



VISHAY INTERTECHNOLOGY, INC.

OPTOELECTRONICS

IGBT/MOSFET DRIVERS

VO3120 and VO3150A

PRODUCT OVERVIEW





Introduction to VO3120 and VO3150A

Vishay, as a leading supplier of optocouplers, has a broad portfolio that features phototransistor, photodarlington, phototriac, linear, and high-speed output devices, all packaged in extremely reliable surface-mount and through-hole packages. Adding to this portfolio, Vishay is introducing a new family of IGBT/MOSFET drivers: the VO3120 and VO3150A. Designed for environments with high temperature and high electrical noise, they are the ideal choice for industrial and consumer electronics applications.

Applications

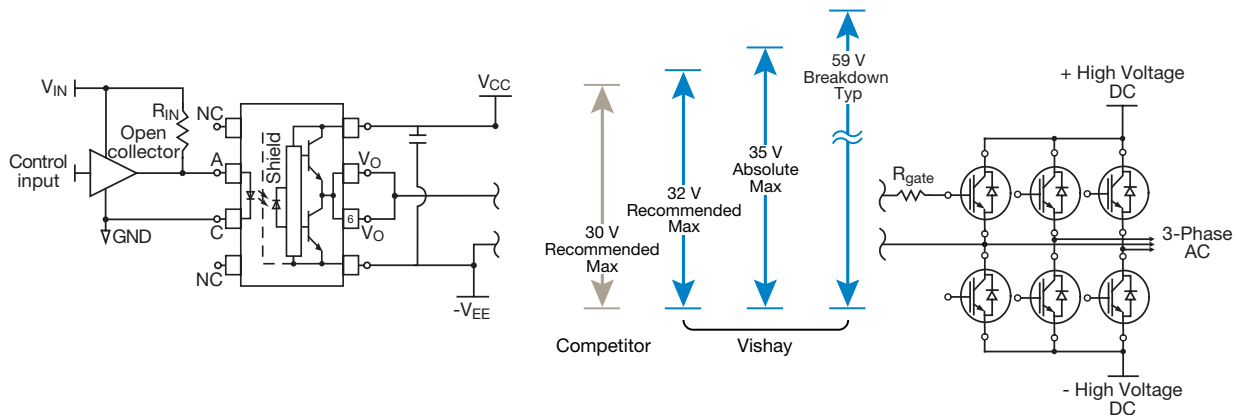
- DC brushless and AC motor drives
- Inverters and DC/DC converters
- Uninterruptible power supplies (UPS)
- Switch mode power supplies (SMPS)
- Welding equipment
- Induction stove tops
- Plasma displays

Features

- Output current of 2.5 A and 0.5 A
- Widest supply voltage: from 15 V to 32 V
- Low current consumption of 2.5 mA max
- Wide operating temperature range of $-40\text{ }^{\circ}\text{C}$ to $+110\text{ }^{\circ}\text{C}$
- CMTI of $25\text{ kV}/\mu\text{s}$
- Propagation delay from $0.1\text{ }\mu\text{s}$ to $0.4\text{ }\mu\text{s}$
- PWD max of $0.2\text{ }\mu\text{s}$

Widest Operating Supply Voltage Range

Vishay offers the widest operating voltage range from 15 V to 32 V. The wide range enables engineers to design with IGBTs that recommend negative gate drive for faster switching, reduction in dV/dt induced turn on, and to ensure the IGBT is off in electrically noisy environments.



Low Current Consumption

Vishay minimizes power dissipation by lowering the current consumption of the IGBT/MOSFET drivers to 2.5 mA over their rated temperature range. At operating temperatures of $25\text{ }^{\circ}\text{C}$, the input current is less than 1.5 mA. This decrease enables lower power and heat dissipation in the application. The input current to VO3120 and VO3150A IGBT/MOSFET drivers is a maximum of 2.5 mA. As the operating or ambient temperature increases, the input current decreases. The low current results in low power consumption, less heat to be dissipated, and smaller heat sinks.

Higher Temperature Rating

Vishay's IGBT/MOSFET drivers have an ambient temperature rating from $-40\text{ }^{\circ}\text{C}$ to $+110\text{ }^{\circ}\text{C}$. This makes them ideal for use in applications that operate in industrial environments. Offering the highest isolation voltage of 5300 VRMS makes them even more applicable to these industrial environments, as well as providing the necessary isolation and protection of electronic equipment.

Product Specifications

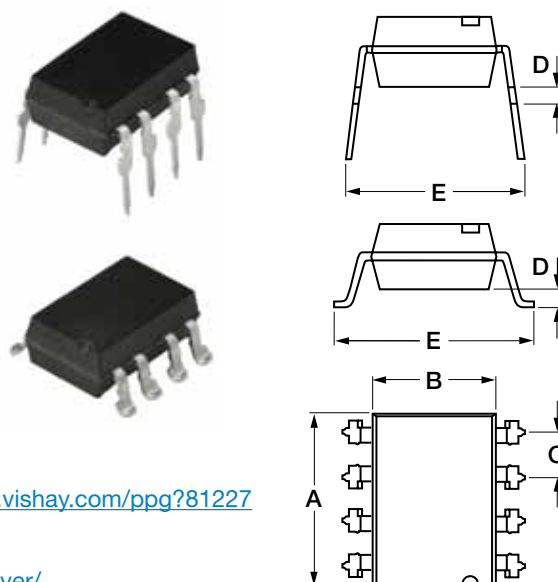
Output current (I_O) for the new drivers is 2.5 A for the [VO3120](#) and 0.5 A for the [VO3150A](#). All other electrical and switching characteristics are the same for both devices.

Characteristic	Parameter	Symbol	Value			Units	
			Min	Typical	Max		
Recommended Operating Conditions	Forward current	I_F	7		16	mA	
	Supply current	V	15		32	V	
	Temperature	T_{amb}	- 40		110	°C	
Electrical	High-level supply current	I_{CCH}			2.5	mA	
	Low-level supply current	I_{CCL}			2.5	mA	
	UVLO threshold	UVLO+		11		13.5	V
		UVLO-		9.5		12	V
	Isolation voltage	V_{ISO}			5300	V_{RMS}	
	Threshold input voltage low to high	I_{FLH}			5	mA	
	Threshold input voltage high to low	V_{FHL}	0.8			V	
Switching	Propagation delay time to logic low output	t_{PHL}	0.1		0.4	μs	
	Propagation delay time to logic high output	t_{PLH}	0.1		0.4	μs	
	Pulse width distortion	PWD			0.2	μs	
CMTI	Common mode transient immunity at logic high output	CMR_H	25	35		kV/ μs	
	Common mode transient immunity at logic low output	CMR_L	25	35		kV/ μs	

Package Configurations

Vishay's IGBT/MOSFET drivers are available in a standard DIP-8 through-hole package and surface-mount lead form in tape and reel. Typical dimensions in inches (mm) are shown below.

DIP-8	A	B	C	D	E
Standard	0.385 (9.78)	0.262 (6.67)	0.100 (2.54)	0.028 (0.71)	0.351 (8.92)
SMD (Option 7)	0.385 (9.78)	0.262 (6.67)	0.100 (2.54)	0.028 (0.71)	0.396 (10.06)



IGBT/MOSFET Gate Drive Optocoupler Application Note: <http://www.vishay.com/ppg?81227>

For technical support, contact: optocoupleranswers@vishay.com

For further information: <http://www.vishay.com/optocouplers/opto-driver/>

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