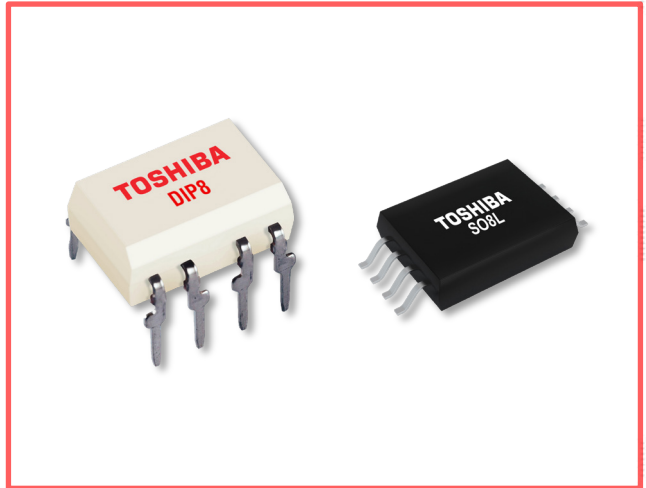


**PHOTOCOUPLER**

> **ISOLATION AMPLIFIERS**

**Highly Accurate Linearity**

Featuring industry leading highly accurate linearity, the Toshiba TLP7820, TLP7920, TLP7830 and TLP7930 optical isolation amplifiers are equipped with an  $\Delta\Sigma$  type AD converter circuit in their input side. They can provide accurate feedback to microcomputers by monitoring motor phase current or bus voltage fluctuation. With an isolation voltage of 5 kVrms (min) they are suitable for a variety of factory automation applications. Their high common-mode transient immunity of 20 kV/ $\mu$ s (typ.) means they can operate stably even in motor control applications where a lot of noise is generated.



> **APPLICATIONS**

- Factory automation equipment
- Industrial equipment
- Servo amplifiers
- Machine tools
- Power supplies
- Office equipment
- Household appliances
- Wind power / photo voltaic AC generation drives

> **FEATURES**

Highly accurate linearity with  $\Delta\Sigma$  type AD converter circuit:

- $NL_{200}=0.02\%$  (typ.) (analogue output products)
- $INL=4$  LSB (typ.) (digital output products)

Low input side supply current:

- $I_{DD1}=8.6$  mA (typ.) (analogue output products)
- $I_{DD1}=8.5$  mA (typ.) (digital output products)

High Common-mode transient immunity:  $CMTI=20$  kV/ $\mu$ s (typ.)

High isolation voltage:  $BVs=5$  kVrms (min)

Small SO8L package

Wide Operating temperature range:  $-40$  to  $+105^{\circ}C$

> **ADVANTAGES**

Industry leading highly accurate linearity for advanced system performance.

Low Power Consumption

Stable operation in applications like motor control, where a lot of noise is generated

Optical Isolation for highest Galvanic Isolation Capability

Reduces the footprint by 30 % and the height by 40 % compared with conventional DIP8 package

Products are perfectly applicable in harsh environments

> **BENEFITS**

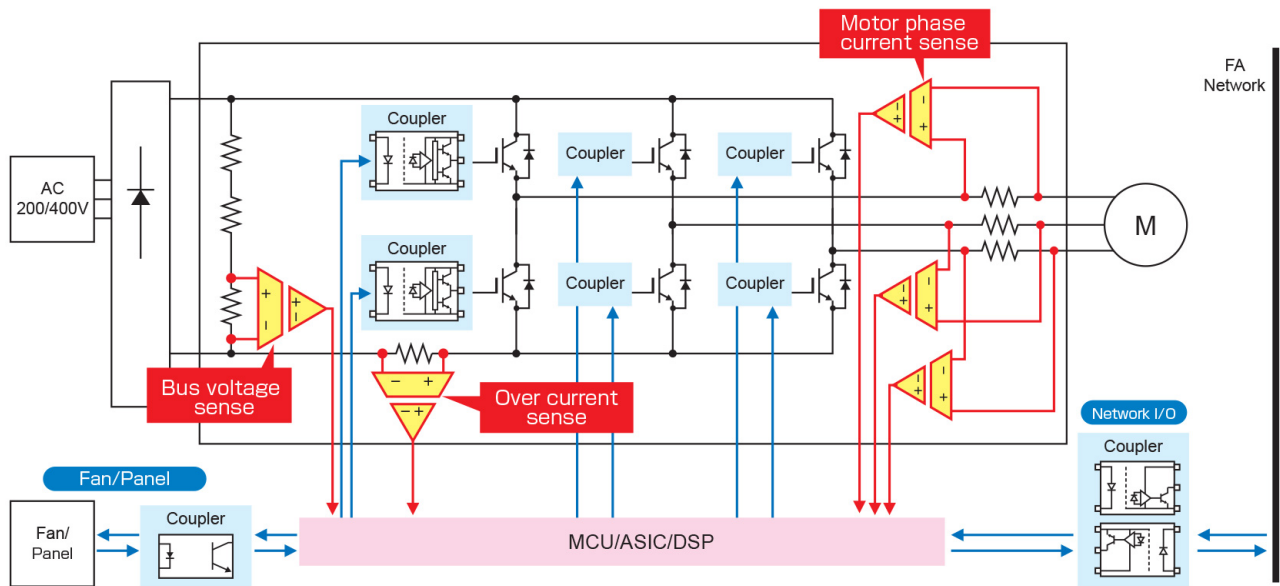
**Attractive cost effects**

- High reliability of end products reduce costs of operation failures
- Ability to reduce BOM costs due to most effective solutions
- Customers can save money through design and space optimisation

**Smart performance increases**

- Strong isolation for enhanced safety and reliability
- Easy design for best performance

## > AC DRIVE CIRCUIT



## > ANALOGUE OUTPUT PRODUCTS

Part number	Package	Output type	Absolute maximum ratings	Recommended operating conditions	NL <sub>200</sub> typ. @±200 mV (%)	G typ. @T <sub>a</sub> =25 °C (V/V)	Rank max/min @T <sub>a</sub> =25 °C (%)	I <sub>DD1</sub> typ. (mA)	CMTI typ. @V <sub>CM</sub> =1 kV, T <sub>a</sub> =25 °C (kV/μs)	BV <sub>S</sub> min @T <sub>a</sub> =25 °C, AC, 60 s (Vrms)
			T <sub>opr</sub> (°C)	V <sub>IN+</sub> , V <sub>IN-</sub> (mV)						
TLP7820	SO8L	Single-phase output (0 to 2.5 V)	-40 to 105	±200 (±300※2)	0.02	8.2	G0: ±0.5 G1: ±1.0 G3: ±3.0	8.6	20	5000
TLP7920	DIP8									

(Unless otherwise specified, @T<sub>a</sub>= -40 to 105 °C)  
 ※2 : Full scale analogue input voltage range

## > DIGITAL OUTPUT PRODUCTS

Part number	Package	Output type	Absolute maximum ratings	Recommended operating conditions	INL typ. (LSB)	G <sub>E</sub> min/max @T <sub>a</sub> =25 °C (%)	I <sub>DD1</sub> typ. (mA)	CMTI typ. (kV/μs)	BV <sub>S</sub> min @T <sub>a</sub> =25 °C, AC, 60 s (Vrms)
			T <sub>opr</sub> (°C)	V <sub>IN+</sub> , V <sub>IN-</sub> (mV)					
TLP7830	SO8L	1 bit digital/CLK output	-40 to 105	±200 (±300※2)	4	±1.0	8.5	20	5000
TLP7930	DIP8								

(Unless otherwise specified, @T<sub>a</sub>= -40 to 105 °C)  
 ※2 : Full scale analogue input voltage range