



P-DUKE
POWER

URCD20U Series
Chassis-Mount DC-DC Converter
Up to 20 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

URCD20 -	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	05: 5 12: 12 15: 15 24: 24	12:1	☐ S2 ☐ H: S3	☐ 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	mA	mA	%	μF
URCD20-72S05U	14 ~ 160	5	4000	15	85	5000
URCD20-72S12U	14 ~ 160	12	1670	15	86	850
URCD20-72S15U	14 ~ 160	15	1330	15	86	700
URCD20-72S24U	14 ~ 160	24	835	15	86	220
URCD20-72D12U	14 ~ 160	±12	±833	15	86	±500
URCD20-72D15U	14 ~ 160	±15	±667	15	86	±350

INPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range			14	72	160	VDC
Input fuse	Slow Blow		3.15			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	+0.5		mA
		Remote off input current	2.5			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 5Vout	-1.5		+1.5	%
		12Vout, 15Vout, 24Vout	-1.0		+1.0	
Cross regulation	Asymmetrical load 25%/100% FL	Dual 12Vout, 15Vout	-1.5		+1.5	%
		Dual	-5.0		+5.0	
Voltage adjustability	Single output	12Vout	-10		+10	%
Ripple and noise	Measured by 20MHz bandwidth	Others	-10		+20	%
		Single 5Vout 12Vout, 15Vout 24Vout Dual 12Vout, 15Vout	75 100 125 100			mVp-p
Temperature coefficient			-0.02		+0.02	%/°C
Transient response recovery time	25% load step change		250			μs
Over voltage protection		5Vout	6.3		7.4	VDC
		12Vout	13.5		19.6	
		15Vout	18.3		22.0	
		24Vout	29.1		32.5	
Output indicator			Green LED			
Over load protection	% of Iout rated; Hiccup mode		155			%
Short circuit protection			Continuous, automatic 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		190	220	250	KHz
Safety meets					IEC/ EN/ UL62368-1
Standard approvals					EN50155 EN45545-2
Chassis material					Aluminum
Weight					95g (3.35oz)
MTBF	MIL-HDBK-217F, Full load				1.003 x 10 ⁶ hrs

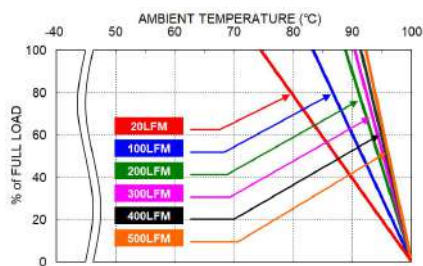
ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature		-40		+100	°C
Maximum case temperature				100	°C
Over temperature protection			108		°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

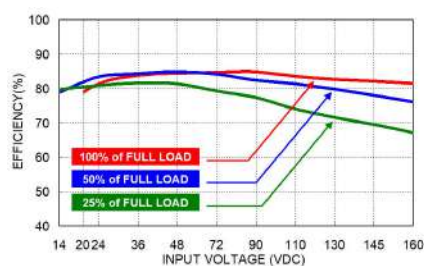
EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55032, EN50121-3-2	Class B
EMS	EN55035, EN50121-3-2	
ESD	EN61000-4-2 Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 20 V/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 10 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8 100A/m continuous; 1000A/m 1 second	Perf. Criteria A

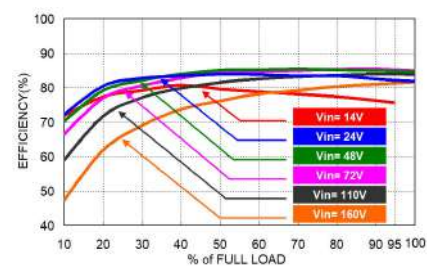
CHARACTERISTIC CURVE



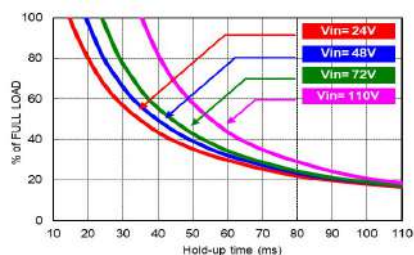
URCD20-72S05U Derating Curve



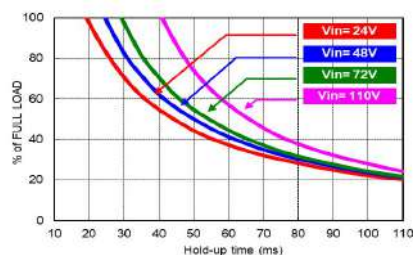
URCD20-72S05U Efficiency vs. Input Voltage



URCD20-72S05U Efficiency vs. Output Load



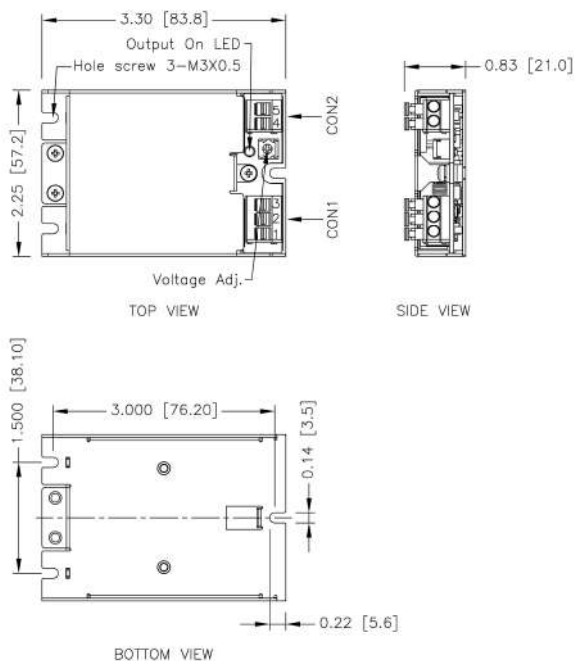
URCD20-72S05U Hold-up Time Curve



URCD20-72S05U-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

- 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

TERMINAL CONNECTION

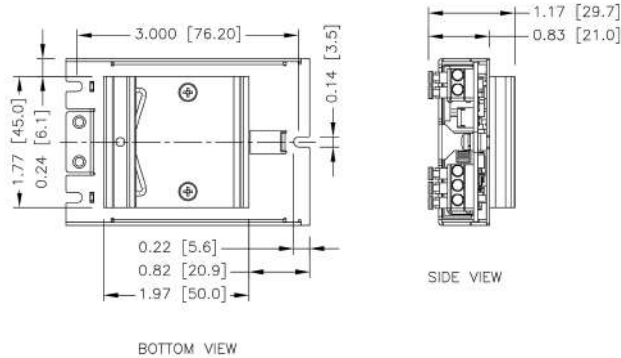
NO.	DUAL
1	+Vin
2	-Vin
3	Ctrl
4	-Vout
5	Common
6	+Vout

※ Terminals – wire range from 14 to 20 AWG

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

MECHANICAL DRAWING (CONTINUED)

DIN RAIL MOUNTING TYPE (OPTION)



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

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).

