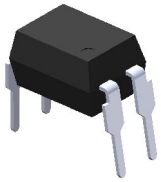
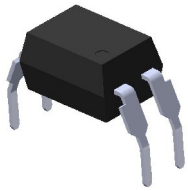
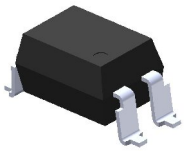
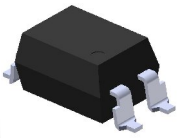
4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

EL817-G Series









Features:

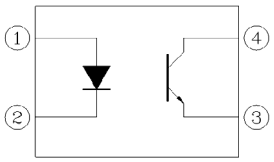
- Halogens free.
- Current transfer ratio (CTR: 50~600% at I_F =5mA, V_{CE} =5V)
- High isolation voltage between input and output (Viso=5000 V rms)
- Creepage distance >7.62 mm
- Operating temperature up to +110°C
- Compact small outline package
- Pb free and RoHS compliant.
- UL approved (No. E214129)
- VDE approved (No. 132249)
- SEMKO approved
- NEMKO approved
- DEMKO approved
- FIMKO approved
- CSA approved
- CQC approved

Description

The EL817 series of devices each consist of an infrared emitting diodes, optically coupled to a phototransistor detector encapsulated with green compound.

The devices are in a 4-pin DIP package and available in wide-lead spacing and SMD option.

Schematic



Pin Configuration
1. Anode
2. Cathode
3. Emitter
4. Collector

Applications

- Programmable controllers
- System appliances, measuring instruments
- Telecommunication equipments
- Home appliances, such as fan heaters, etc.
- Signal transmission between circuits of different potentials and impedances

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4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

EL817-G Series

Absolute Maximum Ratings (T_a=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	60	mA
	Peak forward current (1us, pulse)	I_{FP}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	100	mW
	Derating factor (above T_a = 100°C)		2.9	mW/°C
Output	Power dissipation	P_C	150	mW
	Derating factor (above T_a = 100°C)		5.8	mW/°C
	Collector current	I_C	50	mA
	Collector-Emitter voltage	V_{CEO}	80	V
	Emitter-Collector voltage	V_{ECO}	7	V
Total power dissipation		P_{TOT}	200	mW
Isolation voltage *1		V_{ISO}	5000	V rms
Operating temperature		T_{OPR}	-55 ~ +110	°C
Storage temperature		T_{STG}	-55 ~ +125	°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 are shorted together, and pins 3 & 4 are shorted together.

*2 For 10 seconds.

4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

EL817-G Series

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

Input

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Forward voltage	V_F	-	1.2	1.4	V	I_F = 20mA
Reverse current	I_R	-	-	10	μA	V_R = 4V
Input capacitance	C_{in}	-	30	250	pF	V = 0, f = 1kHz

Output

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Collector-Emitter dark current	I_{CEO}	-	-	100	nA	V_{CE} = 20V, I_F = 0mA
Collector-Emitter breakdown voltage	BV_{CEO}	80	-	-	V	I_C = 0.1mA
Emitter-Collector breakdown voltage	BV_{ECO}	7	-	-	V	I_E = 0.1mA

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

Parameter		Symbol	Min.	Typ.*	Max.	Unit	Condition
Current Transfer ratio	EL817	CTR	50	-	600	%	I_F = 5mA ,V_{CE} = 5V
	EL817A		80	-	160		
	EL817B		130	-	260		
	EL817C		200	-	400		
	EL817D		300	-	600		
	EL817X		100	-	200		
	EL817Y		150	-	300		
Collector-Emitter saturation voltage		$V_{CE(sat)}$	-	0.1	0.2	V	I_F = 20mA ,I_C = 1mA
Isolation resistance		R_{IO}	5×10^{10}	-	-	Ω	V_{IO} = 500Vdc, 40~60% R.H.
Floating capacitance		C_{IO}	-	0.6	1.0	pF	V_{IO} = 0, f = 1MHz
Cut-off frequency		fc	-	80	-	kHz	V_{CE} = 5V, I_C = 2mA R_L = 100Ω, -3dB
Rise time		t_r	-	6	18	μs	V_{CE} = 2V, I_C = 2mA, R_L = 100Ω
Fall time		t_f	-	8	18	μs	

* Typical values at T_a = 25°C

4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

EL817-G Series

Typical Performance Curves

Figure 1. Forward Current vs Forward Voltage

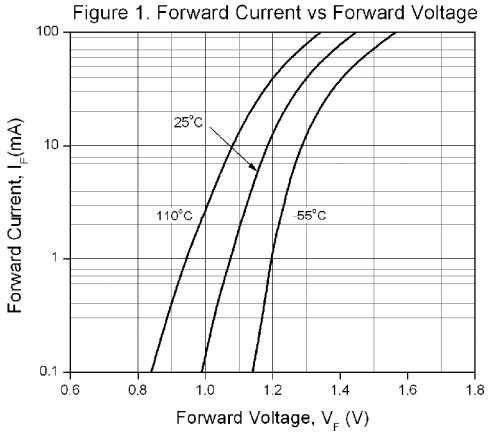


Figure 2. Normalized Current Transfer Ratio vs Forward Current

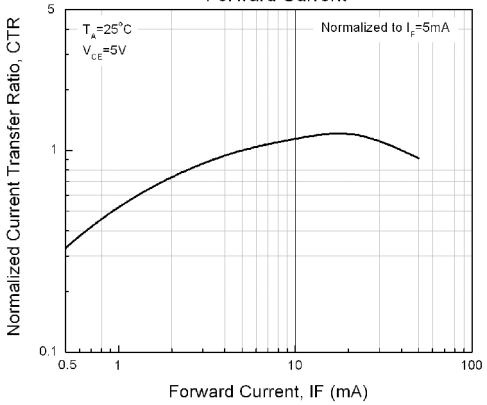


Figure 3. Current Transfer Ratio vs Ambient Temperature

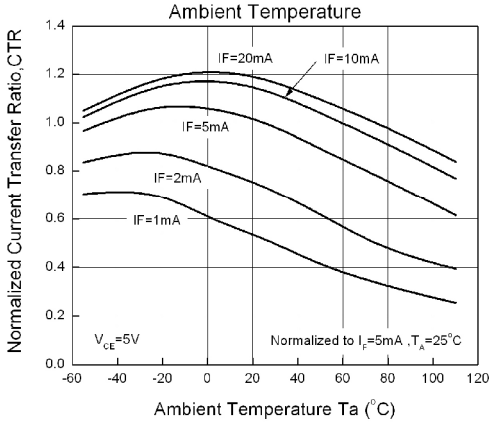


Figure 4. Dark Current vs Ambient Temperature

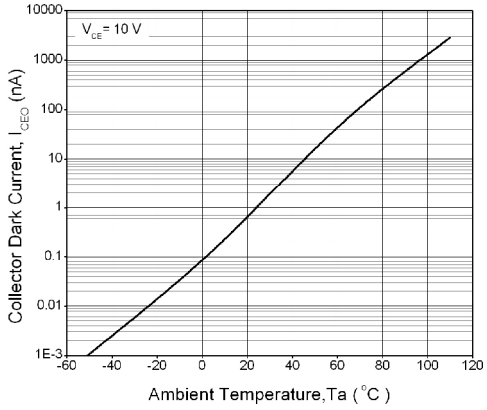


Figure 5. Collector-Emitter Saturation Voltage vs Collector Current

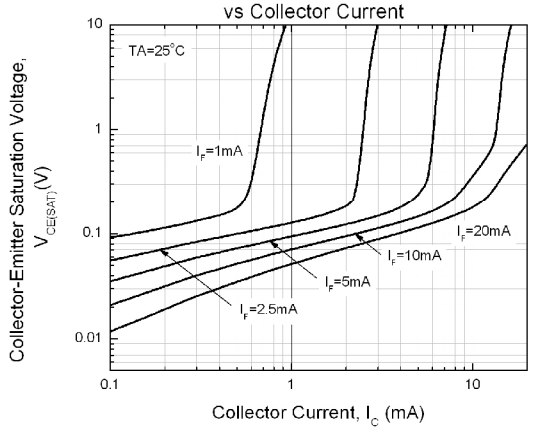
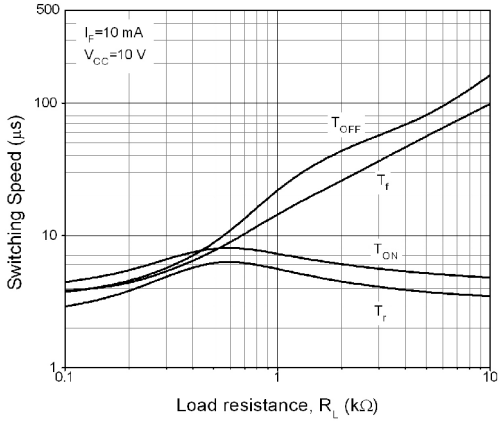


Figure 6. Switching Time vs Load Resistance



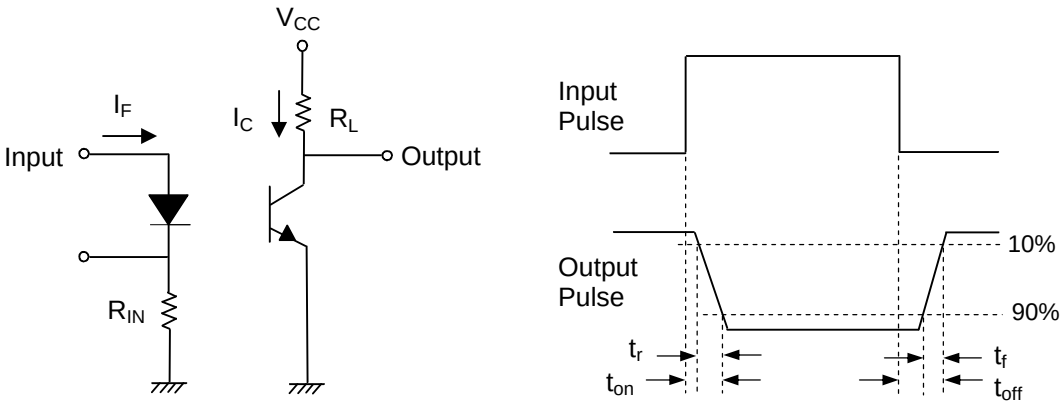


Figure 7. Switching Time Test Circuit & Waveforms

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4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

EL817-G Series

Order Information

Part Number

EL817(X)(Y)(Z)-FVG

Note

X = Lead form option (S, S1, M or none)
Y = CTR Rank (A, B, C, D, X, Y or none)
Z = Tape and reel option (TA, TB ,TU, TD or none).
F = Lead frame option (F: Iron, None: copper)
V = VDE (optional)
G = Halogens free

Option	Description	Packing quantity
None	Standard DIP-4	100 units per tube
M	Wide lead bend (0.4 inch spacing)	100 units per tube
S (TA)	Surface mount lead form + TA tape & reel option	1000 units per reel
S (TB)	Surface mount lead form + TB tape & reel option	1000 units per reel
S1 (TA)	Surface mount lead form (low profile) + TA tape & reel option	1000 units per reel
S1 (TB)	Surface mount lead form (low profile) + TB tape & reel option	1000 units per reel
S2 (TA)	Surface mount lead form (Gull-wing) + TA tape & reel option	500 units per reel
S2 (TB)	Surface mount lead form (Gull-wing) + TB tape & reel option	500 units per reel
S (TU)	Surface mount lead form + TU tape & reel option	1500 units per reel
S (TD)	Surface mount lead form + TD tape & reel option	1500 units per reel
S1 (TU)	Surface mount lead form (low profile) + TU tape & reel option	1500 units per reel
S1 (TD)	Surface mount lead form (low profile) + TD tape & reel option	1500 units per reel

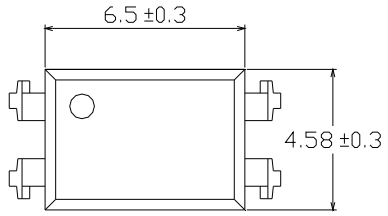
4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

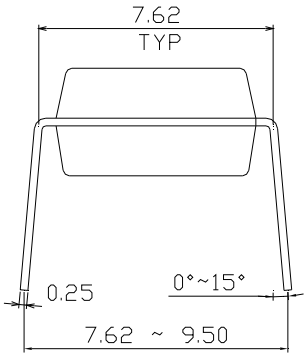
EL817-G Series

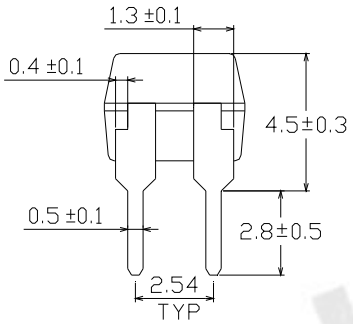
Package Drawing

(Dimensions in mm)

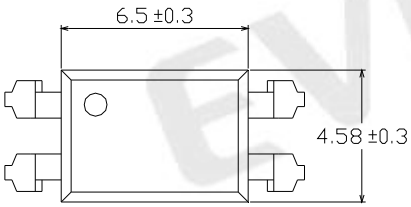
Standard DIP Type

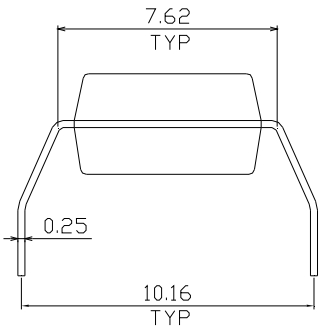


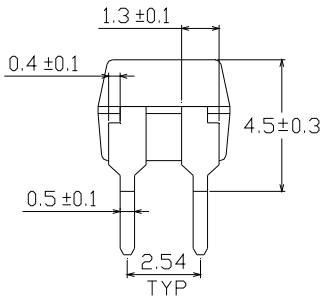




Option M Type





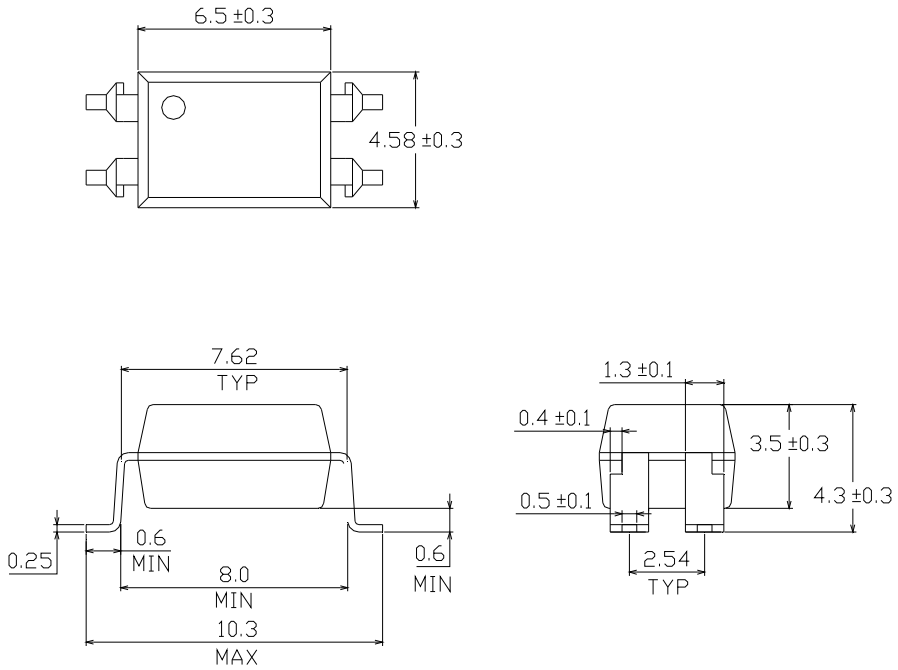


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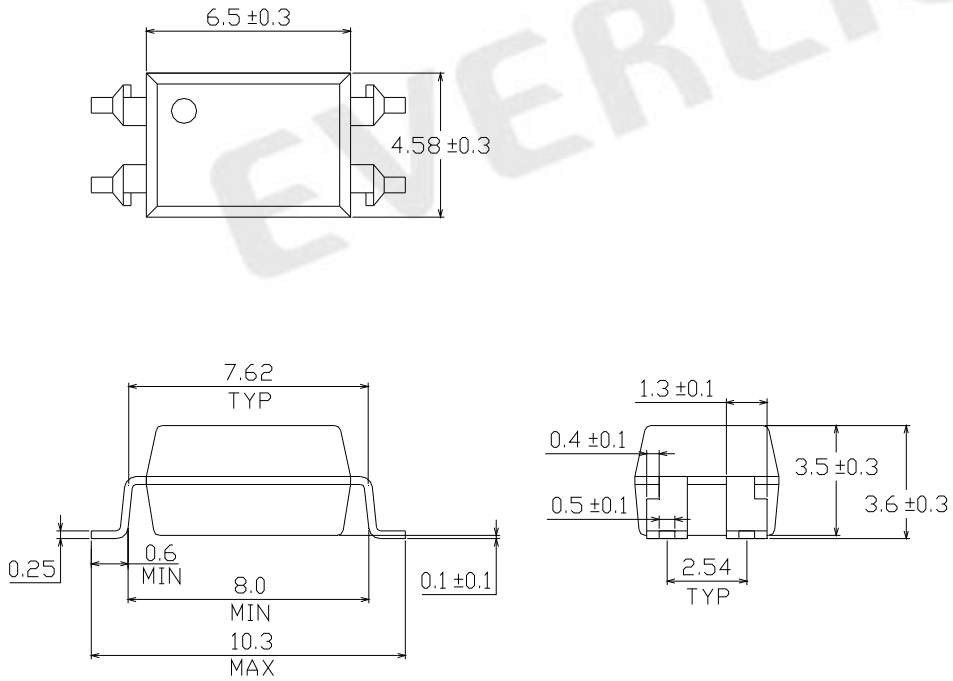
4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

EL817-G Series

Option S Type



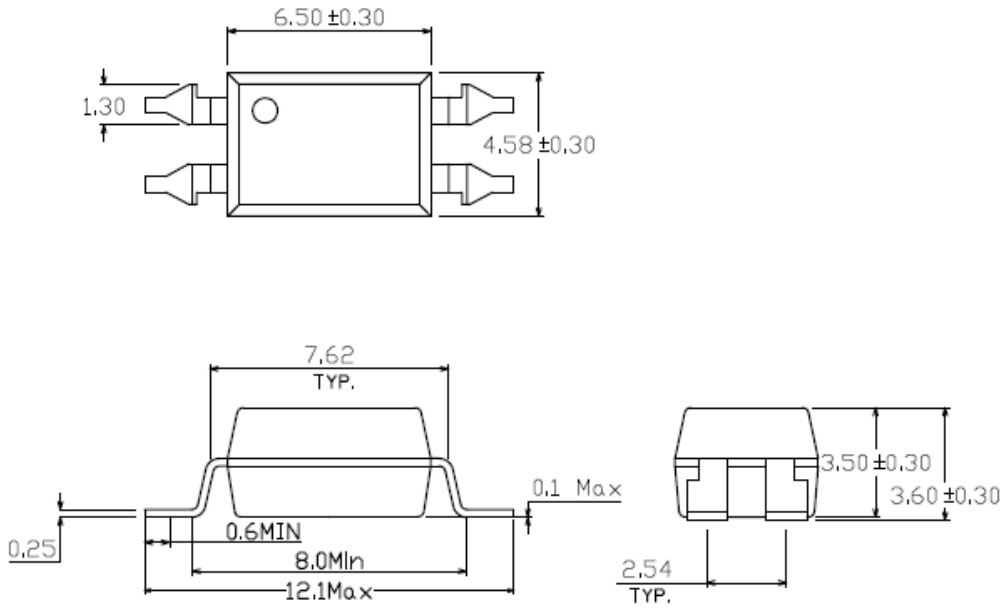
Option S1 Type



4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

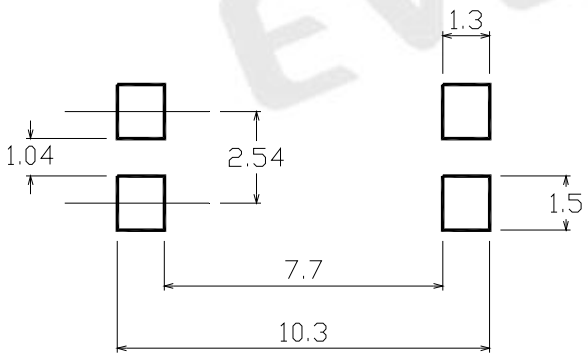
EL817-G Series

Option S2 Type

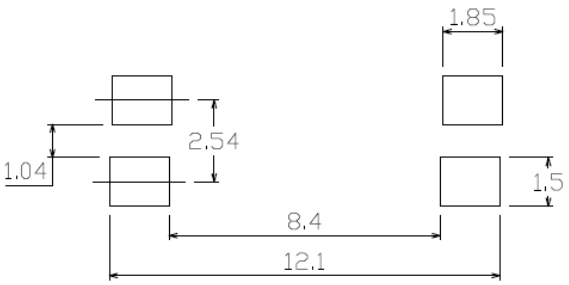


Recommended pad layout for surface mount leadform

For S and S1 option



For S2 option



4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

EL817-G Series

Device Marking



Notes

EL	denotes EVERLIGHT
817	denotes Device Number
F	denotes Factory Code (G: China and Green part)
R	denotes CTR Rank (A, B, C, D or none)
Y	denotes 1 digit Year code
WW	denotes 2 digit Week code
V	denotes VDE

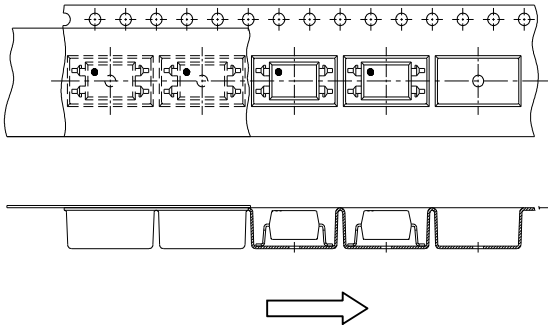
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4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

EL817-G Series

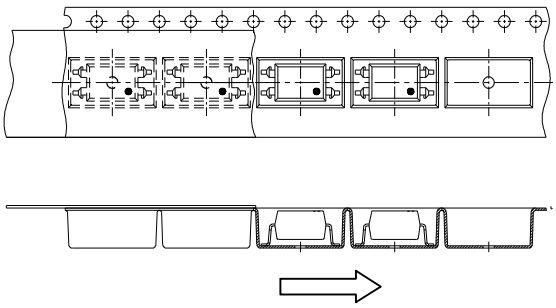
Tape & Reel Packing Specifications

Option TA



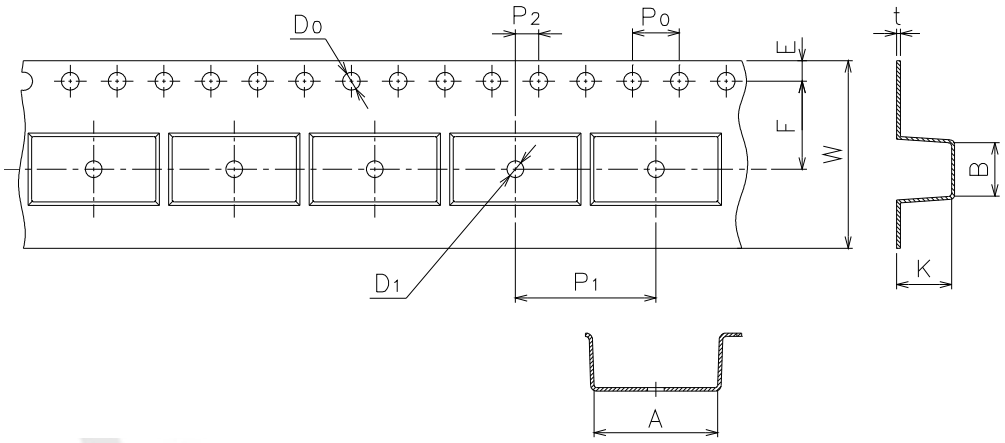
Direction of feed from reel

Option TB



Direction of feed from reel

Tape dimensions

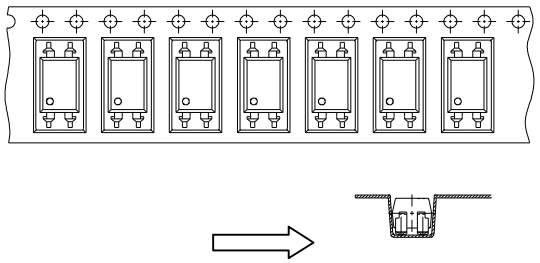


Dimension No.	A	B	Do	D1	E	F
Dimension(mm)	10.4±0.1	4.55±0.1	1.5±0.1	1.5±0.05	1.75±0.1	7.5±0.1
Dimension No.	Po	P1	P2	t	W	K
Dimension(mm)	4.0±0.1	12.0±0.1	2.0±0.1	0.33±0.1	16.0+0.3/ -0.1	4.55±0.1

4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

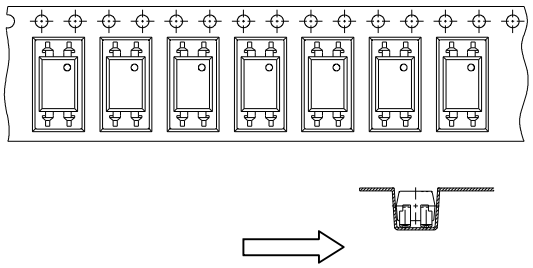
EL817-G Series

Option TD



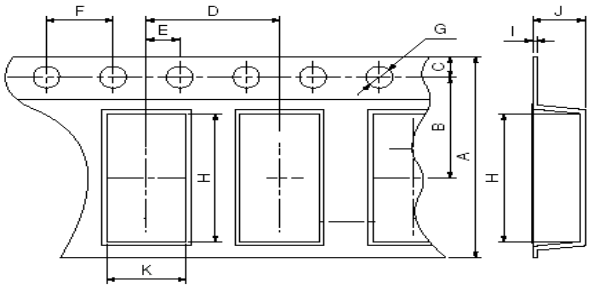
Direction of feed from reel

Option TU



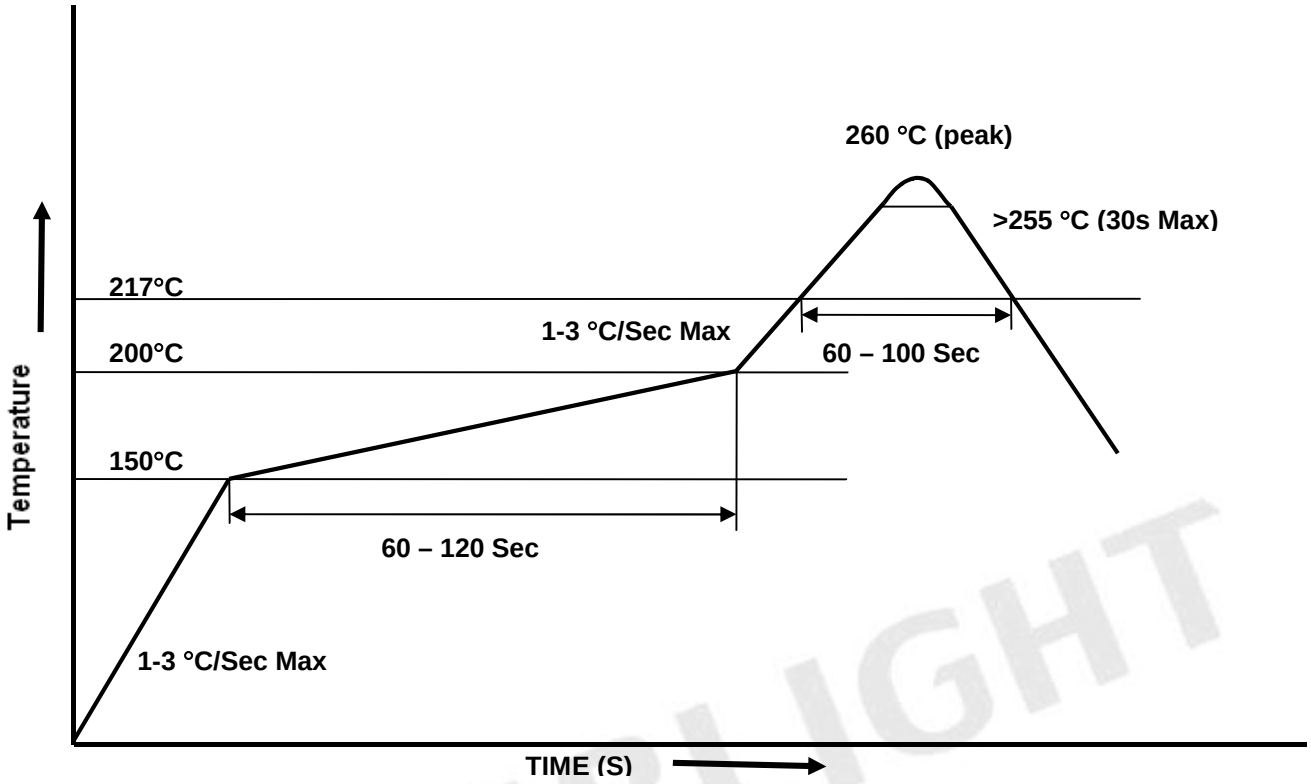
Direction of feed from reel

Tape dimensions



Dimension No.	A	B	C	D	E	F
Dimension(mm)	16.00±0.3	7.5±0.1	1.75±0.1	8.0±0.1	2.0±0.1	4.0±0.1
Dimension No.	G	H	I	J	K	
Dimension(mm)	1.5+0.1/-0	10.4±0.1	0.4±0.05	4.55±0.1	5.1±0.1	

Solder Reflow Temperature Profile



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