

FEATURES

- ▶ Fully Encapsulated Plastic Case for PCB Mounting
- ▶ Universal Input 85-264VAC, 47-440Hz
- ▶ Protection Class II as per IEC/EN 60536
- ▶ I/O Isolation 3000VAC with Reinforced Insulation
- ▶ Operating Ambient Temp. Range -25°C to +60°C
- ▶ No Min. Load Requirement
- ▶ Overload/Voltage and Short Circuit Protection
- ▶ EMI Emission EN 55032 Class B & FCC Level B Approved
- ▶ EMC Immunity EN 61000-4-2,3,4,5,6,8,11 Approved
- ▶ Eco Design, Compliant to Energy Star Specification and ErP Directive 2009/125/EC
- ▶ UL/cUL/IEC/EN (62368-1)60950-1 Safety Approval & CE Marking



PRODUCT OVERVIEW

The MINMAX ABF-04 series is a range of fully encapsulated AC-DC power supply modules. They are designed for direct PCB mounting with solder pins. The product features EMI emission EN 55032 class B approved and EMS compliance to the EN 61000-4 standard.

Universal input voltage 85-264VAC and International safety approvals qualify these power modules for applications in products with worldwide markets.

The ABF-04 series provides a superior solution for many space critical applications in commercial and industrial electronic equipment.

Model Selection Guide

Model Number	Output Voltage	Output Current	Input Current	Max. capacitive Load	Efficiency (typ.)
		Max.	@Max. Load		@Max. Load
	VDC	mA	mA(typ.)	μF	%
ABF-04S03	3.3	1200	82	1200	70
ABF-04S05	5	800	82	800	72
ABF-04S09	9	444	77	440	75
ABF-04S12	12	333	76	330	76
ABF-04S15	15	267	76	260	76
ABF-04S24	24	167	76	160	77
ABF-04D53	+5	600	72	5600	72
	+3.3	150		4700	
ABF-04D125	+12	250	72	330	75
	+5	120		4700	
ABF-04D12	±12	±166	76	# 330	77
ABF-04D15	±15	±133	76	# 260	77

For each output

Input Specifications

Parameter	Conditions / Model		Min.	Typ.	Max.	Unit
Input Voltage Range	All Models		85	---	264	VAC
Input Frequency Range			47	---	440	Hz
Input Voltage Range			120	---	370	VDC
No-Load Power Consumption			---	---	0.3	W
Inrush Current	115VAC	Cold Start at 25°C	---	---	15	A
	230VAC		---	---	25	A

Output Specifications						
Parameter	Conditions / Model		Min.	Typ.	Max.	Unit
Output Voltage Setting Accuracy	Single and Dual Output Models		---	±1.0	±2.0	%Vnom.
	ABF-04D53 & ABF-04D125		---	±2.0	±5.0	%Vnom.
Line Regulation	Single and Dual Output Models		---	±0.5	±1.0	%
	ABF-04D53 & ABF-04D125	Vo1	---	±0.5	±1.0	%
		Vo2	---	±1.0	±3.0	%
Load Regulation	3.3VDC Output Model		---	±1.0	±1.5	%
	5~24VDC and Dual Output Models		---	±0.5	±1.0	%
	ABF-04D53 & ABF-04D125	Vo1	---	±0.5	±1.0	%
		Vo2	---	±2.5	±5.0	%
Ripple & Noise	0-20 MHz Bandwidth	3.3V & 5VDC Output Models	---	100	150	mV _{P-P}
		Other Output Models	---	0.8	1.0	%V _{PP} of Vo
Minimum Load	Single Output and Dual +/- Output Models		No min. Load required	---	---	%Inom.
	Dual +/- Output Models		---	25	---	%Inom.
Over Voltage Protection	Zener diode clamp		---	120	---	% of Vo
Temperature Coefficient			---	±0.01	±0.02	%/°C
Overshoot			---	---	5	%Vout
Over Load Protection	Foldback, auto-recovery		105	---	---	%Inom.
	(long term overload condition may cause damage)					
Short Circuit Protection	Hiccup mode, Automatic Recovery					

General Specifications					
Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage	Input to Output, 60 Seconds	3000	---	---	VAC
I/O Isolation Resistance	500 VDC	100	---	---	MΩ
Switching Frequency		---	130	---	kHz
Hold-up Time		---	20	---	ms
MTBF (calculated)	MIL-HDBK-217F@25°C, Ground Benign	330,000			Hours
Protection Class II	According IEC/EN 60536				
Safety Approvals	UL/cUL 60950-1 recognition(UL certificate) , IEC/EN 60950-1(CB-report)				
	UL/cUL 62368-1 recognition (UL certificate), IEC/EN 62368-1 (CB-report)				

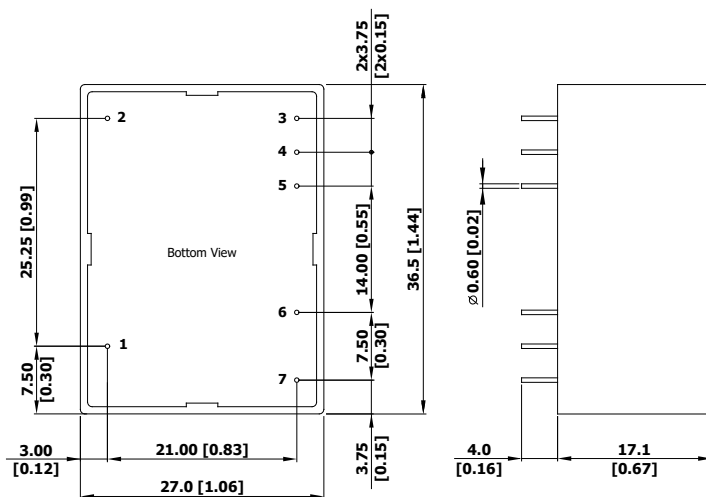
EMC Specifications			
Parameter	Standards & Level		Performance
EMI	Conduction & Radiation Class B without any external components	EN 55032, FCC part 15	Class B
EMS	EN 55024		
	ESD	EN 61000-4-2 air ± 8kV, Contact ± 4kV	B
	Radiated immunity	EN 61000-4-3 10V/m	A
	Fast transient	EN 61000-4-4 ±2kV	B
	Surge	EN 61000-4-5 ±1kV	B
	Conducted immunity	EN 61000-4-6 10Vrms	B
	PFMF	EN 61000-4-8 30A/m	A
	Dips	EN 61000-4-11 30% 10ms	B
	Interruptions	EN 61000-4-11 >95% 5000ms	C

Environmental Specifications

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating Ambient Temperature Range		-25	---	+60	°C
Power Derating	+50°C to +60°C	0.3			W / °C
Storage Temperature Range		-40	---	+85	°C
Thermal Shutdown	Shutdown, Internal IC Junction Temperature	---	142	---	°C
	Automatic Recovery, Internal IC Junction Temperature	---	67	---	°C
Humidity (non condensing)		---	---	95	% rel. H
Lead Temperature (1.5mm from case for 10Sec.)		---	---	260	°C

Notes

- 1 All specifications typical at Ta=+25°C, resistive load, 115VAC, 60Hz input voltage and after warm-up time rated output current unless otherwise noted.
- 2 These power modules require a minimum output loading to maintain specified regulation, operation under no-load conditions will not damage the power supplies however they may not meet all listed specifications.
- 3 We recommend to protect the converter by a slow blow fuse in the input supply line.
- 4 Other input and output voltage may be available, please contact factory
- 5 Specifications are subject to change without notice

Package Specifications
Mechanical Dimensions

Pin Connections

Pin	Single Output	D12/D15	D53/D125
1	NC		
2	NC		
3	+Vout	+Vout	+Vout1
4	-Vout	Common	Common
5	No Pin	-Vout	+Vout2
6	AC(N)		
7	AC(L)		

- ▶ All dimensions in mm (inches)
- ▶ Tolerance: ± 0.5 (± 0.01)
- ▶ Pin diameter $\varnothing 0.6 \pm 0.1$ (0.02 ± 0.004)

Physical Characteristics

Case Size	: 36.5x27.0x17.1mm (1.44x1.06x0.67 inches)
Case Material	: Plastic resin (flammability to UL 94V-0 rated)
Pin Material	: Copper Alloy with Gold Plate Over Nickel Subplate
Weight	: 30g

Distributed by:



The Netherlands



Elektrostraat 17
NL-7483 PG Haaksbergen

T: +31 (0)53 573 33 33
F: +31 (0)53 573 33 30
E: nl@texim-europe.com

Belgium



Zuiderlaan 14 bus 10
B-1731 Zellik

T: +32 (0)2 462 01 00
F: +32 (0)2 462 01 25
E: belgium@texim-europe.com

UK & Ireland



St. Mary's House, Church Lane
Carlton Le Moorland
Lincoln LN5 9HS

T: +44 (0)1522 789 555
F: +44 (0)845 299 22 26
E: uk@texim-europe.com

Germany North



Bahnhofstrasse 92
D-25451 Quickborn

T: +49 (0)4106 627 07-0
F: +49 (0)4106 627 07-20
E: germany@texim-europe.com

Germany South



Martin-Kollar-Strasse 9
D-81829 München

T: +49 (0)89 436 086-0
F: +49 (0)89 436 086-19
E: germany@texim-europe.com

Austria



Warwitzstrasse 9
A-5020 Salzburg

T: +43 (0)662 216 026
F: +43 (0)662 216 026-66
E: austria@texim-europe.com

Nordic region



Sdr. Jagtvej 12
DK-2970 Hørsholm

T: +45 88 20 26 30
F: +45 88 20 26 39
E: nordic@texim-europe.com

Italy



Via Matteotti 43
IT-20864 Agrate Brianza (MB)

T: +39 (0)39 971 3293
F: +39 (0)39 971 3293
E: italy@texim-europe.com

General information



info@texim-europe.com
www.texim-europe.com