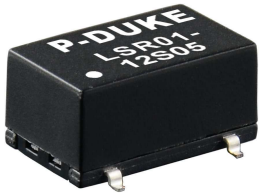
POWER MATE TECHNOLOGY CO., LTD.

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

TECHNICAL SPECIFICATION

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

Model Number	Input Range	Output Voltage	Output Current @Full Load	Input Current @ No Load	Efficiency %		Maximum Capacitor Load
	VDC	VDC	A	mA	Min. Vin	Max. Vin	μF
LSR01-05S1P2	3.0 ~ 5.5	1.2	1	1	90.5	90.0	470
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			87	75	
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					
		Vout≦8.0V		50		mVp-p
		Vout＞8.0V		75		
Temperature coefficient			-0.015		+0.015	%/℃
Dynamic load response	50% load step change	Peak deviation		200		mV
		Recovery time		250		μs
Over load protection	% of Iout rated; Continuous mode	LSR01-05S□□		4.8		A
		Others		2.5		
Short circuit protection				Continuous, automatics 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(0.060oz)
MTBF	MIL-HDBK-217F Full load					1.226 x 10^7 hrs

ENVIRONMENTAL SPECIFICATIONS

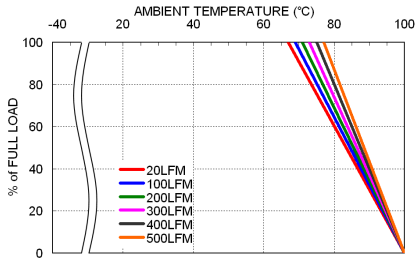
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature			-40		+100	℃
Maximum case temperature					+105	℃
Over temperature protection		Internal IC junction		+150		℃
Storage temperature range			-55		+125	℃
Thermal shock						MIL-STD-810F
Vibration						MIL-STD-810F
Relative humidity		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

Note:

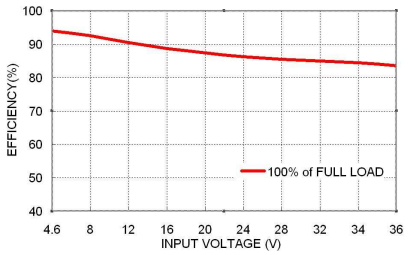
1. With a C1 (22uF/50V) input capacitor for input voltage > 32VDC, the input voltage allows 36 VDC, max.

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

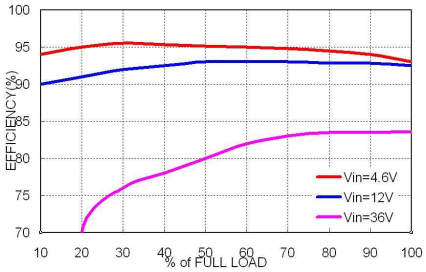
CHARACTERISTIC CURVE



LSR01-12S05 Derating Curve

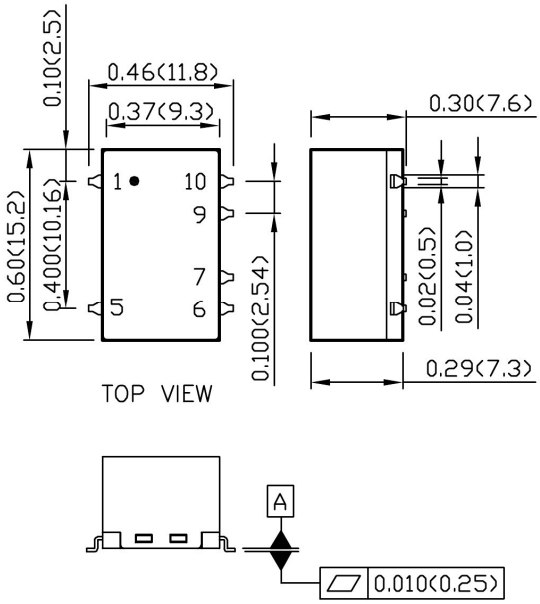


LSR01-12S05 Efficiency vs. Input Voltage



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.x±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)