

ARTESYN

ASA 6W-M SERIES

DC/DC Converter



PRODUCT DESCRIPTION

Advanced Energy's Artesyn ASA 6W-M series are single and dual output DC/DC converter modules. The ASA 6W-M series DC/DC converters offer an economical solution for demanding applications in industrial and medical instrumentation requesting a certified high supplementary or reinforced insulation system to comply with relative industrial or medical safety standards. All models feature ultra-wide 2:1 input range with excellent output voltage regulation. The ASA 6W-M series can deliver up to 6W output power from the single or dual output module with high 80% typical efficiency and excellent thermal performance over an operating ambient temperature range of -40 °C ~ +75 °C.

SPECIAL FEATURES

- 4000 Vac reinforced insulation
- Medical safety to UL/cUL/EN/IEC 60601-1 3rd Edition
- 2 MOOP rated
- Wide 2:1 input voltage range
- Fully regulated output voltage
- Low leakage current
- Operating temperature range -40 °C to +75 °C (with derating)
- Input filter meets EN 55022, class A and FCC, level A
- Overload protection
- 1.25" x 0.8" package
- RoHS compliant
- Three-year product warranty

SAFETY

- cUL/UL62368-1, CSA C22.2 No. 62368-1-03
- UL60601-1, CSA C22.2 No.601-1
- IEC/EN 62368-1, IEC/EN 60601-1 3rd Edition, 2 MOOP
- cUL/UL62368-1 certificate
- UL60601-1 UL certificate

TYPICAL APPLICATIONS

- Industrial
- Medical

AT A GLANCE

Total Power:

6 Watts

Input Voltage:

9-18 Vdc

18-36 Vdc

36-75 Vdc

of Outputs:

Single / Dual



Model Numbers

Model	Input Voltage	Output Voltage	Minimum Load	Maximum Load	Efficiency
ASA01A12-M	9-18Vdc	5V	0.2A	1A	75%
ASA01B12-M	9-18Vdc	12V	0.1A	0.5A	78%
ASA01BB12-M	9-18Vdc	±12V	±0.05A	±0.25A	78%
ASA01CC12-M	9-18Vdc	±15V	±0.04A	±0.2A	78%
ASA01A24-M	18-36Vdc	5V	0.2A	1A	77%
ASA01B24-M	18-36Vdc	12V	0.1A	0.5A	80%
ASA01BB24-M	18-36Vdc	±12V	±0.05A	±0.25A	80%
ASA01CC24-M	18-36Vdc	±15 V	±0.04A	±0.2A	80%
ASA01A48-M	36-75 Vdc	5V	0.2A	1A	77%
ASA01B48-M	36-75 Vdc	12V	0.1A	0.5A	80%
ASA01BB48-M	36-75 Vdc	±12V	±0.05A	±0.25A	80%
ASA01CC48-M	36-75 Vdc	±15V	±0.04A	±0.2A	80%

Electrical Specifications

Absolute Maximum Ratings

Stress in excess of those listed in the “Absolute Maximum Ratings” may cause permanent damage to the power supply. These are stress ratings only and functional operation of the unit is not implied at these or any other conditions above those given in the operational sections of this TRN. Exposure to any absolute maximum rated condition for extended periods may adversely affect the power supply’s reliability.

Table 1. Absolute Maximum Ratings						
Parameter	Model	Symbol	Min	Typ	Max	Unit
Input Voltage Operating -Continuous	12V input Models 24V input Models 48V input Models	$V_{IN,DC}$	9 18 36	- - -	18 36 75	Vdc
Maximum Output Power	All models	$P_{O,max}$	-	-	6	W
Isolation Voltage Input to output	All models		4000	-	-	Vac
Isolation Resistance 500Vdc	All models		10	-	-	Gohm
Isolation Capacitance 100KHz, 1V	All models		-	7	13	pF
Operating Ambient Temperature With Derating Without Derating	All models All models	T_A	-40 -40	- -	+75 +55	°C °C
Operating Case Temperature	All models	T_{CASE}	-40	-	+95	°C
Storage Temperature	All models	T_{STG}	-50	-	+125	°C
Humidity (non-condensing) Operating Non-operating	All models All models		- -	- -	95 95	% %

Electrical Specifications

Input Specifications

Table 2. Input Specifications

Parameter		Condition	Symbol	Min	Typ	Max	Unit
Operating Input Voltage, DC	12V input Models	All	$V_{IN,DC}$	9	-	18	Vdc
	24V input Models			18	-	36	
	48V input Models			36	-	75	
Input Surge Voltage	12V input Models	1 sec, max	$V_{IN,surge}$	-0.7	-	25	Vdc
	24V input Models			-0.7	-	50	
	48V input Models			-0.7	-	100	
Start-up Threshold Voltage	12V input Models	All	$V_{IN,ON}$	7	8	9	Vdc
	24V Input Models			13	15	18	
	48V Input Models			30	33	36	
Under Voltage Shutdown	12V input Models	All	$V_{IN,OFF}$	-	-	8.5	Vdc
	24V Input Models			-	-	16	
	48V Input Models			-	-	34	
Input reflected ripple current	12V input Models	20MHz, Measure with a inductor 4.7μH and Capacitance 220uF	$I_{IN,ripple}$	-	60	-	mA
	24V Input Models			-	30	-	
	48V Input Models			-	15	-	
Input Current	ASA01A12-M	$V_{IN,DC}=V_{IN,nom}$	$I_{IN,full\ load}$	-	570	-	mA
	ASA01B12-M			-	641	-	
	ASA01BB12-M			-	641	-	
	ASA01CC12-M			-	641	-	
	ASA01A24-M			-	278	-	
	ASA01B24-M			-	313	-	
	ASA01BB24-M			-	313	-	
	ASA01CC24-M			-	313	-	
	ASA01A48-M			-	139	-	
	ASA01B48-M			-	156	-	
	ASA01BB48-M			-	156	-	
	ASA01CC48-M			-	156	-	
No Load Input Current ($V_O = On, I_O = 0A$)	ASA01A12-M	$V_{IN,DC}=V_{IN,nom}$	$I_{IN,no-load}$	-	30	-	mA
	ASA01B12-M			-	30	-	
	ASA01BB12-M			-	30	-	
	ASA01CC12-M			-	30	-	
	ASA01A24-M			-	20	-	
	ASA01B24-M			-	20	-	
	ASA01BB24-M			-	20	-	
	ASA01CC24-M			-	20	-	
	ASA01A48-M			-	10	-	
	ASA01B48-M			-	10	-	
	ASA01BB48-M			-	10	-	
	ASA01CC48-M			-	10	-	

Electrical Specifications

Input Specifications

Table 2. Input Specifications con't							
Parameter		Condition	Symbol	Min	Typ	Max	Unit
Efficiency	ASA01A12-M	$V_{IN,DC} = V_{IN,nom}$ $I_O = I_{O,max}$ $T_A = 25\text{ }^{\circ}\text{C}$	η	-	75	-	%
	ASA01B12-M			-	78	-	
	ASA01BB12-M			-	78	-	
	ASA01CC12-M			-	78	-	
	ASA01A24-M			-	77	-	
	ASA01B24-M			-	80	-	
	ASA01BB24-M			-	80	-	
	ASA01CC24-M			-	80	-	
	ASA01A48-M			-	77	-	
	ASA01B48-M			-	80	-	
	ASA01BB48-M			-	80	-	
	ASA01CC48-M			-	80	-	
MTBF	MIL-STD-217F, $T_A = 25^{\circ}\text{C}$	All		1000	-	-	K Hours

Electrical Specifications

Output Specifications

Table 3. Output Specifications							
Parameter		Condition	Symbol	Min	Typ	Max	Unit
Output Voltage Set-Point	ASA01A12-M	$V_{IN,DC} = V_{IN,nom}$ $I_O = I_{O,max}$ $T_A = 25\text{ }^{\circ}\text{C}$	V_O	4.95	5	5.05	Vdc
	ASA01B12-M			11.88	12	12.12	
	ASA01BB12-M			± 11.88	± 12	± 12.12	
	ASA01CC12-M			± 14.85	± 15	± 15.15	
	ASA01A24-M			4.95	5	5.05	
	ASA01B24-M			11.88	12	12.12	
	ASA01BB24-M			± 11.88	± 12	± 12.12	
	ASA01CC24-M			± 14.85	± 15	± 15.15	
	ASA01A48-M			4.95	5	5.05	
	ASA01B48-M			11.88	12	12.12	
	ASA01BB48-M			± 11.88	± 12	± 12.12	
	ASA01CC48-M			± 14.85	± 15	± 15.15	
Output Current	ASA01A12-M	Convection cooling	I_O	-	-	1	A
	ASA01B12-M			-	-	0.5	
	ASA01BB12-M			-	-	0.25	
	ASA01CC12-M			-	-	0.2	
	ASA01A24-M			-	-	1	
	ASA01B24-M			-	-	0.5	
	ASA01BB24-M			-	-	0.25	
	ASA01CC24-M			-	-	0.2	
	ASA01A48-M			-	-	1	
	ASA01B48-M			-	-	0.5	
	ASA01BB48-M			-	-	0.25	
	ASA01CC48-M			-	-	0.2	
V_O Load Capacitance	ASA01A12-M	All		-	-	1000	μF
	ASA01B12-M			-	-	470	
	ASA01BB12-M			-	-	220#	
	ASA01CC12-M			-	-	220#	
	ASA01A24-M			-	-	1000	
	ASA01B24-M			-	-	470	
	ASA01BB24-M			-	-	220#	
	ASA01CC24-M			-	-	220#	
	ASA01A48-M			-	-	1000	
	ASA01B48-M			-	-	470	
	ASA01BB48-M			-	-	220#	
	ASA01CC48-M			-	-	220#	

Electrical Specifications

Output Specifications

Table 3. Output Specifications Con't						
Parameter	Condition	Symbol	Min	Typ	Max	Unit
Output Ripple, pk-pk 5V Output Models Other Output Models	20MHz bandwidth, measured with a 1uF MLCC and a 10uF Tantalum Capacitor	V_O	-	75	100	mV
		V_o	-	100	150	mV
Line Regulation	$V_{IN,DC} = V_{IN,min}$ to $V_{IN,max}$	$\pm\%V_O$	-	0.3	0.5	%
Load Regulation	$I_O = 25\%I_{O,max}$ to $I_{O,max}$	$\pm\%V_O$	-	0.5	1.0	%
V_O Dynamic Response Peak Deviation Settling Time	25% load change, slew rate = 1A/uS	$\pm\%V_O$	-	3	6	%
		t_s	-	300	500	uSec
Temperature Coefficient	All	$\%/^{\circ}C$	-	0.02	0.05	%
Switching Frequency	All	f_{SW}	-	150	-	KHz
Output Over Current Protection	All		120	150	-	$\%I_{O,max}$
Output Short Circuit Protection	All		Continuous			

Electrical Specifications

ASA01A12-M Performance Curves

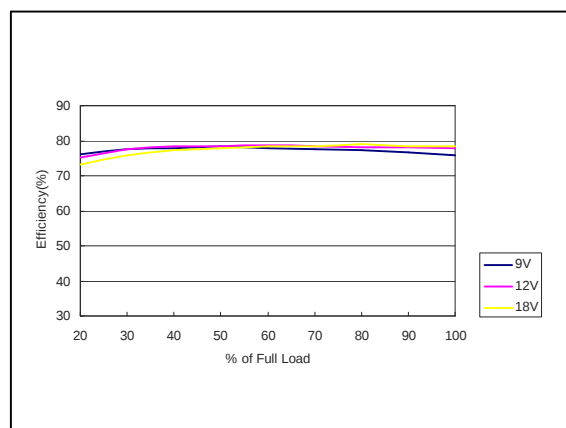


Figure 1: ASA01A12-M Efficiency Versus Output Current Curve
Vin = 9 to 18Vdc Load: Io = 0 to 1A

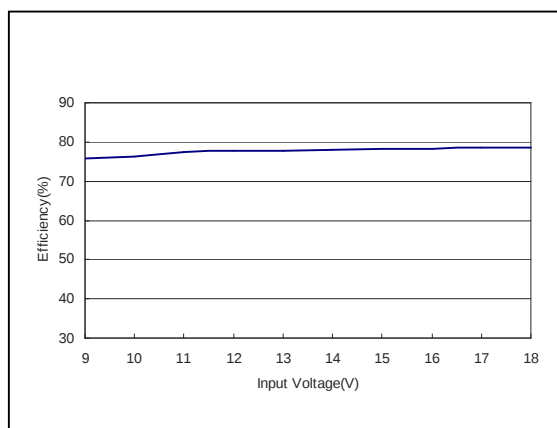


Figure 2: ASA01A12-M Efficiency Versus Input Voltage Curve
Vin = 9 to 18Vdc Load: Io = 1A

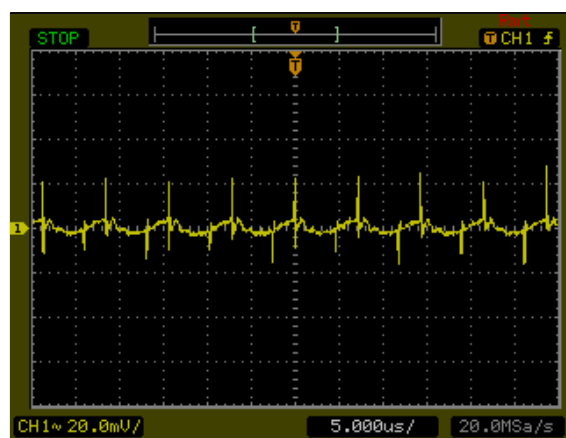


Figure 3: ASA01A12-M Ripple and Noise Measurement
Vin = 12Vdc Load: Io = 1A
Ch 1: Vo

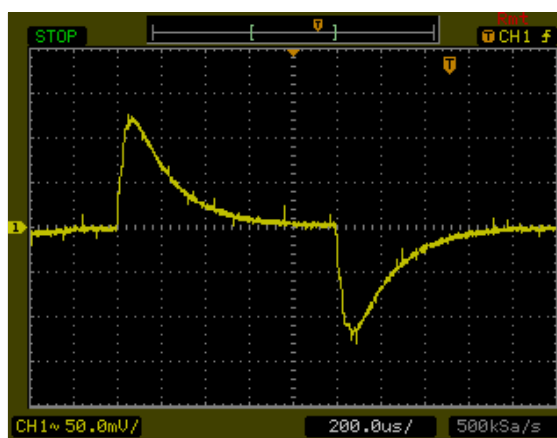


Figure 4: ASA01A12-M Transient Response
Vin = 12Vdc Load: Io = 100% to 75% load change
Ch 1: Vo

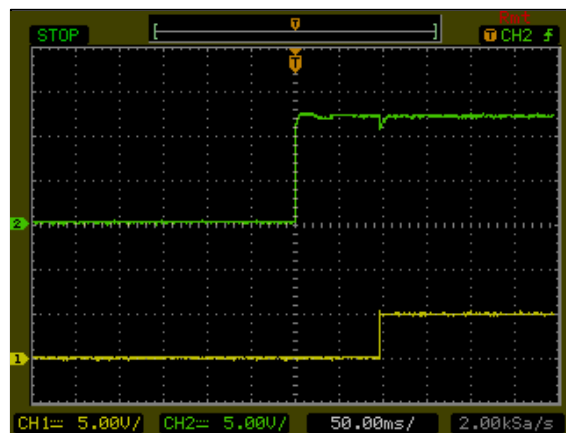


Figure 5: ASA01A12-M Output Voltage Startup Characteristic by Vin
Vin = 12Vdc Load: Io = 1A
Ch 1: Vin Ch 2: Vo

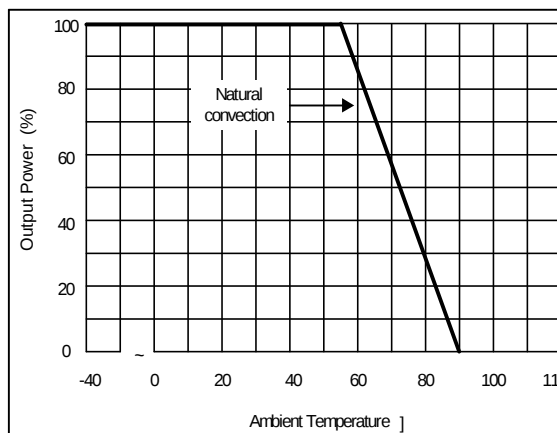
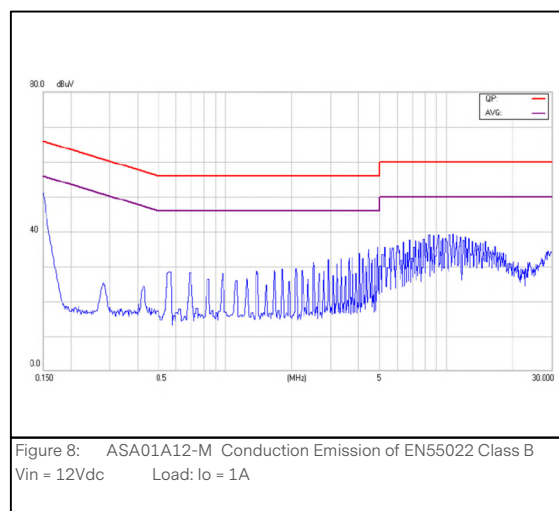
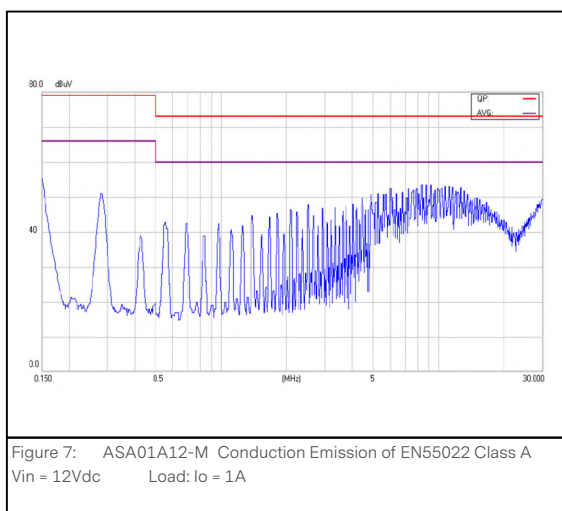


Figure 6: ASA01A12-M Output Current Versus Ambient Temperature
Vin = 12Vdc Load: Io = 1A

Electrical Specifications

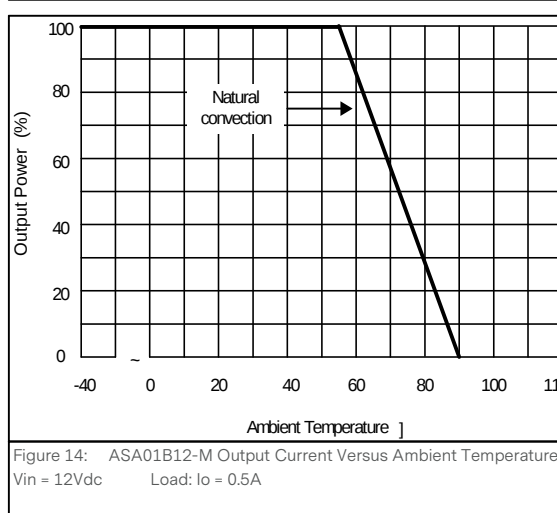
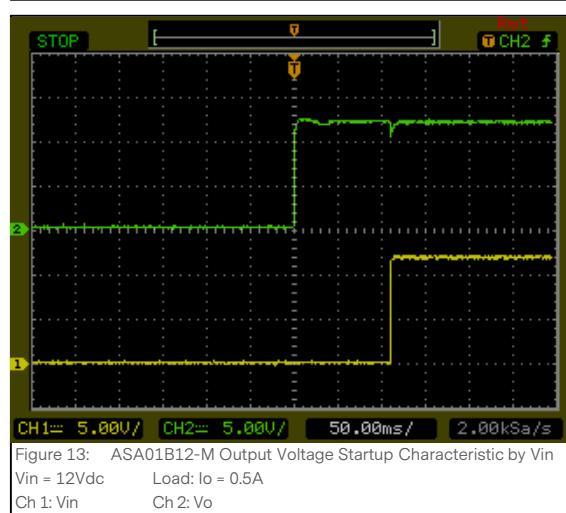
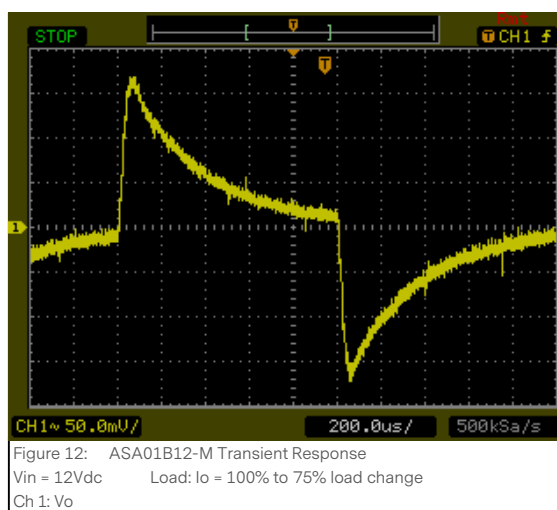
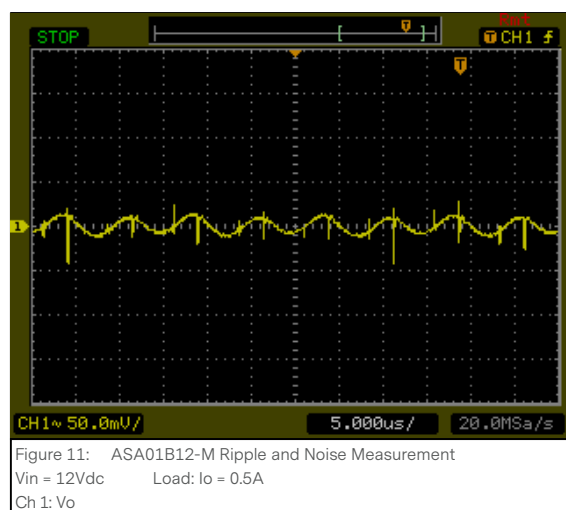
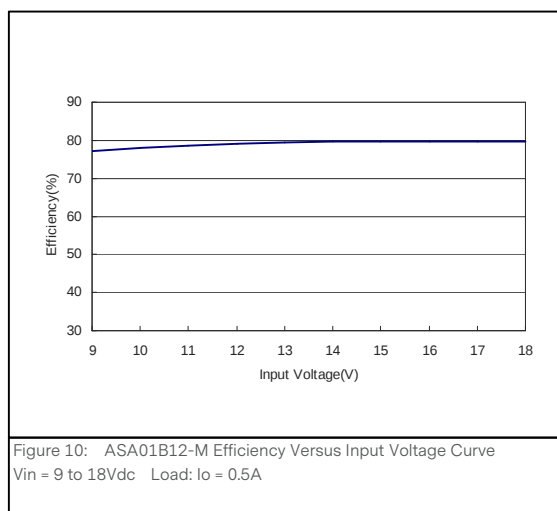
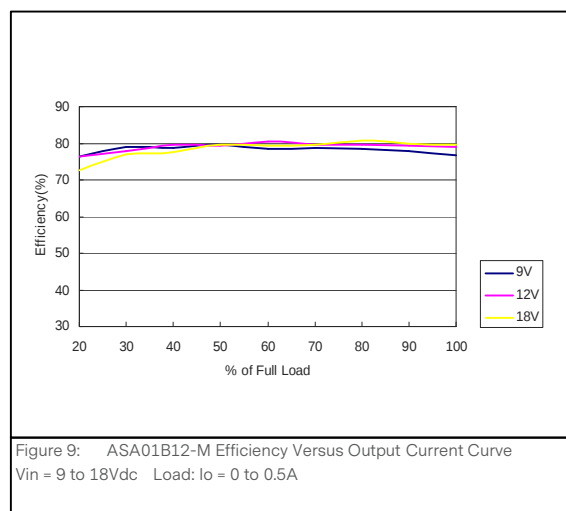
ASA01A12-M Performance Curves



Note - All test conditions are at 25 °C

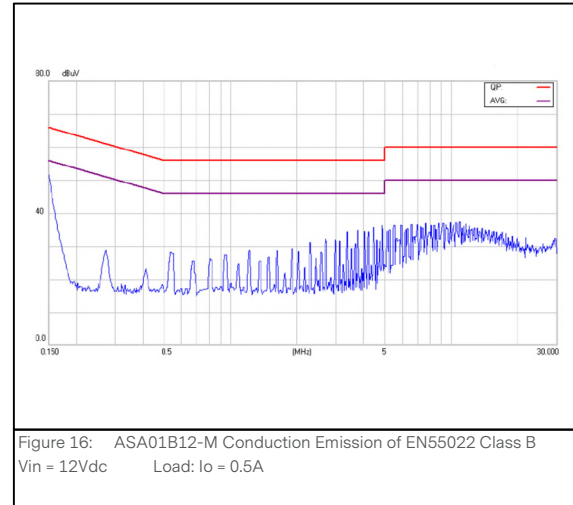
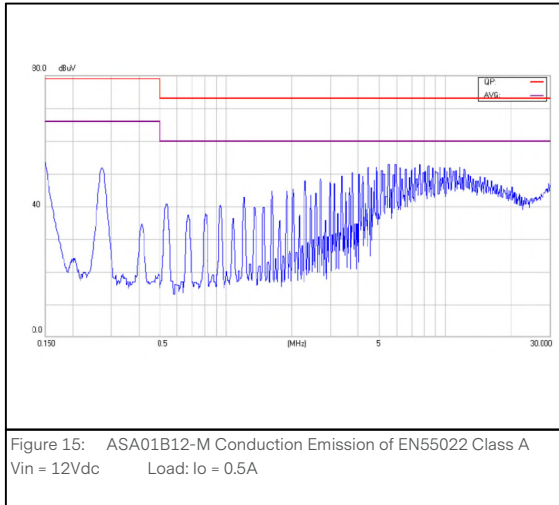
Electrical Specifications

ASA01B12-M Performance Curves



Electrical Specifications

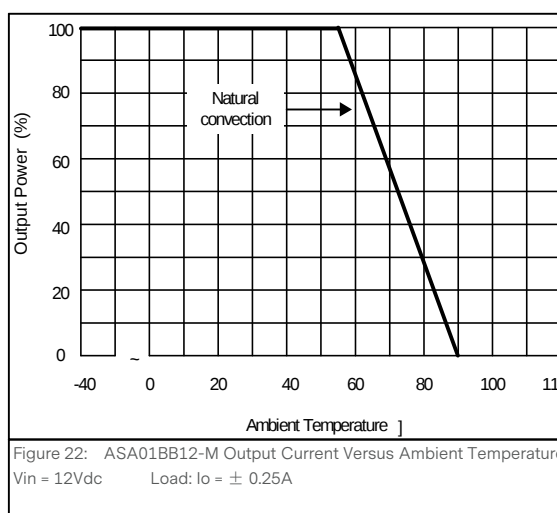
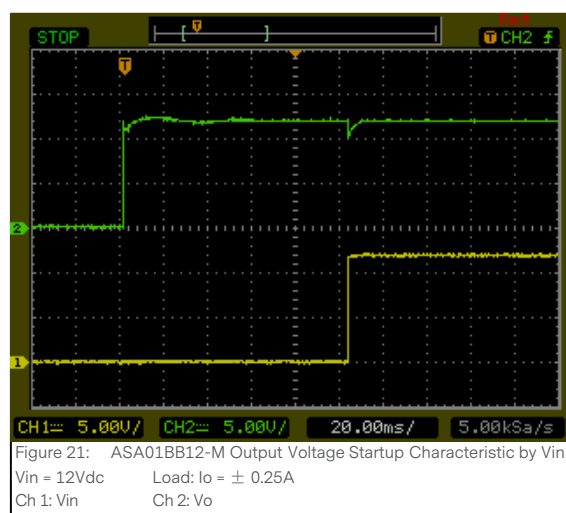
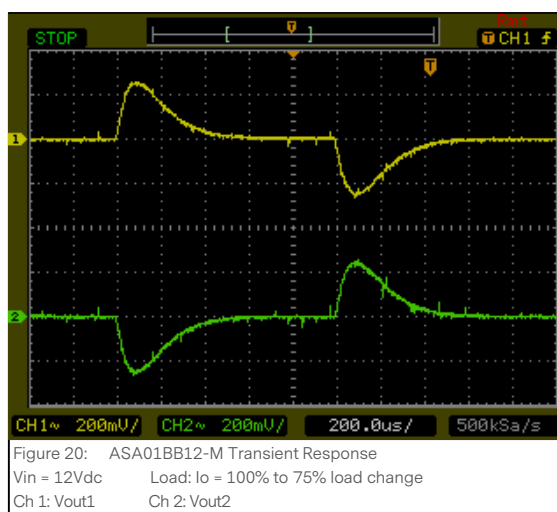
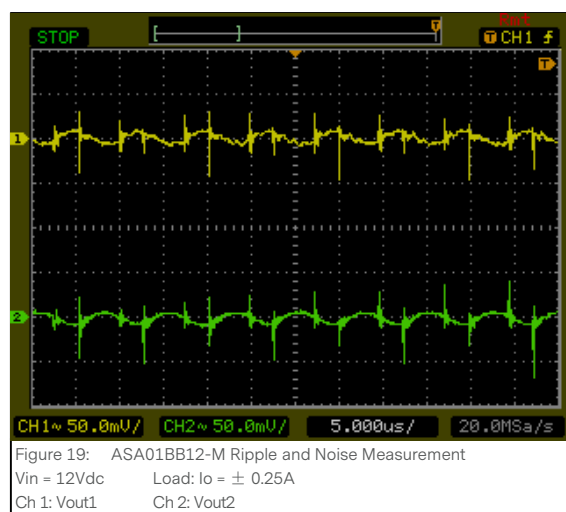
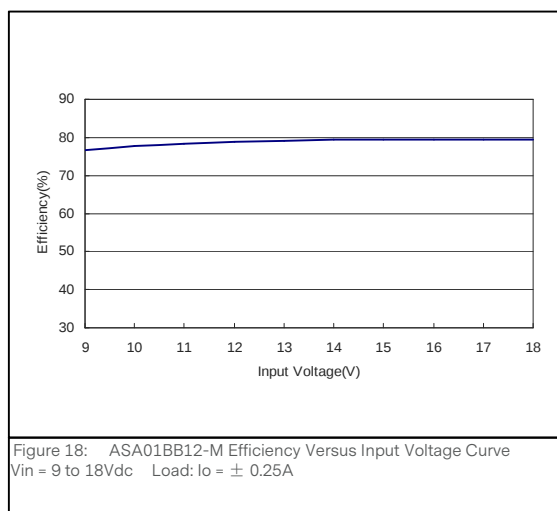
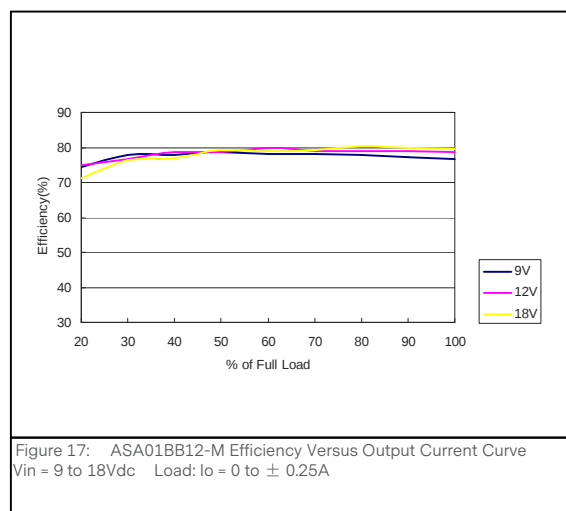
ASA01B12-M Performance Curves



Note - All test conditions are at 25 °C

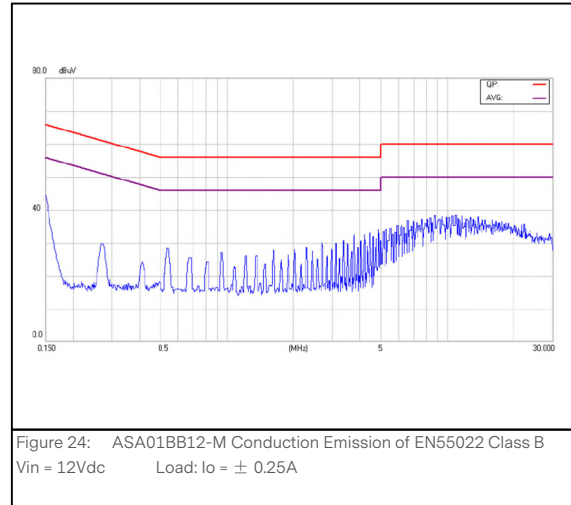
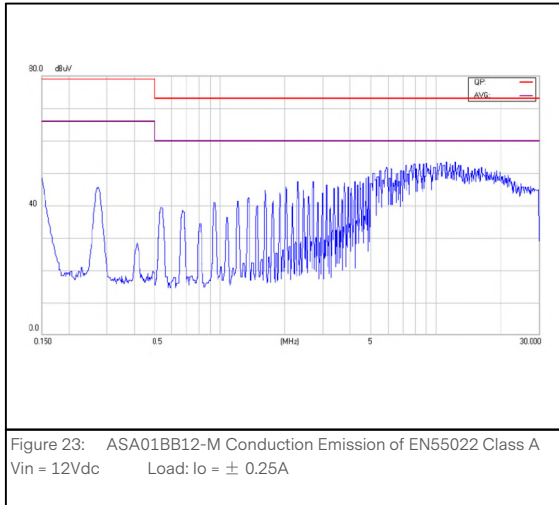
Electrical Specifications

ASA01BB12-M Performance Curves



Electrical Specifications

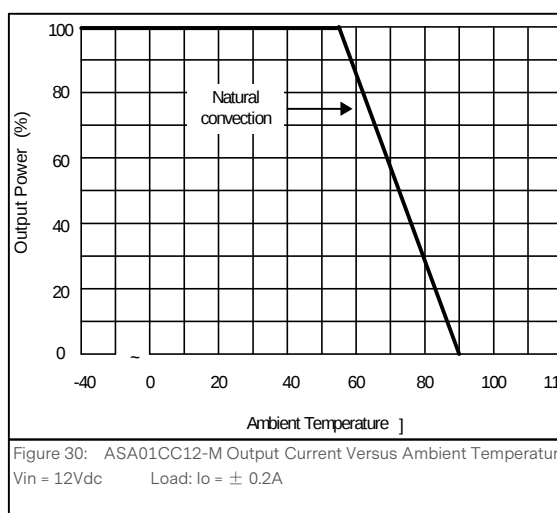
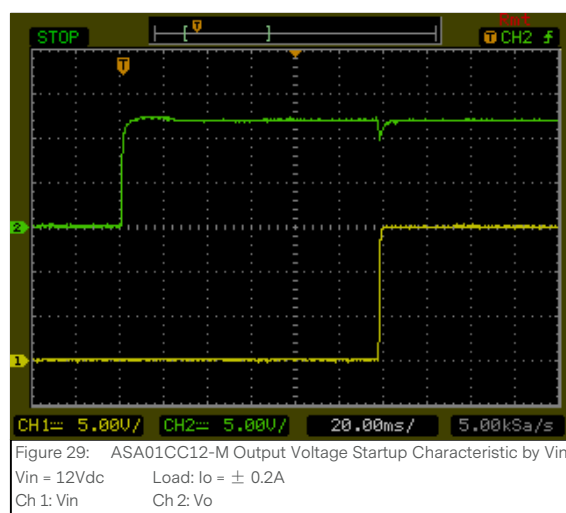
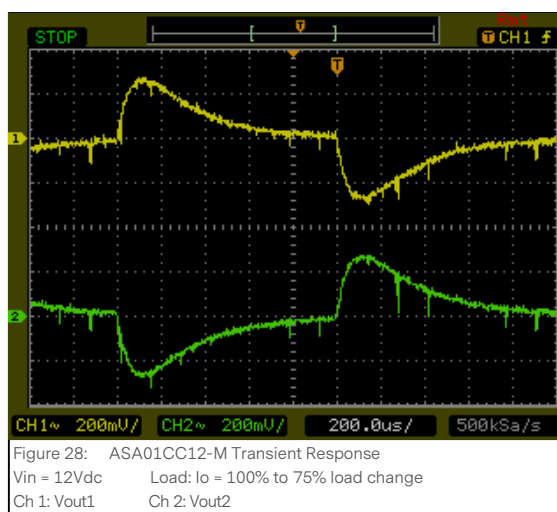
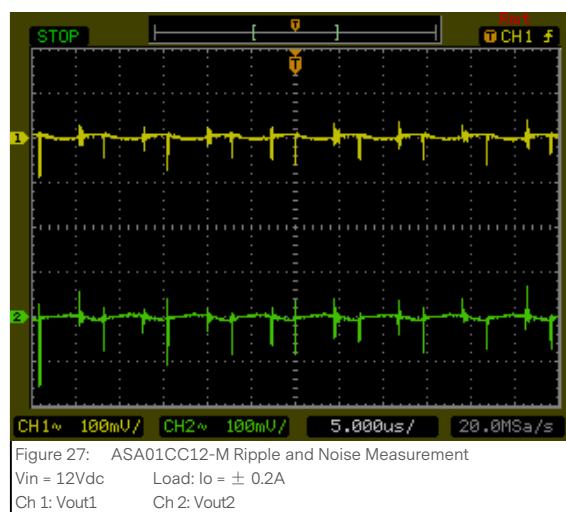
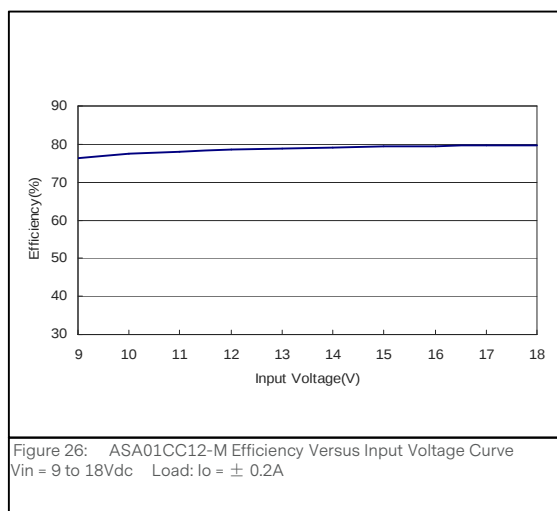
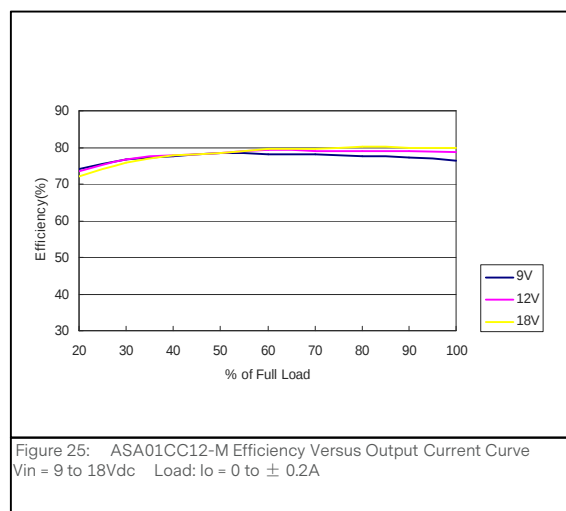
ASA01BB12-M Performance Curves



Note - All test conditions are at 25 °C

Electrical Specifications

ASA01CC12-M Performance Curves



Electrical Specifications

ASA01CC12-M Performance Curves

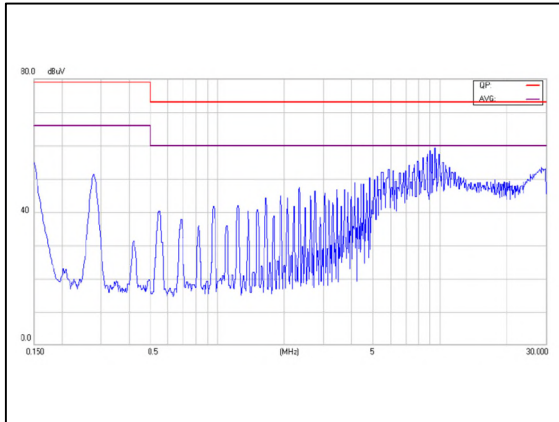


Figure 31: ASA01CC12-M Conduction Emission of EN55022 Class A
 $V_{in} = 12V_{dc}$ Load: $I_o = \pm 0.2A$

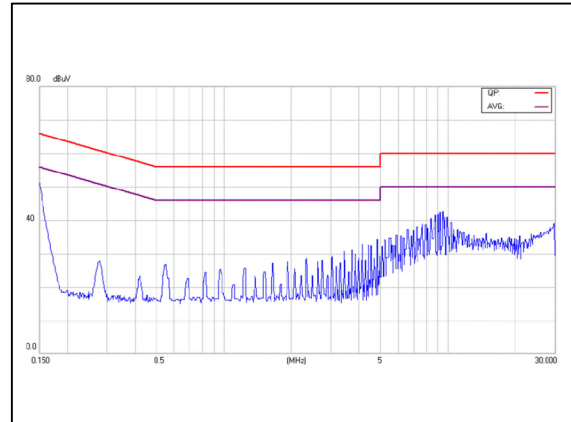


Figure 32: ASA01CC12-M Conduction Emission of EN55022 Class B
 $V_{in} = 12V_{dc}$ Load: $I_o = \pm 0.2A$

Note - All test conditions are at 25 °C

Electrical Specifications

ASA01A24-M Performance Curves

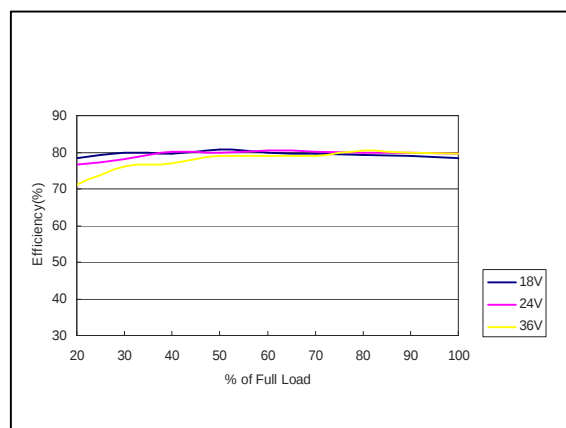


Figure 33: ASA01A24-M Efficiency Versus Output Current Curve
Vin = 18 to 36Vdc Load: Io = 0 to 1A

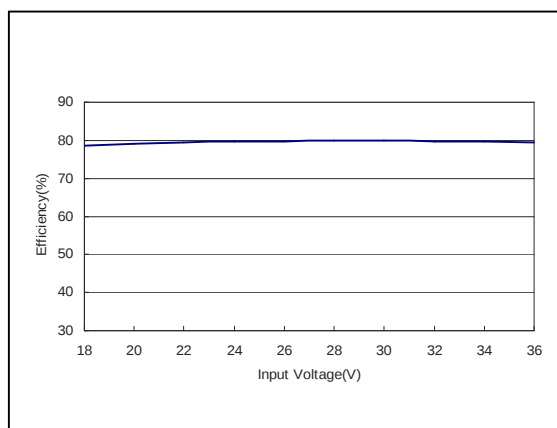


Figure 34: ASA01A24-M Efficiency Versus Input Voltage Curve
Vin = 18 to 36Vdc Load: Io = 1A

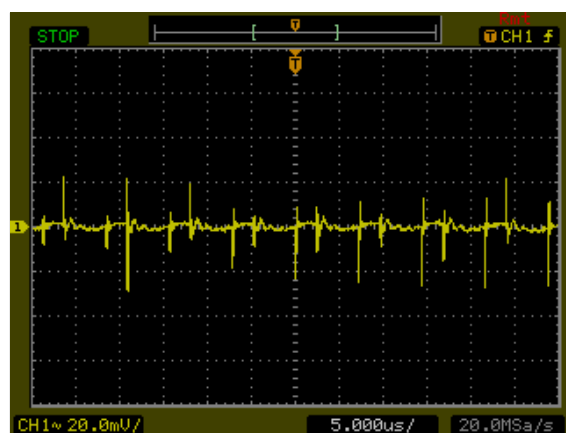


Figure 35: ASA01A24-M Ripple and Noise Measurement
Vin = 24Vdc Load: Io = 1A
Ch 1: Vo

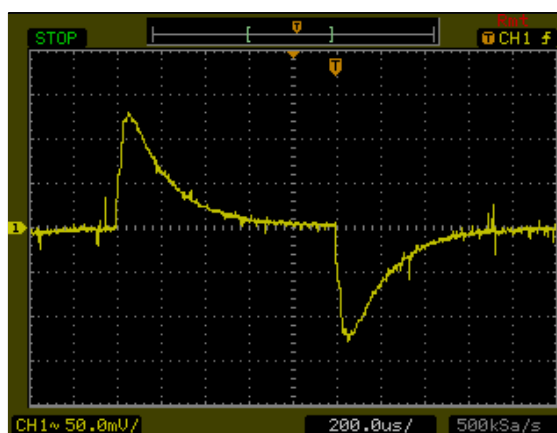


Figure 36: ASA01A24-M Transient Response
Vin = 24Vdc Load: Io = 100% to 75% load change
Ch 1: Vo

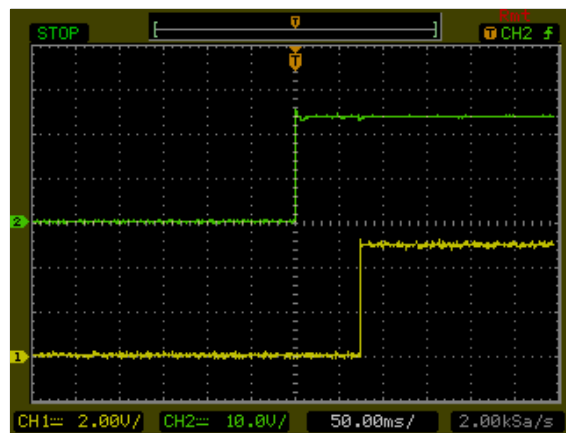


Figure 37: ASA01A24-M Output Voltage Startup Characteristic by Vin
Vin = 24Vdc Load: Io = 1A
Ch 1: Vin Ch 2: Vo

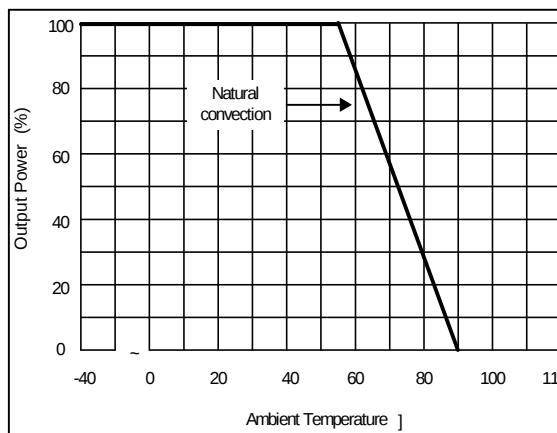
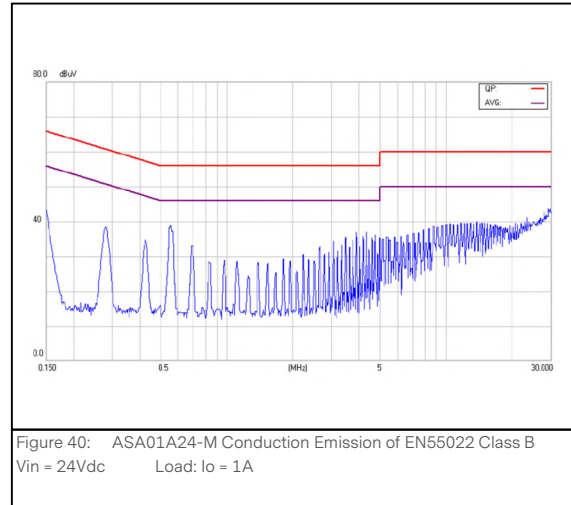
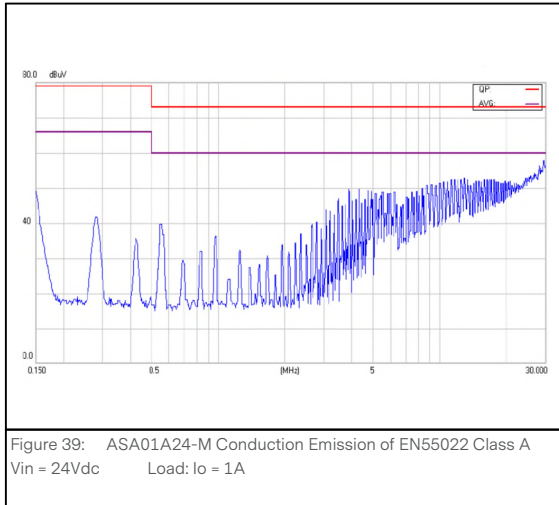


Figure 38: ASA01A24-M Output Current Versus Ambient Temperature
Vin = 24Vdc Load: Io = 1A

Electrical Specifications

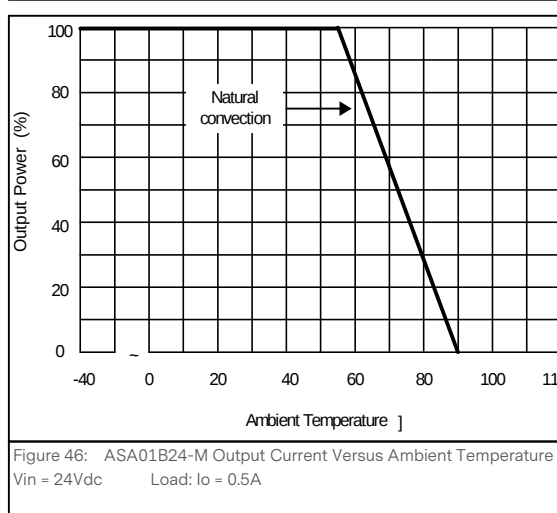
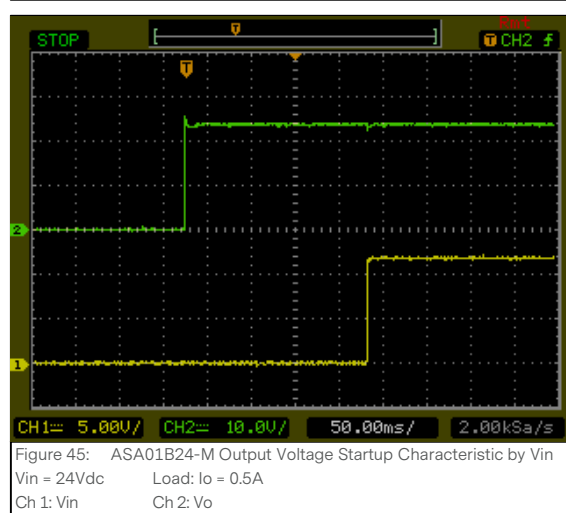
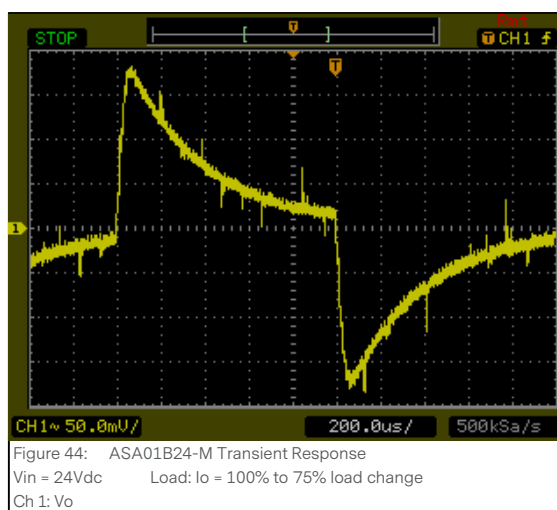
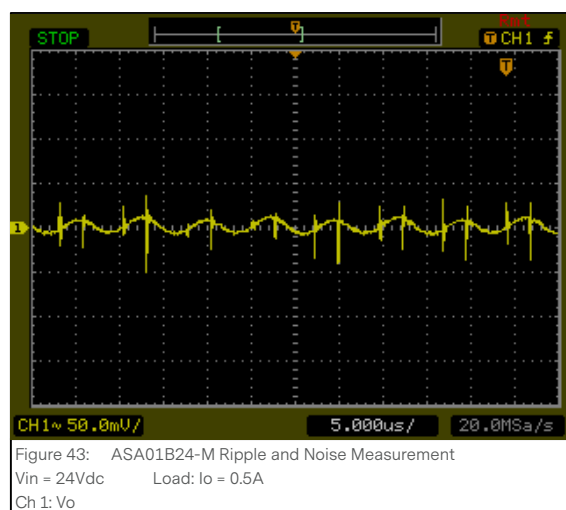
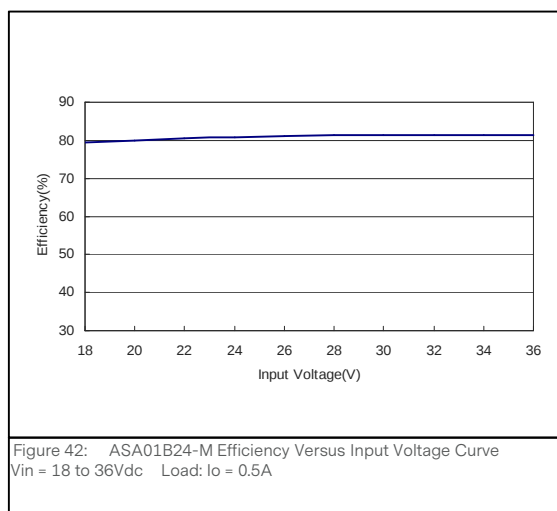
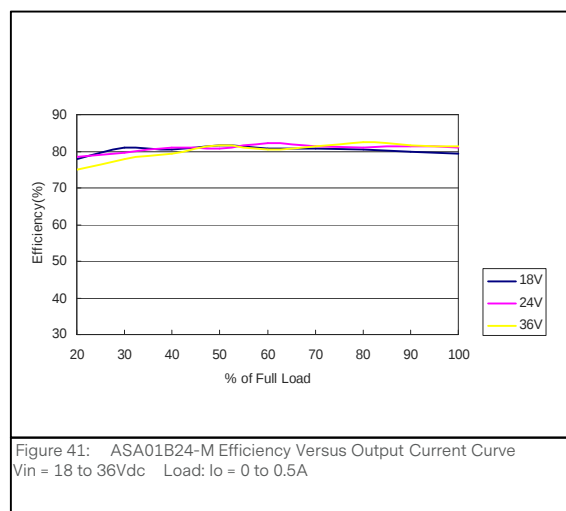
ASA01A24-M Performance Curves



Note - All test conditions are at 25 °C

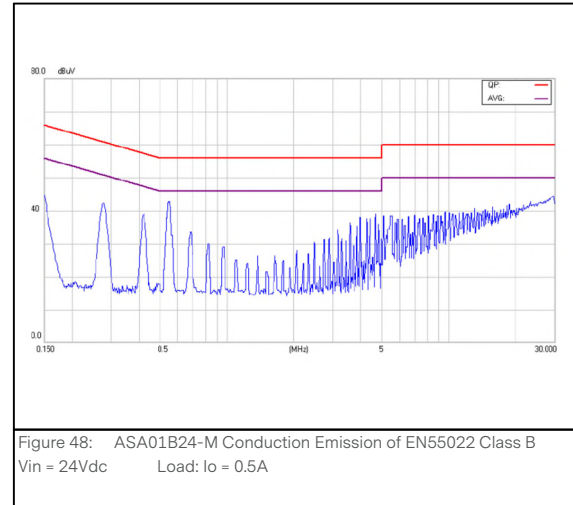
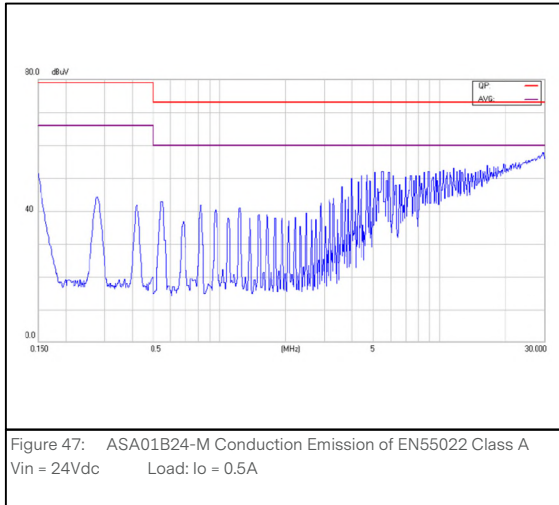
Electrical Specifications

ASA01B24-M Performance Curves



Electrical Specifications

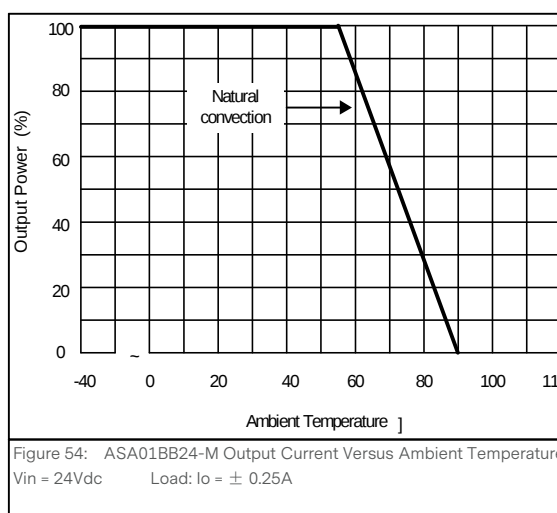
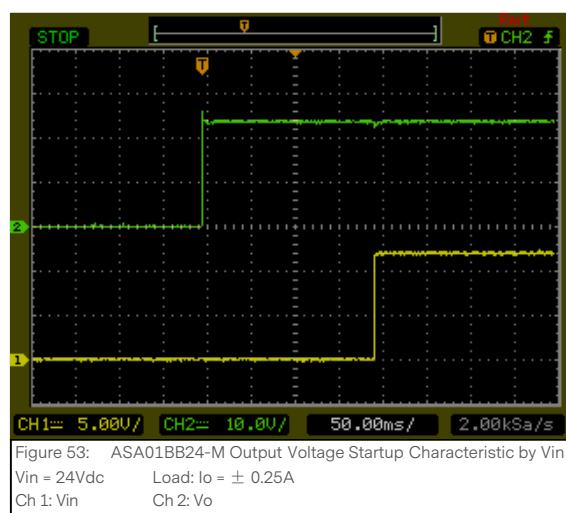
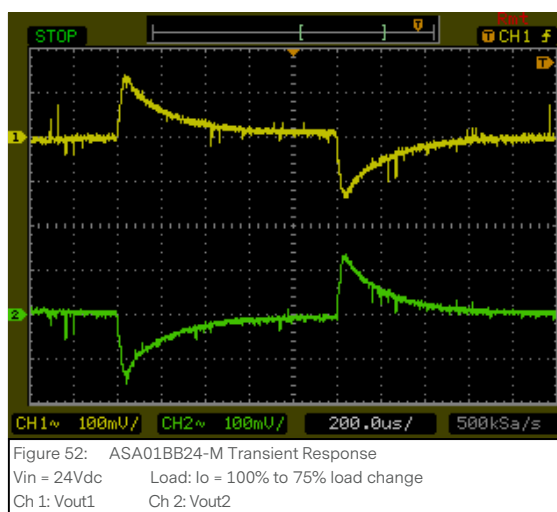
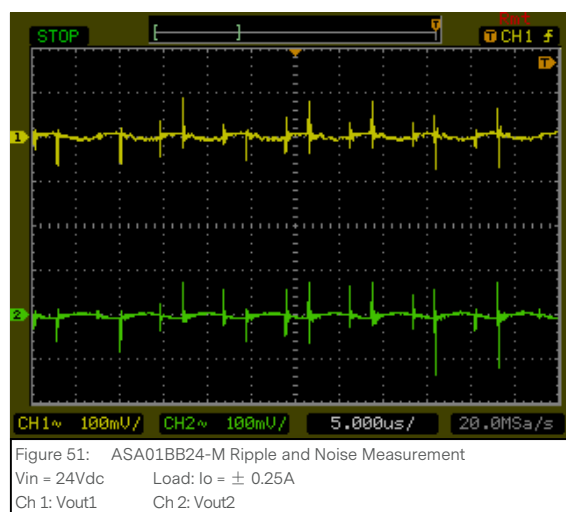
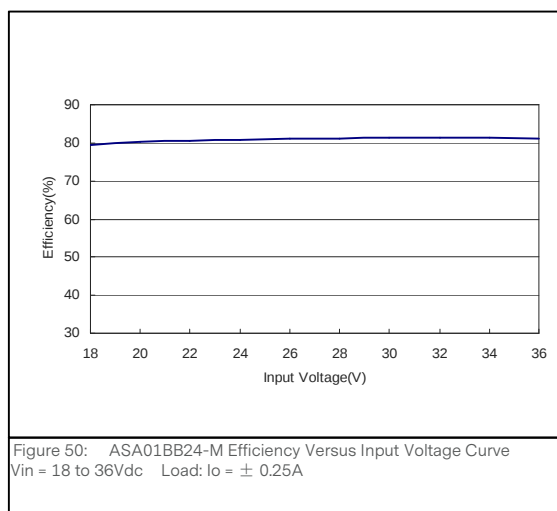
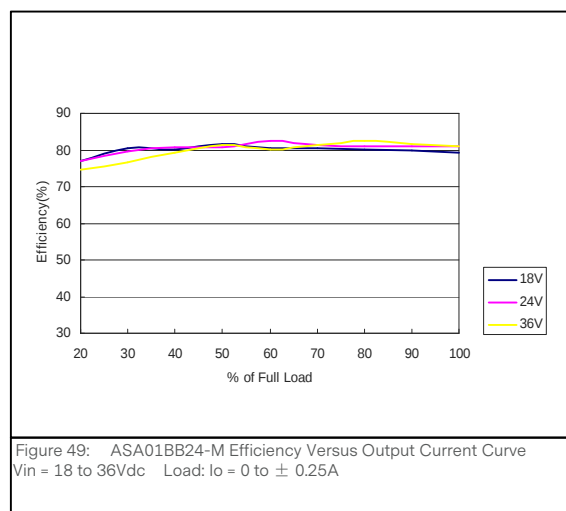
ASA01B24-M Performance Curves



Note - All test conditions are at 25 °C

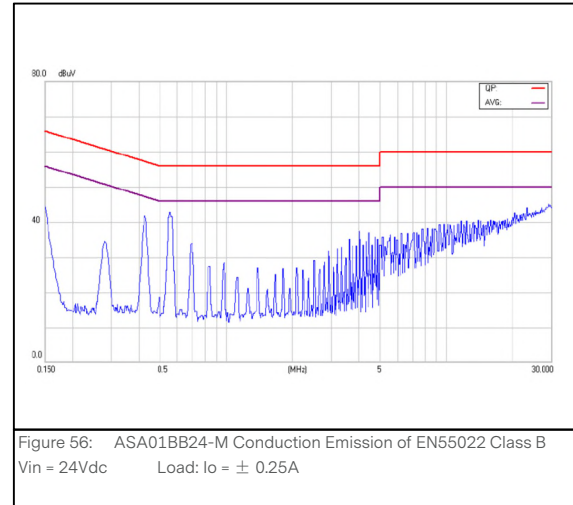
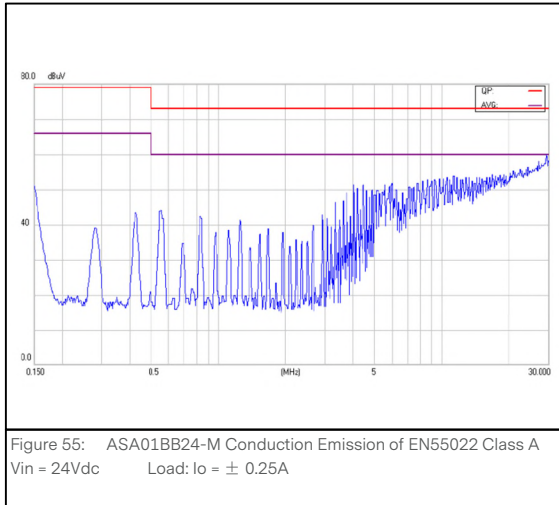
Electrical Specifications

ASA01BB24-M Performance Curves



Electrical Specifications

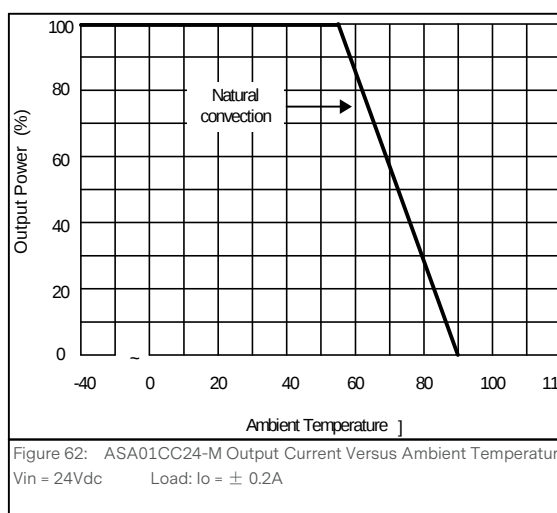
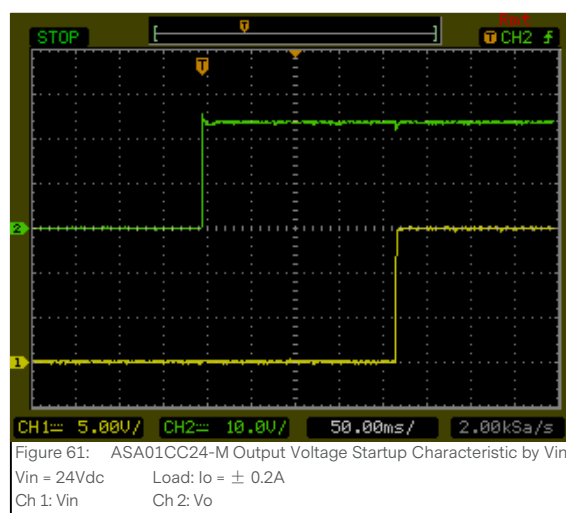
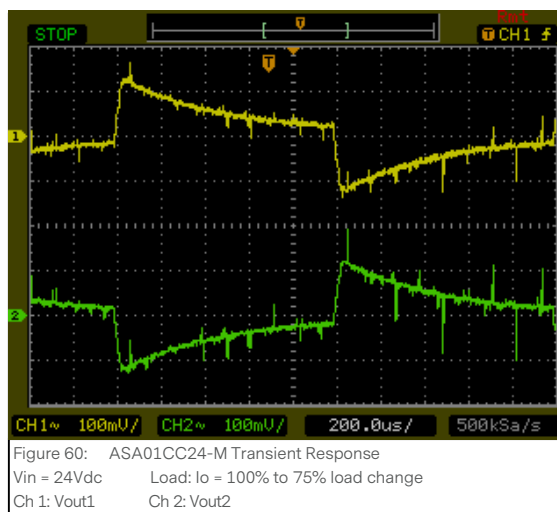
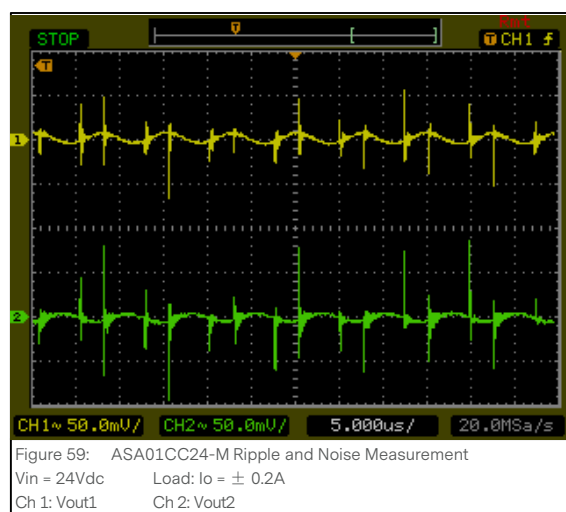
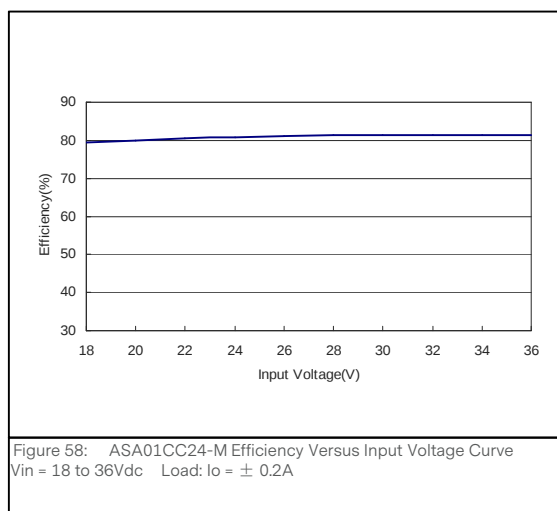
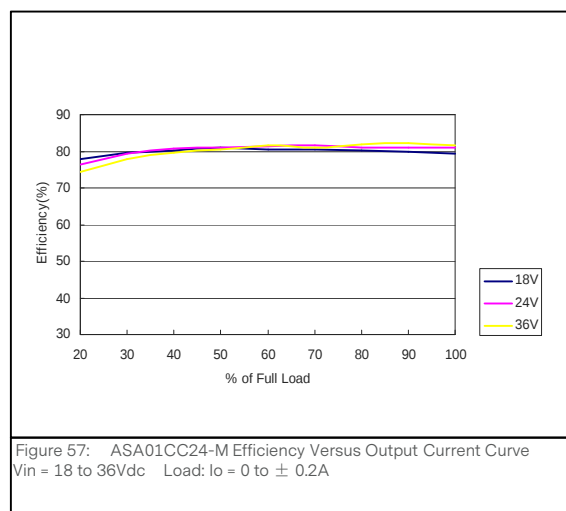
ASA01BB24-M Performance Curves



Note - All test conditions are at 25 °C

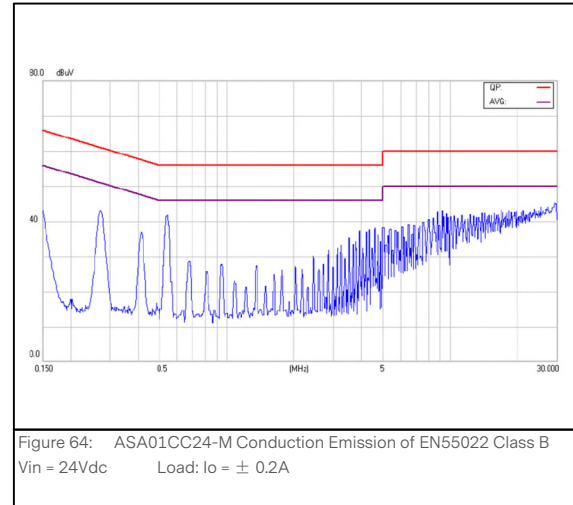
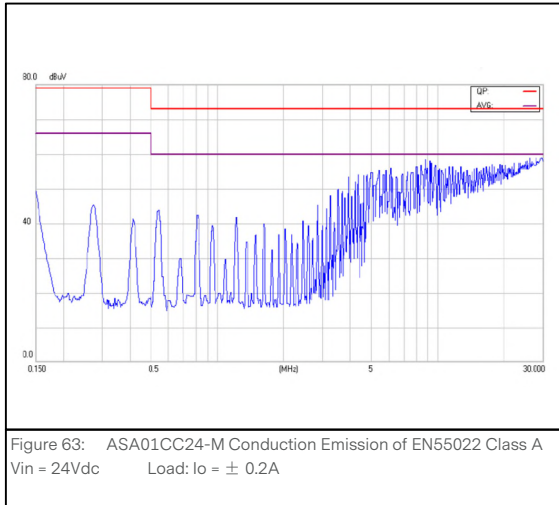
Electrical Specifications

ASA01CC24-M Performance Curves



Electrical Specifications

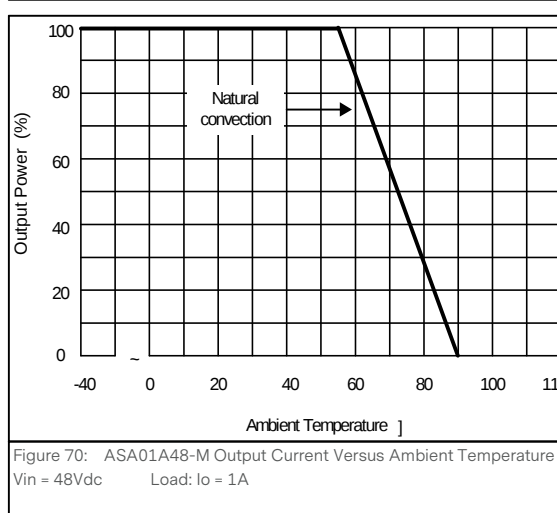
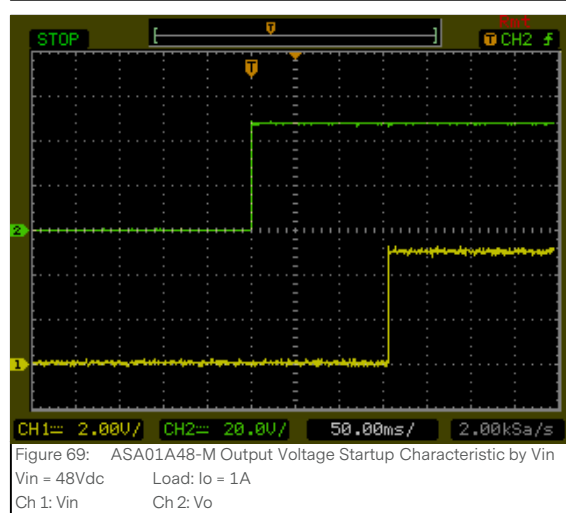
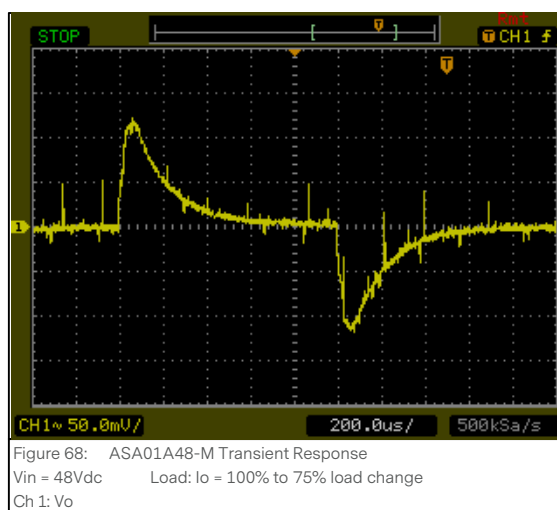
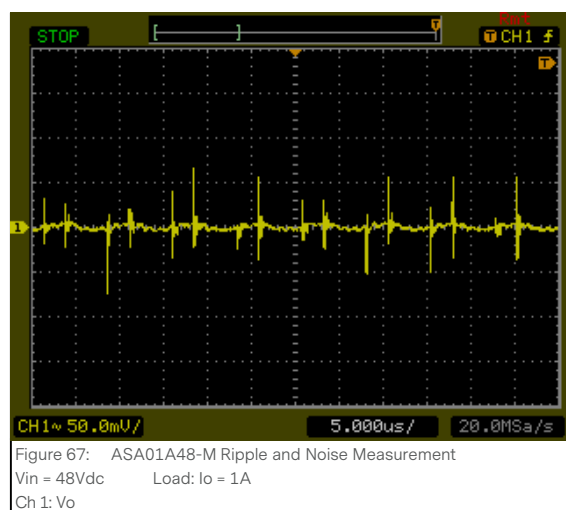
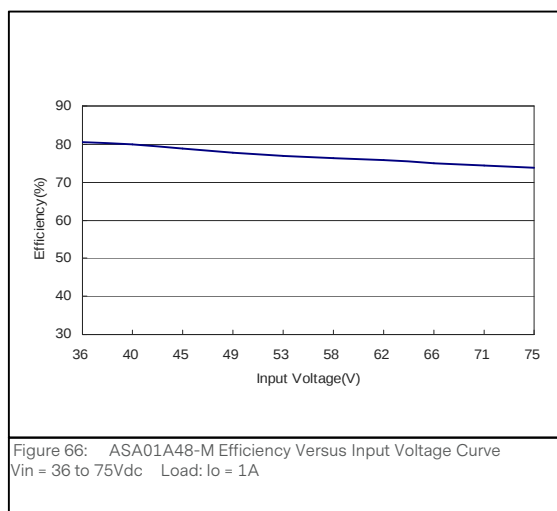
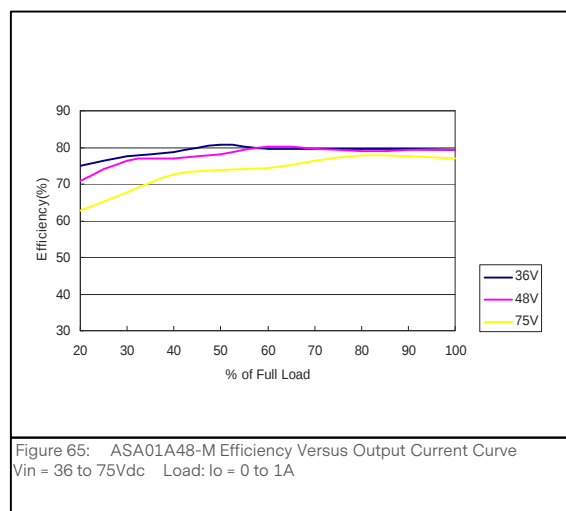
ASA01CC24-M Performance Curves



Note - All test conditions are at 25 °C

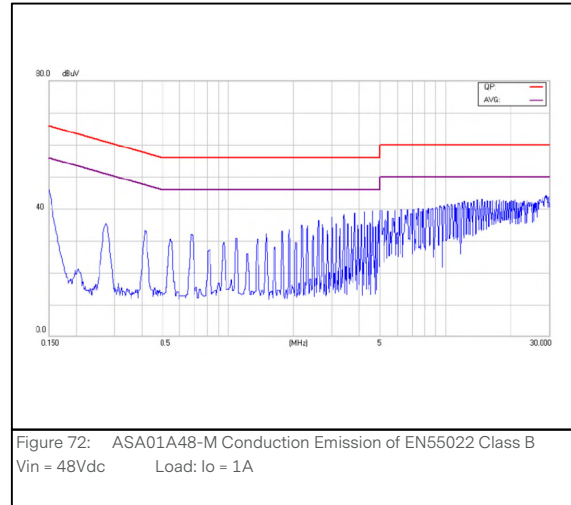
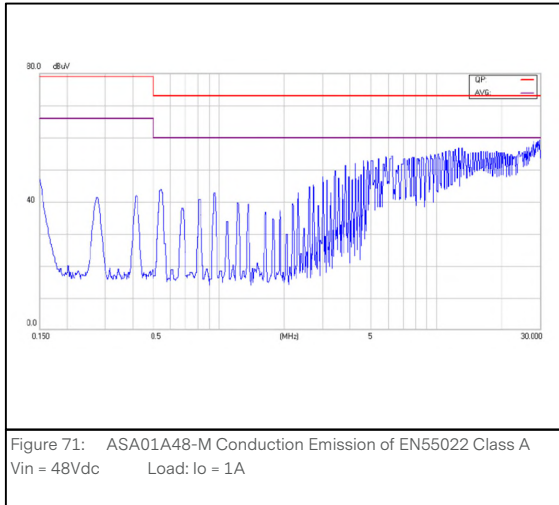
Electrical Specifications

ASA01A48-M Performance Curves



Electrical Specifications

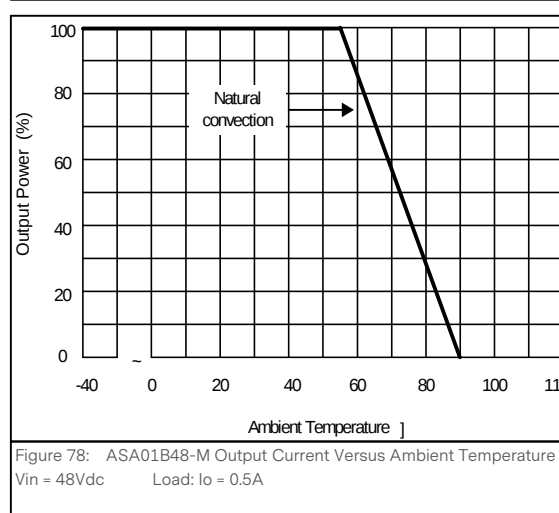
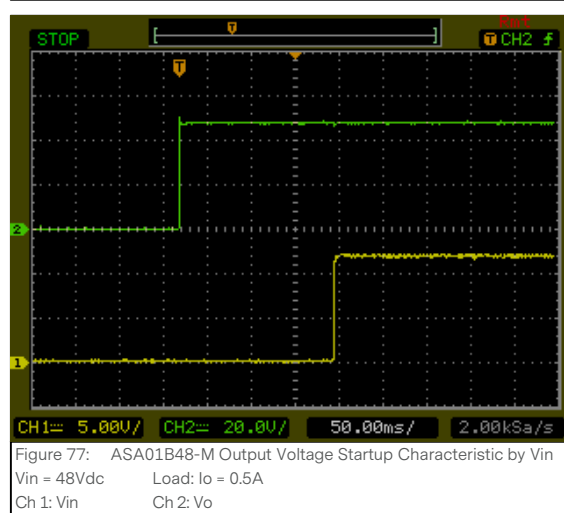
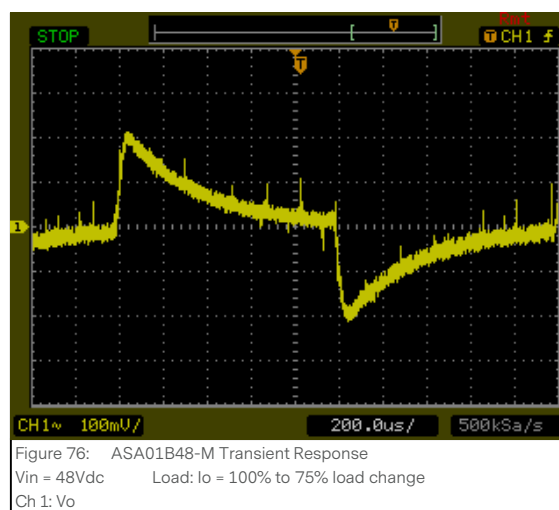
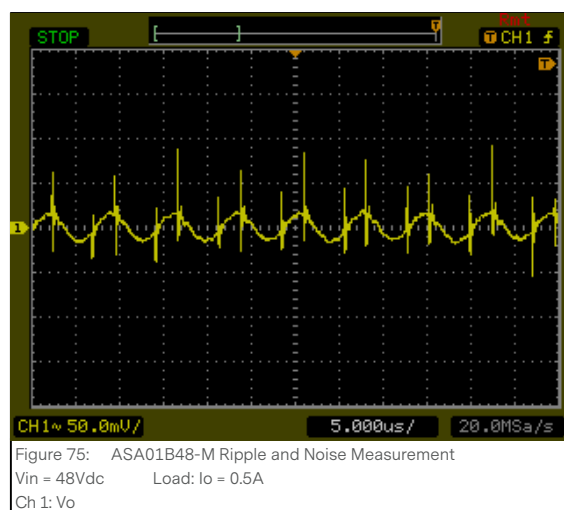
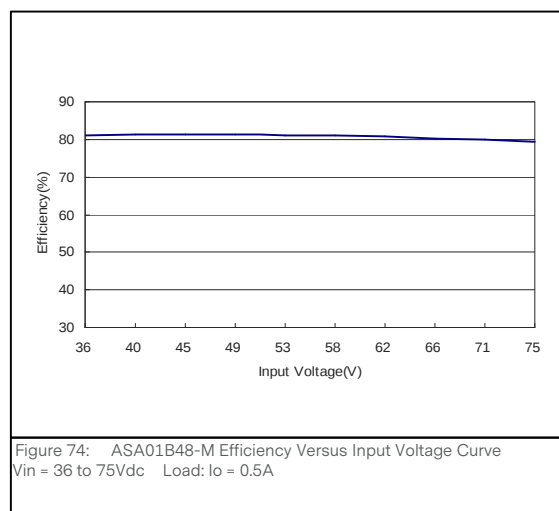
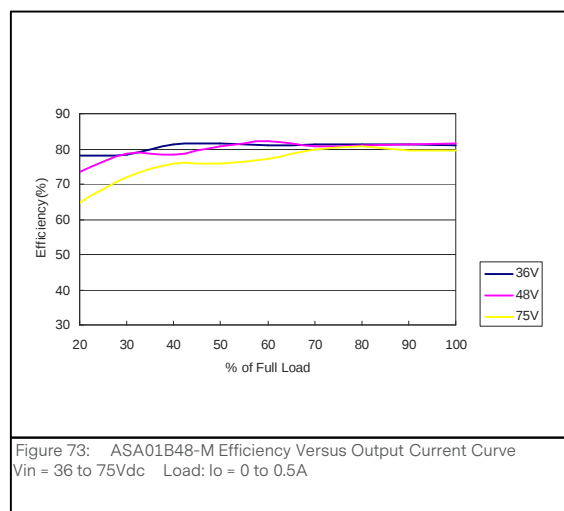
ASA01A48-M Performance Curves



Note - All test conditions are at 25 °C

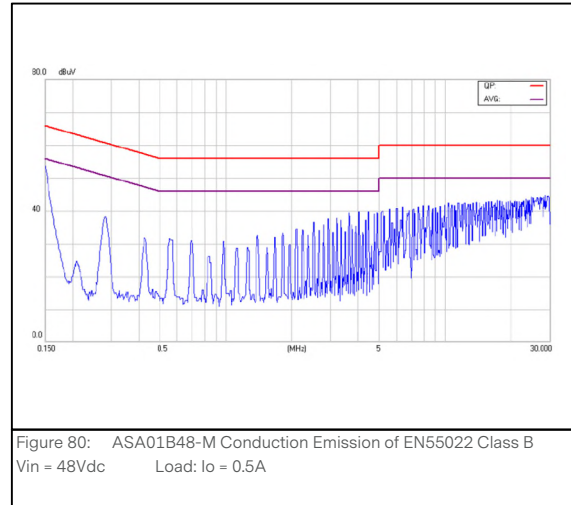
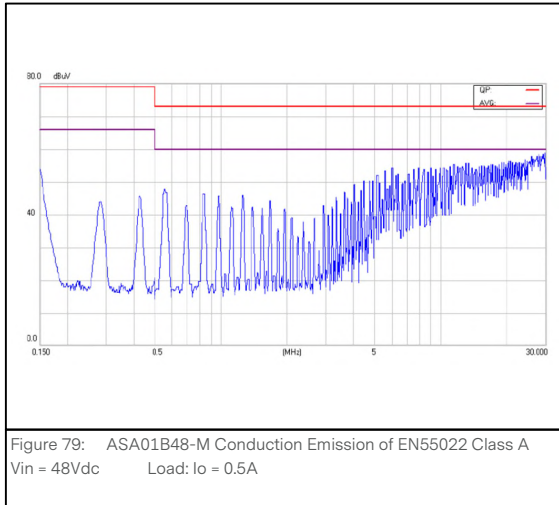
Electrical Specifications

ASA01B48-M Performance Curves



Electrical Specifications

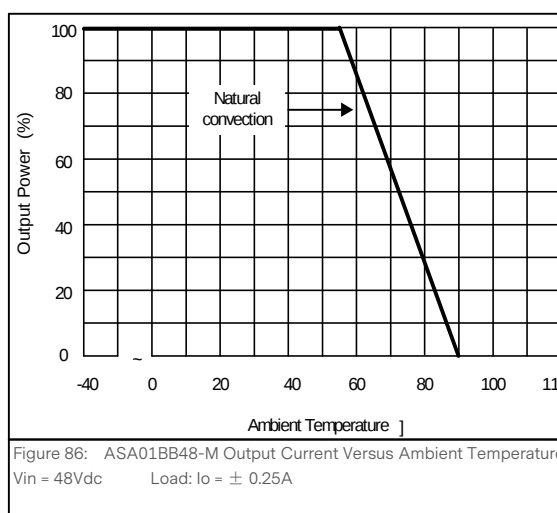
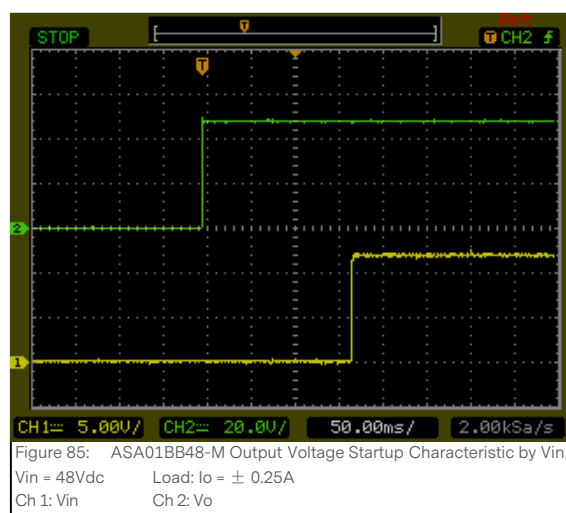
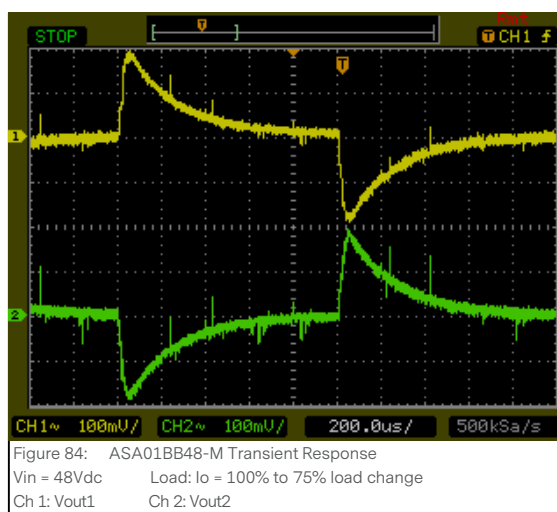
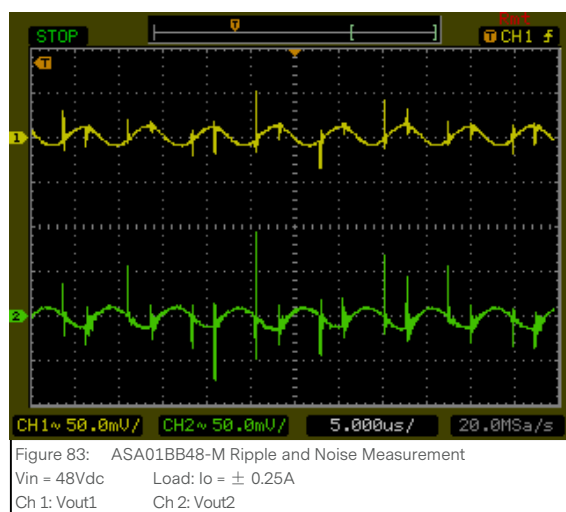
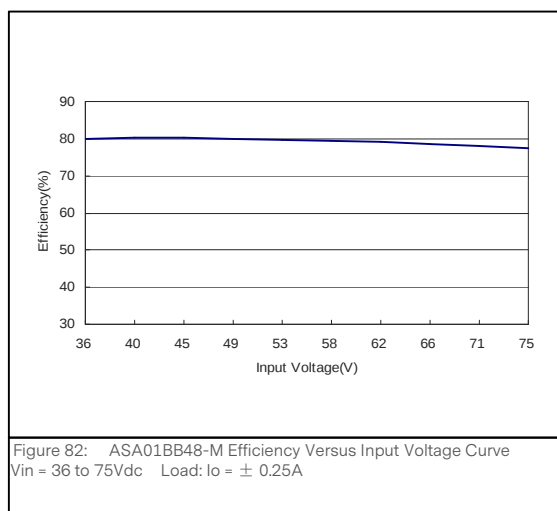
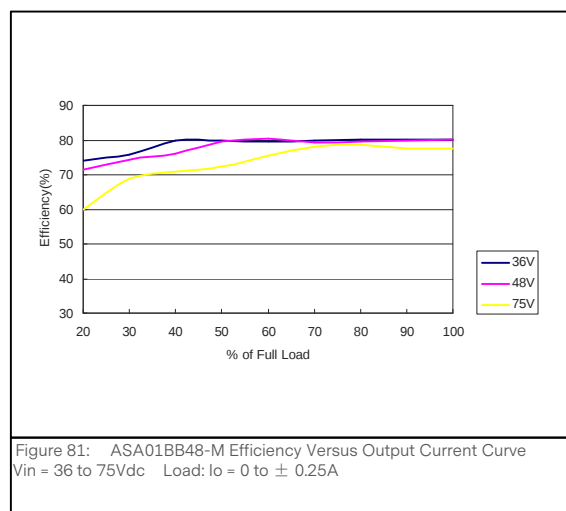
ASA01B48-M Performance Curves



Note - All test conditions are at 25 °C

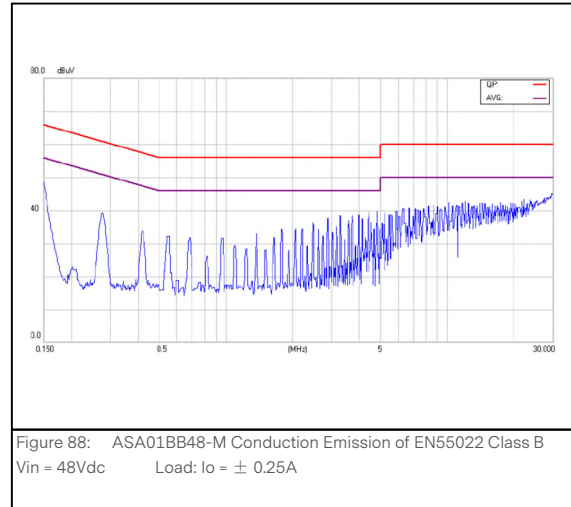
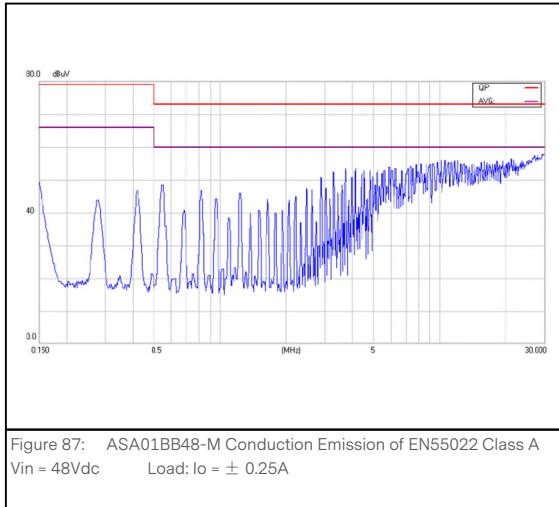
Electrical Specifications

ASA01BB48-M Performance Curves



Electrical Specifications

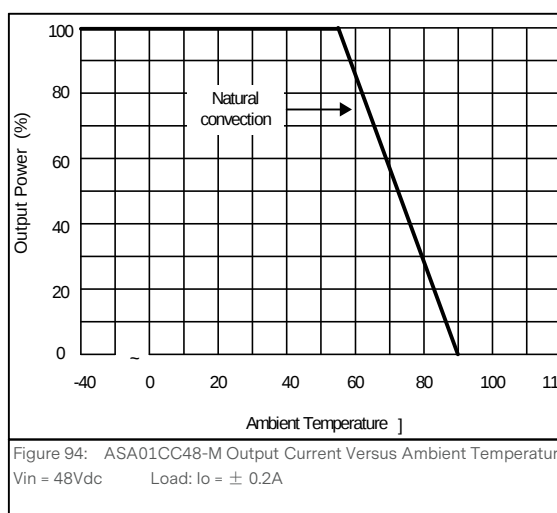
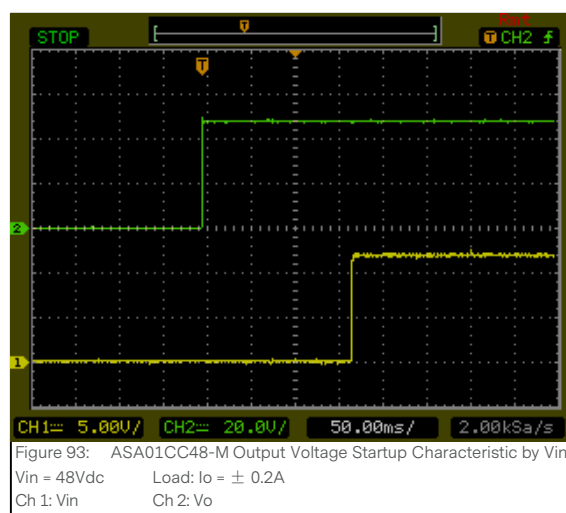
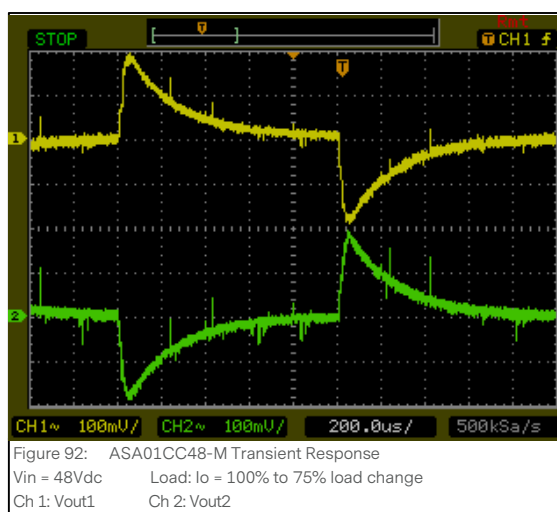
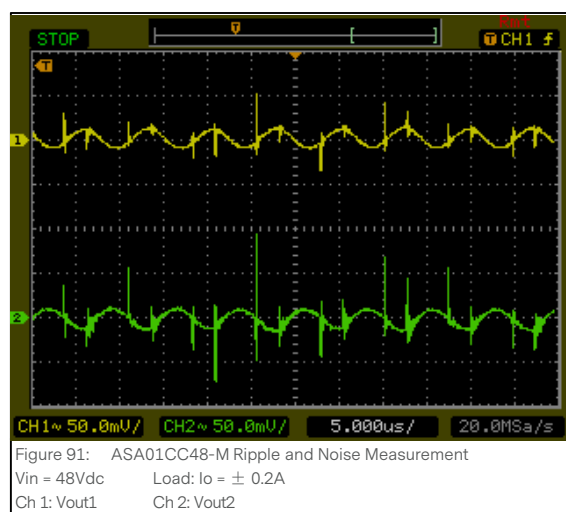
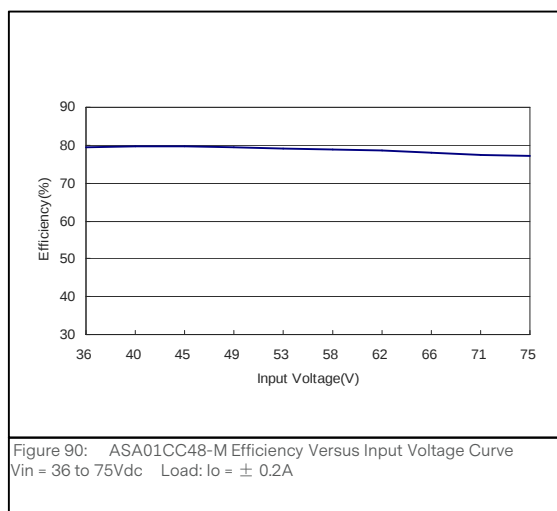
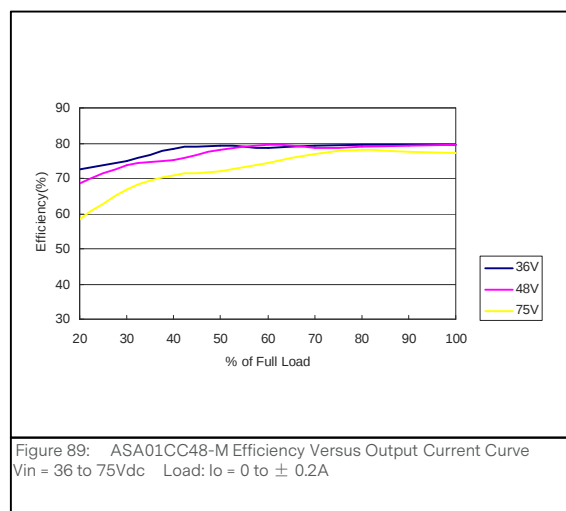
ASA01BB48-M Performance Curves



Note - All test conditions are at 25 °C

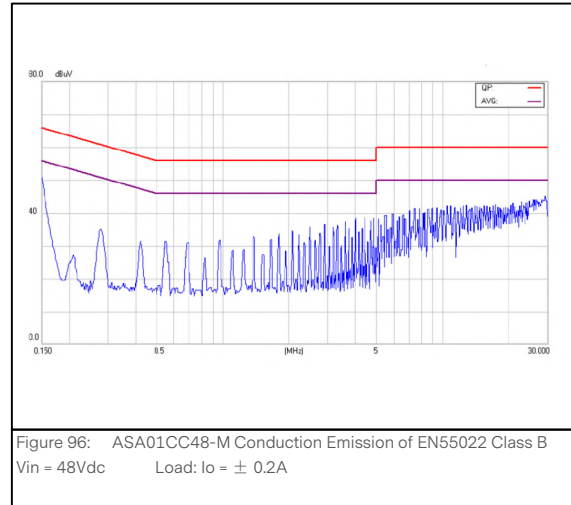
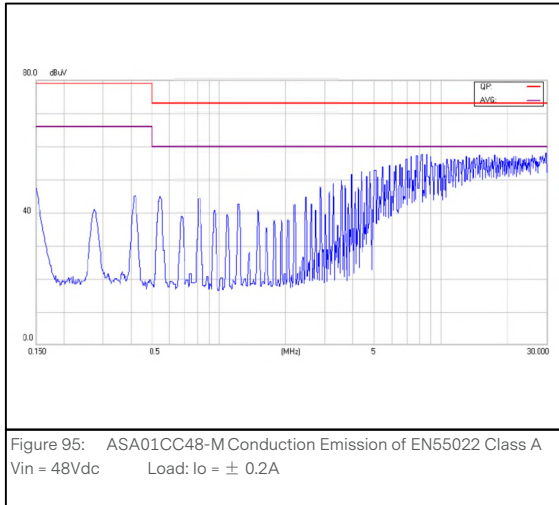
Electrical Specifications

ASA01CC48-M Performance Curves



Electrical Specifications

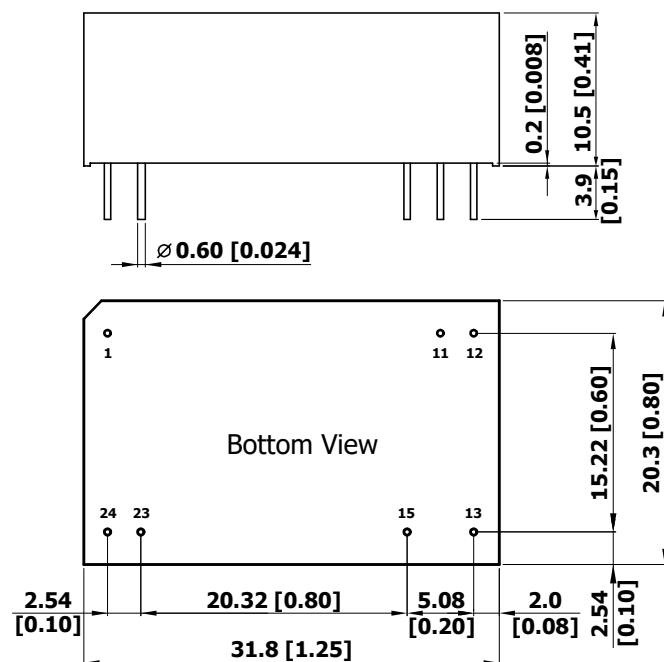
ASA01CC48-M Performance Curves



Note - All test conditions are at 25 °C

Mechanical Specifications

Mechanical Outlines (unit: mm)



Note:

1.All dimensions in mm (inches)

Tolerance: X.X $\pm$ 0.25 (X.XX $\pm$ 0.01)

X.XX $\pm$ 0.13 (X.XXX $\pm$ 0.005)

2.Pin pitch tolerance: $\pm$ 0.25 ($\pm$ 0.01)

3.Pin tolerance: $\pm$ 0.05 ($\pm$ 0.002)

Pin Connections

Single output

Pin 1	-	+Vin
Pin 11	-	No Pin
Pin 12	-	-Vout
Pin 13	-	+Vout
Pin 15	-	No Pin
Pin 23	-	-Vin
Pin 24	-	-Vin

Dual Output

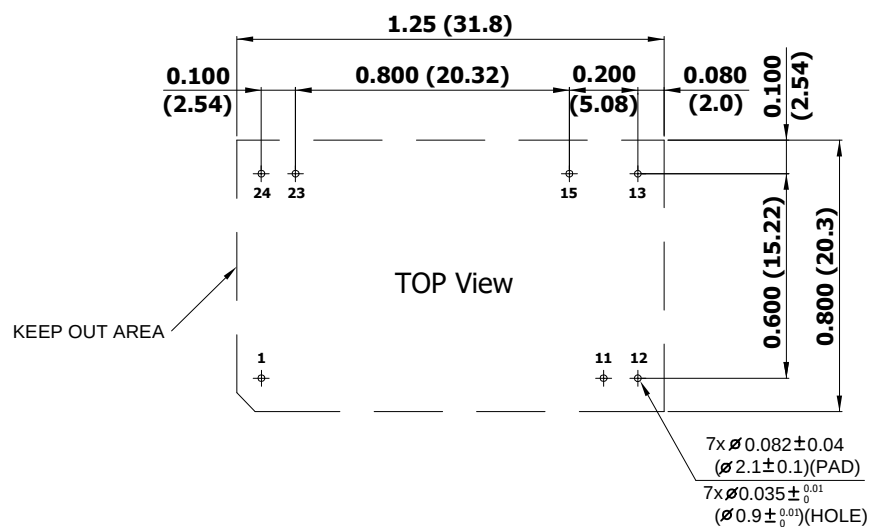
Pin 1	-	+Vin
Pin 11	-	Common
Pin 12	-	No Pin
Pin 13	-	-Vout
Pin 15	-	+Vout
Pin 23	-	-Vin
Pin 24	-	-Vin

Physical Characteristics

Device code suffix	L
Case Size	31.8x20.3x12mm (1.25x0.8x0.47 inches)
Case Material	Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Weight	18g

Mechanical Specifications

Recommended Pad Layout for Single & Dual Output Converter



1. All dimensions in Inches (mm)

Tolerance: $x.xx \pm 0.02$ " ($x.x \pm 0.5$ mm)

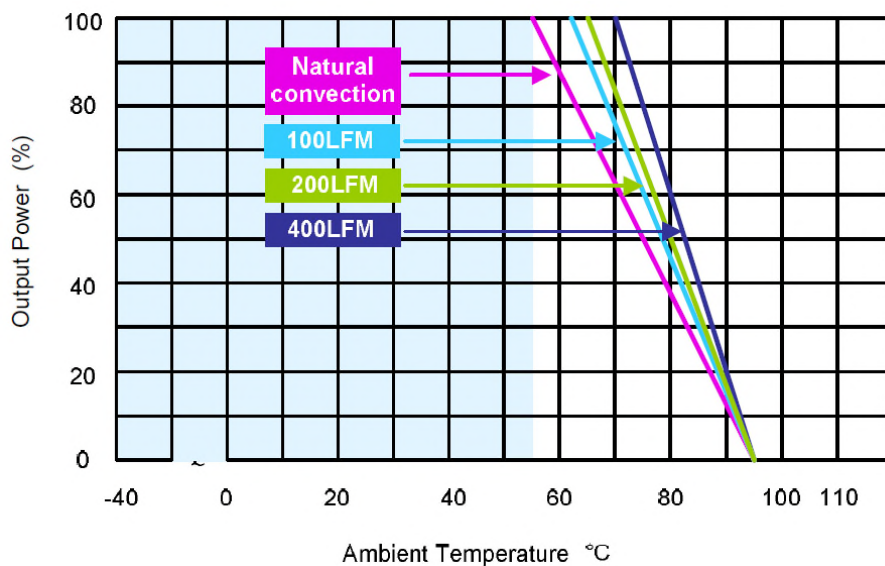
$x.xxx \pm 0.01$ " ($x.xx \pm 0.25$ mm)

2. Pin pitch tolerance: ± 0.01 " (± 0.25 mm)

Mechanical Specifications

Power Derating Curves

ASA6W Series can operate up to a maximum ambient temperature of 75°C with derating.



Notes:

1. Specifications typical at $T_a = +25^\circ\text{C}$, resistive load, nominal input voltage and rated output current unless otherwise noted.
2. Transient recovery time is measured to within 1% error band for a step change in output load of 75% to 100%.
3. Ripple & Noise measurement bandwidth is 0-20 MHz.
4. These power converters require a minimum output loading to maintain specified regulation, operation under no-load conditions will not damage these modules; however, they may not meet all specifications listed.
5. All DC/DC converters should be externally fused at the front end for protection.
6. Other input and output voltage may be available, please contact factory.
7. Specifications subject to change without notice.

Mechanical Specifications

Weight

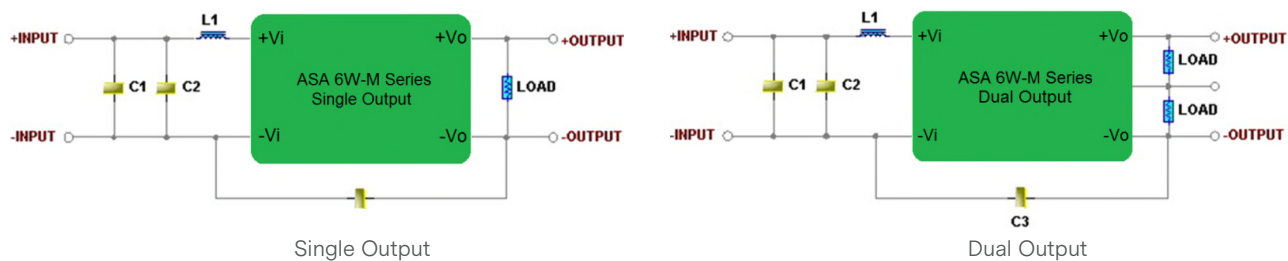
The ASA6W series weight is 18g maximum.

Environmental Specifications

EMC Considerations

EMI-Filter to meet EN 55022, class B, FCC part 15, class B

Conducted and radiated emissions EN55022 Class B



Recommended PCB Layout with Input Filter

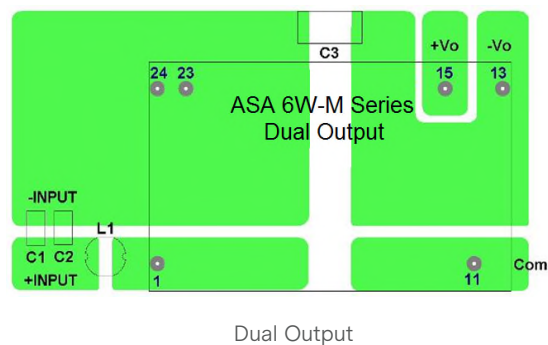
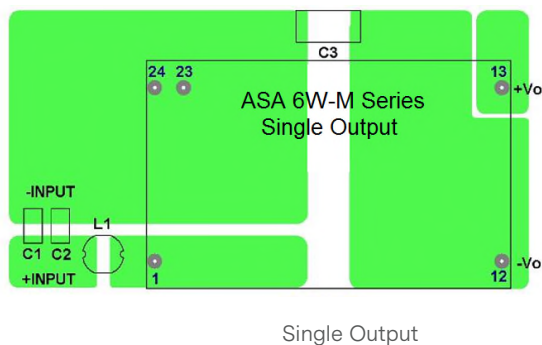


Table 4. Conducted EMI emission specifications

Model	Component	Value
ASAXXX12-M	C1	4.7 μ F/25V 1206 MLCC
	C3	100pF/6KV 2211 MLCC
	L1	1 μ H SCD03021T/2.08A
ASAXXX24-M	C1,C2	2.2 μ F/50V 1206 MLCC
	C3	100pF/6KV 2211 MLCC
	L1	1 μ H SCD03021T/2.08A
ASAXXX48-M	C1,C2	1 μ F/100V 1206 MLCC
	C3	100pF/6KV 2211 MLCC
	L1	1 μ H SCD03021T/2.08A

Environmental Specifications

Safety Certifications

The ASA 6W-M series power supply is intended for inclusion in other equipment and the installer must ensure that it is in compliance with all the requirements of the end application. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.

Table 5. Safety Certifications for ASA 6W-M series power supply system

Document	Description
cUL/UL 62368-1 (CSA certificate)	US and Canada Requirements
IEC/EN 62368-1 (CB-scheme)	European Requirements

Environmental Specifications

MTBF and Reliability

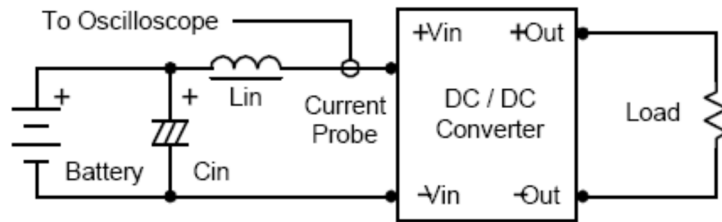
The MTBF of ASA6W series of DC/DC converters has been calculated using MIL-HDBK 217F NOTICE2, Operating Temperature 25 °C, Ground Benign.

Model	MTBF	Unit
ASA01A12-M	1,056,971	Hours
ASA01B12-M	1,065,303	
ASA01BB12-M	1,070,778	
ASA01CC12-M	1,077,122	
ASA01A24-M	1,045,697	
ASA01B24-M	1,040,583	
ASA01BB24-M	1,053,741	
ASA01CC24-M	1,058,985	
ASA01A48-M	1,033,699	
ASA01B48-M	1,056,189	
ASA01BB48-M	1,040,583	
ASA01CC48-M	1,051,746	

Application Notes

Input Reflected-Ripple Current Test Setup

Input reflected-ripple current is measured with a inductor L_{in} ($4.7\mu H$) and C_{in} ($220\mu F$, $ESR < 1.0\Omega$ at 100 KHz) to simulate source impedance. Capacitor C_{in} , offsets possible battery impedance. Current ripple is measured at the input terminals of the module, measurement bandwidth is $0\text{--}500\text{ KHz}$.

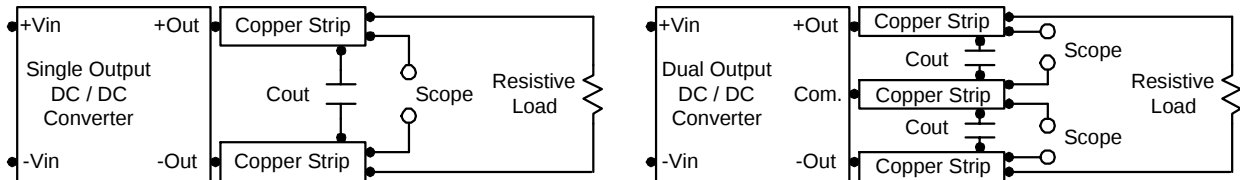


Component	Value	Reference
L_{in}	$4.7\mu H$	-
C_{in}	$220\mu F$ ($ESR < 1.0\Omega$ at 100 KHz)	Aluminum Electrolytic Capacitor

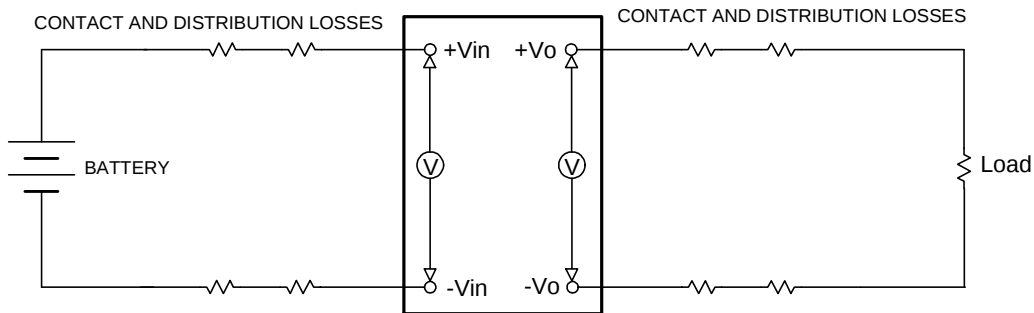
Application Notes

Peak-to-Peak Output Noise Measurement Test

Use a 0.47uF ceramic capacitor. Scope measurement should be made by using a BNC socket, measurement bandwidth is 0-20MHz. Position the load between 50 mm and 75 mm from the DC/DC Converter.



Output voltage and efficiency measurement test set up



$$Efficiency = \left(\frac{V_{out} \times I_{out}}{V_{in} \times I_{in}} \right) \times 100\% = [\%]$$

Short Circuitry Protection

Continuous, hiccup and auto-recovery mode.

During short circuit, converter still shut down, The average current during this condition will be very low and the device will be safe in this condition.

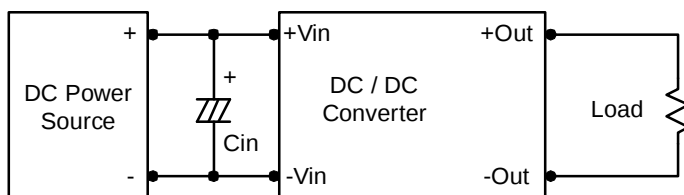
Application Notes

Input Source Impedance

The power module should be connected to a low ac-impedance input source. Highly inductive source impedances can affect the stability of the power module.

In applications where power is supplied over long lines and output loading is high, it may be necessary to use a capacitor at the input to ensure startup.

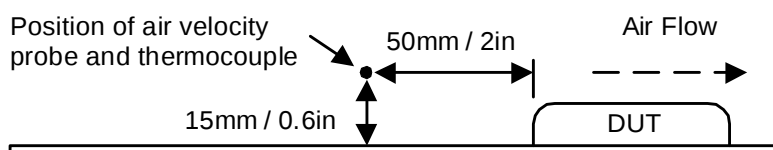
Capacitor mounted close to the power module helps ensure stability of the unit, it is recommended to use a good quality low Equivalent Series Resistance ($ESR < 1.0\Omega$ at 100 KHz) capacitor of a $10\mu F$ for the 12V input devices and a $4.7\mu F$ for the 24V input devices and a $2.2\mu F$ for the 48V devices.



Application Notes

Thermal Considerations

Many conditions affect the thermal performance of the power module, such as orientation, airflow over the module and board spacing. To avoid exceeding the maximum temperature rating of the components inside the power module, the case temperature must be kept below 95°C. The derating curves are determined from measurements obtained in a test setup



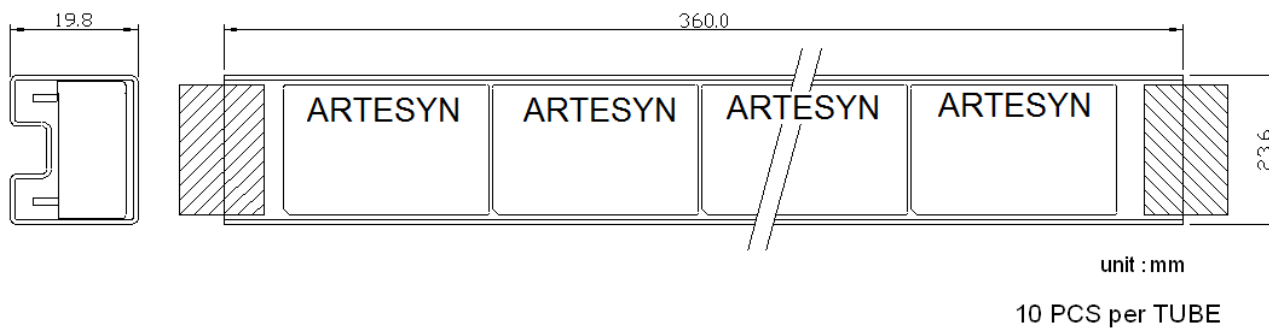
Maximum Capacitive Load

The ASA6W series has limitation of maximum connected capacitance at the output. The power module may be operated in current limiting mode during start-up, affecting the ramp-up and the startup time. Connect capacitors at the point of load for best performance. The maximum capacitance can be found in the data sheet.

Application Notes

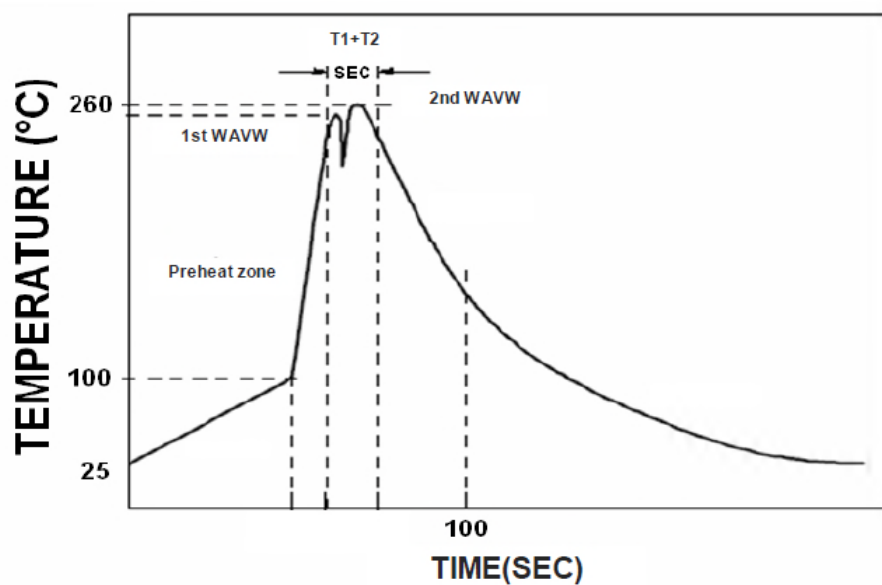
Packaging Information

TUBE



Soldering and Reflow Considerations

Lead free wave solder profile for ASA6W Series



Record of Revision and Changes

Issue	Date	Description	Originators
1.0	07.11.2016	First Issue	S. Dong
1.1	10.29.2020	Update 60950 to 62368	J. Ma
1.2	12.03.2024	Add the minimum load for each model	J. Ma



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