

### IGBT/MOSFET Drivers



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. They effectively provide isolation to meet extreme safety requirements and enhance noise decoupling between sensitive control circuitry and the power stages of industrial power converters.

#### 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 °C to + 110 °C
- CMTI of 25 kV/μs
- Propagation delay from 0.1 μs to 0.4 μs
- PWD max of 0.02 μs

#### 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

#### RESOURCES

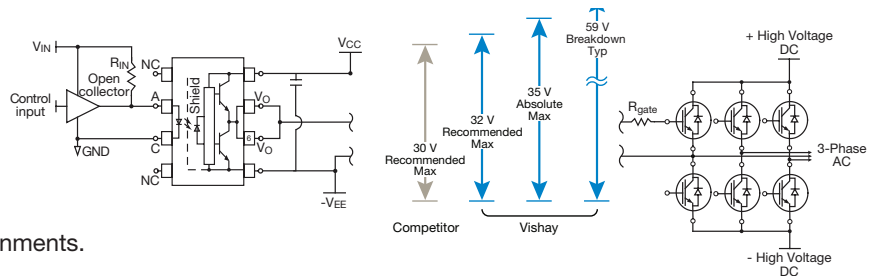
- Datasheets: <http://www.vishay.com/doc?81808> and <http://www.vishay.com/doc?81314>
- IGBT/MOSFET gate drive optocoupler application note: <http://www.vishay.com/ppg?81227>
- For technical support, contact: [optocoupleranswers@vishay.com](mailto:optocoupleranswers@vishay.com)
- For further information: <http://www.vishay.com/optocouplers/opto-driver/>
- Sales contacts: <http://www.vishay.com/doc?99914>



### 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's opto-IGBT Drivers' low quiescent current dissipation, as low as 1.5mA at 25 °C and up to 2.5mA over their rated temperature range, greatly simplify the biasing of the secondary Vcc directly from the high-voltage power buss using a simple passive resistive divider network. In addition to the low quiescent current, the negative temperature coefficient nature of the supply current has the added benefit that as ambient temperature increases the current and subsequent dissipated power decreases. The end result is designs that require smaller thermal dissipation components, optimizing cost and efficiency.

### HIGHER TEMPERATURE RATING

Vishay's IGBT/MOSFET drivers have an ambient temperature rating from - 40 °C to + 110 °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	TYP.	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	$\mu s$
	Propagation delay time to logic high output	$t_{PLH}$	0.1		0.4	$\mu s$
	Pulse width distortion	PWD			0.2	$\mu s$
CMTI	Common mode transient immunity at logic high output	$CMR_H$	25	35		kV/ $\mu s$
	Common mode transient immunity at logic low output	$CMR_L$	25	35		kV/ $\mu s$