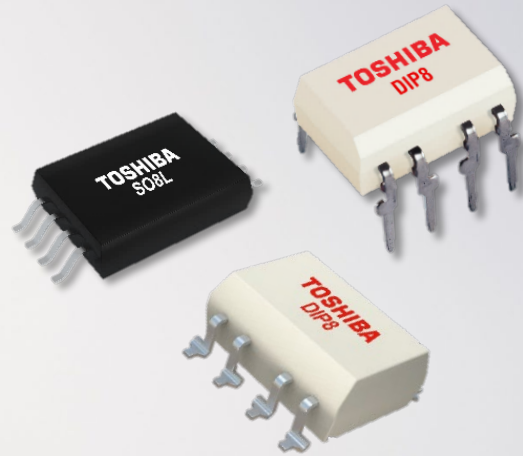


# Isolation Amplifiers



## 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
- Small SO8L package
- Wide operating temperature range: -40 to +105°C

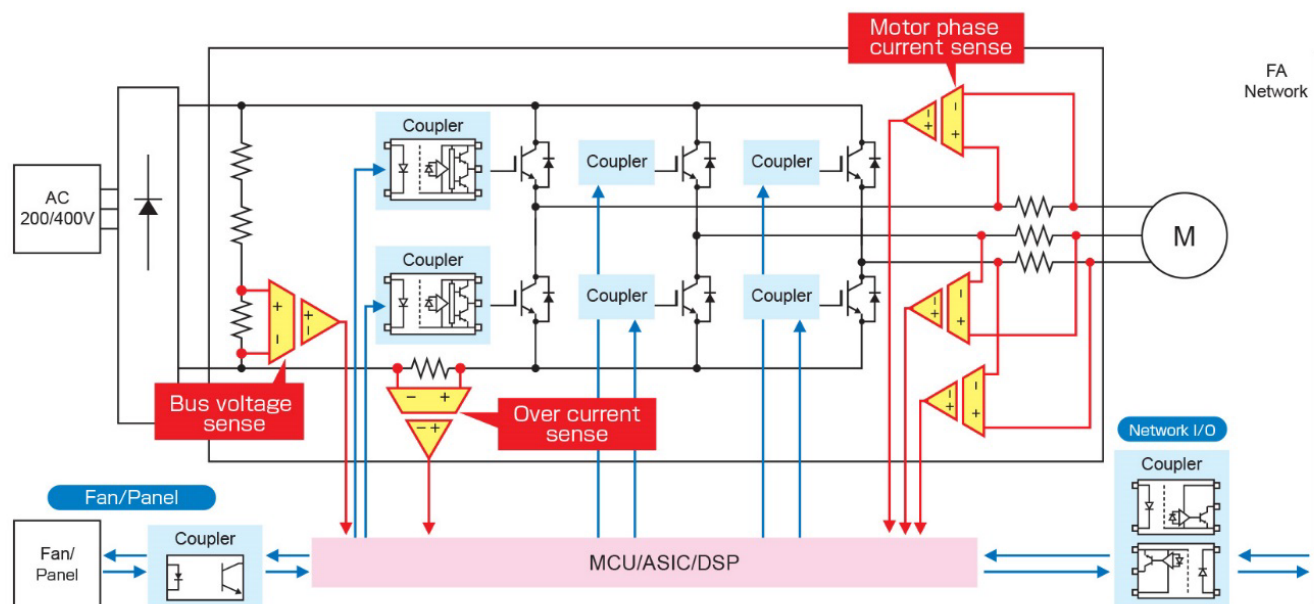
### Advantages

- Industry leading highly accurate linearity for advanced system performance.
- Stable operation in applications like motor control, where a lot of noise is generated
- Low power consumption
- Stable operation over wide temperature range
- 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									

## 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