DM40A Series

40W 4:1 Regulated Single & Dual output

Features

- Wide 4:1 Input Range
- Full SMD Technology
- 1600 VDC Isolation
- Efficiency up to 92%
- -40 ~ 85℃ Operation Temperature Range
- Adjustable Output Voltage
- Remote On/Off Control (CTRL)
- Continuous Short Circuit Protection
- Over Current Protection
- Over Voltage Protection
- Over Temperature Protection
- Soft Start

The DMA40A series is a family of coast effective 40W single and dual output DC-DC converters. These converters combine nickle-coated copper package in a 2"x2" case with high performance features such as Active Clamp Technology, continuous short circuit protection with automatic restart and tight line / load regulation. Devices are encapsulated using flame retardant resin. Input voltages of 24 and 48 with output voltage of 3.3, 5, 13, 15,±12, ±15Vdc. High performance features include high efficiency operation up to 92% and output voltage accuracy of ±1% maximum

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

OUTPUT SPECIFICATIONS

Output Voltage Accuracy		±1%
Output Voltage Adjustability **(Trim) (1)**		±10%, max.
Maximum Output Current		See table
Line Regulation		±0.5%, max.
Load Regulation**(Single, Io=0% to 100%)**		±0.5%, max.
Load Regulation**(Dual,Io=1% to 100%)**		±1.0%, max.
Cross Regulation **(Dual Output) (2)**		±5%
Ripple&Noise **(3)**	**3.3V&5.0V output:**	50mVpk-pk, max.
	Dual output:	150mVpk-pk, max.
	All other output:	75mVpk-pk, max.
Over Voltage Protection (Zener diode clamp)	3.3V output	3.9V
	5V output	6.2V
	12V output	15V
	15V output	18V
	±12V output	±15V
	±15V output	±18V
Over Load Protection		130% of FL, typ.
Short Circuit Protection		Indefinite(hiccup) (Automatic Recovery)
Temperature Coefficient		±0.02%/°C
Capacitive Load **(4)**		See table
Transient Recovery Time **(5)**		250us, typ.
Transient Response Deviation**(5)**		±3%, max.

INPUT SPECIFICATIONS

Input Voltage Range		See table
Under Voltage Lockout		
24V Modes	Module ON / OFF	8.6Vdc / 7.9Vdc, typ.
48V Modes	Module ON / OFF	17.8Vdc / 16Vdc, typ.
Start up Time (Nominal Vin and constant resistive load)		25mS, typ.
Input Filter		Pi Type
Input Current(No-Load)		See table, typ.
Input Current(Full-Load)		See table, max.
Input Reflected Ripple Current**(6)**		20mApk-pk, typ.

Remote On/Off (CTRL)**(7)**

ON: 3.0 ... 12Vdc or open circuit

OFF: 0 ... 1.2Vdc or Short circuit pin2 and pin 3

OFF idle current: 5.0 mA, typ.

GENERAL SPECIFICATIONS

Efficiency	See table, typ.
I/O Isolation Voltage(3 sec)	
Input/Output	1600Vdc
Case/Input & Output	1600Vdc
Isolation Resistance	1000 Ohm, min.
Isolation Capacitance	2500 pF, max.
Switching frequency	270kHz, typ.
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>151 khrs
Safety Standard (design to meet)	IEC/EN 60950-1

EMC CHARACTERISTICS

Radiated Emissions**(8)**	EN55022	CLASSA
Conducted Emissions**(8)**	EN55022	CLASSA
ESD	EN61000-4-2	Perf. Criteria A
RS	EN61000-4-3	Perf. Criteria A
EFT**(9)**	EN61000-4-4	Perf. Criteria A
Surge **(9)**	EN61000-4-5	Perf. Criteria A
CS	EN61000-4-6	Perf. Criteria A
PFMF	EN61000-4-8	Perf. Criteria A

ENVIRONMENT SPECIFICATIONS

Operating Ambient Temperature	-40°C ~ +85°C(See Derating Curve) -40°C ~ +55°C(For 100% load)
Maximum Case Temperature	105°C
Storage Temperature	-55°C ~ +125°C
Over Temperature Protection (Case)	110°C, typ.
Cooling	Nature Convection

ABSOLUTE SPECIFICATIONS (10)

These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.

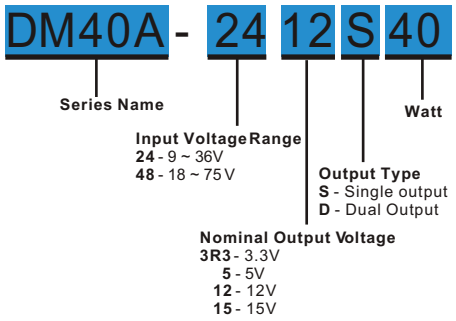
Input Surge Voltage(100mS)	
24 Models	50 Vdc, max.
48 Models	100 Vdc, max.
Soldering Temperature (1.5mm from case 10sec. max.)	260℃, max

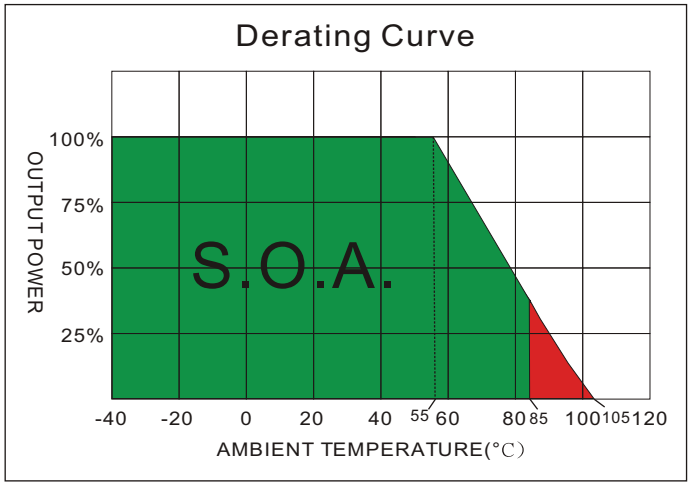
PHYSICAL SPECIFICATIONS

Case Material	Nickel-coated Copper
Pin Material	¨ 1.0mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	60.0g
Dimensions	2.00"x2.00"x0.40"

DM40A - 40W 4:1 Regulated Single & Dual output

PART NUMBER STRUCTURE





MODEL SELECTION GUIDE

MODEL NUMBER	Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(uF)
		No-Load (mA)	Full-Load (mA)		Min-Load (mA)	Full-Load (mA)		
DM40A-243R3S40	9-36	80	1598	3.3	0	10000	89	25000
DM40A-2405S40	9-36	100	1893	5	0	8000	91	13000
DM40A-2412S40	9-36	50	1925	12	0	3350	90	2300
DM40A-2415S40	9-36	50	1904	15	0	2650	90	1500
DM40A-483R3S40	18-75	60	799	3.3	0	10000	89	25000
DM40A-4805S40	18-75	60	936	5	0	8000	92	13000
DM40A-4812S40	18-75	30	963	12	0	3350	90	2300
DM40A-4815S40	18-75	30	941	15	0	2650	91	1500
DM40A-2412D40	9-36	60	1919	±12	0	±1650	89	±1200
DM40A-2415D40	9-36	60	1962	±15	0	±1350	89	±750
DM40A-4812D40	18-75	30	948	±12	0	±1650	90	±1200
DM40A-4815D40	18-75	30	970	±15	0	±1350	90	±750

NOTE

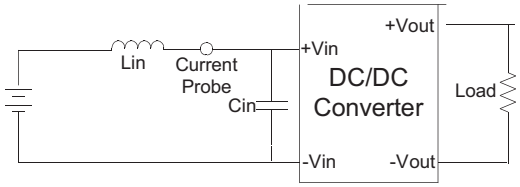
1. For the Single output: Maximum output deviation is 10% inclusive of remote sense and trim. If remote sense is not being used, the +sense should be connected to its corresponding +OUTPUT and likewise the -sense should be connected to its corresponding -OUTPUT.
2. One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within ±5%.
3. Measured with 20MHz bandwidth and 1.0uF ceramic capacitor.
4. Tested by minimal Vin and constant resistive load.
5. Tested by normal Vin and 25% load step change (75%-50%-25% of Io).
6. Measured Input reflected ripple current with a simulated source inductance of 12uH.
7. The remote on/off control pin is referenced to -Vin(pin2).
8. The DM40A-40W series can meet EN55022 Class A With an external filter in parallel with the input pins .
9. An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5. The filter capacitor ZimTec Electronics suggest: Nippon chemi-con KY series, 220uF/100V.
10. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : info@zimtec-electronics.de

TEST CONFIGURATIONS

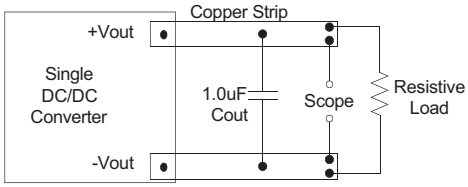
Input Reflected Ripple Current Test Step

Input reflected ripple current is measured through a source inductor Lin(12uH) and a source capacitor Cin(47uF, ESR<1.0Ω at 100KHz) at nominal input and full load.



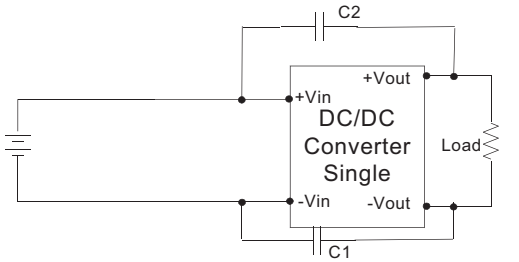
Output Ripple & Noise Measurement Test

Use a capacitor Cout(1.0uF) measurement. The Scope measurement bandwidth is 0-20MHz.

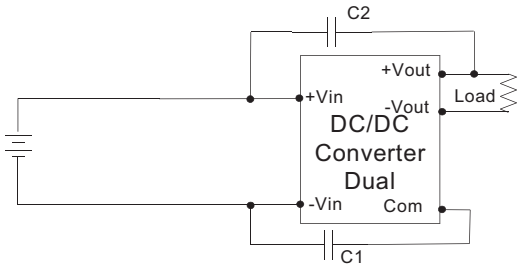


EMI Filter

Input filter components (C1,C2) are used to help meet radiated emissions requirement for the module.
These components should be mounted as close as possible to the module;
And all leads should be minimized to decrease radiated noise.



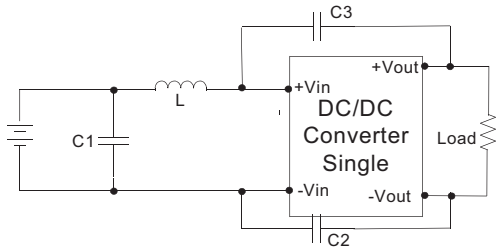
	C1,C2
DM40A-24XXXXX	1206,1000PF, 2KV
DM40A-48XXXXX	1206,1000PF, 2KV



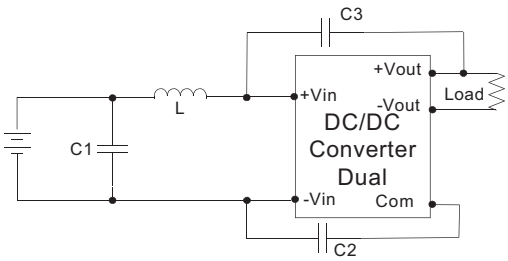
	C1,C2
DM40A-24XXXXX	1206,1000PF, 2KV
DM40A-48XXXXX	1206,1000PF, 2KV

EMI Filter

Input filter components (C1,C2,C3, L) are used to help meet conducted emissions requirement for the module.
These components should be mounted as close as possible to the module;
And all leads should be minimized to decrease radiated noise.

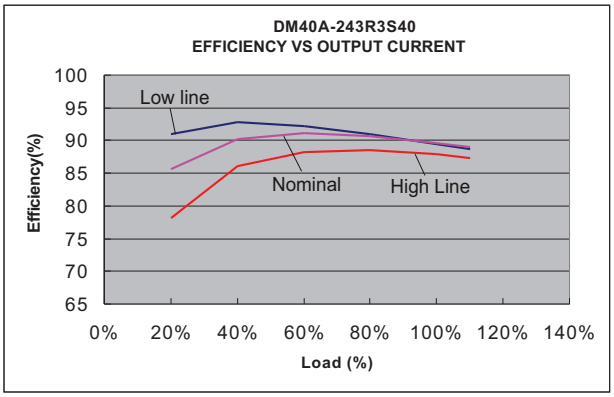


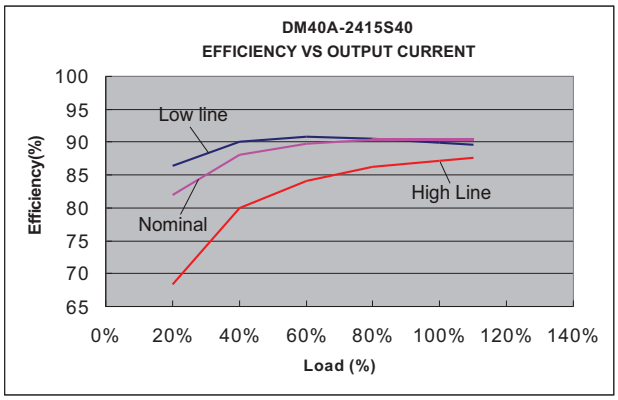
	C1	L	C2,C3
DM40A-24XXXXX	100uF, 100V	12uH	1206,1000PF, 2KV
DM40A-48XXXXX	100uF, 100V	12uH	1206,1000PF, 2KV

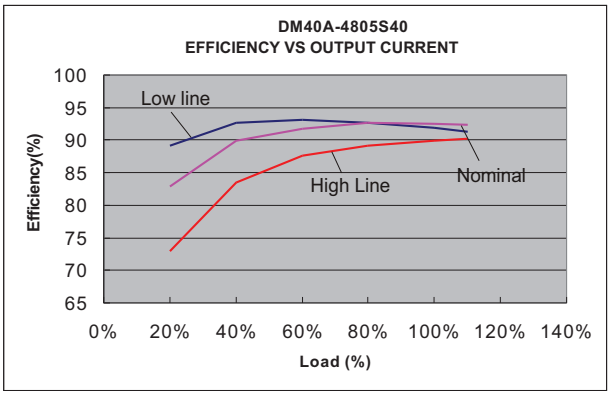


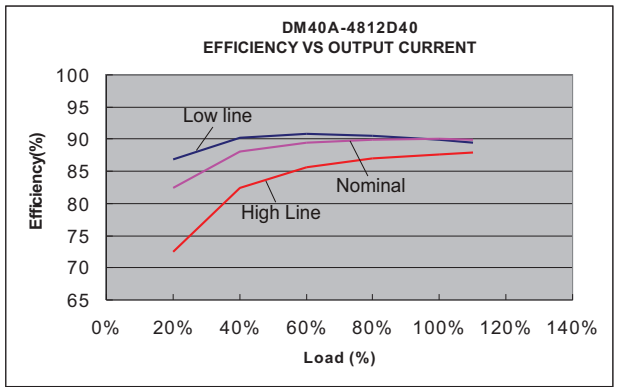
	C1	L	C2,C3
DM40A-24XXXXX	100uF, 100V	12uH	1206,1000PF, 2KV
DM40A-48XXXXX	100uF, 100V	12uH	1206,1000PF, 2KV

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : info@zimtec-electronics.de

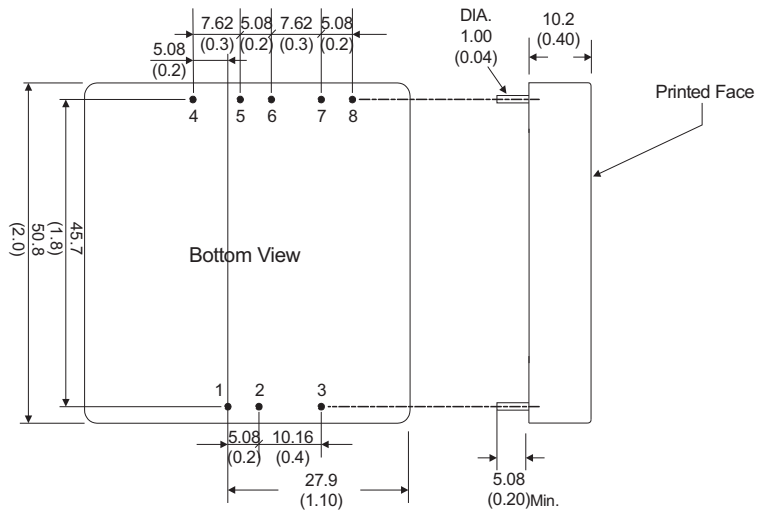








MECHANICAL SPECIFICATIONS

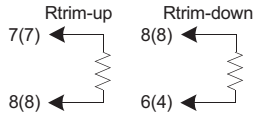


All dimensions are typical in millimeters (inches).
1. Pin diameter: 1.0 ±0.05 (0.04 ±0.002)
2. Pin pitch and length tolerance:: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)

PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	CTRL	CTRL
4	-Sense	+Vout
5	+Sense	Com
6	+Vout	Com
7	-Vout	-Vout
8	Trim	Trim

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method as below. ( ) for dual output trim.



ZimTec Electronics GmbH
Franz-Mehring-Weg 2, 39606 Osterburg, Germany
E-mail : info@zimtec-electronics.de Web : www.zimtec-electronics.de

Last Update : 28.Feb.2014