

DC/DC Converter for IGBT driver



CE Patent Protection RoHS

FEATURES

- High efficiency up to 80%
- I/O isolation test voltage 12KVDC
- Isolation capacitance: 3pF
- Operating ambient temperature range: -40°C to +85°C
- Input under-voltage protection
- Short-circuit protection (self-recovery)
- EN60950 approved

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. The converters offer short-circuit protection with auto-recovery and are widely used in applications such as:

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

Selection Guide

Certification	Part No.	Input		Output		Efficiency at Full Load (%) Min./Typ	Capacitive Load (μF)Max.
		Voltage(VDC)	Current(mA, Typ.) full load/no-load	Voltage(VDC) Vo	Current (mA,Max./Min.) Io		
		Nominal(Range)					
CE	QA156D-24	15 (13.5 - 16.5)	300/35	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		Capacitance filterr			
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
Voltage Accuracy		See output regulation curve (Fig. 1)			
Linear 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 Electric Strength Test for 1 minute with a leakage current of 1mA max.	12000	--	--	VDC
Insulation Resistance	Input-output resistance at 500VDC	1000	--	--	MΩ
Operating Temperature	Full load	-40	--	85	°C
Storage Temperature		-55	--	125	
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from the case, 10 seconds	--	--	300	
Case Temperature Rise	Ta=25°C, nominal input, full load output	--	30	--	

Isolation Capacitance	Input-output at 1MHz/0.1V	--	3.0	--	pF
Storage Humidity	Non-condensing	5	--	95	%RH
Switching Frequency	Full load, nominal input voltage	--	280	--	KHz
MTBF	MIL-HDBK-217F@25°C	500	--	--	K hours

Mechanical Specifications

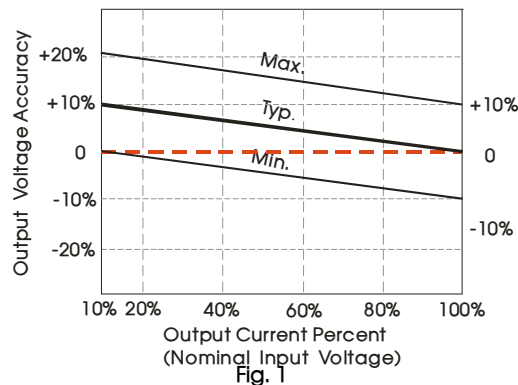
Case Material	Black plastic; flame-retardant and heat-resistant
Dimensions	51.50 × 26.50 × 12.00 mm
Weight	24.0g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

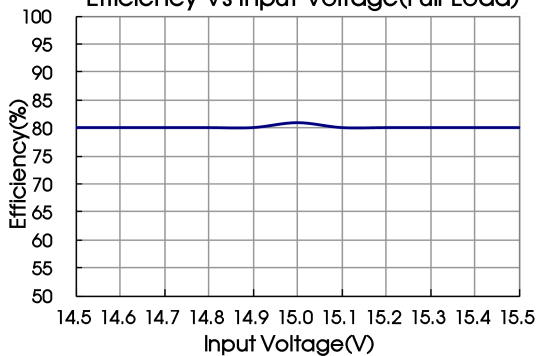
Immunity	ESD	IEC/EN61000-4-2 Contact ±4KV	perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV (output)	perf. Criteria B
	Surge	IEC/EN61000-4-5 ±2KV (input to output)	perf. Criteria B
	CS	IEC/EN61000-4-6 3 Vr.m.s	perf. Criteria A

Typical Characteristic Curves

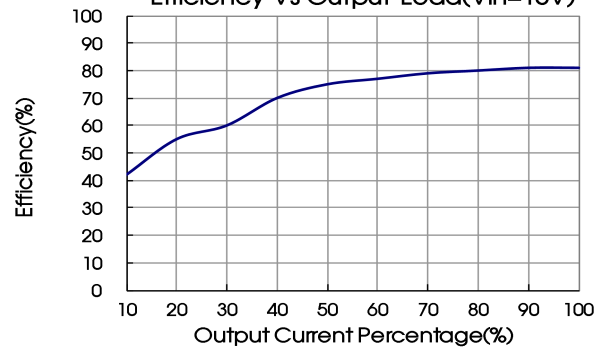
Output Regulation Curve



Efficiency Vs Input Voltage(Full Load)



Efficiency Vs Output Load(Vin=15V)



Design Reference

1. Typical application

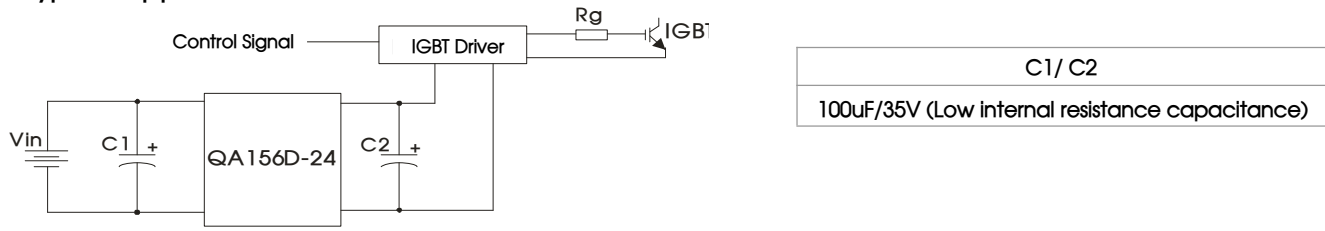
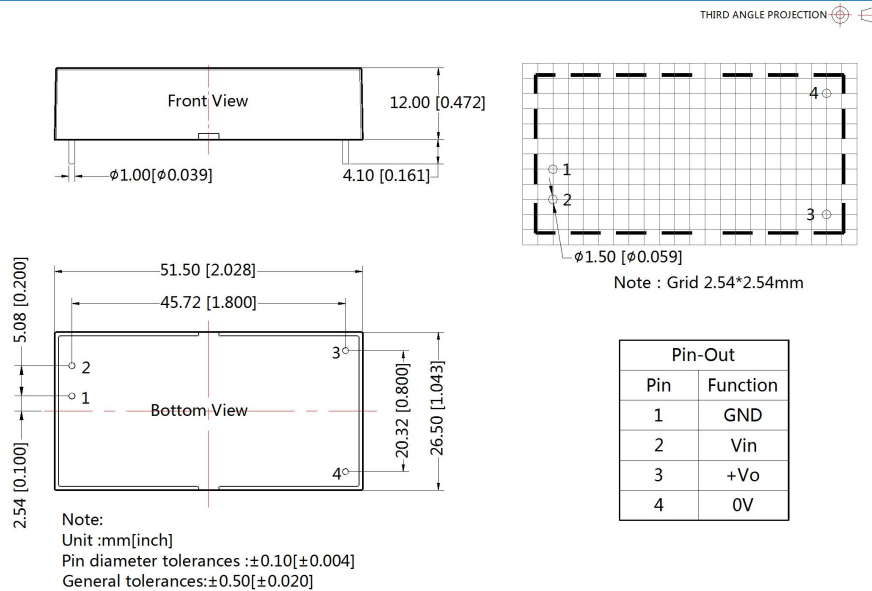


Fig. 2

2.The products do not support parallel connection of their output for power expansion purpose.

3.For additional information please refer to DC-DC converter application notes on www.mornsun-power.com

Dimensions and Recommended Layout



Notes:

- 1.For additional information on Product Packaging please refer to www.mornsun-power.com. The Packaging bag number: 58210039;
- 2.The connection between the power supply module and IGBT driver should be kept as short as possible;
- 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%RH with nominal input voltage and rated output load;
- 8.All index testing methods in this datasheet are based on our company 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, please contact our technicians directly for specific information;
- 11.Specifications are subject to change without prior notice.

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