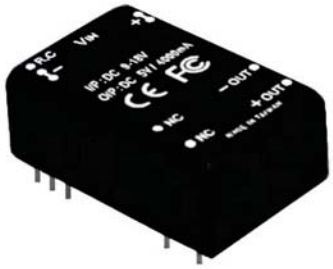
TOP MICROSYSTEMS

DC/DC Converter
Single Output

D1020DA Series
20W Max. Power



Features

- DIL Package
- 9-18V,18-36V, 36-75V Wide Input
- 100% Burn-in
- High Efficiency
- RoHS Compliant

Output

Voltage Set-point Accuracy	+/-2% max.
Temperature Coefficient	+/-0.05%/°C
Ripple & Noise[1]	150mVp-p max.
Line Regulation[2]	+/-0.5% max.
Load Regulation[3]	+/-0.5% max.
	Vout: 3.3V +/-1% max.
Minimum Load	20% of Full Load
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Over Load Protection	120%~190%
Transient Response[5]	500uS max.

Environmental

Operating Temperature	-40°C to +90°C (with derating)
Case Temperature	+110°C max.
Storage Temperature	-55°C to +105°C
Humidity	95% max.
Cooling	Free-Air Convection

Input

Input Voltage Range	2:1 Input Range
Input Filter	Pi Network
Protection	Fuse Recommended

General

Efficiency	85% min.
Isolation Voltage[4]	1500VDC min.
Isolation Resistance	10^9 ohms min.
Isolation Capacitance	2200pF max.
Switching Frequency	400KHz Typ.
MTBF[6]	>600,000 Hours
Weight	18.5g Typ.
Case Type	Five-Side Shielded
Case Size	31.8*20.3*12.2mm
Potting Material	Epoxy (UL94V-0)
Conducted Emissions	EN55022 Class A
Radiated Emissions	EN55022 Class A
Remote On/Off	
-ON	3.0 to 12V/DC or open circuit (referenced to-Vin)
-Off	0 to 1.2V/DC or short circuit pin 1 and pin 2/3
-Off idle current	2.5mA

[1] Measured at 20Mhz bandwidth with 1uF ceramic capacitor connected to the output pins.
[2] High Line to Low Line.
[3] Load Regulation is for output load current change from 20% to 100%.
[4] 1500VDC for 10 seconds.
[5] 25% Step Load Change.
[6] MIL-HDBK-217F @25°C, Ground, Benign.

Selection Table 2:1 20W OUTPUT

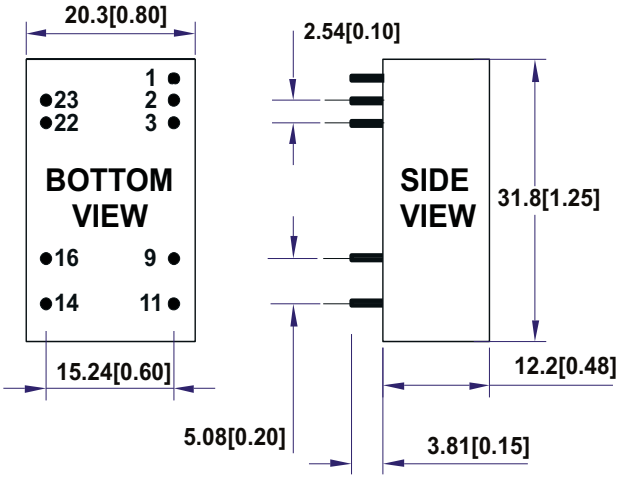
PART NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT[7] CURRENT(mA)		EFF (%)[8]	PACKAGE	CAPACITOR LOAD MAX
				FULL LOAD	NO LOAD			
D1020DA918-5	9-18	5	4000	1938	110	86	A	1000uF
D1020DA918-12	9-18	12	1666	1937	30	86	A	220uF
D1020DA918-15	9-18	15	1333	1915	30	87	A	220uF
D1020DA1836-3.3	18-36	3.3	4000	640	60	86	A	1000uF
D1020DA1836-5	18-36	5	4000	969	60	86	A	1000uF
D1020DA1836-12	18-36	12	1666	957	25	87	A	220uF
D1020DA1836-15	18-36	15	1333	958	25	87	A	220uF
D1020DA3675-6	36-75	5	4000	484	45	86	A	1000uF
D1020DA3675-12	36-75	12	1666	479	25	87	A	220uF
D1020DA3675-15	36-75	15	1333	479	25	87	A	220uF

Note: For other input or output voltages, please contact us.

Mechanical

Unit: mm(inches)

Package "A"

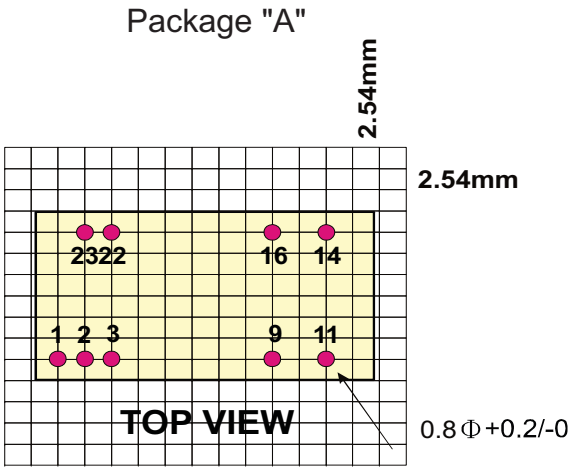


PIN	Single
1	Remote On/Off
2 & 3	-Vin
9	NC
11	NC
14	+Vout
16	-Vout
22 & 23	+Vin

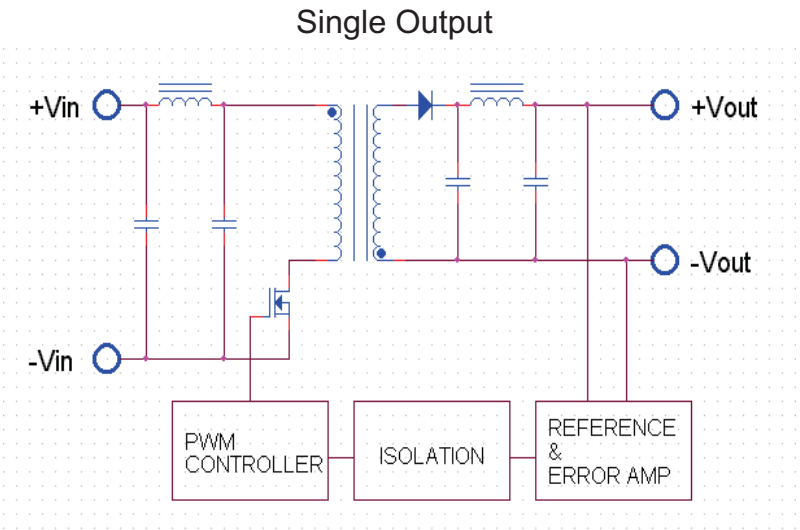
NOTE:
Pin Size Tolerance 1.0Φ ±0.1mm
Tolerance .X or .XX=± 0.80mm

[7] *Nominal Input Voltage*
[8] *Nominal Input Voltage, Full load*

Recommended Footprint Details

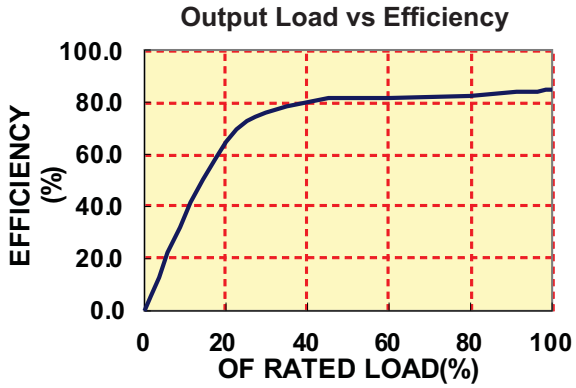


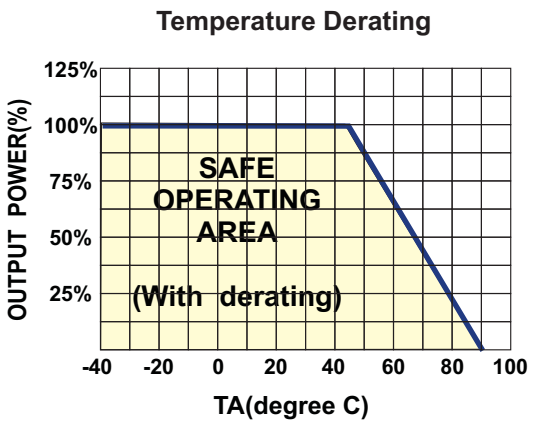
Simplified Schematic

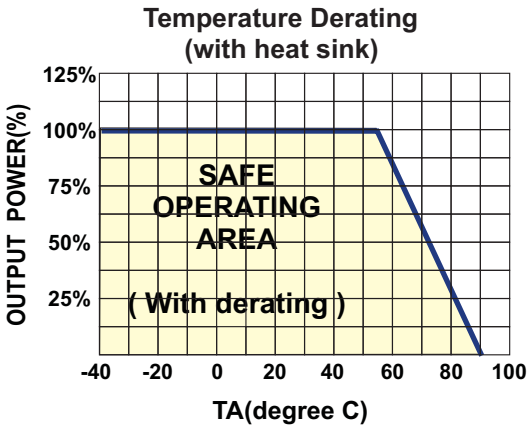


Performance Curves

Specifications typical at Ta=25°C, nominal input voltage, rated output current unless otherwise noted.



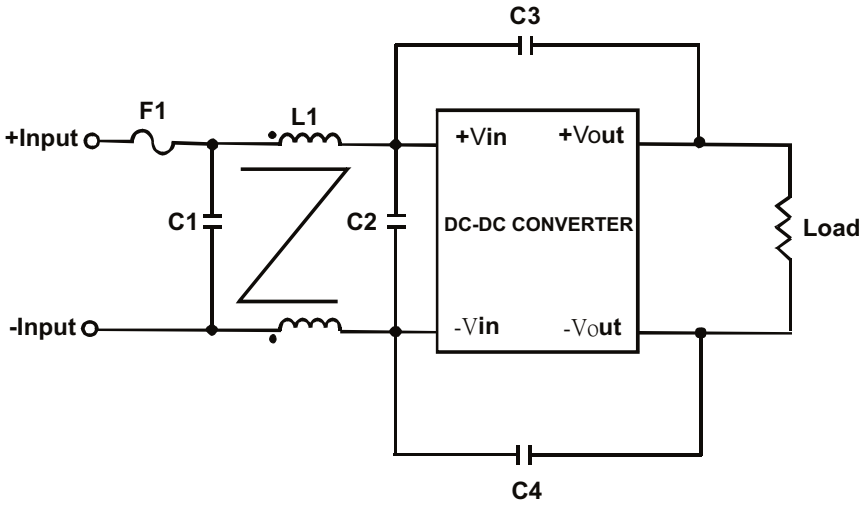


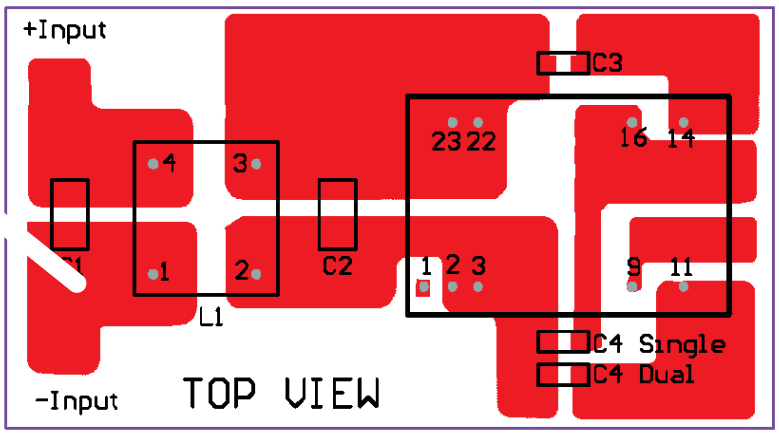


Recommended Filter for EN 55022 Class B Compliance

The components used in the above figure are as follows:

C1	C2	C3	C4	L1
3.3uF/50V 1812 MLCC	N/A	1000pF/2KV MLCC	1000pF/2KV MLCC	325uH Common Choke
4.7uF/50V 1812 MLCC	N/A	1000pF/2KV MLCC	1000pF/2KV MLCC	325uH Common Choke
2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	1000pF/2KV MLCC	1000pF/2KV MLCC	325uH Common Choke

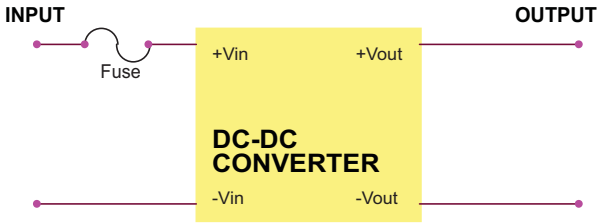




Recommended EN55022 Class B Filter Circuit Layout

Input Fuse Selector Guide

9-18V INPUT VOLTAGE(VDC)	18-36V INPUT VOLTAGE(VDC)	36-75V INPUT VOLTAGE(VDC)
4000mA Slow-Blow Type	2000mA Slow-Blow Type	1000mA Slow-Blow Type



Note: Certain applications may require the installation of external fuse in front of the input.

EXTERNAL CAPACITANCE REQUIREMENTS:

It is recommended that 10uF tantalum and 0.1uF ceramic capacitance be used for reduced system noise, but external capacitance is required for operation of any models within the series.

To meet the reflected ripple requirements of the converter an input impedance of less than 0.5 ohm from DC to 100KHz is required.