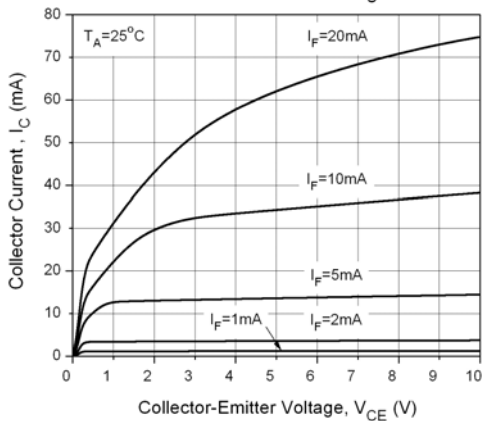
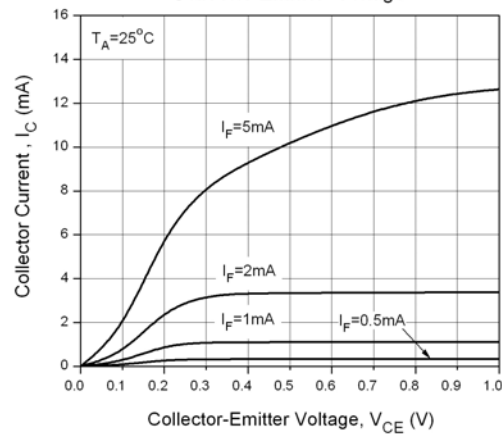


Figure 6. Collector Current vs Collector-Emitter Voltage



8 PIN SOP PHOTOTRANSISTOR DUAL CHANNEL PHOTOCOUPLER

ELD20X / 21X series

Figure 7. Turn-on, Turn-off Times
vs. Load Resistance

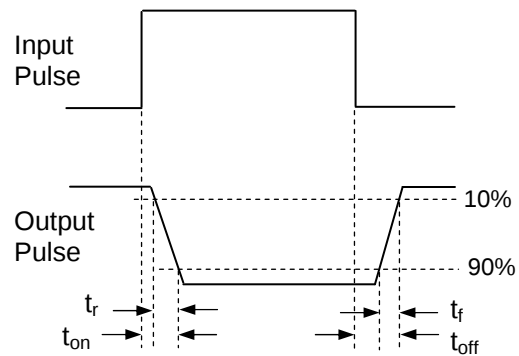
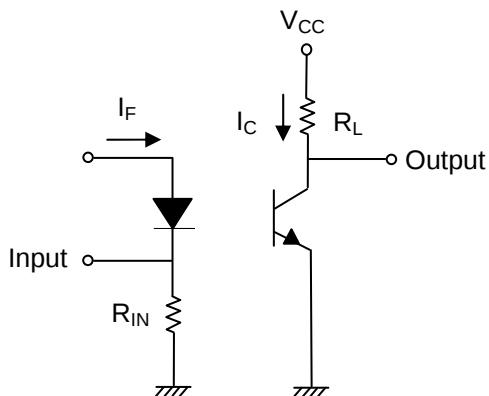
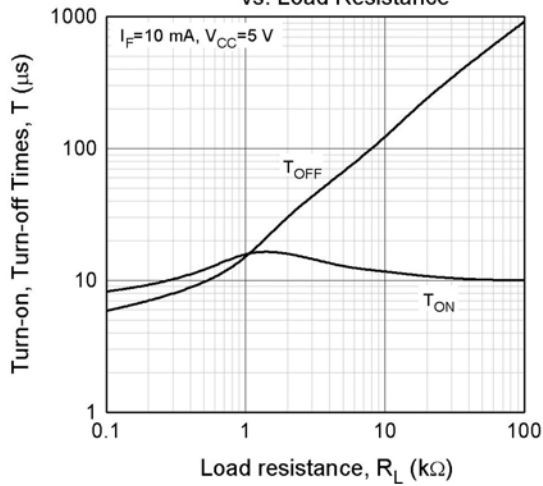


Figure 7. Switching Time Test Circuit & Waveforms

8 PIN SOP PHOTOTRANSISTOR DUAL CHANNEL PHOTOCOUPLER

ELD20X / 21X series

Order Information

Part Number

ELD2XX(Y)

Note

X X= Part no. (05, 06, 07, 11, 13 or 17)

Y = Tape and reel option (TA, TB or none).

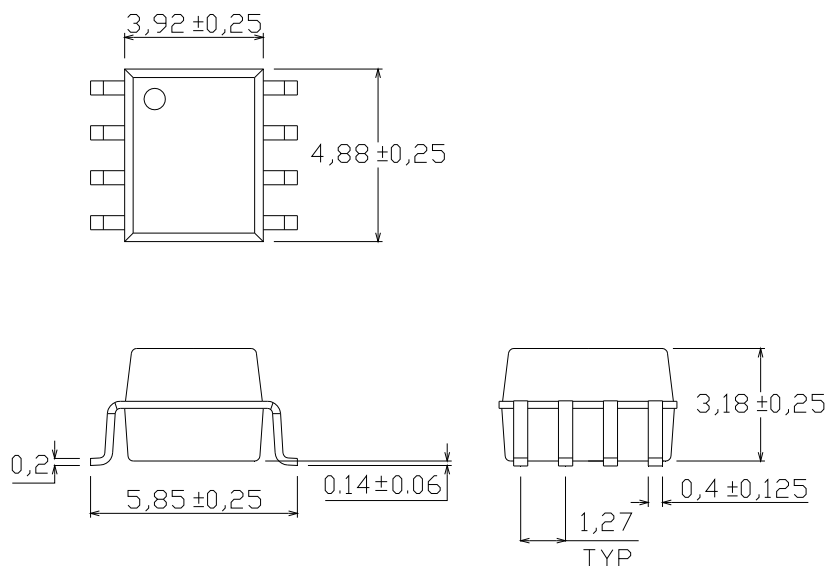
Option	Description	Packing quantity
None	Standard	100 units per tube
(TA)	TA tape & reel option	2000 units per reel
(TB)	TB tape & reel option	2000 units per reel

8 PIN SOP PHOTOTRANSISTOR DUAL CHANNEL PHOTOCOUPLER

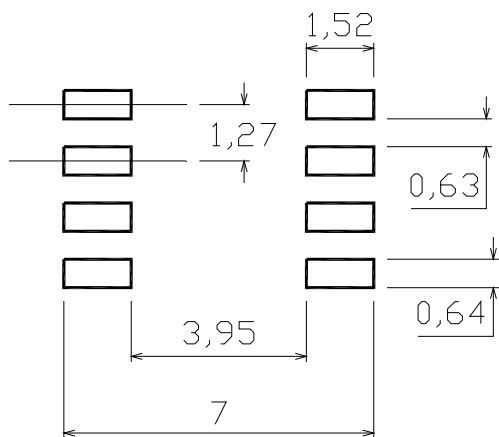
ELD20X / 21X series

Package Drawings

(Dimensions in mm)



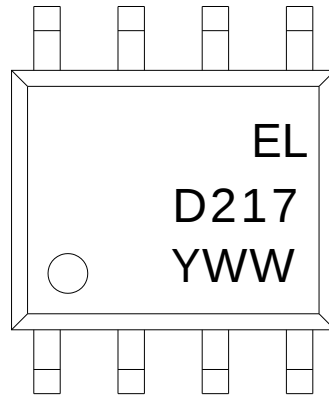
Recommended pad layout for surface mount leadform



8 PIN SOP PHOTOTRANSISTOR DUAL CHANNEL PHOTOCOUPLER

ELD20X / 21X series

Device Marking



Notes

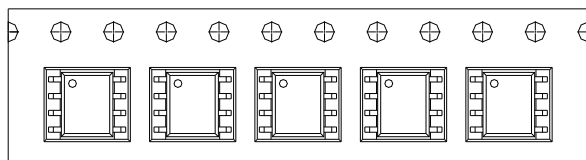
EL	denotes Everlight
217	denotes Part Number
Y	denotes 1 digit Year code
WW	denotes 2 digit Week code

8 PIN SOP PHOTOTRANSISTOR DUAL CHANNEL PHOTOCOUPLER

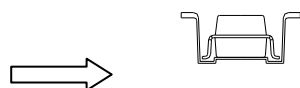
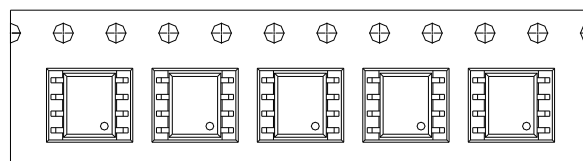
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Tape & Reel Packing Specifications

Option TA



Option TB

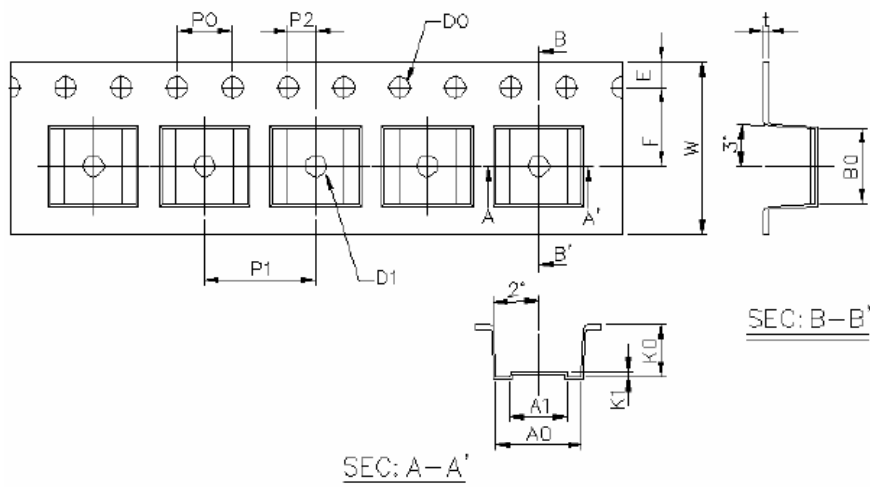


Direction of feed from reel



Direction of feed from reel

Tape dimensions

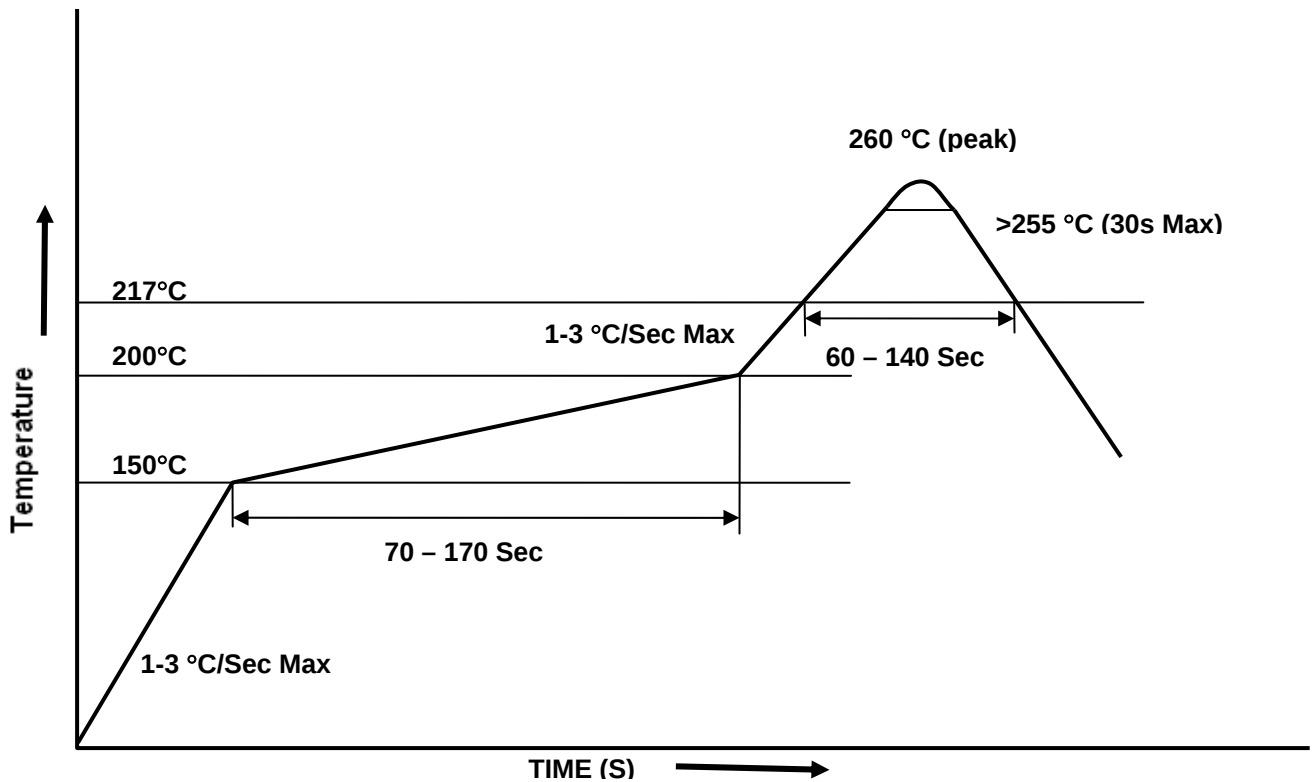


Dimension No.	A0	A1	B0	D0	D1	E	F
Dimension(mm)	6.2±0.1	4.1±0.1	5.28±0.1	1.5±0.1	1.5±0.3	1.75±0.1	5.5±0.1
Dimension No.	Po	P1	P2	t	W	K0	K1
Dimension(mm)	4.0±0.1	8.0±0.1	2.0±0.1	0.4±0.1	12.0+0.3/ -0.1	3.7±0.1	0.3±0.1

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Solder Reflow Temperature Profile



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