AMX04A SERIES

4W DC to DC Converter

Description:

This series of DC to DC Converter module provide 4 Watts of continues output power. They are suited for use in Data communication, Telecommunication and other Industry equipment.

24Pin DIP Package

Features:

- 2 : 1 Wide Input Range Voltage
- Efficiency up to 85%
- Regulated Output
- Single or Dual Output
- Size : 20.3W x 31.8L x 10.2Hmm
- 1500VDC Isolation
- Potting Material : Epoxy(Flammability to UL94V-0)
- Case Material : Non-Conductive Black Plastic(Flammability to UL94V-0)
- EMI Meets to EN55022 Class A
- Remote On/Off Control(Option)
- Industrial Standard Pin-out
- 3 year warranty

Electrical Characteristics:

Sym.	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Vin	Input Voltage for AMB04		9	12	18	VDC
	Input Voltage for AMC04		18	24	36	VDC
	Input Voltage for AMD04		36	48	75	VDC
Fs	Switching Frequency			250		kHz
Po	Output Power Range		0		4	W
Vo	Output Voltage Range		See Rating Chart			V
Io	Output Current Range		See Rating Chart			A
Acc	Output Voltage Accuracy	Io=Full load, Vin=Typ., at 25℃		±0.5	±1.0	%
Eff	Efficiency	Io=Full load, Vin=Typ., at 25℃	79	81	85	%
REG-i	Line Regulation	Io=Full load, Vin=Vmax to Vmin, at 25℃		±0.2	±0.3	%
REG-o	Load Regulation	Io=20% to 100%, Vin=Typ., at 25℃		±0.5	±1.0	%
Vp-p	Ripple & Noise (Peak to Peak)	Each Output, 20MHz		50	75	mV
Vio	Isolation Voltage	Input to Output	1500			V
Ris	Isolation Resistance	Input to Output	1000			MΩ
Cis	Isolation Capacitance	Input to Output			500	pF
TC	Temperature Coefficient	All Output		±0.01	±0.02	%/℃
Br	Balance Regulation	Io=Full load, Vin=Typ., Dual Output		±0.5	±2.0	%
Trp	Time of Transient Response	Vin=Typ., 25% load step change		150	300	μS
Trd	Transient Response Deviation			±2.0	±6.0	%/Vo
Sdt	Start-Up Delay Time	Vin=Typ., Io=Full load		1000		Sec

External Functions Specifications:

Remote Control Function ---Enable High						
Sym.	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Sd	System Disable	V-Remote	-0.5		0.8	V
		I-Remote			-600	μA
Se	System Enable	V-Remote	2.5		Vin-H	V
		I-Remote			-500	μA
		Floating Remote ON/OFF Pin				

Note : Control Voltage Reference to Negative Input

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4W DC to DC Converter

Environmental:

Sym.	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Toper	Operating Temperature Range		-40		75	℃
Tcase	Maximum Case Temperature		-40		90	℃
Tstg	Storage Temperature		-40		125	℃
Hr	Relative Humidity		0		95	%
MTBF	Operating Temperature at 25℃,Calculated per MIL-HDBK-217F		1M			Hrs
Scip	Short Circuit Input Power				2000	mW
Sic	Stand-by Input Current				2	mA
Cool	The Cooling Condition is Free					
Filter	Internal Capacitor					

Selection Chart :

Model Number	Input Voltage	Output Voltage	Output Current		Efficiency (Typ.)	Cap.Load(8)
			Min.	Max.		
AMB04A-101	9~18VDC (Nominal:12V)	3.3VDC	45mA	900mA	79%	3300μF
AMB04A-102		5VDC	33mA	660mA	81%	3300μF
AMB04A-105		12VDC	17mA	335mA	83%	3300μF
AMB04A-106		15VDC	14mA	270mA	83%	3300μF
AMB04A-202		±5VDC	±17mA	±330mA	81%	1000μF
AMB04A-205		±12VDC	±9mA	±168mA	83%	1000μF
AMB04A-206		±15VDC	±7mA	±135mA	83%	1000μF
AMC04A-101	18~36VDC (Nominal:24V)	3.3VDC	45mA	900mA	80%	3300μF
AMC04A-102		5VDC	33mA	660mA	81%	3300μF
AMC04A-105		12VDC	17mA	335mA	85%	3300μF
AMC04A-106		15VDC	14mA	270mA	85%	3300μF
AMC04A-202		±5VDC	±17mA	±330mA	81%	1000μF
AMC04A-205		±12VDC	±9mA	±168mA	85%	1000μF
AMC04A-206		±15VDC	±7mA	±135mA	85%	1000μF
AMD04A-101	36~75VDC (Nominal:48V)	3.3VDC	45mA	900mA	80%	3300μF
AMD04A-102		5VDC	33mA	660mA	81%	3300μF
AMD04A-105		12VDC	17mA	335mA	85%	3300μF
AMD04A-106		15VDC	14mA	270mA	85%	3300μF
AMD04A-202		±5VDC	±17mA	±330mA	81%	1000μF
AMD04A-205		±12VDC	±9mA	±168mA	85%	1000μF
AMD04A-206		±15VDC	±7mA	±135mA	85%	1000μF

Note :

(1) All specifications are measured at nominal input voltage, constant resistive load between Min. and Max. Output current, and probe bandwidth should be under 20MHz, Ta = +25℃.

(2) When Load is lower than Min. output current or under no-load, it will not damage the devices; however, it may not meets all specifications.

(3) Output Ripple & Noise Test please refers to Sinpro Electronics Co., Ltd. proposed test-method.

(4) Load Regulation and Line Regulation calculating please refers to Sinpro Electronics Co., Ltd. proposed formula.

(5) An external fuse is needed at the front end of DC/DC converters for protection and base on surge current and maximum input current when settle it in recommended.

(6)"Vin-L" means "Vin-Min.", "Vin-N" means "Vin-Typ.", "Vin-H" means "Vin-Max."

(7) "Reflected Ripple" "Reflected Ripple of Input Current".

(8) Total Capacitive Loads of output should be lower than this value.

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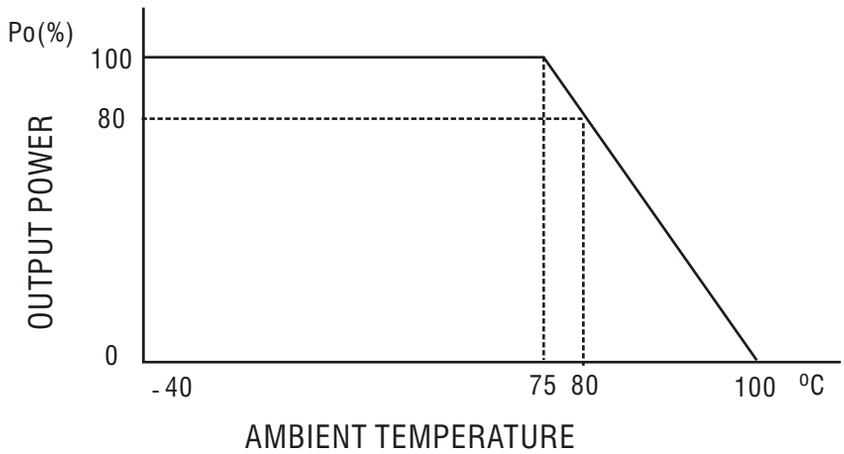
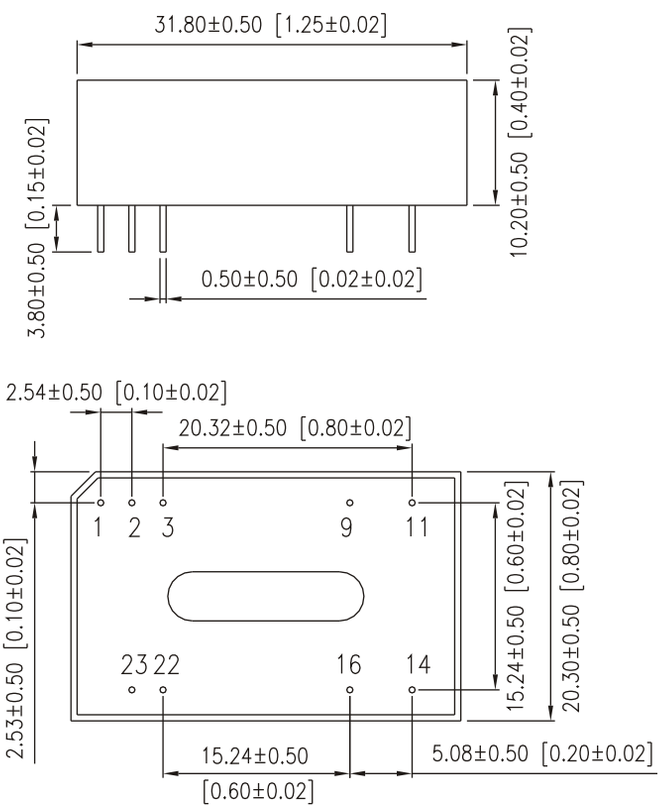
4W DC to DC Converter

Derating Curve :



Note: At nominal input, Full load and cooling is natural convection.

Mechanical Specifications :



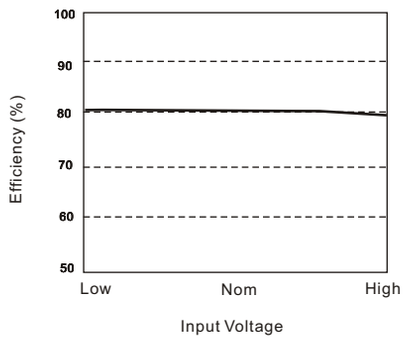
Pin Connections:

Pin	Single	Dual
1	No Pin	No Pin
2,3	-Vin	-Vin
9	No Pin	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
22	+Vin	+Vin

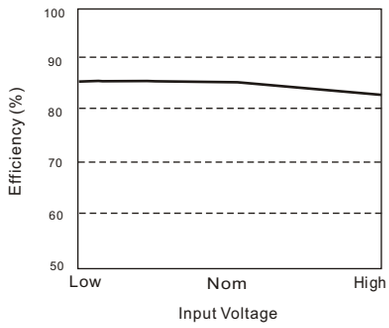
Note:
1. Dimensions are shown in mm.
2. Weight: 10gs .
3. NC: No Connect

4W DC to DC Converter

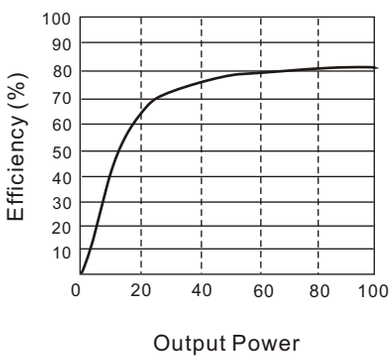
Efficiency-Curve :



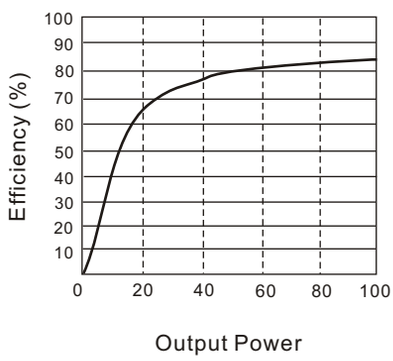
Input Voltage vs.Efficiency,Vo=3.3V,5V&±5V



Input Voltage vs.Efficiency,Other Output Voltages

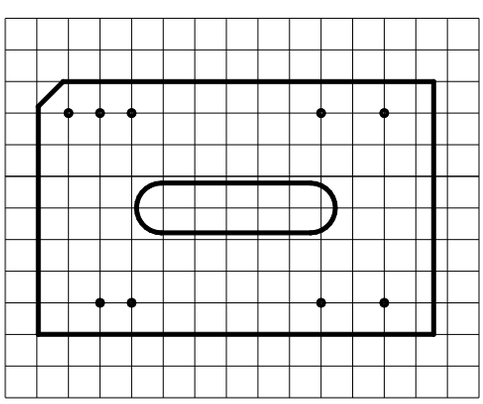


Output Power vs.Efficiency,Vo=3.3V,5V&±5V



Output Power vs.Efficiency,Other Output Voltages

Grid : 0.1 inch / 2.54 mm
Dot(Drill Hole):Φ 0.8 +0.2 / -0 mm



Tolerance	Millimeters	Inches
	XX.X ±0.25	XX.X ±0.01
	XX.XX ±0.13	XX.XX ±0.005
Pin	±0.1	±0.004