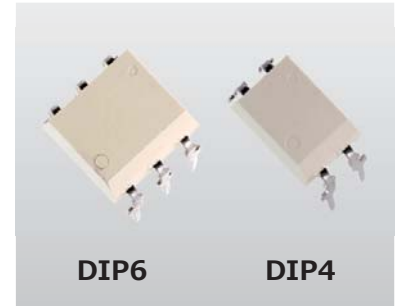


## High-current photorelays for factory automation and other industrial applications that can replace mechanical relays

All of five products including “TLP3543A” are high-current photorelays mounted with the state-of-the-art U-MOSVIII process MOSFET in a DIP4 or DIP6 package. The new photorelays offer multiple options, with an OFF-state output terminal voltage ranging from 30 to 200 V and a steady ON-state current of 0.7 to 5.0 A. They can replace 1-Form-A mechanical relays in various DC and AC applications, contributing to improved system reliability and reducing the space needed for relays and relay drivers. They deliver a rated operating temperature of 110°C (max), making it easier to accommodate temperature margins in system designs. In addition, the new photorelays provide a rated transient ON-state current three times larger than the rated steady ON-state current, contributing to design safety.

The latest Gartner market report recognizes Toshiba as the leading manufacturer of optocouplers by sales in 2015 and 2016, with 23 % sales-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’s highest<sup>[1]</sup> ON-state current rating:  $I_{ON}=5\text{ A}$ ,  $I_{ONP}=15\text{ A}$  (TLP3543A)
- Wide range of options for OFF-state output terminal voltage (30 V, 60 V, 100 V and 200 V)
- High operating temperature range: 110°C (max)

### Applications

- Industrial equipment (PLC, I/O interface, contact output)
- Building automation systems (HVAC<sup>[2]</sup>, thermostats, etc.)
- Semiconductor testers
- Test boards
- Security equipment
- Replacement of mechanical relays



PLC

### Product Specifications

(@T<sub>a</sub>=25°C)

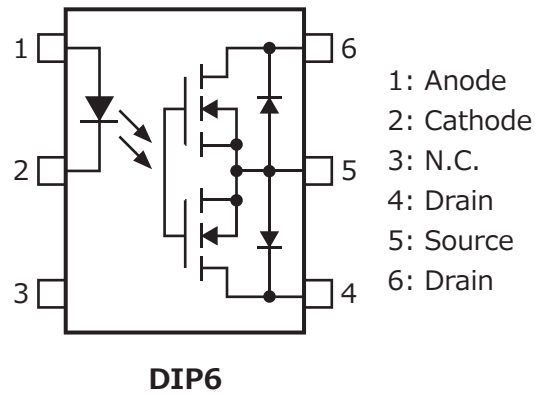
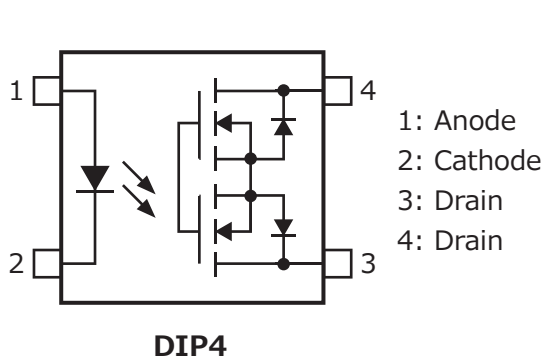
Part number	Package	Absolute maximum ratings			Trigger LED current I <sub>FT</sub> max (mA)	ON-state resistance R <sub>ON</sub> typ. (mΩ)	ON-state resistance R <sub>ON</sub> max (mΩ)	OFF-state current I <sub>OFF</sub> max (μA)	Output capacitance C <sub>OFF</sub> typ. (pF)	Turn-on time t <sub>ON</sub> max (ms)	Turn-off time t <sub>OFF</sub> max (ms)	Isolation voltage BV <sub>S</sub> min (Vrms)
		OFF-state output terminal voltage V <sub>OFF</sub> (V)	ON-state current I <sub>ON</sub> (A)	ON-state current (pulsed) I <sub>ONP</sub> (A)								
TLP3543A	DIP6	30	5	15	3	20	40	1	1100	5	0.5	2500
TLP3545A		60	4	12	3	35	60	1	640	5	0.5	2500
TLP3546A		100	3.5	10.5	3	50	80	1	450	5	0.5	2500
TLP3556A	DIP4	100	2	6	3	110	200	1	110	2	0.5	2500
TLP3558A		200	0.7	2.1	3	900	2000	1	110	1	0.5	2500

Notes:

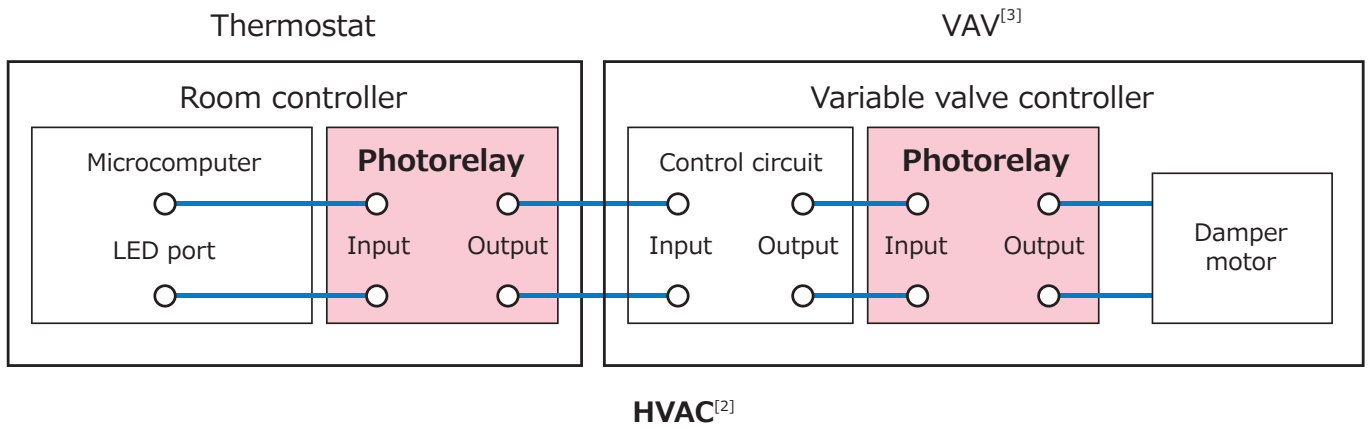
[1] As of December, 2017 for photorelays with DIP6 package. Toshiba Electronic Devices & Storage Corporation survey.

[2] HVAC (Heating, Ventilation, and Air Conditioning)

# Pin Assignment



# Application Circuit Example



Notes:

[3] VAV (Variable Air Volume)

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.

Before creating and producing designs and using, customers must also refer to and comply with the latest versions of all relevant information of this document and the instructions for the application that Product will be used with or for.

**TOSHIBA ELECTRONIC DEVICES & STORAGE CORPORATION**

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**2018-01 Issue**