



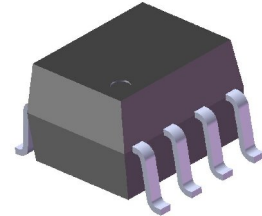
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8 PIN SOP PHOTOTRANSISTOR DUAL CHANNEL PHOTOCOUPLER

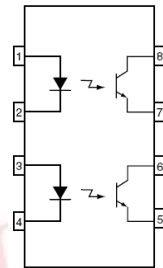
ELD213 (SMS)

Features

- Dual channel coupler
- Current transfer ratios in selected narrow range groups
ELD213: > 50%
- High isolation voltage between input and output
Viso = 3750 Vrms
- Operating temperature rang -55 ~110
- 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 ELD213 of devices consist of two infrared emitting diodes optically coupled to two phototransistor detectors.

They are packaged in an 8-pin small outline package which conforms to the standard SOIC-8 footprint.

Applications

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



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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	Vrms
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.



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Electrical Characteristics (T_a=25°C unless specified otherwise)

Input

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Forward voltage	V _F	-	1.2	1.5	V	I _F = 10mA
Reverse current	I _R	-	0.1	100	μA	V _R = 6V
Input capacitance	C _{in}	-	25	-	pF	V = 0, f = 1MHz

Output

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Collector-Emitter dark current	I _{CEO}	-	-	70	nA	V _{CE} = 10V, I _F = 0mA
	I _{CEO}	-	5.0	10	μA	V _{CE} = 10V, I _F = 0mA, T _a =85
Collector-Emitter breakdown voltage	BV _{CEO}	80	-	-	V	I _C = 0.1mA
Emitter-Collector breakdown voltage	BV _{ECO}	7	-	-	V	I _E = 0.1mA
Collector-Emitter capacitance	C _{CE}	-	10	-	pF	V _{CE} = 0V, f = 1MHz

Transfer Characteristics

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Current Transfer Ratio	CTR	50	-	-	%	I _F = 1mA, V _{CE} = 0.4V
Collector-emitter saturation voltage	V _{CE(sat)}	-	-	0.4	V	I _F = 10mA, I _C = 2.5mA
Isolation resistance	R _{IO}	-	10 ¹¹	-	Ω	V _{IO} = 500Vdc
Input-output capacitance	C _{IO}	-	0.5	-	pF	V _{IO} = 0, f = 1MHz
Turn-on time	T _{on}	-	5	-	μs	V _{CC} = 5V, I _F = 10mA, pulse width 500μsec, R _L = 10KΩ
Turn-off time	T _{off}	-	-	170		

* Typical values at T_a = 25°C

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Typical Performance Curves

Figure 1. Forward Current vs Forward Voltage

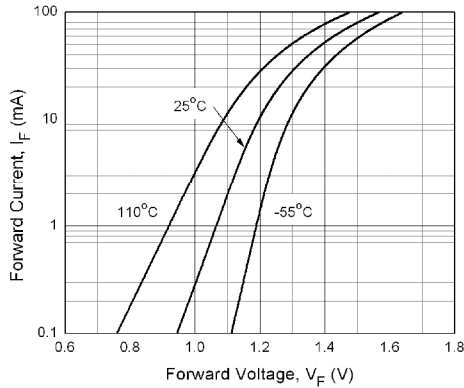


Figure 2. Normalized Collector Current vs Forward Current

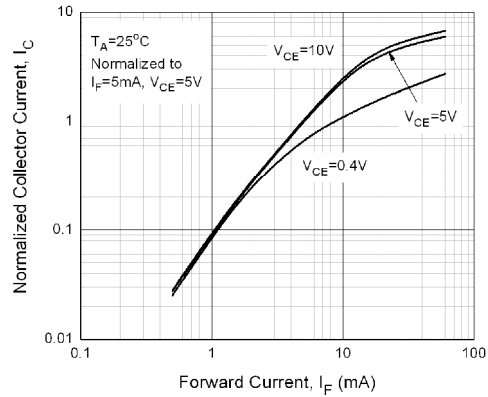


Figure 3. Normalized Collector Current vs Ambient Temperature

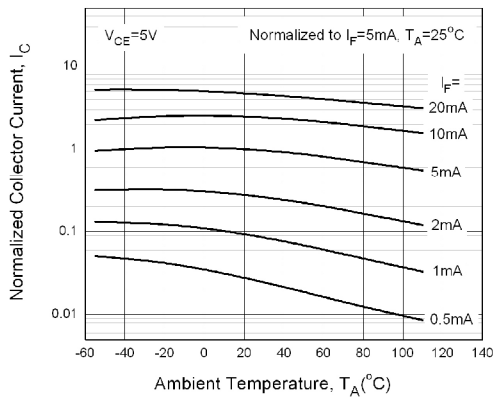


Figure 4. Collector Dark Current vs Ambient Temperature

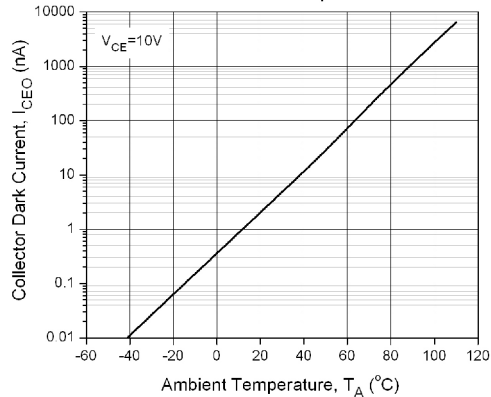


Figure 5. Collector Current vs Collector-Emitter Voltage

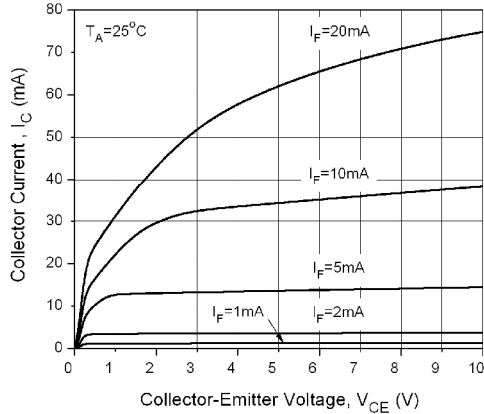
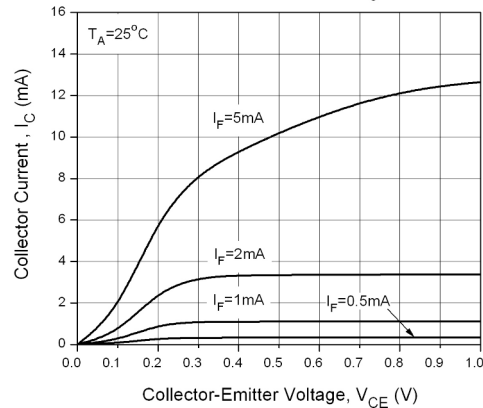


Figure 6. Collector Current vs Collector-Emitter Voltage



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

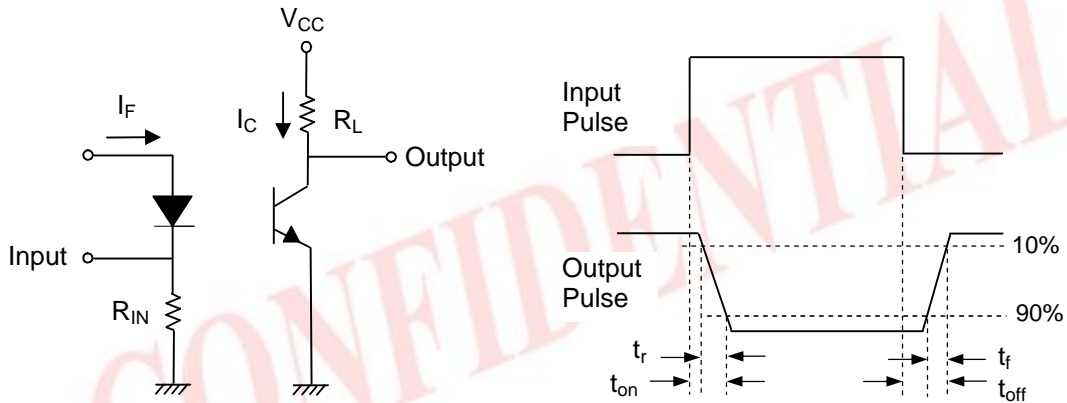
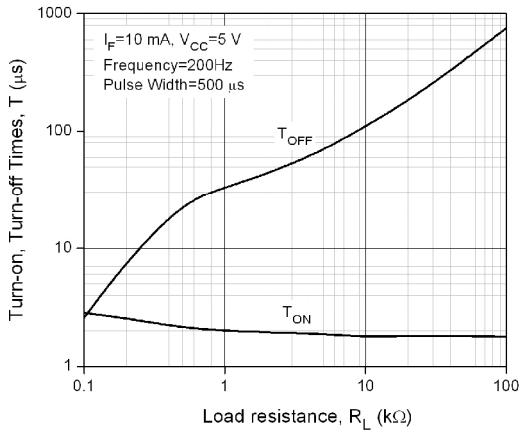


Figure 8. Switching Time Test Circuit & Waveforms



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Order Information

Part Number

ELD213(Y)(SMS)

Note

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

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

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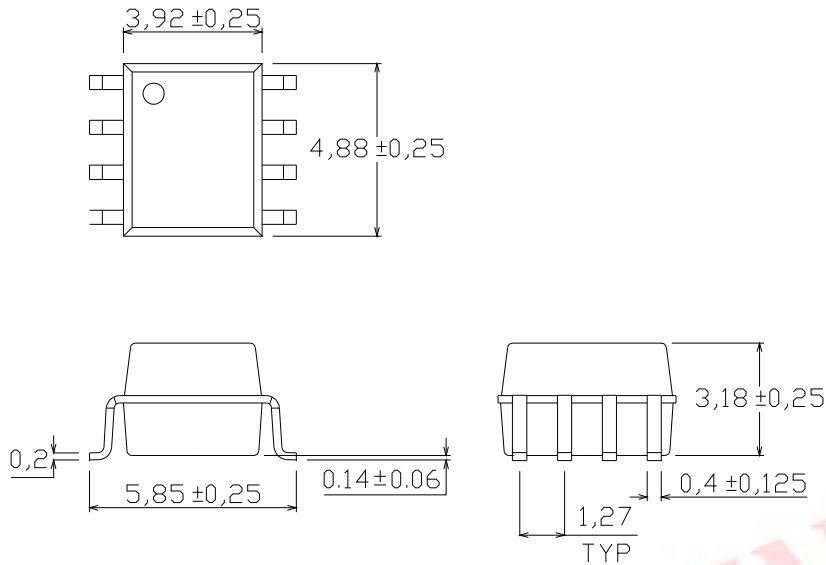


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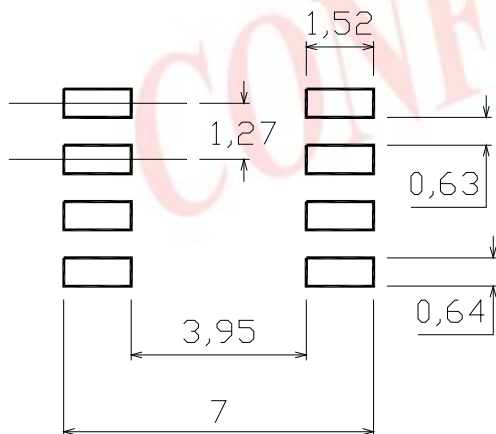
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Package Drawings (Dimensions in mm)



Recommended pad layout for surface mount leadform



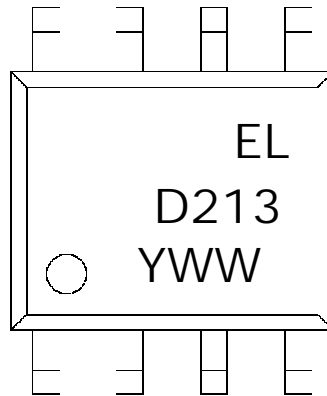


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Device Marking



Notes

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

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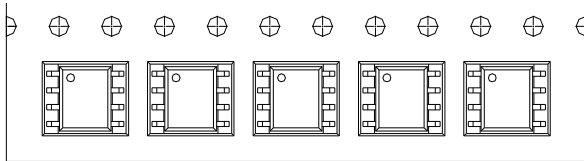
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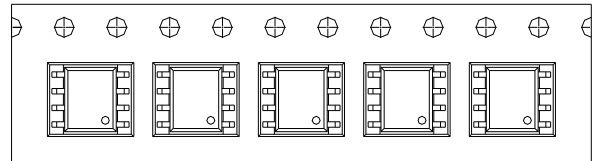
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Tape & Reel Packing Specifications

Option TA



Option TB

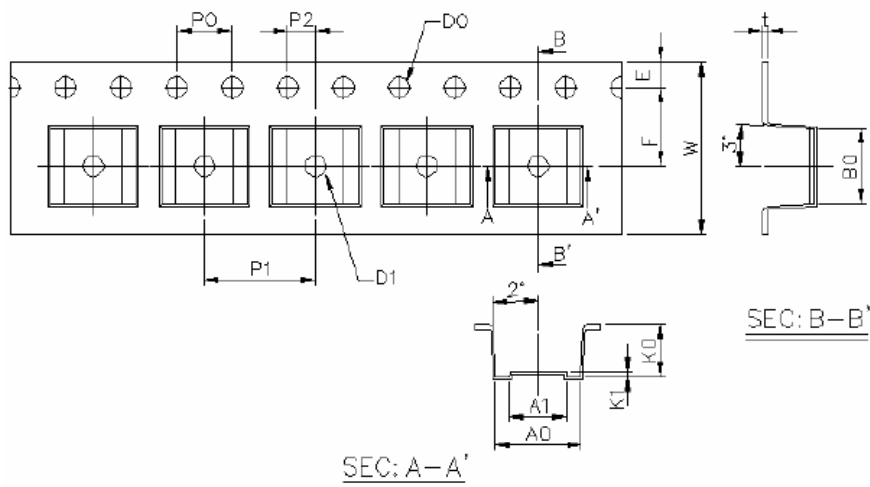


Direction of feed from reel



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

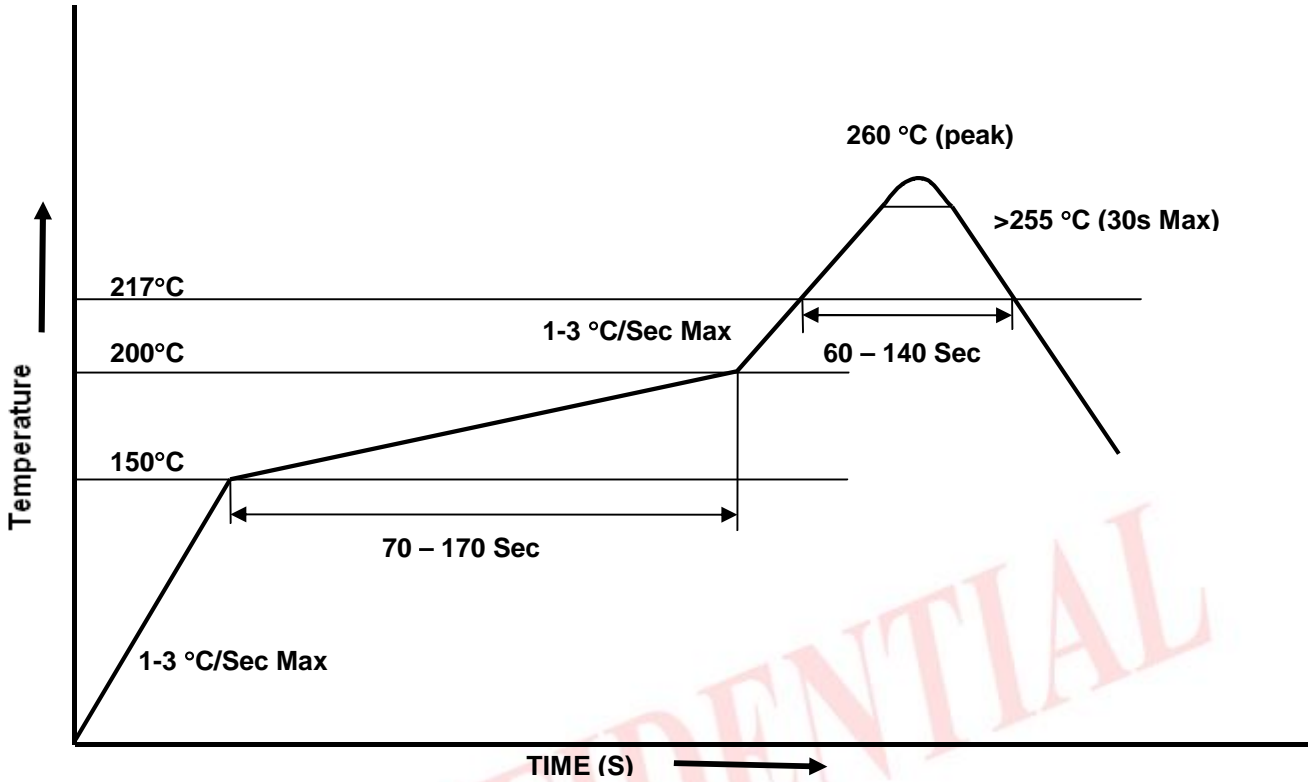


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Solder Reflow Temperature Profile



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