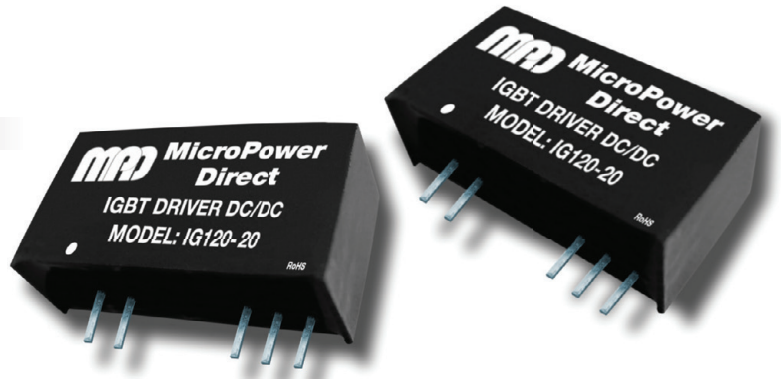


# IG120-20

## High Isolation SiC Driver DC/DC Converter



### Key Features:

- +20/-4 VDC Outputs
- EN 60950 Approved
- 3,500 VAC Isolation
- 83% Efficiency
- Miniature SIP Case
- >3.5 MHour MTBF
- Short Circuit Protected

RoHS



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### Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

#### Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Supply Voltage Range		13.5	15.0	16.5	VDC
Input Current	Full Load		193		mA
	No Load		16		
Input Filter	Internal Capacitor				
Fuse Rating (Slow-Blow)			500		mA

#### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage	+VOUT		+20		VDC
	-VOUT		-4.0		
Output Current			±100		mA
Output Voltage Accuracy			±5		%
Line Regulation	For VIN Change of ±10%		±1.1	±1.3	%/%
Load Regulation, See Note 1	+VOUT		5.0	8.0	%
	-VOUT		10.0	15.0	
Ripple (20 MHz)	See Note 2		60		mV P - P
Noise (20 MHz)			75		
Efficiency			83		%
Temperature Coefficient				±0.03	%/°C
Output Short Circuit	Continuous (Autorecovery)				

#### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds, Leakage Current <1 mA	3,500			VAC
		6,000			VDC
Isolation Resistance		1,000			MΩ
Isolation Capacitance, 1 kHz/0.1V			3.5		pF
Switching Frequency			95		kHz

#### EMI Characteristics

Parameter	Standard	Criteria	Level
Radiated Emissions, See Note 3	EN 55022		Class B
Conducted Emissions, See Note 3	EN 55022		Class B
ESD	EN 61000-4-2	B	±6 kV Contact

#### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+105	°C
Storage Temperature Range		-55		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

#### Physical

Case Size	See Mechanical Diagram (Page 2)
Case Material	Non-Conductive Black Plastic (UL94-V0)
Weight	0.148 Oz (4.2g)

#### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	3.5			MHours

#### Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)				21	VDC
Lead Temperature	1.5 mm From Case For 10 Sec			300	°C

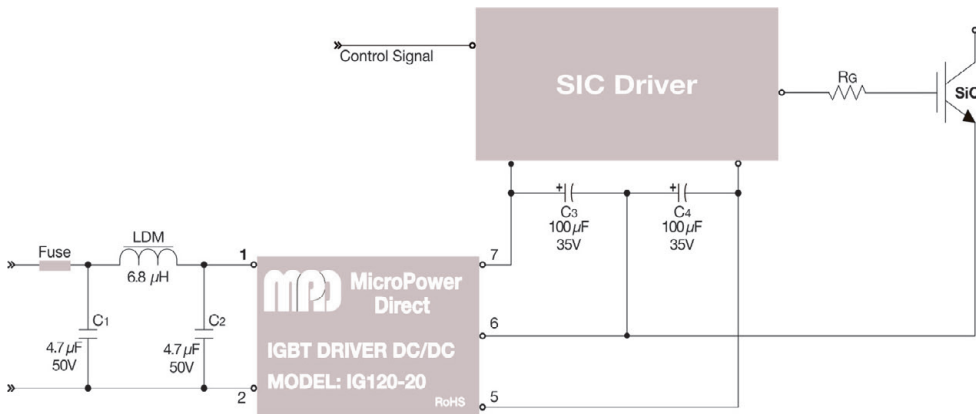
**Caution:** Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

#### Notes:

1. Load regulation is measured from 10% load to full load.
2. When measuring output ripple & noise, it is recommended that an external capacitor (1 µF to 10 µF) be placed from each output to common.
3. The unit will meet the radiated and conducted EMI specifications with the addition of external components as shown in the connection diagram on page 2.
4. Operation at no-load will not damage this unit. However, it may not meet all specifications.

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## Typical Connection

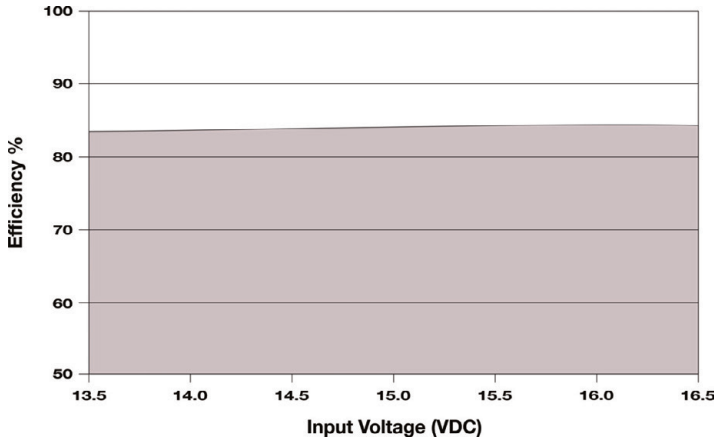


The IG120-20 is designed to be used in the driver circuits for silicon carbide (SiC) MOSFETs. The asymmetrical outputs of the IG120-20 provide the +20V positive gate bias and -4V negative gate bias needed to efficiently switch the MOSFET.

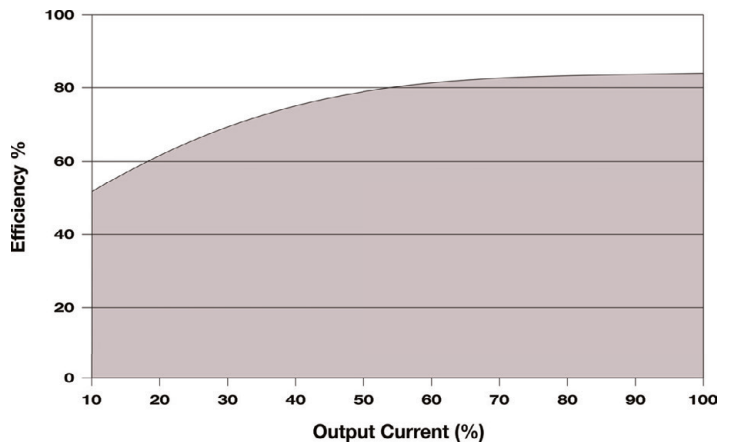
The circuit to the left shows a typical connection to a driver circuit. With the input components C1, C2 and LDM, the unit should meet the limits of EN 55022. If meeting EN 55022 is not required, a single 100 uF/50V capacitor may be used.

The output decoupling capacitors should be mounted as close to the driver circuitry as possible. All capacitors (input & output) should be ceramic or electrolytic with low internal resistance.

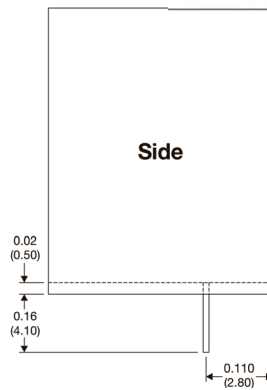
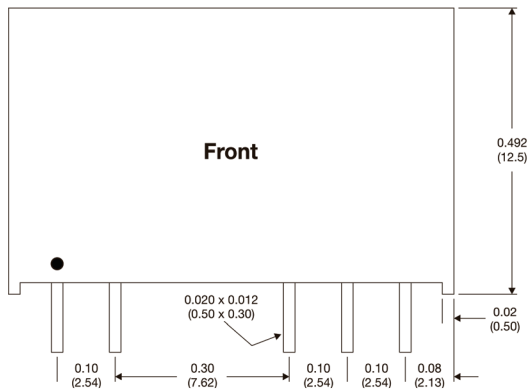
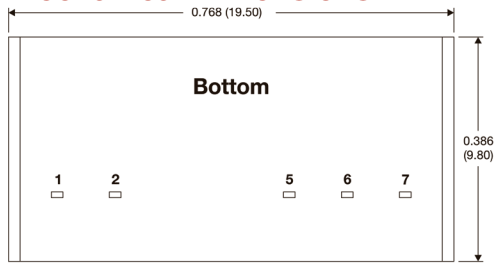
## Efficiency vs Input Voltage



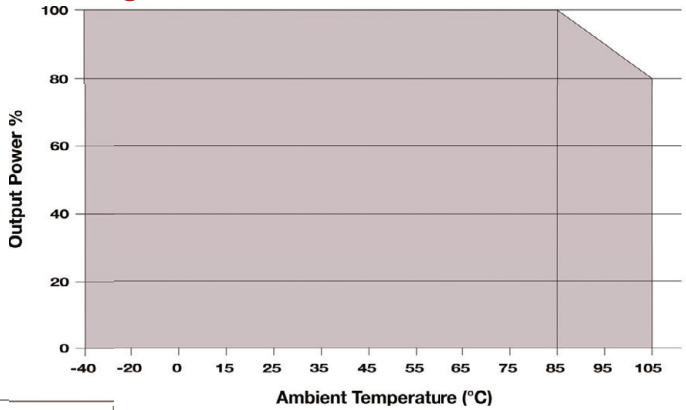
## Efficiency vs Output Load



## Mechanical Dimensions



## Derating Curve



## Pin Connections

Pin	Function
1	+VIN
2	Gnd
5	-VOUT
6	Common
7	+VOUT

### Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.02 (±0.50)



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