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YEARS
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Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



Medical



PV



Railway



NON
-isolation

LOW
Standby
Power

OCP

OTP

SCP

PART NUMBER STRUCTURE

ASR01 -

Series Name

12

Input
Voltage
(VDC)

12:-7~-32
-8~-32
-10.5~-32
24:-11.5~-32
-15~-32
-18~-32

S

Output
Quantity

S:Single

05

Output
Voltage
(VDC)

05: -5
5P2: -5.2
06: -6
08: -8
09: -9
12: -12
15: -15

-

A

Assembly
Options

_ :Standard
A: Horizontal type

TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25°C unless otherwise noted

Model Number	Input Range VDC	Output Voltage VDC	Output Current		Input Current @ No Load mA	Efficiency		Maximum Capacitor Load μF
			@Min.Load A	@FullLoad A		Min.Vin %	Max.Vin %	
ASR01-12S05	-7 ~ -32	-5	-0.1	-1	-3	91.5	84.5	1600
ASR01-12S5P2	-7 ~ -32	-5.2	-0.1	-1	-3	92.0	85.0	1600
ASR01-12S06	-8 ~ -32	-6	-0.1	-1	-3	92.5	86.5	1000
ASR01-12S08	-10.5 ~ -32	-8	-0.1	-1	-3	94.0	89.0	1000
ASR01-24S09	-11.5 ~ -32	-9	-0.1	-1	-3	94.5	90.5	1000
ASR01-24S12	-15 ~ -32	-12	-0.1	-1	-3	96.0	92.0	470
ASR01-24S15	-18 ~ -32	-15	-0.1	-1	-3	96.0	93.5	470

INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	ASR01-12S05	-7	-12	-32	VDC
	ASR01-12S5P2	-7	-12	-32	
	ASR01-12S06	-8	-12	-32	
	ASR01-12S08	-10.5	-12	-32	
	ASR01-24S09	-11.5	-24	-32	
	ASR01-24S12	-15	-24	-32	
	ASR01-24S15	-18	-24	-32	
Start up time	Constant resistive load	Power up		15	ms
Rise time	Time for Vo to rise from 10% to 90% of Vo		10		ms
Maximum input current	Vin=Vin(min); Io=Io(max)			-1	A
Input filter	Capacitor type				

OUTPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Voltage accuracy			-2.0		+2.0	%
Line regulation	Low Line to High Line at Full Load		-1.0		+1.0	%
Load regulation	10% Full Load to Full Load	Standard type	-0.5		+0.5	%
		Suffix-A	-0.6		+0.6	
Ripple and noise	Measured by 20MHz bandwidth	-5Vout		50		mVp-p
		-5.2Vout		50		
		-6Vout		75		
		-8Vout		75		
		-9Vout		75		
		-12Vout		75		
		-15Vout		75		
Temperature coefficient			-0.015		+0.015	%/°C
Dynamic load response	50% load step change	Peak deviation		5	7	%Vo
		Recovery time		250	350	μs
Over load protection	% of Iout rated; Hiccup mode			-2.0		A
Short circuit protection	Continuous, automatics recovery					

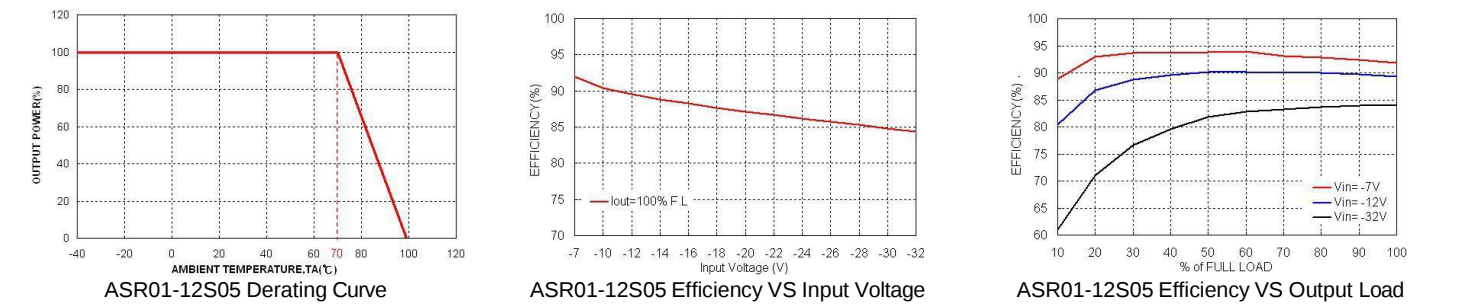
GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Switching frequency	12S05,12S5P2	323	380	437	kHz
	Others	425	500	575	
Safety meets	IEC/ EN/ UL62368-1				
Case material	Non-conductive black plastic				
Potting material	Silicone (UL94 V-0)				
Weight	3.1g(0.11oz)				
MTBF	MIL-HDBK-217F, Full load	8.475 x 10 ⁵ hrs			

ENVIRONMENTAL SPECIFICATIONS					
Parameter	Conditions		Min.	Typ.	Max. Unit
Operating temperature range			-40		+85 °C
Over temperature protection	Internal IC junction			165	°C
Storage temperature range			-55		+125 °C
Thermal shock			MIL-STD-810F		
Vibration			MIL-STD-810F		
Relative humidity			5% to 95% RH		

CAUTION: This power module is not internally fused. An input line fuse must always be used.

CHARACTERISTIC CURVE



FUSE CONSIDERATION

This power module is not internally fused. An input line fuse must always be used.

This encapsulated power module can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of sophisticated power architecture.

To maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse.

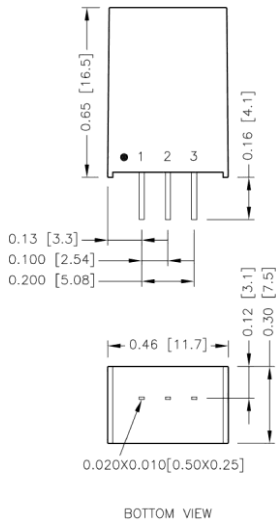
The input line fuse suggest as below :

Model	Fuse Rating (A)	Fuse Type
ASR01-12□□□	1.6	Slow-Blow
ASR01-24□□□	1.6	Slow-Blow

The table based on the information provided in this data sheet on inrush energy and maximum DC input current at low Vin.

MECHANICAL DRAWING

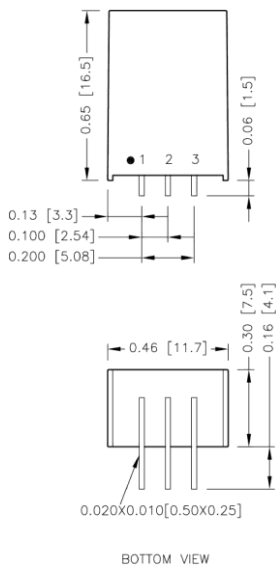
STARDANDS ASR01-□□S□□
Vertical SIP type



PIN CONNECTION	
PIN	DEFINE
1	GND
2	-Vin
3	-Vout

- 1. All dimensions in Inch [mm]
Tolerance: X.XX±0.02 [X.X±0.5]
X.XXX±0.01 [X.XX±0.25]
- 2. Pin dimension tolerance ±0.004 [0.10]

SUFFIX-A ASR01-□□S□□-A
Horizontal SIP type

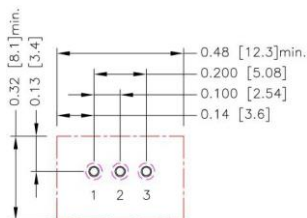


RECOMMENDED PAD LAYOUT

STARDANDS

ASR01-□□S□□

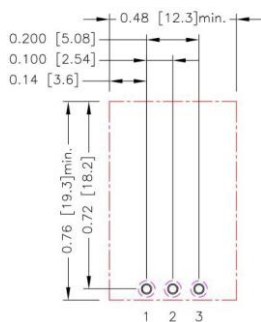
Vertical SIP type



SUFFIX-A

ASR01-□□S□□-A

Horizontal SIP type



All dimensions in inch[mm]
Pad size(lead free recommended)
Through hole 1.2.3: $\Phi 0.031$ [0.80]
Top view pad 1.2.3: $\Phi 0.039$ [1.00]
Bottom view pad 1.2.3: $\Phi 0.063$ [1.60]

THERMAL CONSIDERATIONS

The power module operates in a variety of thermal environments.

However, sufficient cooling should be provided to help ensure reliable operation of the unit.

Heat is removed by conduction, convection, and radiation to the surrounding Environment.

Proper cooling can be verified by measuring the point as the figure below.

The temperature at this location should not exceed 100°C.

When Operating, adequate cooling must be provided to maintain the test point temperature at or below 100°C.

Although the maximum point Temperature of the power modules is 85°C, you can limit this Temperature to a lower value for extremely high reliability.

- Thermal test condition with vertical direction by natural convection (20LFM).

