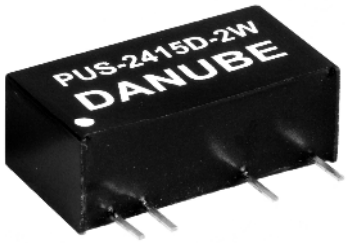
# PU-2W SERIES

## 2W UNREGULATED

DANUBE

## FEATURES

- SINGLE IN LINE PACKAGE
- 2W UNREGULATED OUTPUT POWER
- 100% BURN IN
- HIGH EFFICIENCY
- INTERNAL SMD TECHNOLOGY
- LOW COST
- NO HEATSINK REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT
- 3 YEARS WARRANTY




## OUTPUT SPECIFICATIONS

| | |
|---|---|
| Voltage Set-point Accuracy | +/-2% max |
| Temperature Coefficient | +/-0.05%/°C |
| Ripple & Noise(20MHz BW)[1] | 100mVp-p max |
| Line Regulation[2] | +/-1.2% max |
| Load Regulation[3] | +/-8% max |
| Minimum Load | 10% of Full Load |
| Short Circuit Protection | Momentary |

## ENVIRONMENTAL SPECIFICATIONS

| | |
|---|---|
| Operating Temperature | -40 °C to +71 °C |
| Storage Temperature | -55 °C to +125 °C |
| Humidity | 95% max |
| Cooling | Free-Air Convection |

## INPUT SPECIFICATIONS

| | |
|---|---|
| Input Voltage Range | +/-10% max |
| Input Filter | Capacitor Type |
| Protection | Fuse Recommended |

## GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| Efficiency | | 70%-85% |
| Isolation Voltage[4] | 1500 VDC min | Standard Models |
| | 3000 VDC min | Suffix "D" Models |
| Isolation Resistance | | $10^9$ ohms min |
| Isolation Capacitance | | 80pF max |
| Switching Frequency | | 100KHz min |
| MTBF[5] | | >1,800,000 Hours |
| Weight | | 2.3g Typ |
| Case Material | | Non-Conductive Plastic |
| Case Size | | 19.6mm*7.1mm*10.2mm |
| Conducted Emissions | | EN55022 Class A |
| Radiated Emissions | | EN55022 Class B |

*ALL SPECIFICATIONS TYPICAL AT NOMINAL LINE, FULL LOAD AND 25 °C UNLESS OTHERWISE NOTED.*

---

[1] *Measured with 1uF ceramic capacitor connect to the output pins.*
[2] *Line Regulation is for a 1.0% change in input Voltage.*
[3] *Load Regulation is for output load current change from 20% to 100%.*
[4] *1500VDC for 10 seconds,3000VDC for 3 seconds.*
[5] *MIL-HDBK-217F @25 °C , Ground Benign.*

# ● SELECTION GUIDE(1)
# 2W OUTPUT

| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT[6] CURRENT(mA) | | EFF (%)[7] | ISOLATION (VDC) | PACKAGE |
|---|---|---|---|---|---|---|---|---|
| | | | | FULL LOAD | NO LOAD | | | |
| PUS-03.305-2W | 3.3 | 5 | 400 | 782 | 65 | 78 | 1500 | C |
| PUS-03.324-2W | 3.3 | 24 | 84 | 782 | 65 | 78 | 1500 | C |
| PUS-0503.3-2W | 5 | 3.3 | 500 | 452 | 60 | 73 | 1500 | C |
| PUS-0505-2W | 5 | 5 | 400 | 520 | 60 | 77 | 1500 | C |
| PUS-0509-2W | 5 | 9 | 222 | 506 | 60 | 79 | 1500 | C |
| PUS-0512-2W | 5 | 12 | 167 | 500 | 60 | 80 | 1500 | C |
| PUS-0515-2W | 5 | 15 | 133 | 488 | 60 | 82 | 1500 | C |
| PUD-03.315-2W | 3.3 | +/-15 | +/-67 | 740 | 65 | 82 | 1500 | C |
| PUD-0505-2W | 5 | +/-5 | +/-200 | 488 | 60 | 82 | 1500 | C |
| PUD-0512-2W | 5 | +/-12 | +/-84 | 500 | 60 | 80 | 1500 | C |
| PUD-0515-2W | 5 | +/-15 | +/-67 | 488 | 60 | 82 | 1500 | C |
| PUD-0524-2W | 5 | +/-24 | +/-42 | 504 | 60 | 79 | 1500 | C |
| PUS-1203.3-2W | 12 | 3.3 | 500 | 185 | 15 | 74 | 1500 | C |
| PUS-1205-2W | 12 | 5 | 400 | 214 | 15 | 78 | 1500 | C |
| PUS-1209-2W | 12 | 9 | 222 | 214 | 15 | 78 | 1500 | C |
| PUS-1212-2W | 12 | 12 | 167 | 200 | 15 | 83 | 1500 | C |
| PUS-1215-2W | 12 | 15 | 133 | 196 | 15 | 85 | 1500 | C |
| PUD-1205-2W | 12 | +/-5 | +/-200 | 214 | 15 | 78 | 1500 | C |
| PUD-1212-2W | 12 | +/-12 | +/-84 | 200 | 17 | 83 | 1500 | C |
| PUD-1215-2W | 12 | +/-15 | +/-67 | 196 | 15 | 85 | 1500 | C |
| PUS-2403.3-2W | 24 | 3.3 | 500 | 92 | 15 | 74 | 1500 | C |
| PUS-2405-2W | 24 | 5 | 400 | 107 | 15 | 78 | 1500 | C |
| PUS-2409-2W | 24 | 9 | 222 | 107 | 15 | 78 | 1500 | C |
| PUS-2412-2W | 24 | 12 | 167 | 104 | 15 | 80 | 1500 | C |
| PUS-2415-2W | 24 | 15 | 133 | 101 | 15 | 83 | 1500 | C |
| PUD-2405-2W | 24 | +/-5 | +/-200 | 107 | 15 | 78 | 1500 | C |
| PUD-2412-2W | 24 | +/-12 | +/-84 | 103 | 15 | 81 | 1500 | C |
| PUD-2415-2W | 24 | +/-15 | +/-67 | 103 | 15 | 81 | 1500 | C |

*Note: Other input to output voltages may be available. Please contact factory.*

## *ORDERING INFORMATION:*

*FOR EXAMPLE:* *PUS-****-2W(2W SINGLE OUTPUT)*

*PUD-****-2W(2W DUAL OUTPUT)*

[6] *NOMINAL INPUT VOLTAGE.*
[7] *NOMINAL INPUT VOLTAGE, FULL LOAD.*

# ● SELECTION GUIDE(2)
# 2W OUTPUT

| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT[8] CURRENT(mA) | | EFF (%)[9] | ISOLATION (VDC) | PACKAGE |
|---|---|---|---|---|---|---|---|---|
| | | | | FULL LOAD | NO LOAD | | | |
| PUS-0503.3D-2W | 5 | 3.3 | 500 | 452 | 60 | 73 | 3000 | D |
| PUS-0505D-2W | 5 | 5 | 400 | 520 | 60 | 77 | 3000 | D |
| PUS-0509D-2W | 5 | 9 | 222 | 510 | 60 | 78 | 3000 | D |
| PUS-0512D-2W | 5 | 12 | 167 | 500 | 60 | 80 | 3000 | D |
| PUS-0515D-2W | 5 | 15 | 133 | 492 | 60 | 81 | 3000 | D |
| PUD-0505D-2W | 5 | +/-5 | +/-200 | 520 | 60 | 77 | 3000 | D |
| PUD-0509D-2W | 5 | +/-9 | +/-111 | 512 | 60 | 78 | 3000 | D |
| PUD-0512D-2W | 5 | +/-12 | +/-84 | 500 | 60 | 80 | 3000 | D |
| PUD-0515D-2W | 5 | +/-15 | +/-67 | 488 | 60 | 82 | 3000 | D |
| PUS-1203.3D-2W | 12 | 3.3 | 500 | 185 | 15 | 74 | 3000 | D |
| PUS-1205D-2W | 12 | 5 | 400 | 210 | 15 | 79 | 3000 | D |
| PUS-1209D-2W | 12 | 9 | 222 | 210 | 15 | 79 | 3000 | D |
| PUS-1212D-2W | 12 | 12 | 167 | 205 | 15 | 81 | 3000 | D |
| PUS-1215D-2W | 12 | 15 | 133 | 200 | 15 | 83 | 3000 | D |
| PUD-1205D-2W | 12 | +/-5 | +/-200 | 214 | 15 | 78 | 3000 | D |
| PUD-1212D-2W | 12 | +/-12 | +/-84 | 203 | 15 | 82 | 3000 | D |
| PUD-1215D-2W | 12 | +/-15 | +/-67 | 200 | 15 | 83 | 3000 | D |
| PUD-1218D-2W | 12 | +/-18 | +/-55 | 199 | 20 | 83 | 3000 | D |
| PUS-2403.3D-2W | 24 | 3.3 | 500 | 92 | 15 | 74 | 3000 | D |
| PUS-2405D-2W | 24 | 5 | 400 | 108 | 15 | 77 | 3000 | D |
| PUS-2409D-2W | 24 | 9 | 222 | 108 | 15 | 77 | 3000 | D |
| PUS-2412D-2W | 24 | 12 | 167 | 104 | 15 | 80 | 3000 | D |
| PUS-2415D-2W | 24 | 15 | 133 | 102 | 15 | 82 | 3000 | D |
| PUD-2405D-2W | 24 | +/-5 | +/-200 | 107 | 15 | 78 | 3000 | D |
| PUD-2412D-2W | 24 | +/-12 | +/-84 | 103 | 15 | 81 | 3000 | D |
| PUD-2415D-2W | 24 | +/-15 | +/-67 | 102 | 15 | 81 | 3000 | D |

*Note: Other input to output voltages may be available. Please contact factory.*

## *ORDERING INFORMATION:*

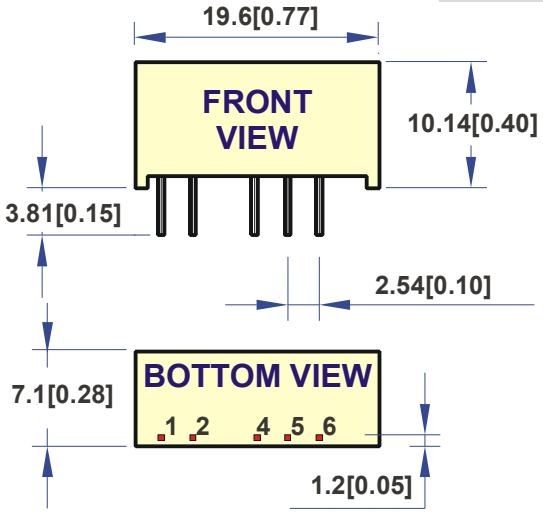
*FOR EXAMPLE:* *PUS-****D-2W(2W SINGLE OUTPUT)*

*PUD-****D-2W(2W DUAL OUTPUT)*

[8] *NOMINAL INPUT VOLTAGE.*
[9] *NOMINAL INPUT VOLTAGE, FULL LOAD.*

# ● MECHANICAL DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS

## PACKAGE "C"

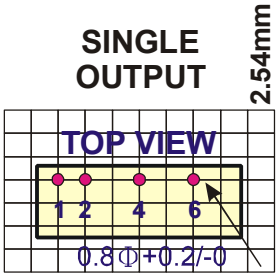


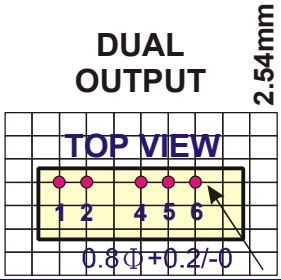

| PIN | SINGLE | DUAL |
|---|---|---|
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 4 | -Vout | -Vout |
| 5 | NP | COMMON |
| 6 | +Vout | +Vout |

NOTE : All Dimensions In mm(Inches)

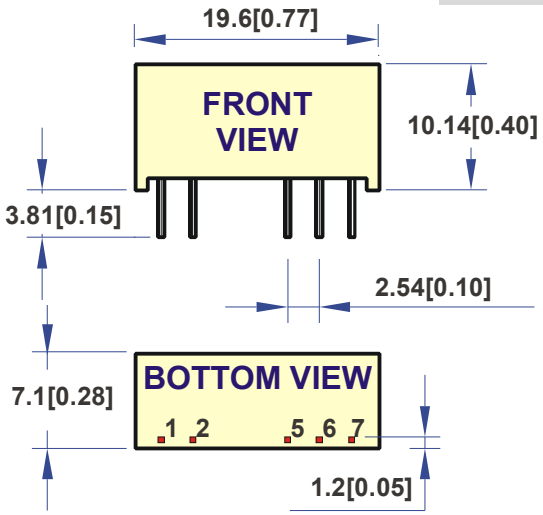
1. Pin Size is 0.50x0.30mm[0.02x0.01"]
2. Pin is Tolerance .XX= ±0.05mm
3. Tolerance .X or .XX= ±0.5mm

All dimensions are in mm[inches]




## PACKAGE "D"

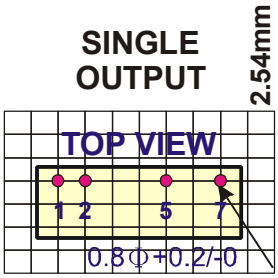


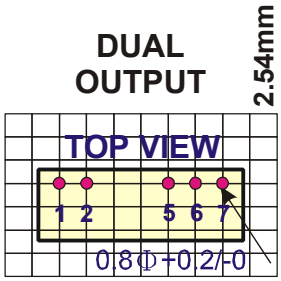

| PIN | SINGLE | DUAL |
|---|---|---|
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 5 | -Vout | -Vout |
| 6 | NP | COMMON |
| 7 | +Vout | +Vout |

NOTE : All Dimensions In mm(Inches)

1. Pin Size is 0.50x0.30mm[0.02x0.01"]
2. Pin is Tolerance .XX= ±0.05mm
3. Tolerance .X or .XX= ±0.5mm

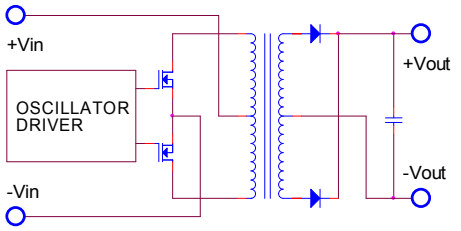
All dimensions are in mm[inches]



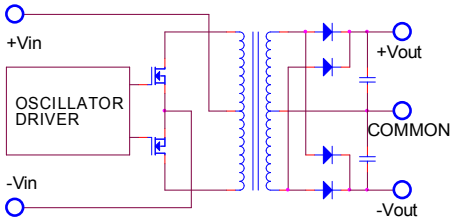



## SIMPLIFIED SCHEMATIC

### SINGLE OUTPUT

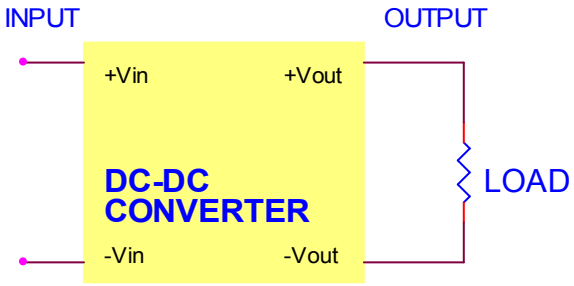



### DUAL OUTPUT

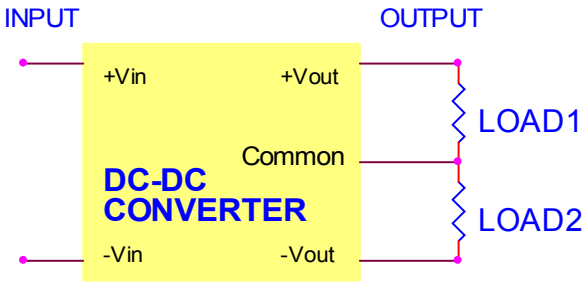



## TYPICAL APPLICATIONS

### SINGLE OUTPUT



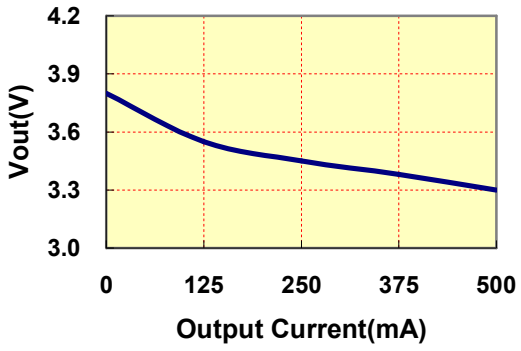

### DUAL OUTPUT



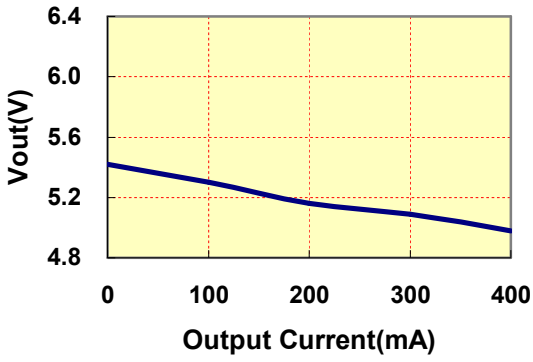

## TYPICAL PERFORMANCE CURVES

**Specifications typical at TA=25 °C,nominal input voltage , rated output current unless otherwise specified.**

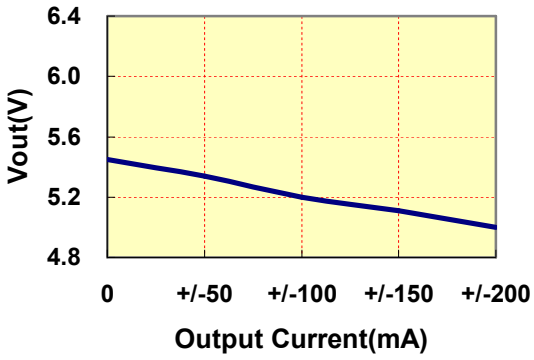
### VOUT VS LOAD(3.3Vout Models)



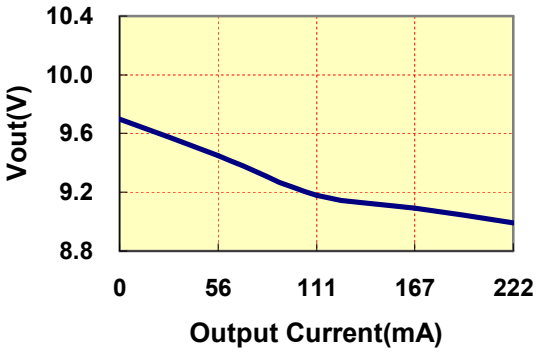

### VOUT VS LOAD(5Vout Models)



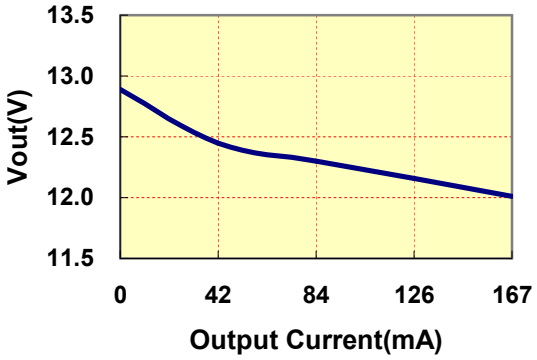

### VOUT VS LOAD(+/- 5Vout Models)



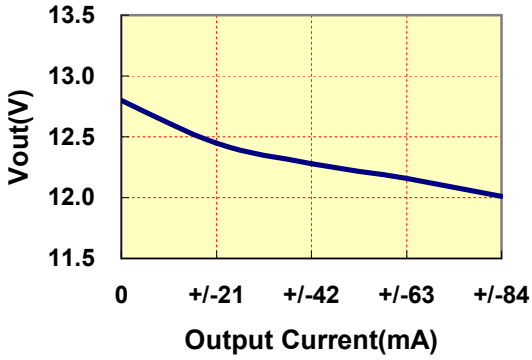

### VOUT VS LOAD(9Vout Models)



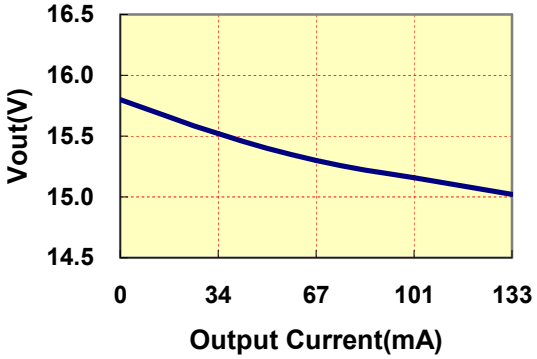
## VOUT VS LOAD(12Vout Models)



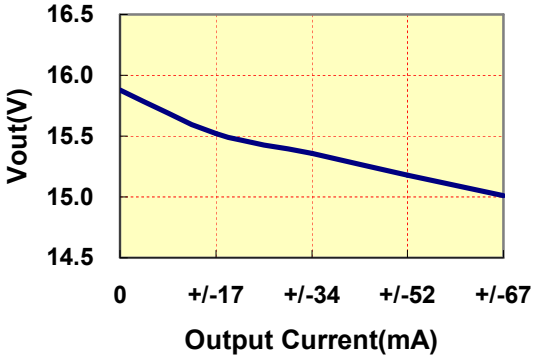

## VOUT VS LOAD(+/- 12Vout Models)



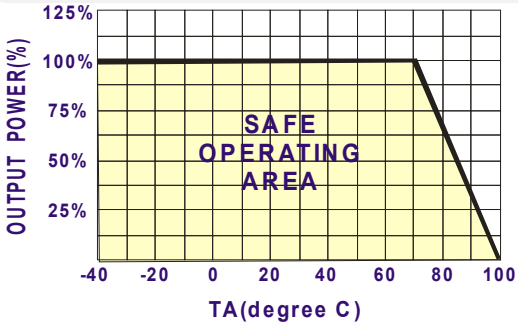

## VOUT VS LOAD(15Vout Models)



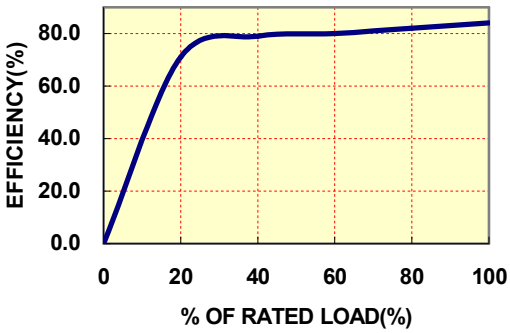

## VOUT VS LOAD(+/- 15Vout Models)




## DERATING CURVES

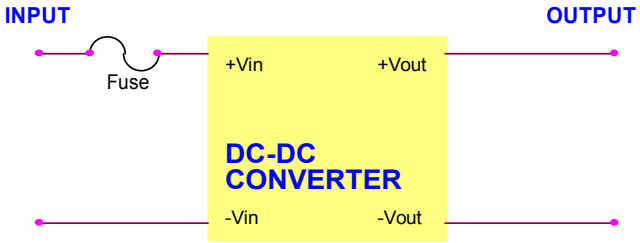



## EFFICIENCY VS LOAD



## ● INPUT FUSE SELECTION GUIDE

| 2.97-3.63V INPUT VOLTAGE (VDC) | 4.5-5.5V INPUT VOLTAGE (VDC) | 10.8-13.2V INPUT VOLTAGE (VDC) | 21.6-26.4V INPUT VOLTAGE (VDC) |
|---|---|---|---|
| 1200mA Slow-Blow Type | 800mA Slow-Blow Type | 300mA Slow-Blow Type | 170mA Slow-Blow Type |




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

## *PU-2W SERIES APPLICATION NOTES:*

### *EXTERNAL CAPACITANCE REQUIREMENTS:*

*Output filtering is required for operation. A minimum of 10uF is needed. Output capacitance may be increased for additional filtering, not to exceed 220uF.*

*To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5ohm from DC to 250KHz is required.*

*We Can Offer EMC-Filter According To EN55011/22 Class B.*

### *Negative Outputs:*

*A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting –OUT as the negative output.*


## FOR MORE INFORMATION CALL:

***Danube Enterprise Co., Ltd.***

**Tel: 886-7-3755165 Fax: 886-7-3755330 E-mail: danube@ms10.hinet.net**

**Home Page http://www.danube.com.tw**

DANUBE

Additional Information :

한국 총판점 : ㈜디웰전자 (Diwell Electronics Co., Ltd.)
경기도 군포시 당정동 358 군포창업보육센터 202호
202, Kunpo Business Incubator Center, 358,
Dangjung-Dong, Gunpo-City, Gyeonggi-Do, South Korea

Phone : 070-8235-0820 (+82-70-8235-0820)
Fax : 031-429-0821 (+82-31-429-0821)
Homepage: http:// www.diwell.com
기술 및 구매 문의 email : expoeb2@diwell.com,
dsjeong@diwell.com

DANUBE