

# UPM and BPM Series

## 5 and 10 Watt

### DC/DC Converters

### Single and Dual Outputs

#### FEATURES

- Wide Selection
- $\pm 1\%$  Accuracy
- Low Output Ripple
- Output Protection

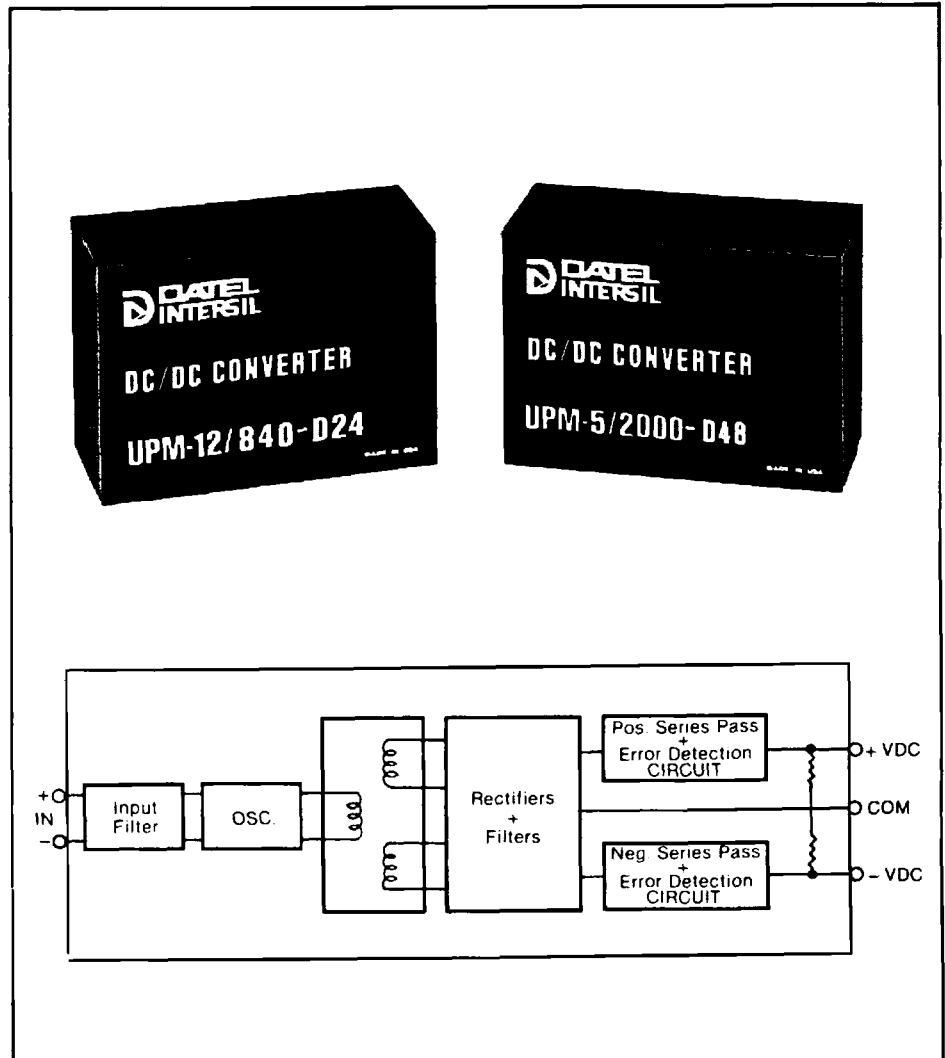
#### GENERAL DESCRIPTION

DATEL-INTERSIL's complete line of 5 and 10 watt DC-DC converters is comprised of 66 single and dual output models. Input voltages are 5, 12, 24, 28 and 48 volts with single output voltages of 5, 12, 15, 24 and 28 volts, and dual output voltages of  $\pm 12$ ,  $\pm 15$  and  $\pm 18$  volts.

Output voltage accuracies are  $\pm 1\%$  with tempcos of  $0.02\%/^{\circ}\text{C}$ . Other features include low output ripple of 50 mV P-P (5 mV RMS) max., 100 megohm isolation and all outputs have output current limiting protection.

The 5 watt models are packaged in a 2.0 x 2.0 x 0.75 (in.) plastic case and the 10 watt models in a 3.5 x 2.5 x 0.875 (in.) plastic case. All models have an operating temperature range of  $-25^{\circ}\text{C}$  to  $+71^{\circ}\text{C}$ .

DATEL-INTERSIL also offers a line of 1, 3 and 4.5 watt DC-DC converters as well as a complete series of line operated power supplies including plug-in power adapters and single, dual and triple output modules.



#### GENERAL SPECIFICATIONS

<b>Output Voltage Accuracy</b> .....	$\pm 1\%$
<b>Output Noise and Ripple, max.</b> .....	50 mV P-P (5 mV RMS)
<b>Back Ripple Current, max.</b> .....	5% of $I_{in}$ (3% typ.)
<b>Capacitive Coupling, max.</b> .....	250 pF
<b>Breakdown Voltage, min.</b> .....	300 VDC
<b>Transient Recovery Time, max.</b> .....	50 $\mu\text{sec}$
<b>Operating Temp. Range</b> .....	$-25^{\circ}\text{C}$ to $+71^{\circ}\text{C}$
<b>Storage Temp. Range</b> .....	$-55^{\circ}\text{C}$ to $+85^{\circ}\text{C}$
<b>Temp. Coefficient</b> .....	.02%/ $^{\circ}\text{C}$
<b>Line/Load Regulation</b> .....	.05%/0.05% <sup>1</sup>
<b>Short Circuit Protection</b> .....	Output current limiting
<b>Case Material/Unit Weight</b> .....	5 watt version: Diallyl Phtalate/4.5 oz. (128g.) 10 watt version: Phenolic/14 oz. (397g.)

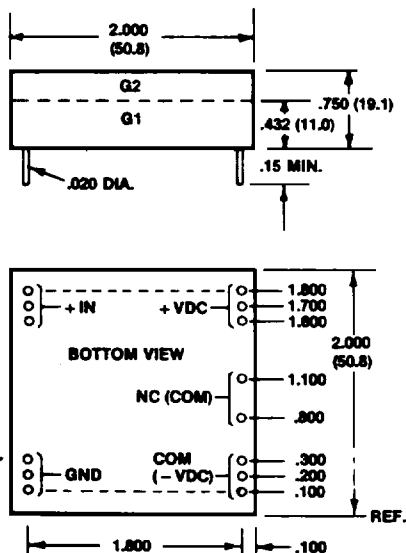
1. UPM-5, -24, -28 Series .05%/0.1%

## SPECIFICATIONS, 5 WATT DC-DC CONVERTERS

MODEL	VDC OUT	I <sub>out</sub>	INPUT VOLTAGE	MAXIMUM INPUT CURRENT FULL LOAD/ NO LOAD	EFFIC. (FULL LOAD)	OUT IMP.	CASE CONFIG.	SOCKET CONFIG.
UPM-5/1000-D5	+ 5V	1.0A	5 VDC ± 10%	2000 ma/500 ma	50%	.005Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-5/1000-D12	+ 5V	1.0A	12 VDC ± 10%	830 ma/200 ma	50%	.005Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-5/1000-D24	+ 5V	1.0A	24 VDC ± 10%	420 ma/125 ma	50%	.005Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-5/1000-D28	+ 5V	1.0A	28 VDC ± 10%	360 ma/90 ma	50%	.005Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-5/1000-D48	+ 5V	1.0A	48 VDC ± 12.5%	210 ma/50 ma	50%	.005Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-12/420-D5	+ 12V	420 mA	5 VDC ± 10%	2000 ma/500 ma	50%	.015Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-12/420-D24	+ 12V	420 mA	24 VDC ± 10%	415 ma/120 ma	50%	.15Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-12/420-D28	+ 12V	420 mA	28 VDC ± 10%	360 ma/90 ma	55%	.15Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-12/420-D48	+ 12V	420 mA	48 VDC ± 12.5%	210 ma/50 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-15/330-D5	+ 15V	330 mA	5 VDC ± 10%	2000 ma/500 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-15/330-D12	+ 15V	330 mA	12 VDC ± 10%	830 ma/200 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-15/330-D24	+ 15V	330 mA	24 VDC ± 10%	415 ma/125 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-15/330-D28	+ 15V	330 mA	28 VDC ± 10%	360 ma/90 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-15/330-D48	+ 15V	330 mA	48 VDC ± 12.5%	210 ma/50 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-24/210-D5	+ 24V	210 mA	5 VDC ± 10%	2000 ma/500 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-24/210-D12	+ 24V	210 mA	12 VDC ± 10%	830 ma/200 ma	55%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-28/180-D5	+ 28V	180 mA	5 VDC ± 10%	2000 ma/500 ma	50%	.035Ω	G2	(2) DILS-1 or (2) DILS-2
UPM-28/180-D12	+ 28V	180 mA	12 VDC ± 10%	830 ma/200 ma	55%	.035Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-12/210-D5	± 12V	210 mA	5 VDC ± 10%	2000 ma/500 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-12/210-D12	± 12V	210 mA	12 VDC ± 10%	760 ma/200 ma	55%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-12/210-D24	± 12V	210 mA	24 VDC ± 10%	380 ma/100 ma	55%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-12/210-D28	± 12V	210 mA	28 VDC ± 10%	325 ma/90 ma	55%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-12/210-D48	± 12V	210 mA	48 VDC ± 12.5%	210 ma/50 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-15/165-D5	± 15V	165 mA	5 VDC ± 10%	2000 ma/500 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-15/165-D12	± 15V	165 mA	12 VDC ± 10%	760 ma/200 ma	55%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-15/165-D24	± 15V	165 mA	24 VDC ± 10%	380 ma/100 ma	55%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-15/165-D28	± 15V	165 mA	28 VDC ± 10%	325 ma/90 ma	55%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-15/165-D48	± 15V	165 mA	48 VDC ± 12.5%	210 ma/50 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-18/140-D5	± 18V	140 mA	5 VDC ± 10%	2000 ma/500 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-18/140-D12	± 18V	140 mA	12 VDC ± 10%	760 ma/200 ma	55%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-18/140-D24	± 18V	140 mA	24 VDC ± 10%	380 ma/100 ma	55%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-18/140-D28	± 18V	140 mA	28 VDC ± 10%	325 ma/90 ma	55%	.03Ω	G2	(2) DILS-1 or (2) DILS-2
BPM-18/140-D48	± 18V	140 mA	48 VDC ± 12.5%	210 ma/50 ma	50%	.03Ω	G2	(2) DILS-1 or (2) DILS-2

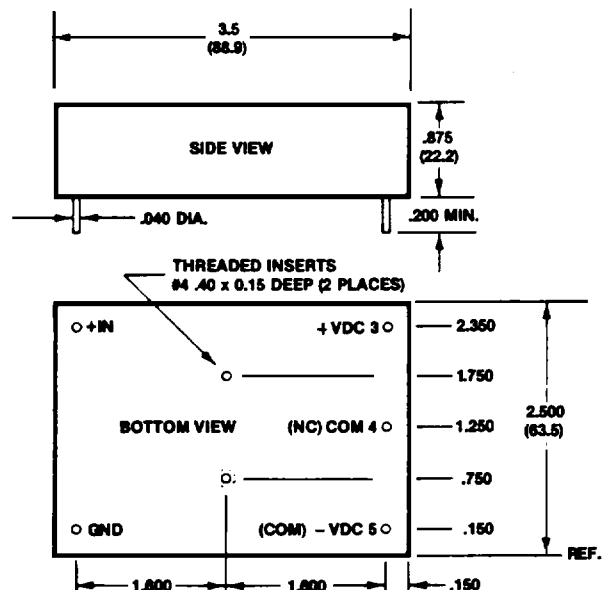
### CASE AND PIN SPECIFICATIONS

#### CASE G



NOTE: PARENTHESES INDICATE CONNECTIONS FOR BIPOLAR OUTPUT OR AC INPUT MODELS

#### CASE CB



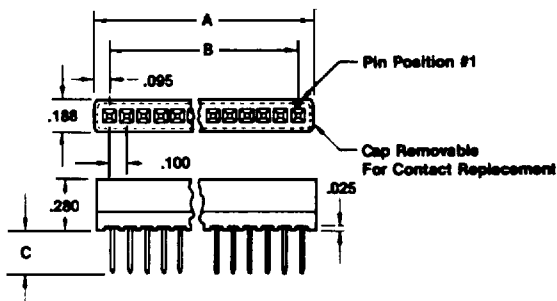
NOTE: PARENTHESES INDICATE CONNECTION FOR UNIPOLAR MODELS

## SPECIFICATIONS, 10 WATT DC-DC CONVERTERS

MODEL	VDC OUT	I <sub>out</sub>	INPUT VOLTAGE	MAXIMUM INPUT CURRENT FULL LOAD/ NO LOAD	EFFIC. (FULL LOAD)	OUT IMP.	CASE CONFIG.	SOCKET CONFIG.
UPM-5/2000-D5	+ 5V	2.0A	5 VDC ± 10%	4000 ma/980 ma	50%	.005Ω	CB	MS-7
UPM-5/2000-D12	+ 5V	2.0A	12 VDC ± 10%	1660 ma/280 ma	50%	.005Ω	CB	MS-7
UPM-5/2000-D24	+ 5V	2.0A	24 VDC ± 10%	760 ma/175 ma	50%	.005Ω	CB	MS-7
UPM-5/2000-D28	+ 5V	2.0A	28 VDC ± 10%	720 ma/130 ma	50%	.005Ω	CB	MS-7
UPM-5/2000-D48	+ 5V	2.0A	48 VDC ± 12.5%	415 ma/120 ma	50%	.005Ω	CB	MS-7
UPM-12/840-D5	+ 12V	840 mA	5 VDC ± 10%	4000 ma/980 ma	50%	.02Ω	CB	MS-7
UPM-12/840-D24	+ 12V	840 mA	24 VDC ± 10%	760 ma/175 ma	50%	.02Ω	CB	MS-7
UPM-12/840-D28	+ 12V	840 mA	28 VDC ± 10%	650 ma/130 ma	55%	.02Ω	CB	MS-7
UPM-12/840-D48	+ 12V	840 mA	48 VDC ± 12.5%	415 ma/120 ma	50%	.02Ω	CB	MS-7
UPM-15/660-D5	+ 15V	660 mA	5 VDC ± 10%	3700 ma/980 ma	50%	.02Ω	CB	MS-7
UPM-15/660-D12	+ 15V	660 mA	12 VDC ± 10%	1530 ma/340 ma	50%	.02Ω	CB	MS-7
UPM-15/660-D24	+ 15V	660 mA	24 VDC ± 10%	760 ma/175 ma	50%	.02Ω	CB	MS-7
UPM-15/660-D28	+ 15V	660 mA	28 VDC ± 10%	650 ma/130 ma	50%	.02Ω	CB	MS-7
UPM-15/660-D48	+ 15V	660 mA	48 VDC ± 12.5%	415 ma/120 ma	50%	.02Ω	CB	MS-7
UPM-24/420-D5	+ 24V	420 mA	5 VDC ± 10%	3600 ma/880 ma	55%	.02Ω	CB	MS-7
UPM-24/420-D12	+ 24V	420 mA	12 VDC ± 10%	1530 ma/340 ma	55%	.02Ω	CB	MS-7
UPM-28/360-D5	+ 28V	360 mA	5 VDC ± 10%	3600 ma/880 ma	55%	.02Ω	CB	MS-7
UPM-28/360-D12	+ 28V	360 mA	12 VDC ± 10%	1530 ma/340 ma	55%	.02Ω	CB	MS-7
BPM-12/420-D5	± 12V	420 mA	5 VDC ± 10%	4000 ma/980 ma	50%	.02Ω	CB	MS-7
BPM-12/420-D12	± 12V	420 mA	12 VDC ± 10%	1530 ma/340 ma	55%	.02Ω	CB	MS-7
BPM-12/420-D24	± 12V	420 mA	24 VDC ± 10%	760 ma/175 ma	55%	.02Ω	CB	MS-7
BPM-12/420-D28	± 12V	420 mA	28 VDC ± 10%	650 ma/130 ma	55%	.02Ω	CB	MS-7
BPM-12/420-D48	± 12V	420 mA	48 VDC ± 12.5%	415 ma/120 ma	50%	.02Ω	CB	MS-7
BPM-15/330-D5	± 15V	330 mA	5 VDC ± 10%	4000 ma/980 ma	50%	.02Ω	CB	MS-7
BPM-15/330-D12	± 15V	330 mA	12 VDC ± 10%	1530 ma/340 ma	55%	.02Ω	CB	MS-7
BPM-15/330-D24	± 15V	330 mA	24 VDC ± 10%	760 ma/175 ma	55%	.02Ω	CB	MS-7
BPM-15/330-D28	± 15V	330 mA	28 VDC ± 10%	650 ma/130 ma	55%	.02Ω	CB	MS-7
BPM-15/330-D48	± 15V	330 mA	48 VDC ± 12.5%	415 ma/120 ma	50%	.02Ω	CB	MS-7
BPM-18/280-D5	± 18V	280 mA	5 VDC ± 10%	3600 ma/980 ma	55%	.02Ω	CB	MS-7
BPM-18/280-D12	± 18V	280 mA	12 VDC ± 10%	1530 ma/340 ma	55%	.02Ω	CB	MS-7
BPM-18/280-D24	± 18V	280 mA	24 VDC ± 10%	760 ma/175 ma	55%	.02Ω	CB	MS-7
BPM-18/280-D28	± 18V	280 mA	28 VDC ± 10%	650 ma/130 ma	55%	.02Ω	CB	MS-7
BPM-18/280-D48	± 18V	280 mA	48 VDC ± 12.5%	415 ma/120 ma	50%	.02Ω	CB	MS-7

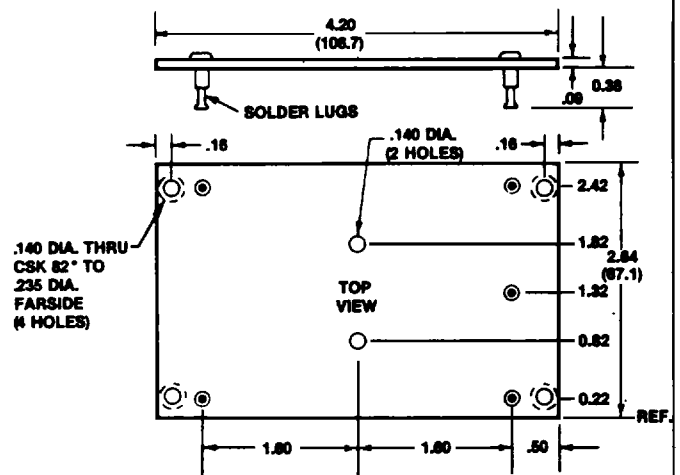
### SOCKET AND PIN SPECIFICATIONS

#### SOCKETS DILS - 1, DILS 2



Model	No. of Contacts	A	B	C	
DILS-1	20	2.090	1.900	.645	WIRE-WRAP
DILS-2	20	2.090	1.900	.145	SOLDER PIN

#### SOCKET MS-7



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