

## High frequency signal transmissive photorelays with industry's-smallest mounting area

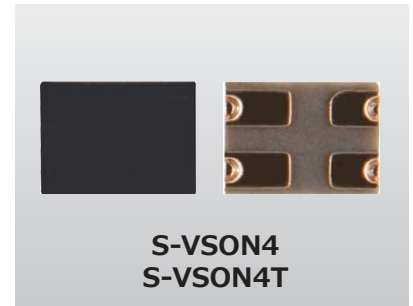
"TLP3440S" and "TLP3475S" are photorelays, featuring the industry-smallest mounting area<sup>[1]</sup>.

The TLP3475S is housed in an S-VSON4 package and features low ON-state resistance. The TLP3440S is housed in a new S-VSON4T package, which has the same industry-leading smallest mounting area<sup>[1]</sup> as the S-VSON4 but is thinner. The TLP3440S features low output capacitance.

The mounting area of the new packages is 22.5 % smaller than that of existing VSON4 packages<sup>[2]</sup>. By using in combination with both products, they will help to reduce the sizes of circuit boards for tester PEs<sup>[3]</sup>.

The new products also can be used in gigahertz high speed signal transmissive lines. Unlike typical photorelays, which have a maximum operating temperature of 85°C, the TLP3440S and TLP3475S can operate at up to 110°C, and therefore simplify system design.

The latest Gartner market report recognizes Toshiba as the leading manufacturer of optocouplers by sales in 2015 and 2016, with 23 % of sale-based market share in CY2016. (Source: Gartner, Inc. "Market Share: Semiconductor Devices and Applications Worldwide 2016" 30 March, 2017) Toshiba Electronic Devices & Storage Corporation will continue to develop products that meet the needs of customers by promoting the development of a diverse portfolio of photocouplers and photorelays tailored to market trends.



### Features

- Industry-smallest mounting area<sup>[1]</sup>
  - S-VSON4T package: 2.0×1.45×1.3 mm (typ.) (TLP3440S)
  - S-VSON4 package: 2.0×1.45×1.65 mm (typ.) (TLP3475S)
- Voltage and current ratings:
  - OFF-state output terminal voltage 40 V, ON-state current 0.12 A, ON-state current (pulsed) 0.36 A (TLP3440S)
  - OFF-state output terminal voltage 60 V, ON-state current 0.4 A, ON-state current (pulsed) 1.2 A (TLP3475S)
- High operating temperature rating: T<sub>opr</sub> (max)=110°C

### Applications

- Semiconductors testers (Memory, SoC, LSI)
- Probe cards
- Replacements of mechanical relays



Tester

#### Notes:

[1] As of September 2017, from a survey by Toshiba Electronic Devices & Storage Corporation.

[2] VSON4 package: 2.45×1.45×1.3 mm (typ.)

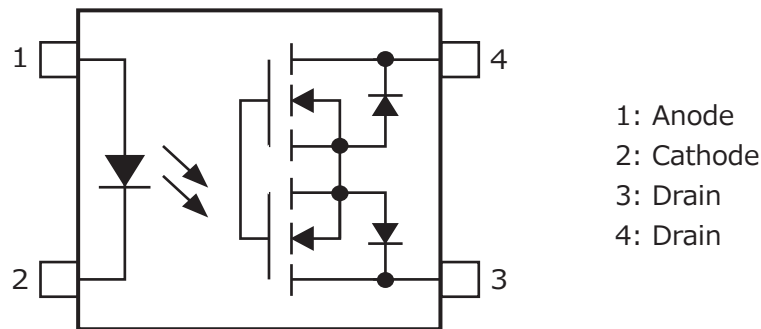
[3] Pin Electronics (PE): Switches for inspection signals to DUT of various testers

# Product Specifications

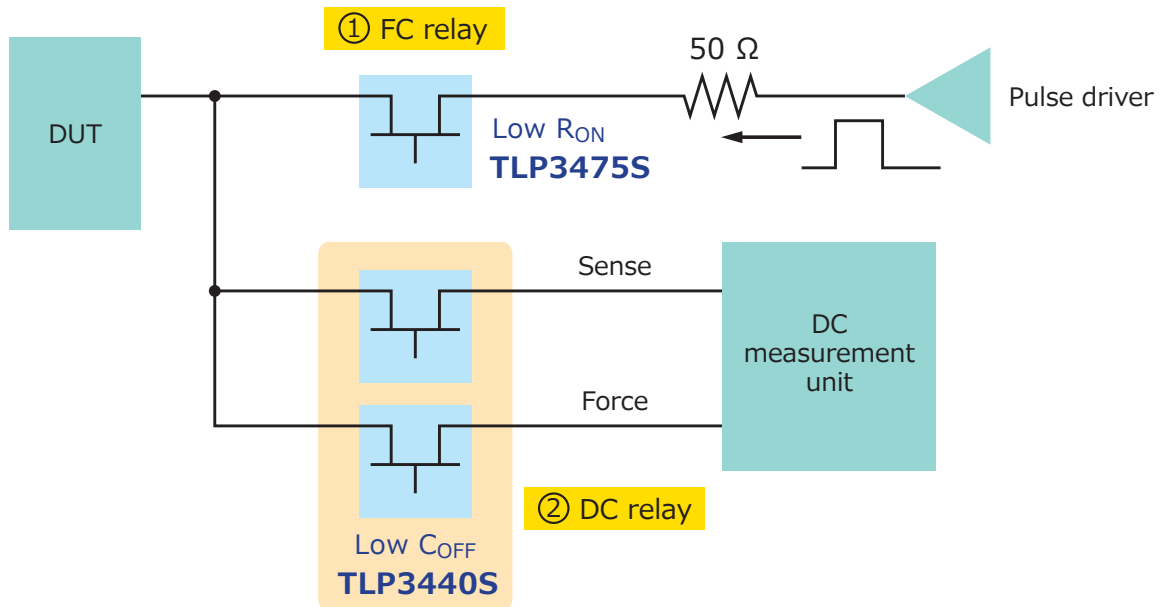
(T<sub>a</sub>=25°C)

Part number	Absolute maximum ratings			ON-state resistance		Output capacitance C <sub>OFF</sub> typ. (pF)	OFF-state current		Turn-on time t <sub>ON</sub> max (ms)	Turn-off time t <sub>OFF</sub> max (ms)
	OFF-state output terminal voltage V <sub>OFF</sub> (V)	ON-state current I <sub>ON</sub> (A)	Operating temperature T <sub>opr</sub> (°C)	R <sub>ON</sub> typ. (Ω)	R <sub>ON</sub> max (Ω)		I <sub>OFF</sub> max (nA)	@V <sub>OFF</sub> (V)		
TLP3440S	40	0.12	-40 to 110	11	14	0.45	1	40	0.2	0.3
TLP3475S	60	0.4		1.1	1.5	12	1	50	0.5	0.3

## Pin Assignment



## Application Circuit Example



### Semiconductor tester (PE<sup>[3]</sup>)

The application circuits shown in this document are provided for reference purposes only. Thorough evaluation is required, especially at the mass-production design stage. Toshiba Electronic Devices & Storage Corporation does not grant any license to any industrial property rights by providing these examples of application circuits.

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