

40W Reliable DC/DC Solutions for Railway Auxiliary Systems



URED40U Series DC/DC Converters

- 40W Output Power
- 12:1 Ultra-wide Input Range: 14-160Vdc
- Output Voltage: 5, 12, 15, 24, ± 12 , ± 15 Vdc
- Integrated Line Fuse
- Reverse Polarity Protection
- Inrush Current Limit
- Up to 20ms Hold-up Time
- Built-in EMI Filter
- 5000m Operating Altitude
- EN 50155, IEC/UL/EN 62368-1
- 3 Years Product Warranty

【お問い合わせ先】

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P-DUKE POWER

URED40U Series

Chassis-Mount DC-DC Converter
Up to 40 Watts

3
YEARS
WARRANTY

ROHS
COMPLIANT

REACH
COMPLIANT



Railway



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



Medical



PV



3000 VDC Isolation Voltage	12:1 Ultra-Wide Input Range	FUSE Installed	HOLD UP	INRUSH CURRENT LIMIT	Internal EN55032 Class A Filter	LOW Standby Power	NO Min. Load Required	Operating Altitude 5000 meter	REMOTE ON OFF	REVERSE POLARITY PROTECTION	OCP
OVP	SCP	UVP	OTP								

PART NUMBER STRUCTURE

URED40 -	72	S	05	U	-	H	DR
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range		Hold-up grade Options	Assembly Options
	72: 14.4~160	S: Single	05: 5 12: 12 15: 15 24: 24	12:1		□: S2 H: S3 N: Without Hold-up Function	□: None DR: Din Rail Mounting Type
		D: Dual	12: ±12 15: ±15				

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

Model Number	Input Range	Output Voltage	Output Current @Full Load	Input Current @No Load	Efficiency	Maximum Capacitor Load
	VDC	VDC	A	mA	%	μF
URED40-72S05U	14.4 ~ 160	5	8	20	87.5	12000
URED40-72S12U	14.4 ~ 160	12	3.33	15	90	2040
URED40-72S15U	14.4 ~ 160	15	2.67	15	90	1300
URED40-72S24U	14.4 ~ 160	24	1.67	15	90	500
URED40-72D12U	14.4 ~ 160	±12	±1.67	15	89	±980
URED40-72D15U	14.4 ~ 160	±15	±1.33	15	89	±640

INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	72Vin(nom)	14.4	72	160	VDC
Input fuse	Slow Blow 72Vin(nom)		6.3		A
In-rush current			15		A
Start up voltage	72Vin(nom)			14.4	VDC
Shutdown voltage	72Vin(nom)	10	11.5	13	VDC
Start up time	Constant resistive load Power up		90		ms
Input surge voltage	1 second, max. 72Vin(nom)			200	VDC
Interruption of power supply	EN50155 Class S2 EN50155 Class S3(Options)	10 20			ms
Remote ON/OFF	Referred to - Vin pin Positive logic DC-DC ON DC-DC OFF Input current of Ctrl pin Remote off input current	-0.5	Open or 3 ~ 12VDC Short or 0 ~ 1.2VDC 5	+1	mA mA

OUTPUT SPECIFICATIONS

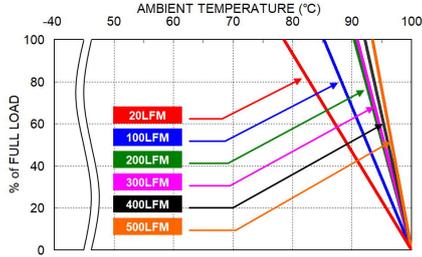
Parameter	Conditions	Min.	Typ.	Max.	Unit
Voltage accuracy	Single Dual	-1.0 -1.2		+1.0 +1.0	%
Line regulation	Low Line to High Line at Full Load	-0.5		+0.5	%
Load regulation	No Load to Full Load	-1.5 -1.0		+1.5 +1.0	%
Cross regulation	Asymmetrical load 25%/100% FL	-5.0		+5.0	%
Voltage adjustability	Single output	-10 -10		+10 +20	%
Ripple and noise	Measured by 20MHz bandwidth		75 100 150		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		6.2 15 20 30		VDC
Output indicator			Green LED		
Over load protection	% of Iout rated; Hiccup mode		160		%
Short circuit protection			Continuous, automatics recovery		

GENERAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output Input (Output) to Case	3000 2250			VDC
Isolation resistance	500VDC		1			GΩ
Isolation capacitance				6000		pF
Switching frequency		5Vout Others	175 140	210 170	225 182	kHz
Safety meets						IEC/ EN/ UL62368-1
Standard approvals						EN50155 EN45545-2
Chassis material						Aluminum
Weight						173g(6.10oz)
MTBF	MIL-HDBK-217F, Full load					9.279 x 10 ⁵ hrs

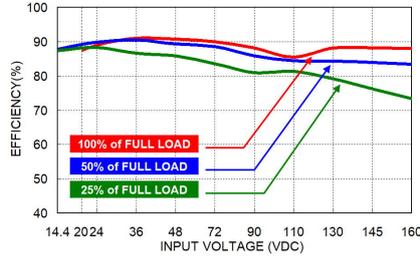
ENVIRONMENTAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating case temperature			-40		+100	°C
Maximum case temperature					100	°C
Over temperature protection				115		°C
Storage temperature range			-40		+105	°C
Operating altitude					5000	m
Thermal shock						MIL-STD-810F
Shock		□□□□□U □□□□□U - DR				EN61373, MIL-STD-810F EN61373, IEC60068-2-27
Vibration		□□□□□U □□□□□U - DR				EN61373, MIL-STD-810F EN61373, IEC60068-2-6
Relative humidity						5% to 95% RH

EMC SPECIFICATIONS			
Parameter	Conditions		Level
EMI	EN55032, EN50121-3-2	Conducted Emission Radiated Emission	Class A Class B
EMS	EN55035, EN50121-3-2		
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	EN55035:±1kV and EN50121-3-2:±2kV	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

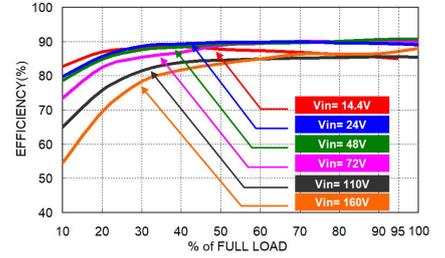
CHARACTERISTIC CURVE



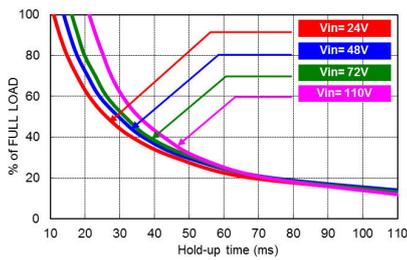
URED40-72S12U Derating Curve



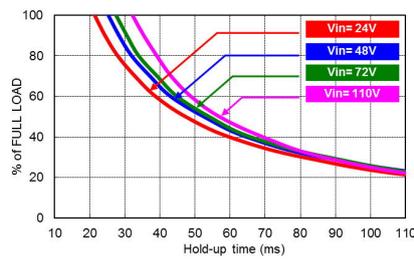
URED40-72S12U Efficiency vs. Input Voltage



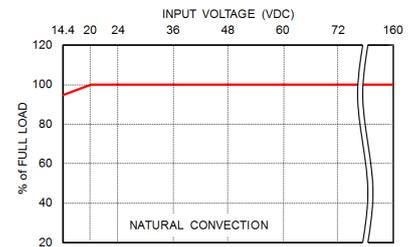
URED40-72S12U Efficiency vs. Output Load



URED40-72S12U Hold-up Time Curve



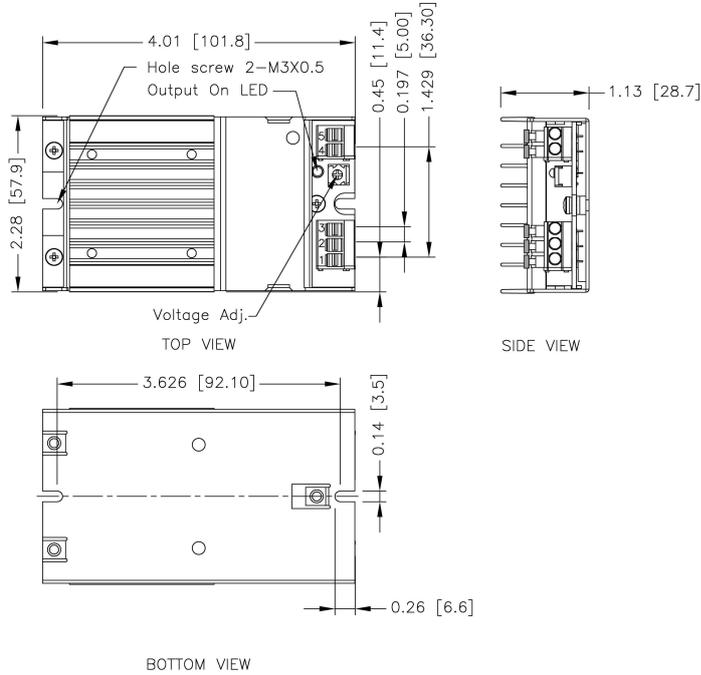
URED40-72S12U-H Hold-up Time Curve (Options)



Derating Curve vs. Input Voltage

MECHANICAL DRAWING

CHASSIS MOUNTING TYPE



TERMINAL CONNECTION

NO.	SINGLE
1	+ Vin
2	- Vin
3	Ctrl
4	- Vout
5	+ Vout

※ Terminals – wire range from 14 to 20 AWG

- All dimensions in inch [mm]
Tolerance :x.xx±0.02 [x.x±0.5]
x.xxx±0.010 [x.xx±0.25]
- M3x0.5 screw locked torque MAX 5.0kgf-cm/0.49N-m

TERMINAL CONNECTION

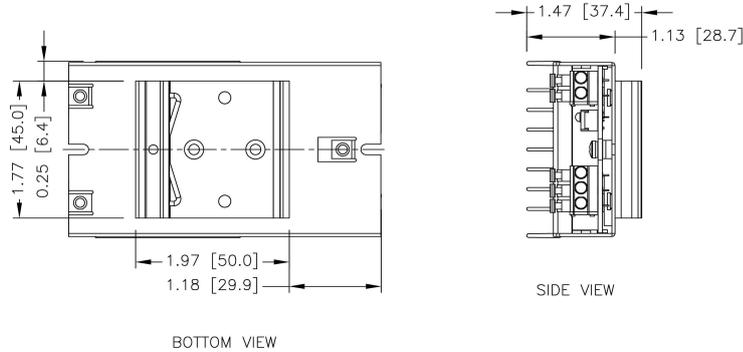
NO.	DUAL
1	+ Vin
2	- Vin
3	Ctrl
4	- Vout
5	Com
6	+ Vout

※ Terminals – wire range from 14 to 20 AWG

- All dimensions in inch [mm]
Tolerance :x.xx±0.02 [x.x±0.5]
x.xxx±0.010 [x.xx±0.25]
- M3x0.5 screw locked torque MAX 5.0kgf-cm/0.49N-m

MECHANICAL DRAWING(CONTINUED)

DIN RAIL MOUNTING TYPE (OPTIONS)



1. All dimensions in inch [mm]
Tolerance :x.xx±0.02 [x.x±0.5]
 x.xxx±0.010 [x.xx±0.25]
2. M3x0.5 screw locked torque MAX 5.0kgf-cm/0.49N-m

THERMAL CONSIDERATIONS

The power module operates in a variety of thermal environments. However, sufficient cooling should be provided to help ensure reliable operation of the unit. Heat is removed by conduction, convection, and radiation to the surrounding environment. Proper cooling can be verified by measuring the point as the figure below. The temperature at this location should not exceed "Maximum case temperature". When operating, adequate cooling must be provided to maintain the test point temperature at or below "Maximum case temperature". You can limit this temperature to a lower value for extremely high reliability.

