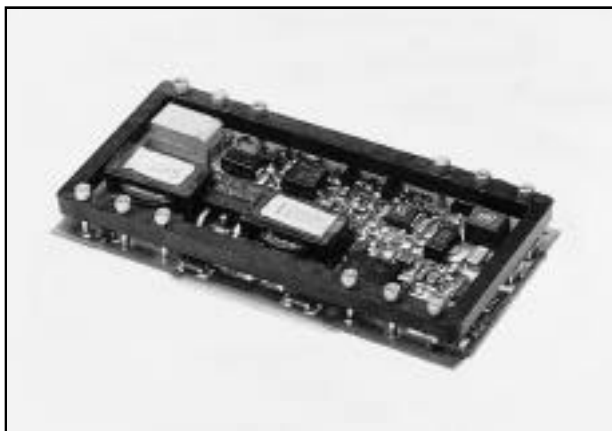


# MAC10 SERIES

## SINGLE & DUAL OUTPUTS



PATENT PENDING

### FEATURES:

- Wide Input Range 4:1
- Low Profile 0.315"Ht.
- High Efficiency to 85%
- External Trim
- -40C To +105C Operation
- 1500Vdc Isolation
- Open Frame Construction
- **Surface Mount & Thru-Hole Types**
- Pick & Place Packaging
- Remote On/Off
- Under-Voltage Lockout
- Overvoltage & Short Circuit Protection
- Integral Metal Substrate

The MAC10 series of DC-DC converters have been designed as a surface-mount & thru-hole solution for a wide range of applications where low profile and ease of assembly are needed. Utilizing the latest thermal transfer techniques the MAC10 series packs up to 10 watts of power in 1.0" x 2.0" x .315" open frame construction, with input ranges of 9-36Vdc and 18-75Vdc, make the MAC10 series ideal for telecommunications, industrial systems and mobile battery systems. Although small in size, this series compacts 16 watt/in.cubed and operating temperatures to 105C. All models are designed to meet UL1950, CSA 950 and EN 60950.

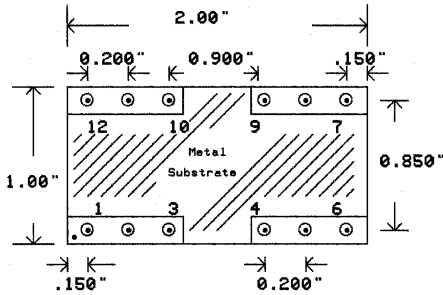
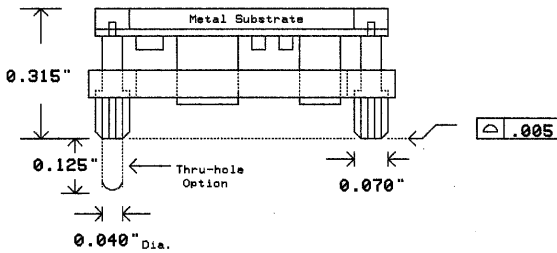
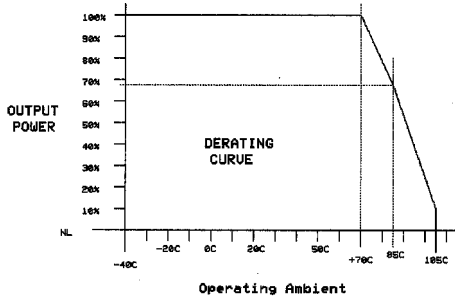
### MODEL SELECTION GUIDE:

INPUT VOLTAGE NOM.	INPUT VOLTAGE RANGE	I <sub>in</sub> @ VIN NOM. FL	NL	OUTPUT VOLTAGE	OUTPUT CURRENT(FL)	PO (W)	OUTPUT OVP	TYPICAL EFFICIENCY	MODELNUMBER NOTE (**)
12Vdc	9-36Vdc	0.855	7mA	3.30	2.0A	8	3.9V	78%	MAC10-12S3V3(**)
12Vdc	9-36Vdc	0.833	7mA	5.00	1.6A	8	6.8V	80%	MAC10-12S05(**)
12Vdc	9-36Vdc	0.823	7mA	7.00	1.1A	8	8.2V	81%	MAC10-12S07(**)
12Vdc	9-36Vdc	0.803	7mA	12.00	0.666	8	15V	83%	MAC10-12S12(**)
12Vdc	9-36Vdc	0.803	7mA	15.00	0.444	8	18V	83%	MAC10-12S15(**)
12Vdc	9-36Vdc	0.833	7mA	+/-5.00	+/-1.0A	8	12 (1)	80%	MAC10-12D05(**)
12Vdc	9-36Vdc	0.803	7mA	+/-12.00	+/- .333A	8	30 (1)	83%	MAC10-12D12(**)
12Vdc	9-36Vdc	0.803	7mA	+/-15.00	+/- .222A	8	36 (1)	83%	MAC10-12D15(**)
48Vdc	18-75Vdc	0.208	7mA	3.30	2.4A	8	3.9V	80%	MAC10-48S3V3(**)
48Vdc	18-75Vdc	0.254	7mA	5.00	2.0A	10	6.8V	82%	MAC10-48S05(**)
48Vdc	18-75Vdc	0.251	7mA	7.00	1.43A	10	8.2V	83%	MAC10-48S07(**)
48Vdc	18-75Vdc	0.245	7mA	12.00	.833A	10	15V	85%	MAC10-48S12(**)
48Vdc	18-75Vdc	0.245	7mA	15.00	.666A	10	18V	85%	MAC10-48S15(**)
48Vdc	18-75Vdc	0.254	7mA	+/-5.00	+/-1.5A	10	12 (1)	82%	MAC10-48D05(**)
48Vdc	18-75Vdc	0.245	7mA	+/-12.00	+/- .412A	10	30 (1)	85%	MAC10-48D12(**)
48Vdc	18-75Vdc	0.245	7mA	+/-15.00	+/- .333A	10	36 (1)	85%	MAC10-48D15(**)

Note (\*\*): Insert suffix; **SM** for Surface-mount type or **TH** for Thru-hole Type mounting • **MODIFICATIONS AND CUSTOMS AVAILABLE**

# 10 WATT DC-DC

**SPECIFICATIONS:** All Specifications Are Typical @ Nominal Input, Full Load & 25C Unless Otherwise Stated and are Subject to Change without Notice



## PIN CONNECTIONS

PIN NUMBER	SINGLE OUTPUTS	DUAL OUTPUTS
1	-Vin	-Vin
2	-Vin	-Vin
3	-Vin	-Vin
4	N/C	N/C
5	+Vo	Com.
6	-Vo	+Vo
7	-Vo	-Vo
8	+Vo	Com.
9	Trim	Trim
10	ON/OFF	ON/OFF
11	-Vin	-Vin
12	+Vin	+Vin

## INPUT

Input Voltage Range	4:1	
Note (3)	9-36Vdc (12V Models)	
	18-75Vdc (48V Models)	Input filter Pi
Type		
Under Voltage Lockout	8.5V (12V Models)	
	16.5V (48V Models)	
Remote	:ON	+5V or open, Ref. (-)Vin
	:OFF	+0.7V, Ref. (-)Vin
Conducted Noise		EN55022, level A (Note 5)

## OUTPUT

Output Power	10 W Continuous(Max)
Output Voltage/current	See Model Table
Output Setting Accuracy	
Singles	+/- 1% typ., +/- 1.5%max.
Duals	+/- 1% typ., +/- 2.0 %max.
Load Regulation	
Singles(FL.-NL.)	+/- 0.5% Note (4),(6)
Duals(FL.-10%L)	+/- 0.5% Balanced
	+/- 2% Unbalanced
Line Regulation	+/- 0.2%
Total Error Band	
Singles	+/- 3%, Line/Load&Temp.
Duals	+/-5%
Ripple & Noise(20Mhz BW)	30mV Typ., 75mV Max.
Transient Response (FL-1/2L)	2 % Deviation, 200uS
Temperature Coefficient	+/- .01%/c
Short circuit Protection	Indefinite, Modulated, Automatic Recovery

## GENERAL

Efficiency	See Model Table
Isolation Voltage	1500Vdc ( 1Min)
Isolation Resistance	100M
Switching Frequency	400Khz
MTBF	1.0M hrs.MIL-HDBK-217F Ground Benign @ 25C

## ENVIRONMENTAL

Operating Temperature Range	-40C To +105C (See Derating Curve)
	-40C To +70C@ FL
Storage Temperature Range	-55C To +125C
Maximum Case Temperature	110 C
Humidity	5% To 95% RH, Non-condensing
Cooling	Natural Convection
Processing (Note 2)	(230C peak, 20 sec.),water washable

## MECHANICAL

Size	1.00" X 2.00" X 0.315"
Weight	11.2G
Mounting	SMD & Through Hole Types
Case/Material	Open-Frame, 94V-0 FR-4 P.C.B., with Bonded Aluminum Substrate

## NOTES:

- 1) On dual output models O.V.P. protection is across +Vo to -Vo
- 2) Consult factory for recommended reflow profile.
- 3) Typical start-up for 12Vin models is 9V. Maximum startup is 9.5V, with full operation down to 9.0V
- 4) Operation is allowed to No-Load on single outputs, however operation below 10% load may cause ripple & noise to exceed spec.
- 5) External Capacitor required.
- 6) Dual outputs are tightly regulated across +Vo to -Vo, unbalanced loads rely on cross coupling of output channels