

# URED20W SERIES

DC/DC Converter Single & Dual Output: 20 Watts



## Features

- 4:1 wide Input range 9~36V, 18~75V & 43~160V
- Rail EN50155 compliance
- Single and Dual output options
- High efficiency up to 88%
- Regulated output & Short circuit protection
- 1600VDC isolation
- Remote ON / OFF, Negative or Positive Logic
- High operating base plate temperature : -40°to +100°C
- Zero load operation
- External Output voltage trim Singles: ±10%
- Option. DIN Rail mounting - "DR" to model
- Option. Fully enclosed case - "EC" to model

Model Number	Input Range VDC	Output Voltage VDC	Output Current @Full Load mA	Input Current @ No Load mA	Efficiency %	Maximum Capacitor Load (1) uF
URED20-24S3P3W	9 ~ 36	3.3	4500	8	84	7000
URED20-24S05W	9 ~ 36	5	4000	8	87	5000
URED20-24S12W	9 ~ 36	12	1670	8	88	850
URED20-24S15W	9 ~ 36	15	1330	8	87	700
URED20-24D12W	9 ~ 36	±12	± 833	8	87	± 500
URED20-24D15W	9 ~ 36	±15	± 667	8	88	± 350
URED20-48S3P3W	18 ~ 75	3.3	4500	6	84	7000
URED20-48S05W	18 ~ 75	5	4000	6	87	5000
URED20-48S12W	18 ~ 75	12	1670	6	88	850
URED20-48S15W	18 ~ 75	15	1330	6	88	700
URED20-48D12W	18 ~ 75	±12	± 833	6	87	± 500
URED20-48D15W	18 ~ 75	±15	± 667	6	88	± 350
URED20-110S3P3W	43 ~ 160	3.3	4500	5	84	7000
URED20-110S05W	43 ~ 160	5	4000	5	86	5000
URED20-110S12W	43 ~ 160	12	1670	5	87	850
URED20-110S15W	43 ~ 160	15	1330	5	87	700
URED20-110D12W	43 ~ 160	±12	± 833	5	87	± 500
URED20-110D15W	43 ~ 160	±15	± 667	5	88	± 350

## PART NUMBER STRUCTURE

Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Remote Control Option	Assembly Option
URED20 -	<b>48</b>	<b>S</b>	<b>05</b>	<b>W</b> -	<b>N</b>	<b>EC</b>
	24: 9~36 48: 18~75 110: 43~160	S: Single  D: Dual	3P3: 3.3 05: 5 12: 12 15: 15 12: ±12 15: ±15	4:1	□: Positive logic N: Negative logic	□: No Assembly Option EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & Din Rail Mounting Type

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## INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	24Vin(nom)	9	24	36	VDC
	48Vin(nom)	18	48	75	
	110Vin(nom)	43	110	160	
Input fuse (slow blow)	24Vin(nom)		6		A
	48Vin(nom)		4		
	110Vin(nom)		2		
In-rush current			15		A
Input reflected ripple current	Nominal input and Full load		30		mAp-p
Start up voltage	24Vin(nom)			9	VDC
	48Vin(nom)			18	
	110Vin(nom)			43	
Shutdown voltage	24Vin(nom)		8		VDC
	48Vin(nom)		16		
	110Vin(nom)		40		
Start up time	Constant resistive load	Power up	100		ms
		Remote ON/OFF	30		
Input surge voltage	1 second, max.	24Vin(nom)		50	VDC
		48Vin(nom)		100	
		110Vin(nom)		170	
Remote ON/OFF	Referenced to -Vin pin	Positive logic DC-DC ON (Standard) DC-DC OFF	Open or 3 ~ 15VDC Short or 0 ~ 1.2VDC		mA
		Negative logic DC-DC ON (Option) DC-DC OFF	Short or 0 ~ 1.2VDC Open or 3 ~ 15VDC		
		Input current of CTRL pin	-0.5	1	
		Remote off input current		5	mA

## OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit	
Voltage accuracy	3.3Vout	-1.5		+1.5	%	
	Others	-1.0		+1.0		
Line regulation	Low Line to High Line at Full Load					
	Single	-0.2		+0.2	%	
	Dual	-0.5		+0.5	%	
Load regulation	No Load to Full Load					
	3.3Vout	-1.5		+1.5	%	
	Others	-1.0		+1.0	%	
Cross regulation	Asymmetrical load 25%/100% FL	-5.0		+5.0	%	
Voltage adjustability	Single output	-10		10	%	
Ripple and noise	Measured by 20MHz bandwidth		75		mVp-p	
Temperature coefficient		-0.02		+0.02	%/°C	
Transient response recovery time	25% load step change		250		µs	
Over voltage protection	Zener diode clamp	3.3Vout		3.9	VDC	
		5Vout		6.2		
		12Vout		15		
		15Vout		20		
Output indicator			Green LED			
Over load protection	% of lout rated		150		%	
Short circuit protection			Continuous, automatic recovery			

## GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	1600			VDC
	Input to Output Input (Output) to Chassis	1000			
Isolation resistance	500VDC	1			GΩ
Isolation capacitance			5000		pF
Switching frequency		297	330	363	kHz
Safety meets					UL60950-1 EN60950-1 IEC60950-1 EN50155
Chassis material					Aluminum
Weight					105g (3.70oz)
MTBF	MIL-HDBK-217F, Full load				1.338 x 10 <sup>6</sup> hrs

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## ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	without derating	-40		+78	°C
	with derating	+78		+100	
Storage temperature range		-40		+105	°C
Thermal shock					MIL-STD-810F
Shock					EN61373, MIL-STD-810F
Vibration					EN61373, MIL-STD-810F
Relative humidity					5% to 95% RH

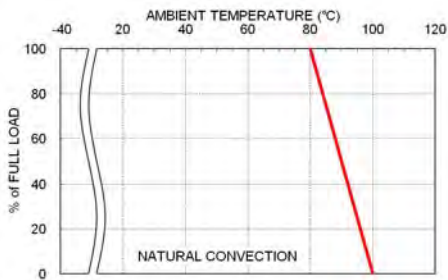
## EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55022	Class B
ESD	EN61000-4-2 Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 20V/m	Perf. Criteria A
Fast transient	EN61000-4-4 ± 2kV	Perf. Criteria A
Surge	EN61000-4-5 ± 1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6 10Vr.m.s	Perf. Criteria A

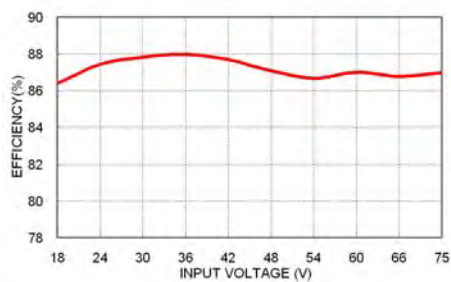
### Note:

1. Test by minimum input and constant resistive load.

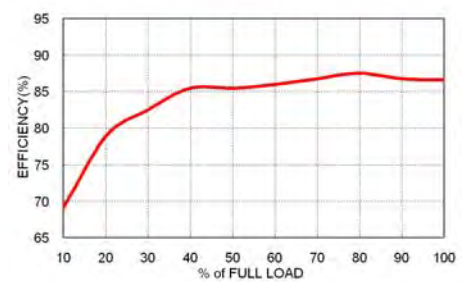
## CHARACTERISTIC CURVES



URED20-48S05W Derating Curve



URED20-48S05W Efficiency vs. Input Voltage



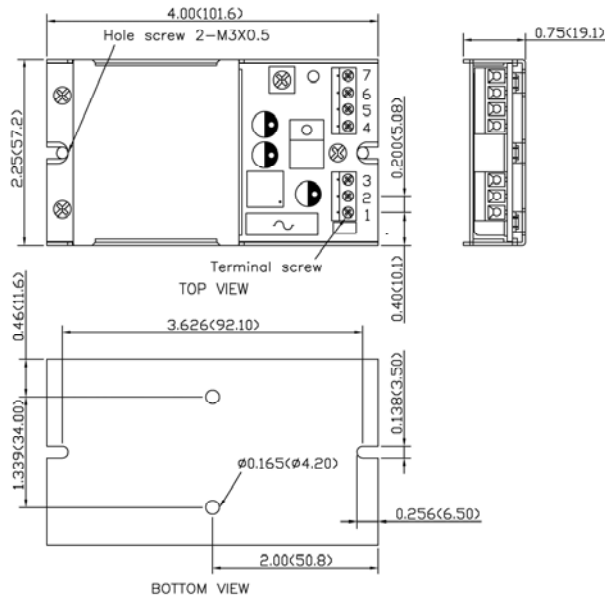
URED20-48S05W Efficiency vs. Output Load

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## MECHANICAL DRAWINGS

### CHASSIS MOUNTING TYPE - STD



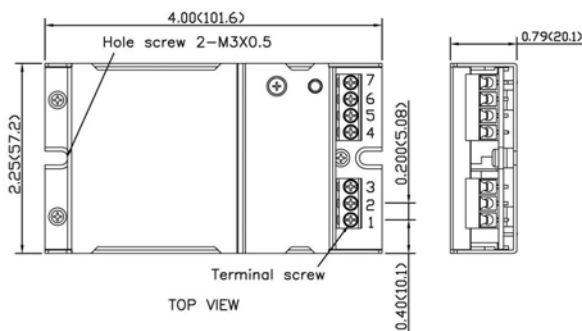
### PIN CONNECTION

PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	Ctrl	Ctrl
4	NC	NC
5	-Vout	-Vout
6	+Vout	Common
7	NC	+Vout

- ※ NC : No Connection
- ※ Screw terminals – wire range from 14 to 18 AWG

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. Hole screw locked torque :  
MAX 5.0kgf – cm (0.49N – m)
4. Terminal screw locked torque :

### ENCLOSED MOUNTING TYPE – ( OPTION – EC )



### DIN RAIL MOUNTING TYPE – ( OPTION – DR )

