

10W Reliable DC/DC Solutions for Railway Auxiliary Systems



URCD10U Series DC/DC Converters

- 10W Output Power
- 12:1 Ultra-wide Input Range: 14-160Vdc
- Output Voltage: 3.3, 5, 12, 15, 24, ± 5 , ± 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】

 株式会社ジェムコ
大阪本社 TEL: 06-6338-8566
東京 TEL: 080-6449-9194
名古屋 TEL: 0587-96-1970
URL : <http://www.jemc.co.jp/>
E-Mail : inf@jemc.co.jp



P-DUKE
POWER

URCD10U Series
Chassis-Mount DC-DC Converter
Up to 10 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 B 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

URCD10 -	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: 14~160	S: Single	3P3: 3.3 05: 5 12: 12 15: 15 24: 24	12:1		□: S2 H: S3	□: None DR: Din Rail Mounting Type
		D: Dual	05: ±5 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	mA	mA	%	μF
URCD10-72S3P3U	14 ~ 160	3.3	3000	12	82	3500
URCD10-72S05U	14 ~ 160	5	2000	12	86	2500
URCD10-72S12U	14 ~ 160	12	830	12	86	430
URCD10-72S15U	14 ~ 160	15	670	12	87	350
URCD10-72S24U	14 ~ 160	24	420	12	85	125
URCD10-72D05U	14 ~ 160	±5	±1000	12	82	±1440
URCD10-72D12U	14 ~ 160	±12	±416	12	85	±250
URCD10-72D15U	14 ~ 160	±15	±333	12	86	±180

INPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range			14	72	160	VDC
Input fuse	Slow Blow		1.6			A
In-rush current			15			A
Start up voltage					14	VDC
Shutdown voltage			10	11.5	13	VDC
Start up time	Constant resistive load	Power up	50			ms
Input surge voltage	1 second, max.				200	VDC
Interruption of power supply	EN50155 Class S2		10			ms
	EN50155 Class S3 (Options)		20			ms
Remote ON/OFF	Referred to -Vin pin	Positive logic			Open or 3 ~ 12VDC	
		DC-DC ON			Short or 0 ~ 1.2VDC	
		DC-DC OFF				
		Input current of Ctrl pin	-0.5			mA
		Remote off input current	2.5		+0.5	mA

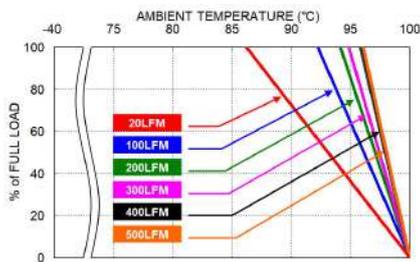
OUTPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Voltage accuracy			-1.0		+1.0	%
Line regulation	Low Line to High Line at Full Load		-1.0		+1.0	%
Load regulation	No Load to Full Load	Single				
		3.3Vout, 5Vout	-1.5		+1.5	
		12Vout, 15Vout, 24Vout	-1.0		+1.0	%
		Dual				
Cross regulation	Asymmetrical load 25%/100% FL	Dual	-5.0		+5.0	%
		5Vout, 12Vout, 15Vout	-1.5		+1.5	
Voltage adjustability	Single output	3.3Vout, 12Vout	-10		+10	%
		Others	-10		+20	%
Ripple and noise	Measured by 20MHz bandwidth	Single				
		3.3Vout, 5Vout		75		
		12Vout, 15Vout		100		
		24Vout		125		mVp-p
		Dual				
Temperature coefficient		5Vout,		75		
		12Vout, 15Vout		100		
Transient response recovery time	25% load step change			250		µs
Over voltage protection		3.3Vout	3.7		5.4	
		5Vout	6.3		7.4	
		12Vout	13.5		19.6	VDC
		15Vout	18.3		22.0	
		24Vout	29.1		32.5	
Output indicator			Green LED			
Over load protection	% of Iout rated; Hiccup mode			160		%
Short circuit protection			Continuous, automatic recovery			

GENERAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output	3000			
		Input (Output) to Case	2250			VDC
Isolation resistance	500VDC		1			GΩ
Isolation capacitance				6000		pF
Switching frequency		3.3Vout, 5Vout	220	250	280	
		Others	200	230	260	KHz
Safety meets			IEC/ EN/ UL62368-1			
Standard approvals			EN50155 EN45545-2			
Chassis material			Aluminum			
Weight			85g (3.00oz)			
MTBF	MIL-HDBK-217F, Full load		1.343 x 10 ⁶ hrs			

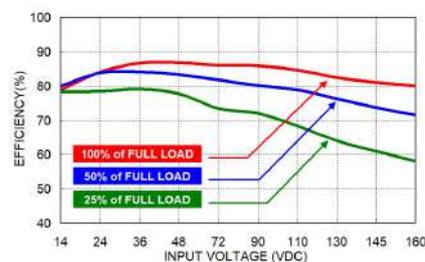
ENVIRONMENTAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating case temperature			-40		+100	°C
Maximum case temperature					100	°C
Over temperature protection				113		°C
Storage temperature range			-40		+105	°C
Operating altitude					5000	m
Thermal shock			MIL-STD-810F			
Shock		□□□□□U	EN61373, MIL-STD-810F			
		□□□□□U - DR	EN61373, IEC60068-2-27			
Vibration		□□□□□U	EN61373, MIL-STD-810F			
		□□□□□U - DR	EN61373, IEC60068-2-6			
Relative humidity			5% to 95% RH			

EMC SPECIFICATIONS			
Parameter	Conditions		Level
EMI	EN55032, EN50121-3-2		Class B
EMS	EN55035, EN50121-3-2		
ESD	EN61000-4-2	Air $\pm 8kV$ and Contact $\pm 6kV$	Perf. Criteria A
Radiated immunity	EN61000-4-3	20 V/m	Perf. Criteria A
Fast transient	EN61000-4-4	$\pm 2kV$	Perf. Criteria A
Surge	EN61000-4-5	EN55035: $\pm 1kV$ and EN50121-3-2: $\pm 2kV$	Perf. Criteria A
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8	100A/m continuous; 1000A/m 1 second	Perf. Criteria A

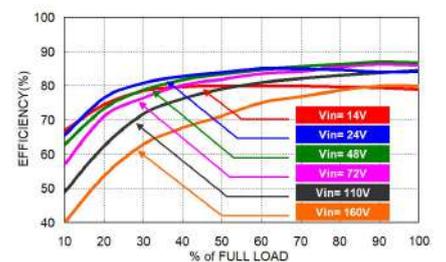
CHARACTERISTIC CURVE



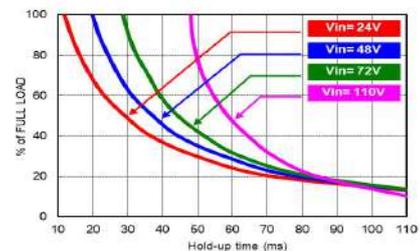
URCD10-72S05U Derating Curve



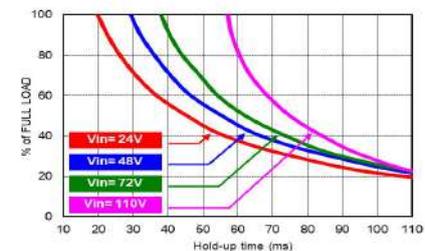
URCD10-72S05U Efficiency vs. Input Voltage



URCD10-72S05U Efficiency vs. Output Load



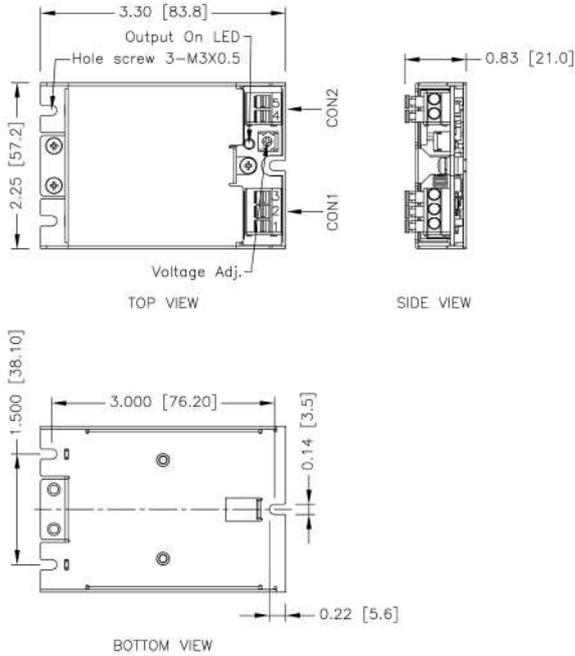
URCD10-72S05U Hold-up Time Curve



URCD10-72S05U-H Hold-up Time Curve (Options)

MECHANICAL DRAWING

CHASSIS MOUNTING TYPE

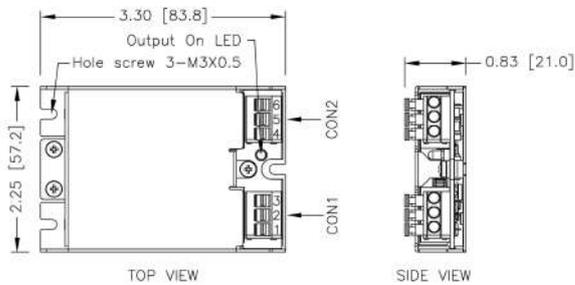


TERMINAL CONNECTION

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

※ Terminals – wire range from 14 to 20 AWG

1. All dimensions in Inch [mm]
Tolerance : X.XX±0.02 [X.X±0.5]
X.XXX±0.01 [X.XX±0.25]
2. M3x0.5 screw locked torque MAX 3.4kgf-cm/0.33N-m



TERMINAL CONNECTION

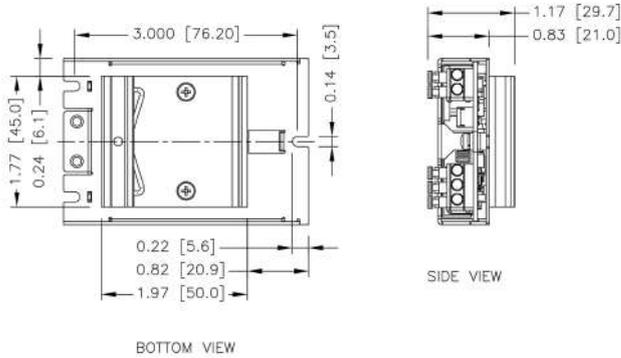
NO.	DUAL
1	+Vin
2	-Vin
3	Ctrl
4	-Vout
5	Common
6	+Vout

※ Terminals – wire range from 14 to 20 AWG

1. All dimensions in Inch [mm]
Tolerance : X.XX±0.02 [X.X±0.5]
X.XXX±0.01 [X.XX±0.25]
2. M3x0.5 screw locked torque MAX 3.4kgf-cm/0.33N-m

MECHANICAL DRAWING (CONTINUED)

DIN RAIL MOUNTING TYPE (OPTIONS)



- All dimensions in Inch [mm]
Tolerance : X.XX±0.02 [X.X±0.5]
 X.XXX±0.01 [X.XX±0.25]
- M3x0.5 screw locked torque MAX 3.4kgf-cm/0.33N-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.

- Thermal test condition with vertical direction by natural convection (20LFM).

