

# ASR01-SERIES

DC-DC CONVERTER

-7VDC ~ -32VDC WIDE INPUT RANGE  
UP TO 15Watts



## FEATURES

- PIN-OUT COMPATIBLE WITH LM79XX LINEAR REGULATORS
- SMALL SIZE AND LOW PROFILE : 0.46 X 0.30 X 0.65 INCH
- LOW STANDBY POWER
- OVER-CURRENT PROTECTION
- SHORT CIRCUIT PROTECTION
- OVER-TEMPERATURE PROTECTION
- SAFETY MEETS UL60950-1, EN60950-1 AND IEC60950-1
- COMPLIANT TO RoHS EU DIRECTIVE 2011/65/EU

## APPLICATIONS

- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- DISTRIBUTED POWER ARCHITECTURES
- SEMICONDUCTOR EQUIPMENT

NON ISOLATION	LOW STANDBY POWER	OCP	SCP	OTP
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## TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25°C 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

## PART NUMBER STRUCTURE

ASR01	-	12	S	05	-	A
Series Name		Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)		Assembly Option
		12: -7 ~ -32 -8 ~ -32 -10.5 ~ -32	S: Single	05: -5 5P2: -5.2 06: -6 08: -8 09: -9 12: -12 15: -15		□: Standard A: Horizontal type

## 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
Input reflected ripple current	-12Vin(nom)			100		mAp-p
	-24Vin(nom)			100		
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		%Vo
		Recovery time		250		µs
Over load protection	% of Iout rated; Hiccup mode				-2.0	A
Short circuit protection						Continuous, automatic recovery

## GENERAL SPECIFICATIONS

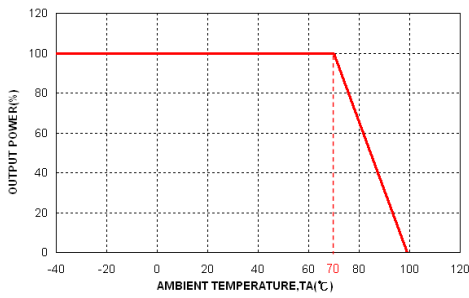
Parameter	Conditions	Min.	Typ.	Max.	Unit
Switching frequency	12S05, 12S5P2	323	380	437	kHz
	Others	425	500	575	
Design meet safety standard	IEC60950-1, UL60950-1, EN60950-1				
Case material	Non-conductive black plastic				
Potting material	Silicone (UL94-V0)				
Dimensions	0.46 X 0.30 X 0.65 Inch (11.7 X 7.5 X 16.5 mm)				
Weight	3.1g(0.11oz)				
MTBF	MIL-HDBK-217F @Ta=25 °C, Full load	8.475 x 10 <sup>6</sup> hrs			

## ENVIRONMENTAL SPECIFICATIONS

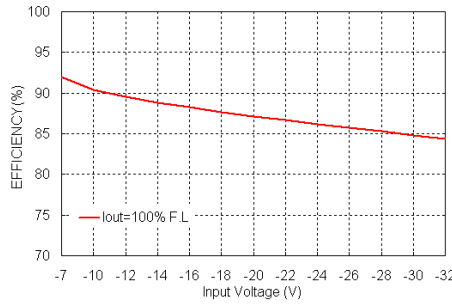
Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating temperature range		-40		+85	°C
Over temperature protection	Internal IC junction		+165		°C
Storage temperature range		-55		+125	°C
Thermal shock		MIL-STD-810F			
Vibration		MIL-STD-810F			
Relative humidity		5% to 95% RH			

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

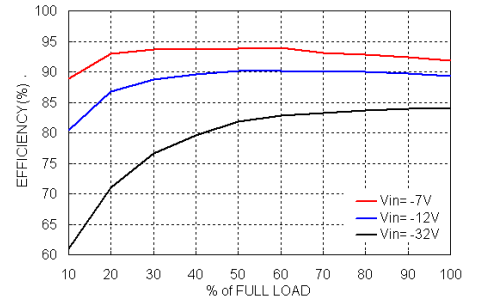
**CHARACTERISTIC CURVE**



ASR01-12S05 Derating Curve



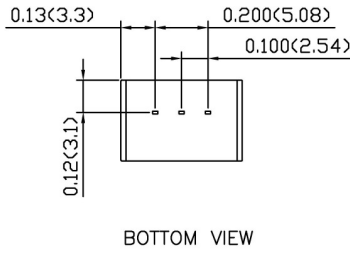
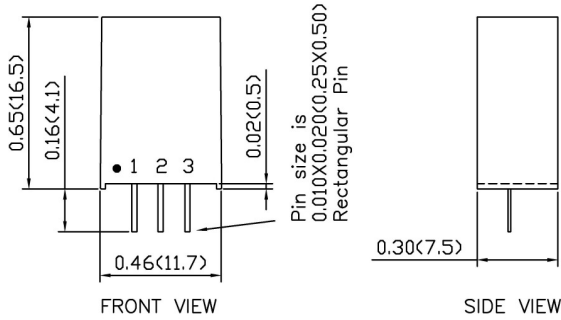
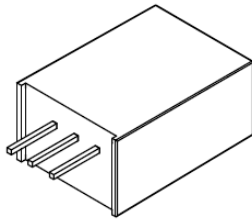
ASR01-12S05 Efficiency VS Input Voltage



ASR01-12S05 Efficiency VS Output Load

**MECHANICAL DRAWING FOR STARDANDS**

ASR01-□□S□□ Vertical SIP type

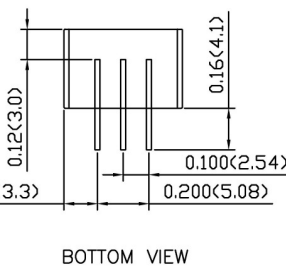
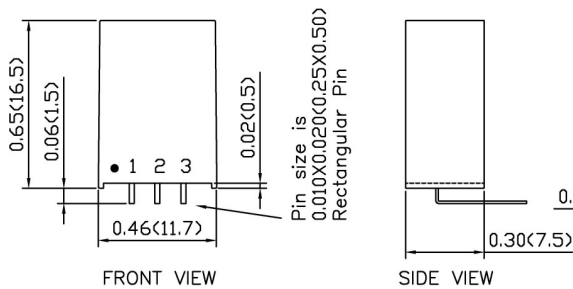
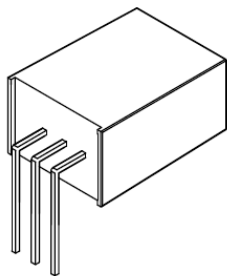


PIN CONNECTION	
PIN	DEFINE
1	GND
2	-INPUT
3	-OUTPUT

- All dimensions in Inch (mm)  
Tolerance: X.XX±0.02 (X.X±0.5)  
X.XXX±0.01 (X.XX±0.25)
- Pin pitch tolerance ±0.01(0.25)
- Pin dimension tolerance ±0.004 (0.1)

**MECHANICAL DRAWING FOR SUFFIX-A**

ASR01-□□S□□-A Horizontal SIP type



PIN CONNECTION	
PIN	DEFINE
1	GND
2	-INPUT
3	-OUTPUT

- All dimensions in Inch (mm)  
Tolerance: X.XX±0.02 (X.X±0.5)  
X.XXX±0.01 (X.XX±0.25)
- Pin pitch tolerance ±0.01(0.25)
- Pin dimension tolerance ±0.004 (0.1)