

URED20W SERIES

DC-DC CONVERTER

4:1 ULTRA WIDE INPUT RANGE
UP TO 20 Watts



FEATURES

- NO MINIMUM LOAD REQUIRED
- 1600VDC INPUT TO OUTPUT ISOLATION
- APPLICATION OF CHASSIS-MOUNT DC/DC CONVERTERS
- SCREW TERMINALS FOR INPUT AND OUTPUT CONNECTIONS
- INTERNAL INPUT FUSE PROTECTION
- INTERNAL OUTPUT LED INDICATOR
- MEET EN55022 CLASS B
- SAFETY MEETS UL60950-1, EN60950-1, & IEC60950-1
- COMPLIANCE TO EN50155 AND EN45545-2 RAILWAY STANDARD
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

- RAILWAY SYSTEM
- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- MEASUREMENT EQUIPMENT
- SEMICONDUCTOR EQUIPMENT

1600VDC ISOLATION	REMOTE CONTROL	UVP	OCP SCP	OVP	FUSE INCLUDED	INRUSH LIMIT	REVERSE POLARITY PROTECTION	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 VDC	Output Voltage VDC	Output Current @Full Load mA	Input Current @ No Load mA	Efficiency %	Maximum Capacitor Load (1) µF
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

URED20 -	48	S	05	W -	N	EC
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Remote Control Option	Assembly Option
	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	□: None EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & Din Rail Mounting Type

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 Remote ON/OFF	100 30		ms	
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 (Standard)	DC-DC ON	Open or 3 ~ 15VDC		mA
			DC-DC OFF	Short or 0 ~ 1.2VDC		
		Negative logic (Option)	DC-DC ON	Short or 0 ~ 1.2VDC		
			DC-DC OFF	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	Dual	-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 Iout rated		150			%
Short circuit protection			Continuous, automatic recovery			

GENERAL SPECIFICATIONS

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

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

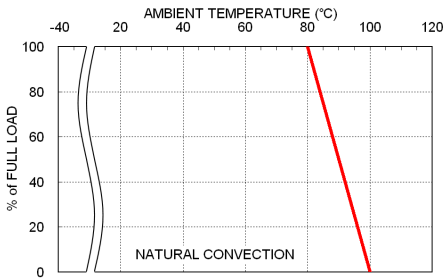
EMC SPECIFICATIONS

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
Power frequency magnetic field	EN61000-4-8 100A/m continuous; 1000A/m 1 second	Perf. Criteria A

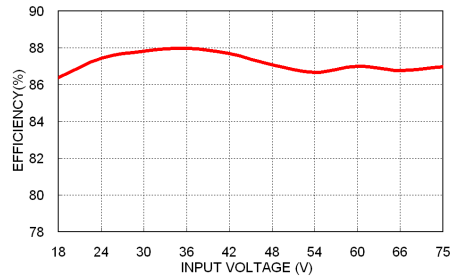
Note:

1. Test by minimum input and constant resistive load.

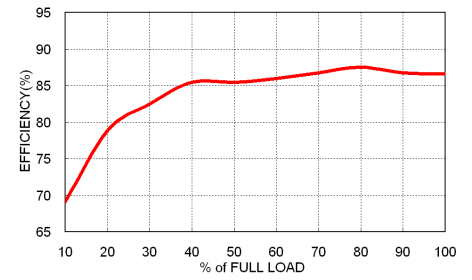
CHARACTERISTIC CURVE



URED20-48S05W Derating Curve



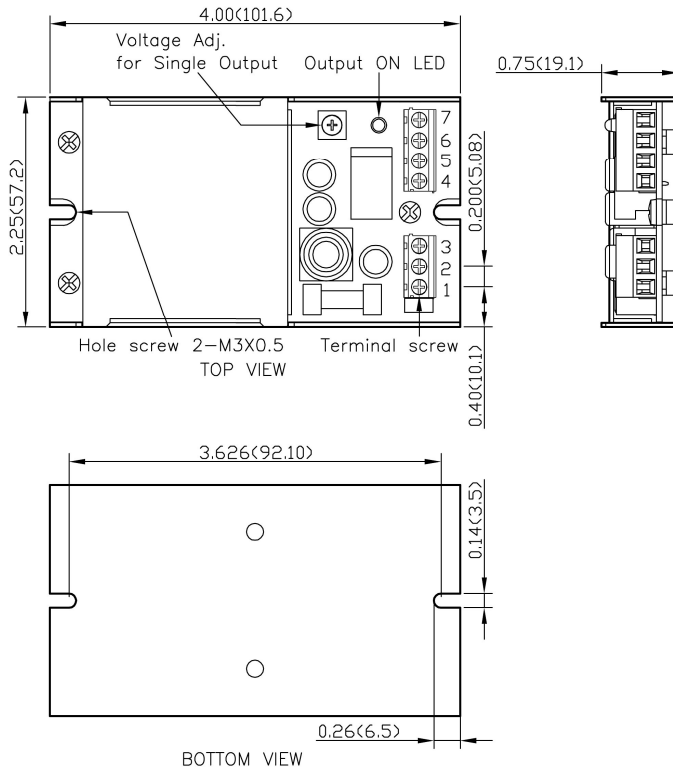
URED20-48S05W Efficiency vs. Input Voltage



URED20-48S05W Efficiency vs. Output Load

MECHANICAL DRAWING

CHASSIS MOUNTING TYPE

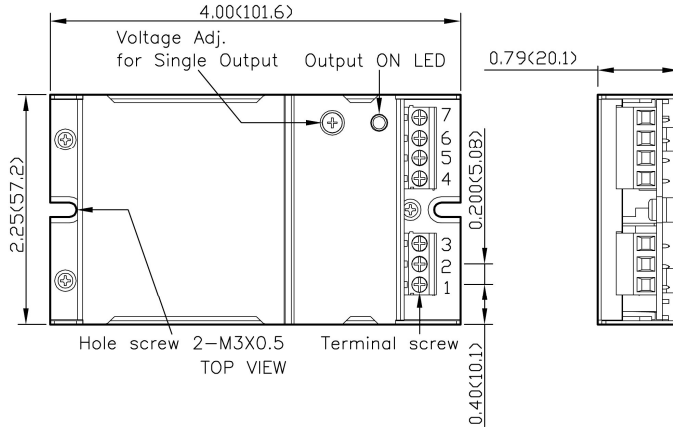


PIN CONNECTION

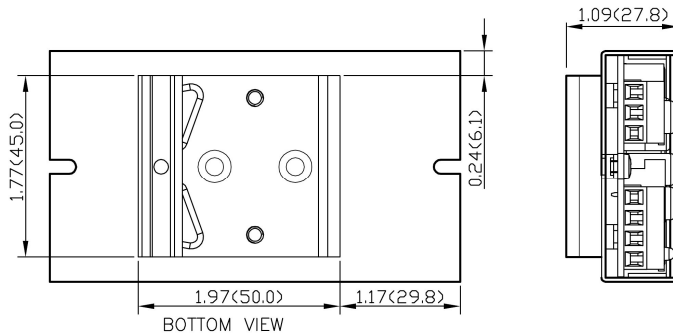
PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	Ctrl	Ctrl
4	NC	NC
5	-Vout	-Vout
6	+Vout	Common
7	NC	+Vout

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

ENCLOSED MOUNTING TYPE



DIN RAIL MOUNTING TYPE



1. All dimensions in Inch (mm)
2. Tolerance : X.XX±0.02 (X.X±0.5)
4. Tolerance : 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 :
 MAX 2.5kgf – cm (0.25N – m)