

LSR01 SERIES

DC-DC CONVERTER



3.0~5.5VDC & 4.6~36VDC WIDE INPUT RANGE
UP TO 15Watts



FEATURES

- NO MINIMUM LOAD REQUIRED
- SMALL SIZE AND LOW PROFILE : 0.60 X 0.37X 0.29 INCH
- SMD PACKAGE QUALIFIED FOR
- SAFETY MEETS UL60950-1, EN60950-1, & IEC60950-1
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

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

NON ISOLATION	OCP	SCP	OTP	LOW STANDBY POWER
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TECHNICAL SPECIFICATION

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

Model Number	Input Range	Output Voltage	Output Current @Full Load	Input Current @ No Load	Efficiency		Maximum Capacitor Load
					Min. Vin	Max. Vin	
	VDC	VDC	A	mA	%	%	μF
LSR01-05S1P2	3.0 ~ 5.5	1.2			90.5	90.0	
LSR01-05S1P5	3.0 ~ 5.5	1.5			92.0	91.5	
LSR01-05S1P8	3.0 ~ 5.5	1.8			92.5	92.0	
LSR01-05S2P5	3.8 ~ 5.5	2.5			94.5	94.0	
LSR01-12S1P2	4.6 ~ 36	1.2			74	62	
LSR01-12S1P5	4.6 ~ 36	1.5			79	67	
LSR01-12S1P8	4.6 ~ 36	1.8			82	70	
LSR01-12S2P5	4.6 ~ 36	2.5	1	1	87	75	470
LSR01-12S3P3	4.75 ~ 36	3.3			91	80	
LSR01-12S05	6.5 ~ 36	5.0			94	84	
LSR01-12S6P5	9.0 ~ 36	6.5			94	89	
LSR01-24S09	12 ~ 36	9.0			95	90	
LSR01-24S12	15 ~ 36	12			95	92	
LSR01-24S15	18 ~ 36	15			96	94	

PART NUMBER STRUCTURE

LSR01 -	12	S	05
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)
	05:3.0~5.5 12:4.6~36 24:12~36 * See table as above	S:Single	1P2:1.2 1P5:1.5 1P8:1.8 2P5:2.5 3P3:3.3 05:5 6P5:6.5 09:9 12:12 15:15

INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range ⁽¹⁾	LSR01-05S1P2	3.0	5.0	5.5	VDC
	LSR01-05S1P5	3.0	5.0	5.5	
	LSR01-05S1P8	3.0	5.0	5.5	
	LSR01-05S2P5	3.8	5.0	5.5	
	LSR01-12S1P2	4.6	12	36	
	LSR01-12S1P5	4.6	12	36	
	LSR01-12S1P8	4.6	12	36	
	LSR01-12S2P5	4.6	12	36	
	LSR01-12S3P3	4.75	12	36	
	LSR01-12S05	6.5	12	36	
	LSR01-12S6P5	9.0	12	36	
	LSR01-24S09	12	24	36	
	LSR01-24S12	15	24	36	
LSR01-24S15	18	24	36		
Start up time	Constant resistive load	Power up	5		ms
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	-0.2		+0.2	%
Load regulation	No Load to Full Load	-0.6		+0.6	%
	10% to 90% of Full load	-0.3		+0.3	
Ripple and noise	Measured by 20MHz bandwidth				mVp-p
		$V_{out} \leq 8.0V$	50		
	$V_{out} > 8.0V$		75		
Temperature coefficient		-0.015		+0.015	%/°C
Dynamic load response	50% load step change	Peak deviation	200		mV
		Recovery time	250		µs
Over load protection	% of I _{out} rated; Continuous mode	LSR01-05S□□	4.8		A
		Others	2.5		
Short circuit protection					Continuous, automatic recovery

GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Switching frequency	LSR01-05S□□		1200		kHz
	Others		500		kHz
Safety meets					UL60950-1 EN60950-1 IEC60950-1
Case material					Non-conductive black plastic
Base material					Non-conductive black plastic
Weight					1.7g(0.067oz)
MTBF	MIL-HDBK-217F Full load				1.226 x 10 ⁷ hrs

ENVIRONMENTAL SPECIFICATIONS

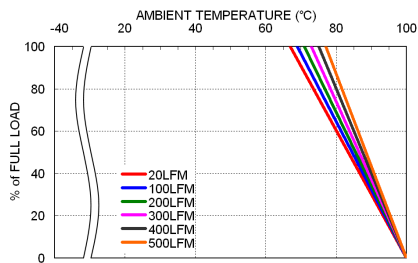
Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature		-40		+100	°C
Maximum case temperature				+105	°C
Over temperature protection	Internal IC junction		+150		°C
Storage temperature range		-55		+125	°C
Thermal shock					MIL-STD-810F
Vibration					MIL-STD-810F
Relative humidity					5% to 95% RH

Note:

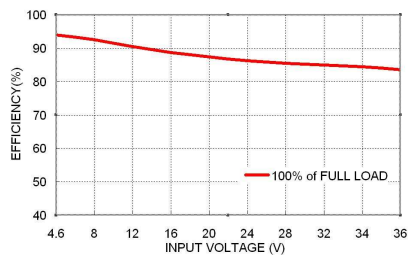
1. With a C1 (22µF/50V) input capacitor for input voltage > 32VDC, the input voltage allows 36 VDC, max.

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

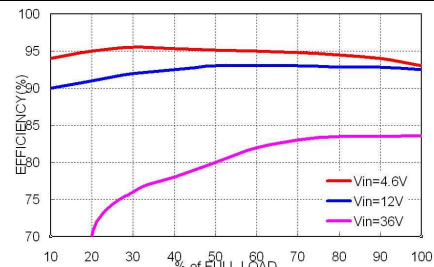
CHARACTERISTIC CURVE



LSR01-12S05 Derating Curve

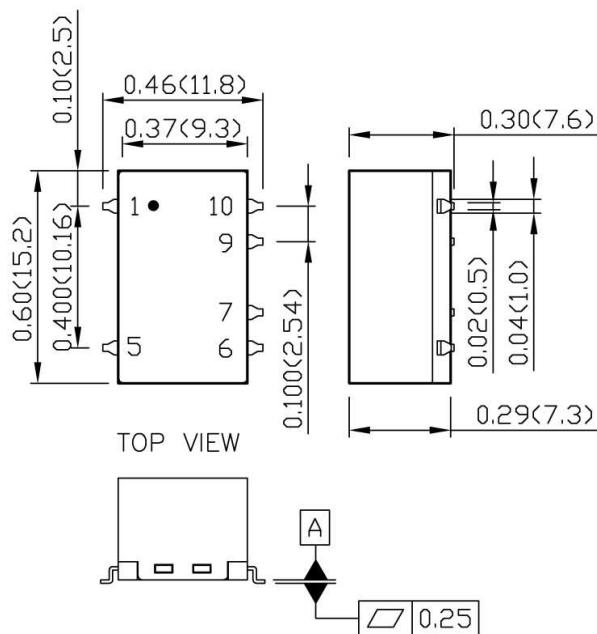


LSR01-12S05 Efficiency vs. Input Voltage



LSR01-12S05 Efficiency vs. Output Load

MECHANICAL DRAWING



PIN CONNECTION

PIN	DEFINE
1	+Vin
5	+Vout
6	NC
7	GND
9	GND
10	NC

1. All dimensions in inch (mm)
2. Tolerance :x.xx±0.02 (x.xx±0.5)
x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)
4. Pin dimension tolerance ±0.004(0.1)