

**Chassis-Mount DC-DC converter
up to 20 Watts**

3
YEARS
WARRANTY

ROHS
COMPLIANT

REACH
COMPLIANT



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



Medical



PV



Railway



2250
VDC
Isolation
Voltage

4 : 1
Wide
Input
Range

FUSE
Installed

INRUSH
CURRENT
LIMIT

LOW
Standby
Power

NO
Min. Load
Required

REMOTE
ON
OFF

REVERSE
POLARITY
PROTECTION

OCP

OVP

SCP

UVP

PART NUM BER STRUCTURE

VPED20	-	48	S	05	W	-	N	R	EC
Series Name		Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range		Remote Control Option	Conformal Coating Option	Assembly Option
		24:9~36 48:18~75 110:43~160	S:Single	3P3:3.3 05:5 12:12 15:15	4:1		□:Positive logic N:Negative logic	□: None R: Conformal Coating	□: None EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & 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
VPED20-24S3P3W	9 ~ 36	3.3	4500	8	84	7000
VPED20-24S05W	9 ~ 36	5	4000	8	87	5000
VPED20-24S12W	9 ~ 36	12	1670	8	88	850
VPED20-24S15W	9 ~ 36	15	1330	8	87	700
VPED20-24D12W	9 ~ 36	±12	±833	8	87	±500
VPED20-24D15W	9 ~ 36	±15	±667	8	88	±350
VPED20-48S3P3W	18 ~ 75	3.3	4500	6	84	7000
VPED20-48S05W	18 ~ 75	5	4000	6	87	5000
VPED20-48S12W	18 ~ 75	12	1670	6	88	850
VPED20-48S15W	18 ~ 75	15	1330	6	88	700
VPED20-48D12W	18 ~ 75	±12	±833	6	87	±500
VPED20-48D15W	18 ~ 75	±15	±667	6	88	±350
VPED20-110S3P3W	43 ~ 160	3.3	4500	5	84	7000
VPED20-110S05W	43 ~ 160	5	4000	5	86	5000
VPED20-110S12W	43 ~ 160	12	1670	5	87	850
VPED20-110S15W	43 ~ 160	15	1330	5	87	700
VPED20-110D12W	43 ~ 160	±12	±833	5	87	±500
VPED20-110D15W	43 ~ 160	±15	±667	5	88	±350

INPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range	24Vin(nom) 48Vin(nom) 110Vin(nom)		9 18 43	24 48 110	36 75 160	VDC
Input fuse	slow blow	24Vin(nom) 48Vin(nom) 110Vin(nom)		6 4 2		A
In-rush current				15		A
Start up voltage		24Vin(nom) 48Vin(nom) 110Vin(nom)			9 18 43	VDC
Shutdown voltage		24Vin(nom) 48Vin(nom) 110Vin(nom)	7.5 15.5 38.5	8 16 40	8.8 17.5 42	VDC
Start up time	Constant resistive load	Power up Remote ON/OFF		100 30		ms
Input surge voltage	1 second, max.	24Vin(nom) 48Vin(nom) 110Vin(nom)			50 100 170	VDC
Remote ON/OFF	Referred to –Vin pin	Positive logic (Standard) Negative logic (Option) Input current of Ctrl pin Remote off input current	DC-DC ON DC-DC OFF DC-DC ON DC-DC OFF	Open or 3 ~ 15VDC Short or 0 ~ 1.2VDC Short or 0 ~ 1.2VDC Open or 3 ~ 15VDC		mA mA
			-0.5	5	1	

OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Voltage accuracy	3.3Vout Others	-1.5 -1.0		+1.5 +1.0	%
Line regulation	Low Line to High Line at Full Load Single Dual	-0.2 -0.5		+0.2 +0.5	%
Load regulation	No Load to Full Load 3.3Vout Others	-1.5 -1.0		+1.5 +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	3.3Vout 5Vout 12Vout 15Vout	3.7 5.6 13.5 16.8		5.4 7.0 19.6 20.5	VDC
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 Input (Output) to Chassis	2250 1600			VDC
Isolation resistance	500VDC	1			GΩ
Isolation capacitance			5000		pF
Switching frequency		297	330	363	kHz
Safety meets			IEC/ UL/ EN60950-1, 62368-1		
Chassis material			Aluminum		
Conformal coating			Impregnating varnish		
Weight			105g (3.70oz)		
MTBF	MIL-HDBK-217F, Full load			1.338 x 10 ⁶ hrs	

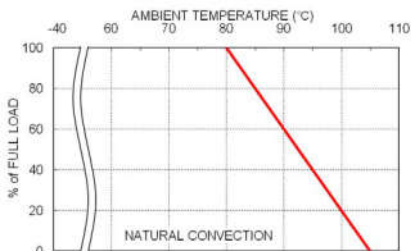
ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	With derating	-40		+105	°C
Storage temperature range		-40		+105	°C
Thermal shock				MIL-STD-810F	
Shock	□□S□□W -□□ □□S□□W -□□EC □□S□□W -□□DR □□S□□W -□□ED			EN61373, MIL-STD-810F EN61373, MIL-STD-810F EN61373, IEC60068-2-27 EN61373, IEC60068-2-27	
Vibration	□□S□□W -□□ □□S□□W -□□EC □□S□□W -□□DR □□S□□W -□□ED			EN61373, MIL-STD-810F EN61373, MIL-STD-810F EN61373, IEC60068-2-6 EN61373, IEC60068-2-6	
Relative humidity				5% to 95% RH	

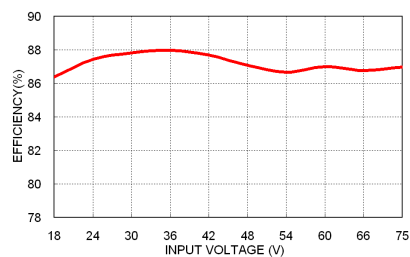
EMC SPECIFICATIONS

Parameter	Conditions		Level
EMI	EN55032		Class B
ESD	EN61000-4-2	Air $\pm 8\text{kV}$ and Contact $\pm 6\text{kV}$	Perf. Criteria A
Radiated immunity	EN61000-4-3	20V/m	Perf. Criteria A
Fast transient	EN61000-4-4	$\pm 2\text{kV}$	Perf. Criteria A
Surge	EN61000-4-5	$\pm 1\text{kV}$	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

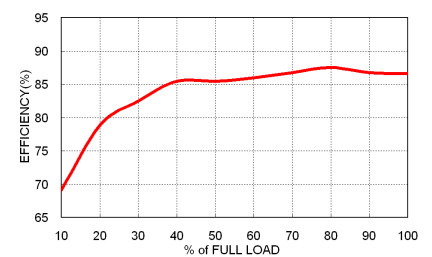
CHARACTERISTIC CURVE



VPED20-48S05 W Derating Curve



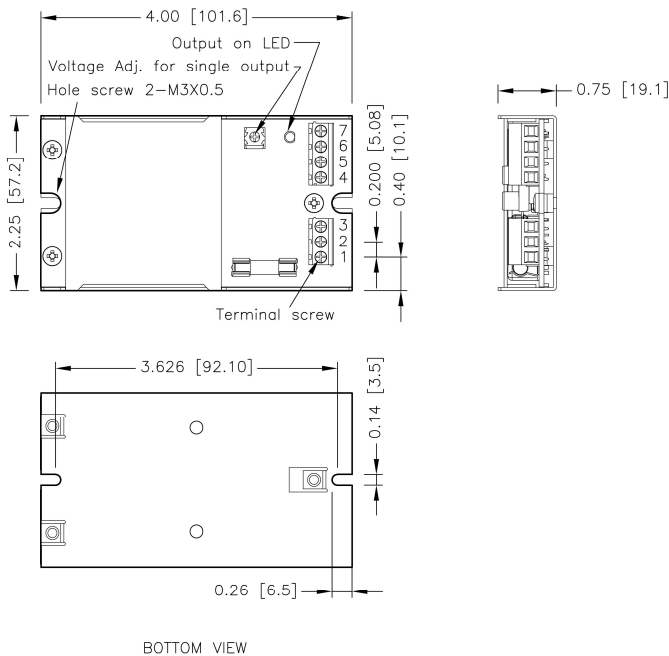
VPED20-48S05W Efficiency vs. Input Voltage



VPED20-48S05W Efficiency vs. Output Load

MECHANICAL DRAWING

CHASSIS MOUNTING TYPE



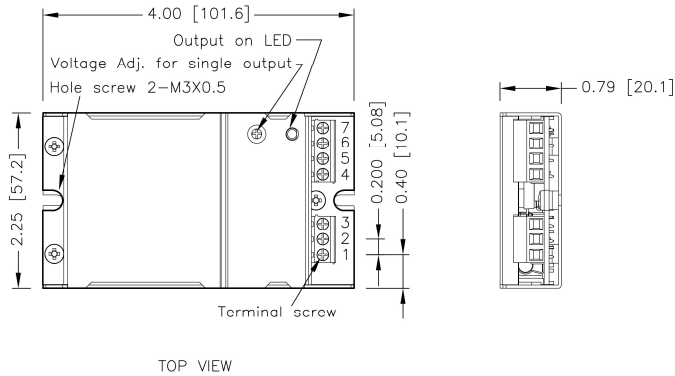
TERMINAL CONNECTION

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

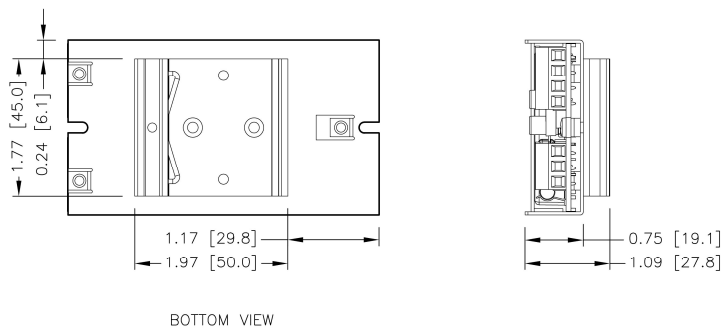
- ※ NC : No Connection
- ※ Screw terminals – wire range from 14 to 18 AWG

MECHANICAL DRAWING(CONTINUED)

ENCLOSED MOUNTING TYPE



DIN RAIL MOUNTING TYPE



1. All dimensions in Inch [mm]
2. Tolerance : X.XX±0.02 [X.X±0.5]
2. 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