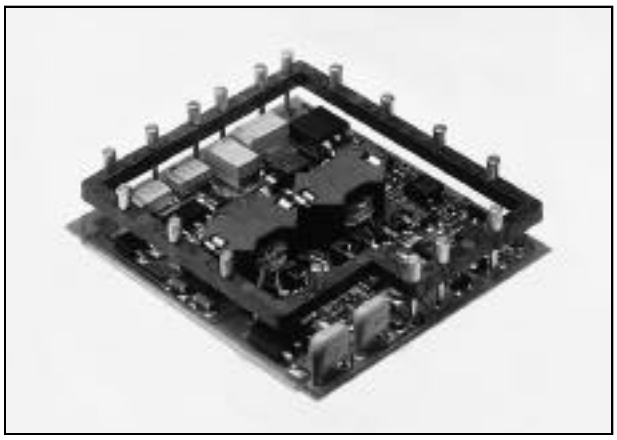
ACUTE POWER INC.
CLEVER SOLUTIONS

MAC20 SERIES
SINGLE, DUAL & TRIPLE OUTPUTS



PATENT PENDING

FEATURES:

- Wide Input Range 4:1
- Pick & Place Packaging
- High Efficiency to 86%
- External Trim
- -40C To +105C Operation
- Overvoltage & Short Circuit Protection
- **Surface Mount & Thru-Hole Types**
- 1500Vdc Isolation
- Integral Metal Substrate
- Under-Voltage Lockout
- Floating or Common Auxilaries
- Remote On/Off
- Open Frame Construction

The MAC20 series of DC-DC converters have been designed as a surface-mount & thru-hole solution for a wide range of applications where a wide dc input range, light weight and ease of assembly are needed. Utilizing the latest thermal transfer techniques the MAC20 series packs up to 20 watts of power in 1.75" x 2.0" x .500" open frame construction, with input ranges of 9-36Vdc and 18-75Vdc and operating temperatures of -40c to + 105C. All models are designed to meet UL1950,CSA 950 and EN 60950.

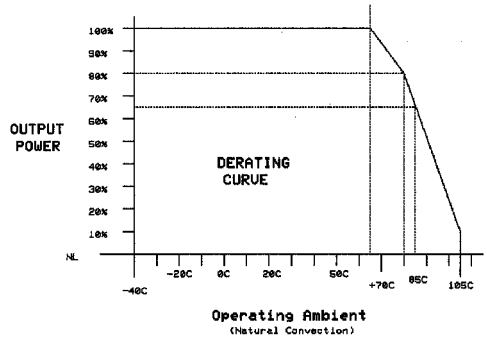
MODEL SELECTION GUIDE:

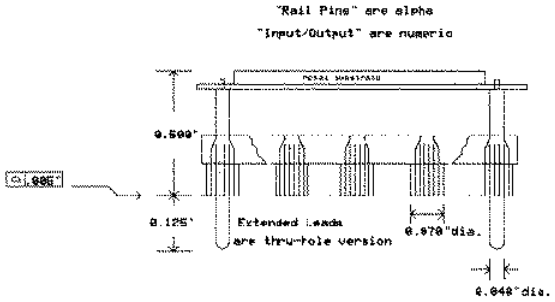
INPUT VOLTAGE NOM.	RANGE	Iin @ VIN NOM. FL	NL	OUTPUT V1 & V2/V3	OUTPUT CURRENT (MAX) NOTE 7	PO (W)	OUTPUT OVP	TYPICAL EFFICIENCY	MODELNUMBER NOTE (**)
12Vdc	9-36Vdc	0.947	7mA	2.5	3.5	8.75	3.9V	77%	MAC20-12S2V5(**)
12Vdc	9-36Vdc	1.213	7mA	3.30	3.5A	11.5	3.9V	79%	MAC20-12S3V3
12Vdc	9-36Vdc	1.626	7mA	5.00	3.2A	16	6.8V	82%	MAC20-12S05
12Vdc	9-36Vdc	1.587	7mA	12.00	1.33A	16	15V	84%	MAC20-12S12
12Vdc	9-36Vdc	1.569	7mA	15.00	1.06A	16	18V	85%	MAC20-12S15
12Vdc	9-36Vdc	1.646	7mA	3.3 & +/-12.00	2.9 & +/-.26A	16	3.9 (V1)	81%	MAC20-12T3D12
12Vdc	9-36Vdc	1.626	7mA	3.3 & +/-15.00	2.9 & +/-.22A	16	3.9 (V1)	82%	MAC20-12T3D15
12Vdc	9-36Vdc	1.606	7mA	3.3 & +/-24.00	2.9 & +/-.14A	16	3.9 (V1)	83%	MAC20-12T3D24
12Vdc	9-36Vdc	1.606	7mA	5.0 & +/-12.00	2.6 & +/-.26A	16	6.8 (V1)	83%	MAC20-12T5D12
12Vdc	9-36Vdc	1.587	7mA	5.0 & +/-15.00	2.6 & +/-.22A	16	6.8 (V1)	84%	MAC20-12T5D15
12Vdc	9-36Vdc	1.569	7mA	5.0 & +/-24.00	2.6 & +/-.14A	16	6.8 (V1)	85%	MAC20-12T5D24
48Vdc	18-75Vdc	0.298	7mA	2.50	4.5A	11	3.9V	77%	MAC20-48S2V5
48Vdc	18-75Vdc	0.391	7mA	3.30	4.5A	15	3.9V	80%	MAC20-48S3V3
48Vdc	18-75Vdc	0.502	7mA	5.00	4A	20	6.8V	83%	MAC20-48S05
48Vdc	18-75Vdc	0.490	7mA	12.00	1.67A	20	15V	85%	MAC20-48S12
48Vdc	18-75Vdc	0.484	7mA	15.00	1.33A	20	18V	86%	MAC20-48S15
48Vdc	18-75Vdc	0.508	7mA	3.3 & +/-12.00	3.6 & +/-.33A	20	3.9 (V1)	82%	MAC20-48T3D12
48Vdc	18-75Vdc	0.502	7mA	3.3 & +/-15.00	3.6 & +/-.27A	20	3.9 (V1)	83%	MAC20-48T3D15
48Vdc	18-75Vdc	0.496	7mA	3.3 & +/-24.00	3.6 & +/-.17A	20	3.9 (V1)	84%	MAC20-48T3D24
48Vdc	18-75Vdc	0.496	7mA	5.0 & +/-12.00	3.2 & +/-.33A	20	6.8 (V1)	84%	MAC20-48T5D12
48Vdc	18-75Vdc	0.490	7mA	5.0 & +/-15.00	3.2 & +/-.27A	20	6.8 (V1)	85%	MAC20-48T5D15
48Vdc	18-75Vdc	0.484	7mA	5.0 & +/-24.00	3.2 & +/-.17A	20	6.8 (V1)	86%	MAC20-48T5D24

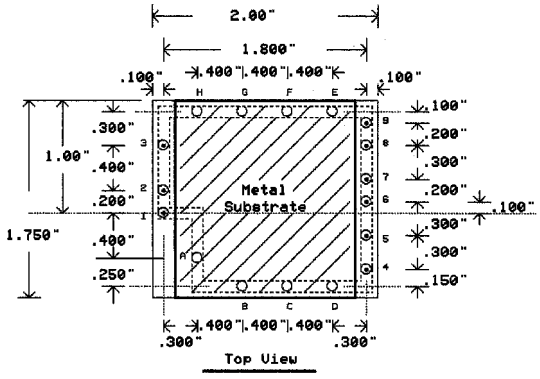
Note (**) Insert suffix; **SM** for Surface-mount type or **TH** for Thru-hole Type mounting • MODIFICATIONS AND CUSTOMS AVAILABLE

International Coil, Inc., 15 Jonathan Drive, Unit 1 Brockton, MA, 02301 Tel(508) 580-8515, Fax 508-580-8511, www.acutepower.com

SPECIFIC ATIONS: 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	TRIPLE OUTPUTS
1	+Vin	+Vin
2	-Vin	-Vin
3	ON/OFF	ON/OFF
4	N/C	+V2
5	N/C	Com.V2/V3
6	N/C	-V3
7	+Vo	+V1
8	-Vo	Com.V1
9	Trim	Trim
A	N/C	N/C
B	N/C	N/C
C	N/C	N/C
D	N/C	N/C
E	N/C	N/C
F	N/C	N/C
G	N/C	N/C
H	N/C	N/C

Pin no.'s A -H are used for mechanical integrity and are intended for Suface Mount models only.

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	20 W Continuous(Max)
Output Voltage/current	See Model Table
Output Setting Accuracy	
Singles	+/- 1% typ., +/- 1.5%max.
Aux	+/-3%
Load Variation	
Singles(FL.-10%L)	+/- 0.5% Note (4),(6)
Aux (FL-20%L)	+/-3%, Balanced, V1 (10%L-F1)
Line Regulation	+/- 0.5%(Vo1),+/-2% Aux
Total Error Band	
Singles	+/- 3%, Line/Load&Temp.
Auxiliary outputs	+/-10%(Io1,2&3 @ 20%-FL)
Ripple & Noise(20Mhz BW)	100mV(Vo1),1%(Aux)
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 + 60C @ 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, 20Sec.),water washable

MECHANICAL

Size	1.75" X 2.00" X 0.500"
Weight	24.0G
Mounting	SMD & Through Hole Types
Case/Material	Open-Frame, 94V-0 FR-4 P.C.B., with Bonded Aluminum Substrate

NOTES:

1) O.V.P. protection is across Vo1.
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) Auxillary output regulation rely's on cross coupling of output channels. A 10% minimum load is required on Vo1 for regulation.
7) Max output power not to exceed 20 watts total.

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