4 PIN SOP PHOTOTRANSISTOR AC INPUT PHOTOCOUPLER

EL354 Series

Absolute Maximum Ratings (T_a=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	±50	mA
	Peak forward current (t = 10μs)	I_{FM}	1	A
	Power dissipation No derating required up to T_a = 100°C	P_D	70	mW
Output	Power dissipation	P_C	150	mW
	Derating factor (above T_a = 80°C)		3.7	mW/℃
	Collector-Emitter voltage	V_{CEO}	80	V
	Emitter-Collector voltage	V_{ECO}	6	V
Total power dissipation		P_{tot}	200	mW
Isolation voltage *1		V_{iso}	3750	V rms
Operating temperature		T_{opr}	-55~+100	°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 SOP PHOTOTRANSISTOR AC INPUT PHOTOCOUPLER

EL354 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}	-	50	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}	6	-	-	V	I_E=0.01mA

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

Parameter		Symbol	Min.	Typ.*	Max.	Unit	Condition
Current Transfer ratio	EL354	CTR	20	-	300	%	I_F = ±1mA ,V_{CE} = 5V
	EL354A		50	-	150		
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}	10^{11}	-	Ω	V_{IO} = 500Vdc, 40~60%R.H
Cut-off frequency		f_c	-	80	-	kHz	V_{CE}=5V, I_C=2 mA, R_L=100Ω, -3dB
Floating capacitance		C_{IO}	-	0.6	1.0	pF	V_{IO} = 0, f = 1MHz
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 SOP PHOTOTRANSISTOR AC INPUT PHOTOCOUPLER

EL354 Series

Typical Performance Curves

Figure 1. Forward Current vs Forward Voltage

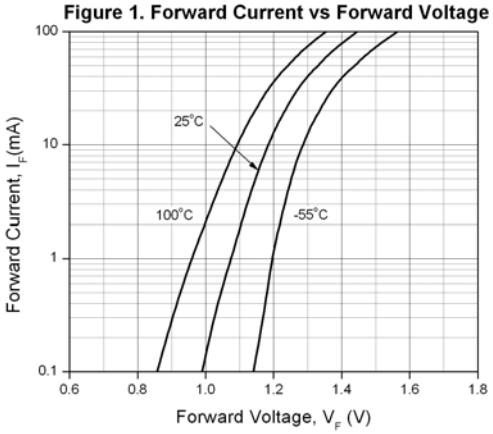


Figure 2. Normalized Collector Current vs Forward Current

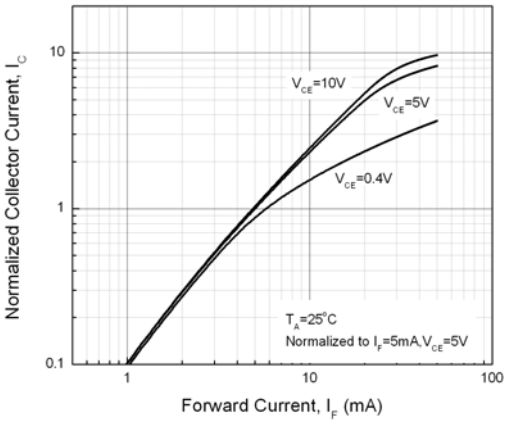


Figure 3. Normalized Current Transfer Ratio vs Forward Current

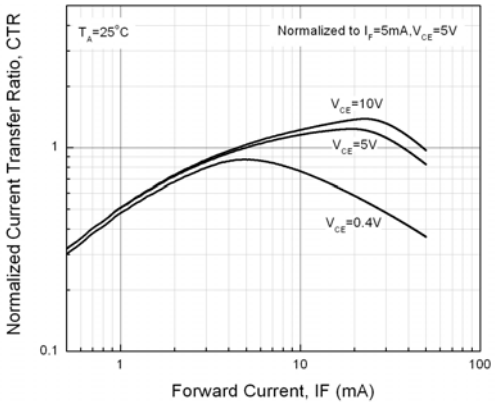


Figure 4. Normalized Collector Current vs Ambient Temperature

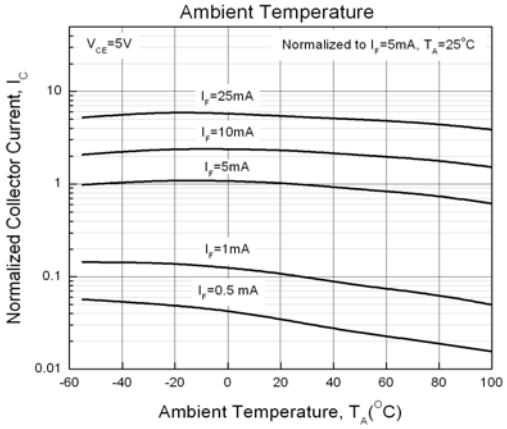


Figure 5. Collector Current vs Collector-Emitter Voltage

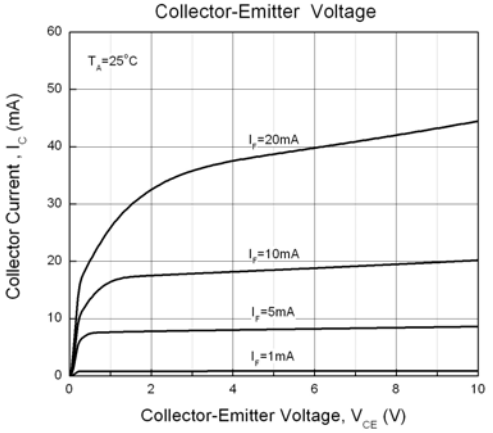


Figure 6. Collector Current vs Collector-Emitter Voltage

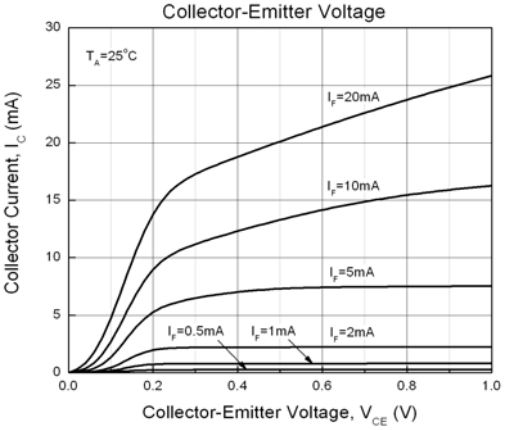


Figure 7. Collector Dark Current vs Ambient Temperature

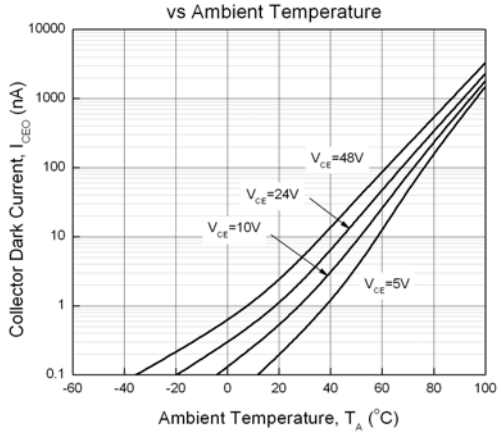


Figure 8. Switching Time vs Load Resistance

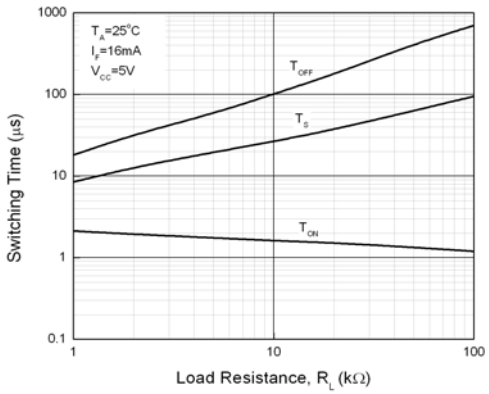
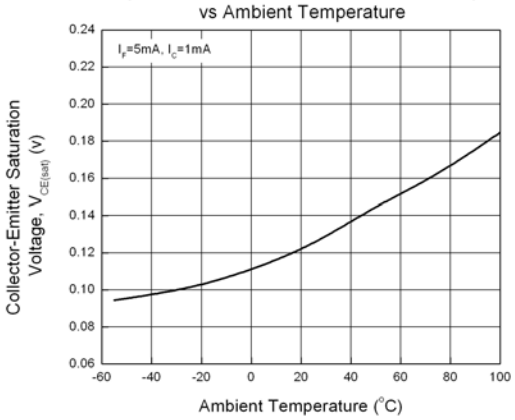


Figure 9. Collector-Emitter Saturation Voltage vs Ambient Temperature



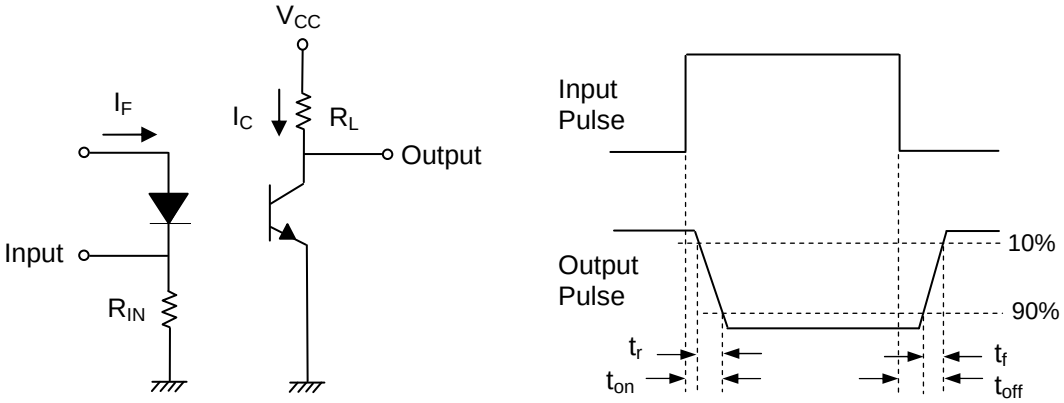


Figure 10. Switching Time Test Circuit & Waveforms

Order Information

Part Number

EL354(X)(Y)-V

Note

X = CTR Rank option (A or none)
Y = Tape and reel option (TA, TB, or none).
V = VDE safety option

Option	Description	Packing quantity
None	Standard SMD option	100 units per tube
-V	Standard SMD option + VDE	100 units per tube
(TA)	TA Tape & reel option	3000 units per reel
(TB)	TB Tape & reel option	3000 units per reel
(TA)-V	TA Tape & reel option + VDE	3000 units per reel
(TB)-V	TB Tape & reel option + VDE	3000 units per reel

4 PIN SOP PHOTOTRANSISTOR AC INPUT PHOTOCOUPLER

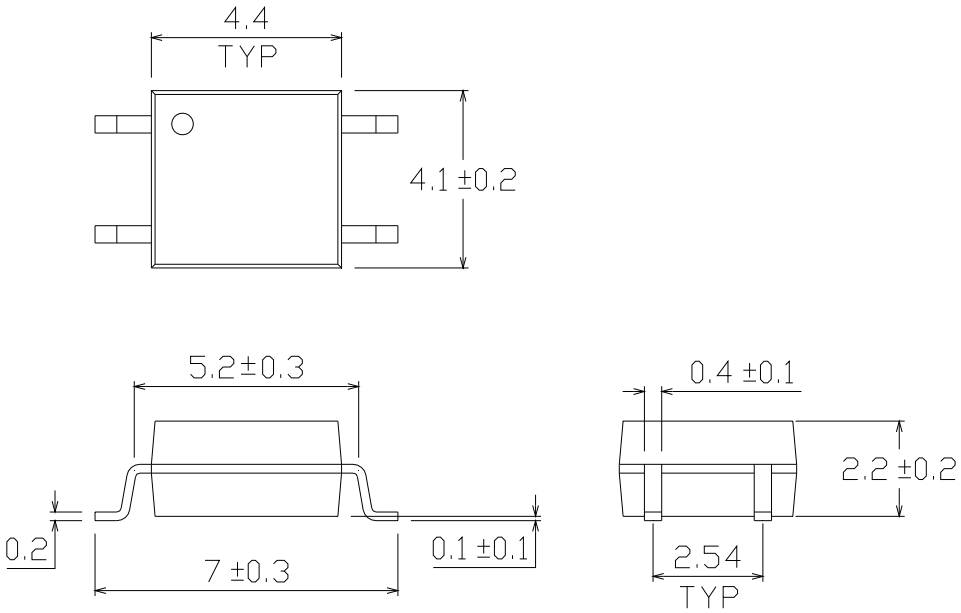
EL354 Series

Package Drawings

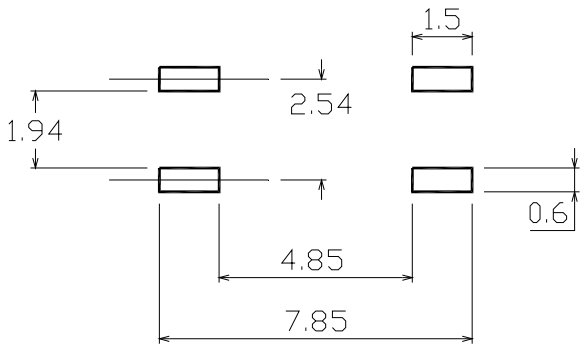
(Dimensions in mm)

Package Drawing

(Dimensions in mm)



Recommended pad layout for surface mount leadform



4 PIN SOP PHOTOTRANSISTOR AC INPUT PHOTOCOUPLER

EL354 Series

Device Marking

Notes

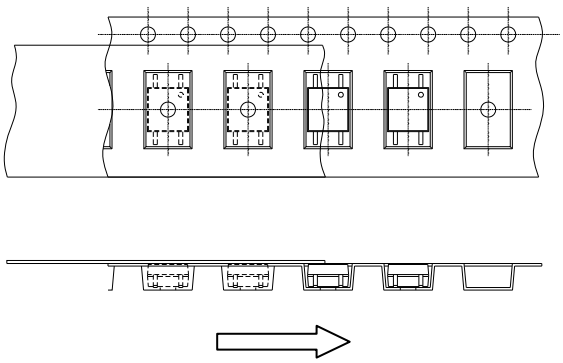
EL	denotes Everlight
354	denotes Device Number
R	denotes CTR Rank (A or none)
Y	denotes 1 digit Year code
WW	denotes 2 digit Week code
V	denotes VDE approved (optional)

4 PIN SOP PHOTOTRANSISTOR AC INPUT PHOTOCOUPLER

EL354 Series

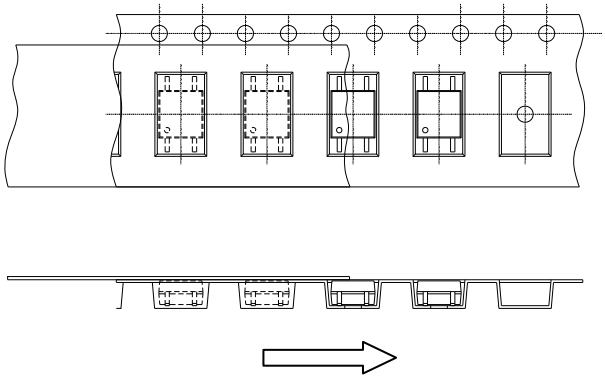
Tape & Reel Packing Specifications

Option TA



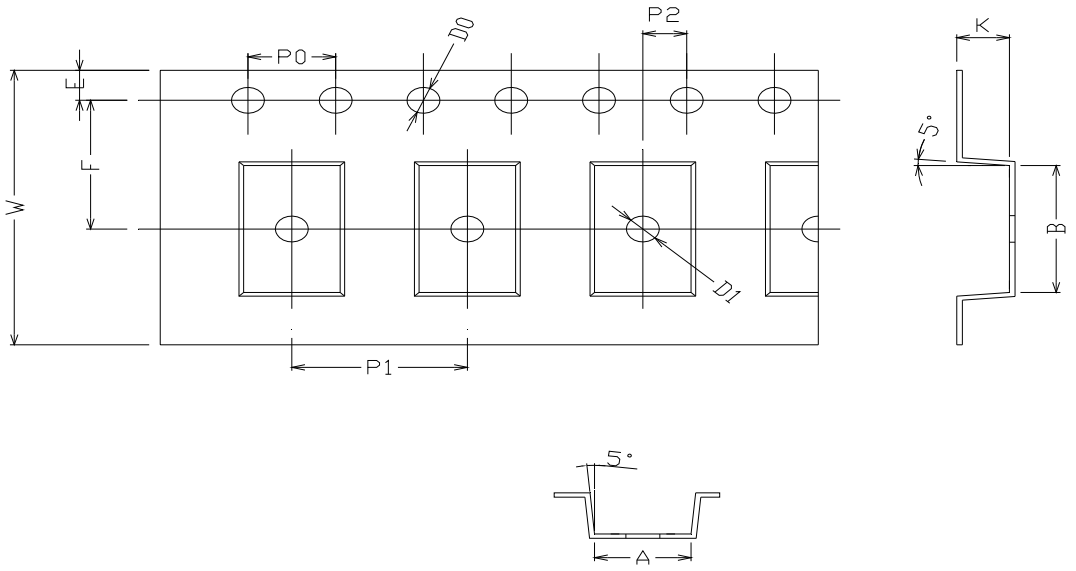
Direction of feed from reel

Option TB



Direction of feed from reel

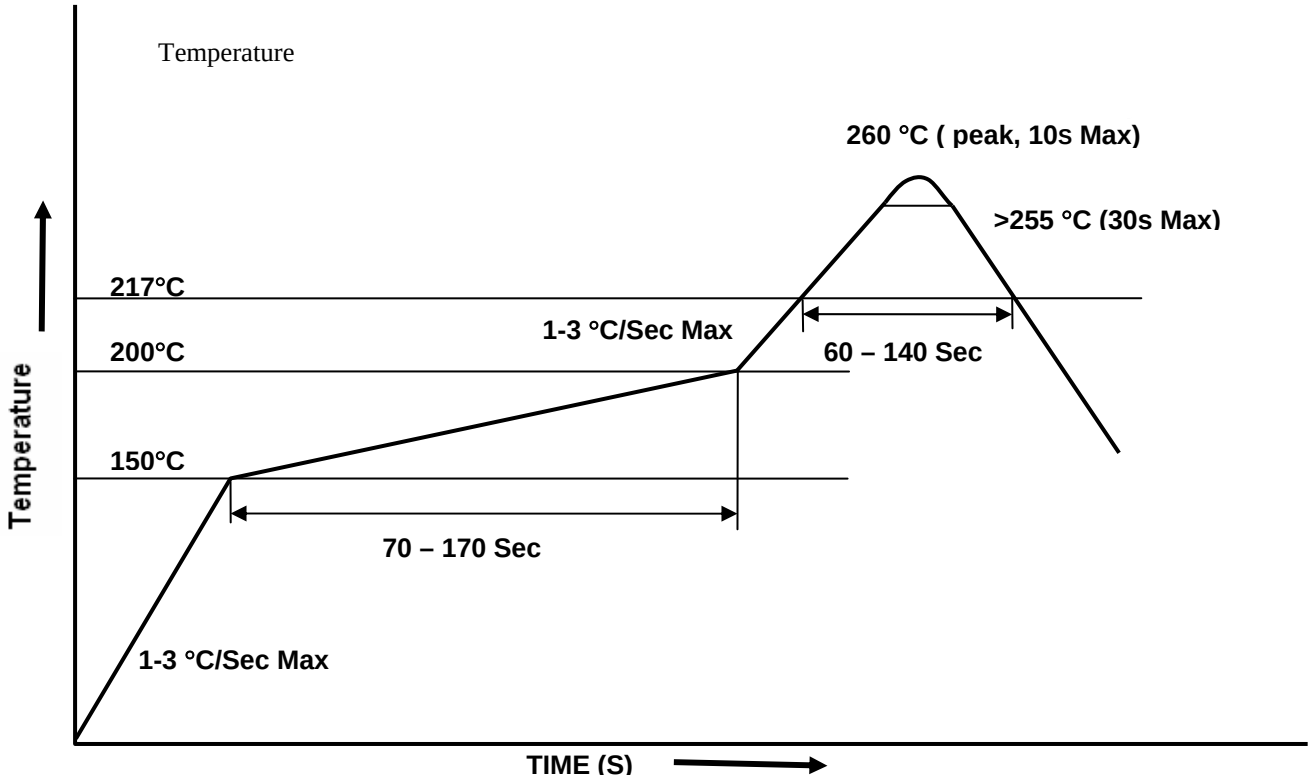
Tape dimensions



Dimension No.	A	B	Do	D1	E	F
Dimension (mm)	4.4 ± 0.1	7.4 ± 0.1	1.5 + 0.1/-0	1.5 ± 0.1	1.7 5± 0.1	7.5 ± 0.1

Dimension No.	Po	P1	P2	t	W	K
Dimension (mm)	4.0 ± 0.15	8.0 ± 0.1	2.0 ± 0.1	0.25 ± 0.03	16.0 ± 0.2	2.4 ± 0.1

Solder Reflow Temperature Profile



DISCLAIMER

1. The specifications in this datasheet may be changed without notice. EVERLIGHT reserves the authority on material change for above specification.

2. When using this product, please observe the absolute maximum ratings and the instructions for use as outlined in this datasheet. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in this datasheet.

3. These specification sheets include materials protected under copyright of EVERLIGHT. Reproduction in any form is prohibited without the specific consent of EVERLIGHT.