

TOSHIBA

Leading Innovation >>>

Half-pitch 4-ch Transistor Photocouplers (Reference)

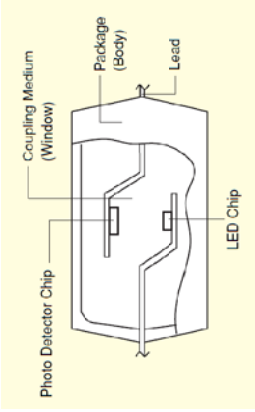
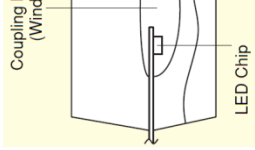
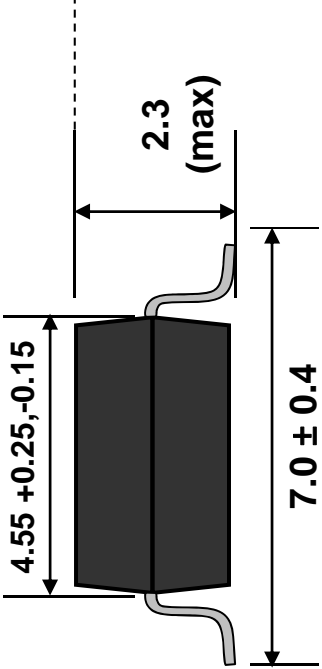
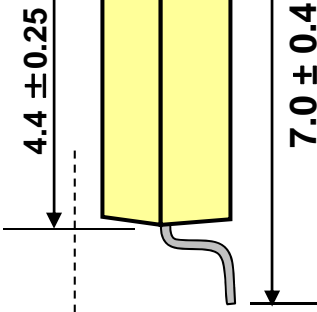
**Toshiba Corporation Semiconductor Company
Optoelectronics Device Marketing & Engineering**

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(HOC-1191)

■ Transistor Photocouplers (Half-pitch, 4-ch)
 Comparison between new product and existing product

◆ Construction Comparison

Characteristic	TLP290-4 / TLP291-4 (New product)	TLP280-4 (Existing)
Internal construction	(Transmissive type in double-molded packages) 	(Reflective type in single-molded packages) 
Overall dimensions (mm)		
Creepage/clearance distance (mm)	5.0 (min)	4.0 (min)
Isolation thickness (mm)	0.4 (min)	0.4 (min)

Comparison of Package Dimensions

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TLP291-4 (Development product)	TLP281-4
<p>16 15 11 10 9 16.3±0.3 4.55+0.25/-0.15 1 2 6 7 8</p>	<p>16 15 11 10 9 4.4±0.25 1 2 6 7 8</p>
<p>10.3±0.3 0.1 2.1±0.1 1.27±0.2 0.4 1.9</p>	<p>10.3±0.25 2.1MAX 0.4±0.1 1.27±0.2 1.9</p>
<p>7.0±0.4 4.55+0.25/-0.15 0.15 0.5min</p>	<p>7.0±0.4 0.15 0.6±0.3</p>
<p>1.27 1.2 0.8 6.3</p>	<p>1.27 1.2 0.8 6.3</p>
Package Dimensions (Unit: mm)	
Example Land Pattern (Unit: mm)	

Taller than TLP281-4

2.3mm (MAX)

2.1mm (MAX)

<Product dimension problems may occur. Please confirm the height and width of the product will occur in actual usage.

Same lead height and de-solderability increases

Same

■ Comparison of Absolute Maximum Ratings

★ Increase in guaranteed operating temperature range: 100°C_{MAX}⇒110°C_{MAX}..

Absolute Maximum Ratings (Ta=25°C)

Characteristics	Symbol	Unit	TLP281-4	TL
Forward current	IF	mA	50	
Pulse forward current (Note 1)	IFP	A	1	
Reverse voltage	VR	V	5	
Collector-emitter voltage	VCEO	V	80	
Emitter-collector voltage	VECO	V	7	
Collector current	Ic	mA	50	
Output power dissipation	Pc	mW	100	
Output power dissipation derating (Ta ≥ 25°C)	ΔPc/°C	mW/°C	-1	
Operating temperature range	Topt	°C	-55 to 100	-55
Storage temperature range	Tstg	°C	-55 to 125	-55
Lead solder temperature	Tsol	°C	260(10s)	2
Total package power dissipation (per ch)	PT	mW	170	
Total package power dissipation (Ta ≥ 25°C)(per ch)	ΔPT/°C	mW/°C	-1.7	
Isolation voltage (Note 2)	BVs	Vrms	2500	

* New product

Note 1: Pulse width ≤ 100 μs, frequency = 100Hz

Note 2: AC, 1 min, R.H.≤60%. LED pins and detector pins are shorted respectively

■ Comparison of Main Characteristics



Electrical characteristics (Ta=25°C)

Characteristic	Symbol	Unit	TLP281-4			TLP291-4*		
			Min	Typ	Max	Min	Typ	Max
Forward current	VF	V	1	1.15	1.3	1.1	1.2	1.4
Reverse current	IR	μA	—	—	10	—	—	10
Collector dark current	ICEO	μA	—	0.01	0.1	—	0.01	0.1
Current transfer ratio (CTR)	IC/IF	%	50		600	50		400
Saturated CTR	IC/IF(sat)	%	—	60	—	—	60	—
Collector-emitter saturation voltage	VCE(sat)	V	—	0.2	—	—	—	0.4
Off-state collector current	Ic(off)	μA	—	—	10	—	—	10

* New product

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