

DC/DC Converter for IGBT driver



RoHS



FEATURES

- High efficiency up to 78%
- Isolation voltage: 12KVDC
- Isolation Capacitance: 3pF
- Operating temperature range: -40°C to +85°C
- Input under-voltage protection
- Output short circuit protection (self-recovery)

QA156D-24 is DC-DC converters for IGBT drivers, offer 3.6W rated output power. Adopting electromagnetism isolation technology, this model has the characteristics of ultra high isolation. And it has the function of input under voltage protection and output short circuit protection, and can be widely used in:

1. General inverter
2. AC servo drive system
3. Electric welding machine
4. Uninterruptible power supply (UPS)

Selection Guide

Part No.	Input		Output		Efficiency (%Min./Typ) @ Full Load	Max. Capacitive Load (μF)
	Input Voltage(VDC)	Input Current(mA, Typ.) full load/no-load	Output Voltage (VDC)Vo	Output Current (mA,Max./Min.) Io		
	Nominal(Range)					
QA156D-24	15 (13.5 - 16.5)	368/35	24	150/15	78/80	1000

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input under-voltage protection	Full load	--	12.0	--	VDC
Input Filter		Filter capacitor			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Current	Io Vin=15VDC	15	--	150	mA
Output Voltage	+Vo Vin=15VDC, Full load	21.6	24	26.4	VDC
Output Voltage Accuracy		See tolerance envelope graph (Fig. 1)			
Line Regulation	Full load	--	±1.2	±1.5	--
Load Regulation	10%-100% load	--	±8	±10	%
Temperature Coefficient	Full load	--	--	±0.03	%/°C
Ripple & Noise*	Full load,20MHz bandwidth	--	120	200	mVp-p

Note: * Ripple and noise are measured by "parallel cable" method, please see DC-DC Converter Application Notes for specific operation.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Insulation Voltage	Input-output, with the test time of 1 minute and the leak current lower than 1mA	12000	--	--	VDC
Insulation Resistance	Input-output, isolation voltage 500VDC	1000	--	--	MΩ
Operating Temperature	Full load	-40	--	85	°C
Storage Temperature		-55	--	125	
Pin Welding Resistance Temperature	Welding spot is 1.5mm away from the casing, 10 seconds	--	--	300	
Casing Temperature Rise	Ta=25°C, nominal input, full load output	--	30	--	
Isolation Capacitance	Input-output, 1MHz/0.1V	--	3.0	--	pF
Storage Humidity	Non-condensing	5	--	95	%RH

Switching Frequency	Full load, nominal input voltage	--	280	--	KHz
MTBF	MIL-HDFK-217F@25°C	500	--	--	K hours

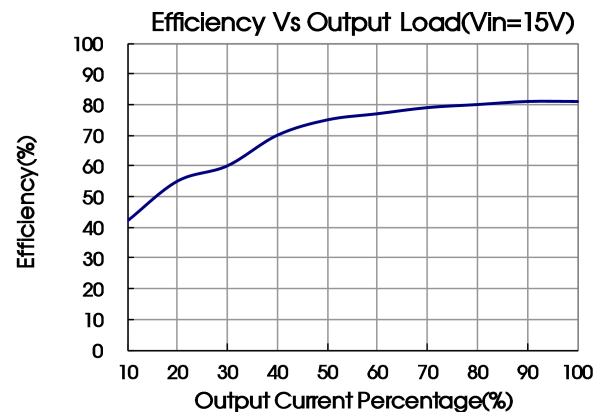
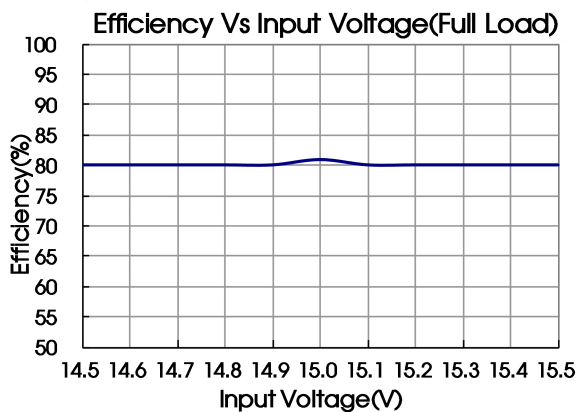
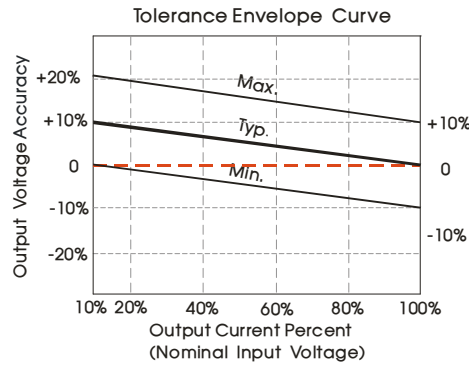
Physical Specifications

Casing Material	Black flame-retardant and heat-resistant plastic
Dimensions	51.50*26.50*12.00 mm
Weight	24g (Typ.)
Cooling Method	Free air convection

EMC Specifications

EMS	ESD	IEC/EN61000-4-2 Contact ±4KV	perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV	perf. Criteria B
	Surge	IEC/EN61000-4-5 ±2KV (input to output)	perf. Criteria B
	CS	IEC/EN61000-4-6 3 Vr.m.s	perf. Criteria A

Product Characteristic Curve



Design Reference

1. Typical application

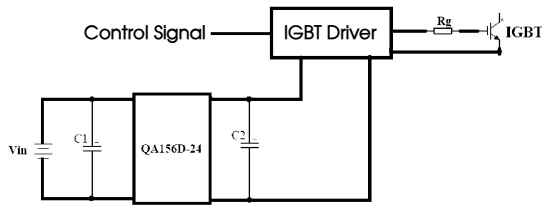


Fig. 2

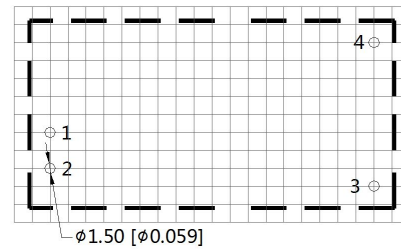
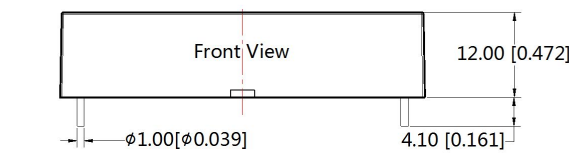
C1/ C2
100uF/35V (Low internal resistance capacitance)

2. It is not allowed to connect modules output in parallel to enlarge the power

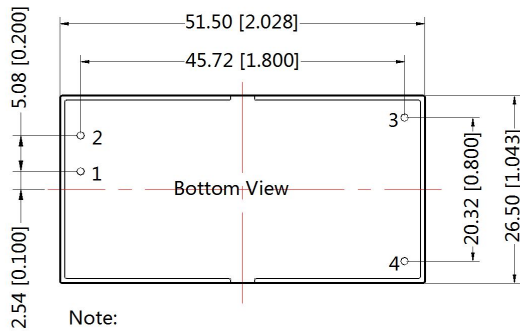
3. For more information please find DC-DC converter application notes on www.mornsun-power.com

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



Note : Grid 2.54*2.54mm



Note:
Unit :mm[inch]
Pin diameter tolerances :±0.10[±0.004]
General tolerances:±0.50[±0.020]

Pin-Out	
Pin	Function
1	GND
2	Vin
3	+Vo
4	0V

Notes:

1. Packing information please refer to Product Packing Information . Packing bag number: 58210039;
2. The lead wire connecting the power supply module and IGBT driver should be as short as possible during use;
3. The input&output filtering capacitor should be as close as possible to the power supply module and IGBT driver;
4. The peak of the IGBT driver gate drive current is high, so low internal resistance electrolytic capacitor is recommended to be used for the power supply module output filter capacitor;
5. The average output power of the driver must be lower than that of the power supply module;
6. The maximum capacitive load offered were tested at nominal input voltage and full load;
7. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% with nominal input voltage and rated output load;
8. All index testing methods in this datasheet are based on our Company's corporate standards;
9. The performance parameters of the product models listed in this manual are as above, but some parameters of non-standard model products may exceed the requirements mentioned above. Please contact our technicians directly for specific information;
10. We can provide product customization service;
11. Specifications are subject to change without prior notice.

MORNSUN Guangzhou Science & Technology Co., Ltd.

Address: No. 5, Kehui St. 1, Kehui Development Center, Science Ave., Guangzhou Science City, Luogang District, Guangzhou, P. R. China
Tel: 86-20-38601850-8801 Fax: 86-20-38601272 E-mail: info@mornsun.cn