20 Watt, 8,5 – 160VDC Wide Input DC/DC Converters
Series DV20X18

E357872

Railway System

RoHS

Features

- 20 Watt Isolated Output
- Regulated Outputs
- 18:1 Wide Input Range
- Fixed Switching Frequency
- Efficiency to 90%
- Remote On/Off
- Shock & Vibration Meet EN50155 (EN61373)
- UL62368-1 2nd (Reinforce Insulation) Approval
- Low No Load Power Consumption
- Over Temperature Protection
- Continuous Short Circuit Protection
- Over Current/Voltage Protection
- 2"x1"x0,4" Size Meet Industrial Standard
- Fire & Smoke Meet EN45545-2
- Meet EN50155 with external Circuits
- 5000m Operating Altitude

MODEL NUMBER	INPUT VOLTAGE [VDC] (Note 3)	OUTPUT VOLTAGE [VDC]	OUTPUT CURRENT [mA] MAX.	INPUT CURRENT NO LOAD [mA]	INPUT CURRENT FULL LOAD [mA]	EFF. [%]		CAP. LOAD Max. [µF]	CASE
						(Note 1)	(Note 2)		
DV20X18-72S05	8,5 – 160	5	4000	5	323	86	85	6800	X
DV20X18-72S12		12	1670	8	312	89	88	3300	
DV20X18-72S15		15	1330	8	312	89	88	2200	
DV20X18-72D12		±12	±833	8	312	89	88	820	
DV20X18-72D15		±15	±667	8	312	89	88	680	
DV20X18-72D24		±24	±417	8	309	90	89	330	

Note:

1. Measured at Nominal Input Voltage 72VDC.
2. Measured at Input Voltage 110VDC.
3. DV20X18 has Derating by Input Voltage is Required Shown Fig.1.

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INPUT SPECIFICATIONS:

Input Voltage Range	72V	8,5 – 160VDC
Input Surge Voltage (100mS max.)		200Vdc max.
Under Voltage lockout	power up	9,0VDC typ.
	power down	7,5VDC typ.
Input Filter		Pi Type
Positive Logic Remote ON/OFF Control (Note 4&5):		

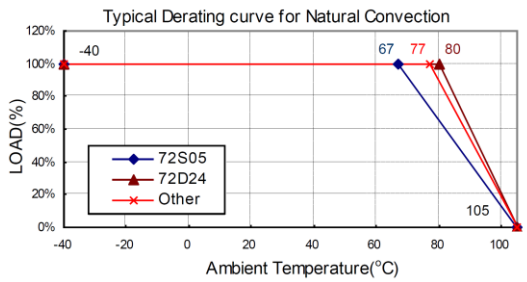
OUTPUT SPECIFICATIONS:

Output Current Min.		0mA
Voltage Accuracy		±1,0%max.
Voltage Balance (Dual Output)		±1,0%max.
Transient Response: 75%~100% Step Load Change		
Error Band …… ±5% Vout Nominal, Recovery Time		< 250µs
External Trim Adj. Range (Single Output Only)		-20%, +15%
Temperature Coefficient		0,02%/°C max.
Ripple and Noise, 20 MHz BW (Note 3)	5V	40mV RMS, max., 75mV pk-pk, max.
	Other	40mV RMS, max., 100mV pk-pk, max.
Short Circuit Protection		Continuous
Line Regulation (Note 1)		±0,2% max.
Load Regulation (Note 2)	Single	±0,2% max.
	Dual	±1,0% max.
Cross Regulation (Dual Output) Load Cross Variation	25%/100%	±5,0% max.
Over Voltage Protection		Zener Clamp
Current Limit		110% to 180% Nominal Output
Start up time	5V	15ms typ.
	Other	10ms typ.

GENERAL SPECIFICATIONS:

Efficiency	See Table
Isolation Voltage I/O	3000 VAC min.
Isolation Resistance	10^9 Ω min.
Isolation Capacitance	20pF typ.
Switching Frequency	200KHz, typ.
Operating Ambient Temperature	-40°C to +85°C
Thermal Shutdown, Case Temp.	110°C typ.
Derating, above 67°C	Linearly to Zero Power at 105°C
Case Temperature	105°C max.
Cooling	Natural Convection
Storage Temperature	-55°C to +125°C
Humidity	95% RH max. Non condensing
Operating Altitude	5000m
MTBF (MIL-STD-217F,GB, 25°C, Full Load)	1570Khrs typ.
Safety	UL62368-1 2nd (Reinforced Insulation)
EMC (Note 6)	EN50155 (EN50121-3-2) with External Filter
Shock/Vibration	EN50155 (EN61373)
Environmental	EN50155 (EN60068-2-1)
Fire & Smoke	EN45545-2
Dimensions	(2,00 x 1,00 x 0,40 inches) 50,8 x 25,4 x 10,2 mm
Case Material	Non-Conductive Black Plastic
Base Material	FR4 PCB (Flammability to UL 94V-0 rated)
Weight	28,5g

Note:
1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 1uF ceramic capacitor across output.
4. Logic compatibility …….…….. open collector ref. to -Input
   Module on ……..…… > 4.0VDC to 160VDC or open circuit
   Module off ……0 to.. < 1.2VDC
5. Suffix "N" to the model number with negative logic remote on/off
   Module on ……0 to . < 1.2VDC
   Module off …….…… >4.0VDC to 75VDC or open circuit
6. Design meet EN50155 and RIA12 refer to application note.
7. All Specifications Typical at Nominal Line, Full Load and 25°C. Unless Otherwise Noted



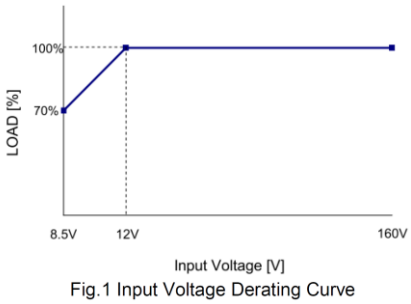


Fig.1 Input Voltage Derating Curve

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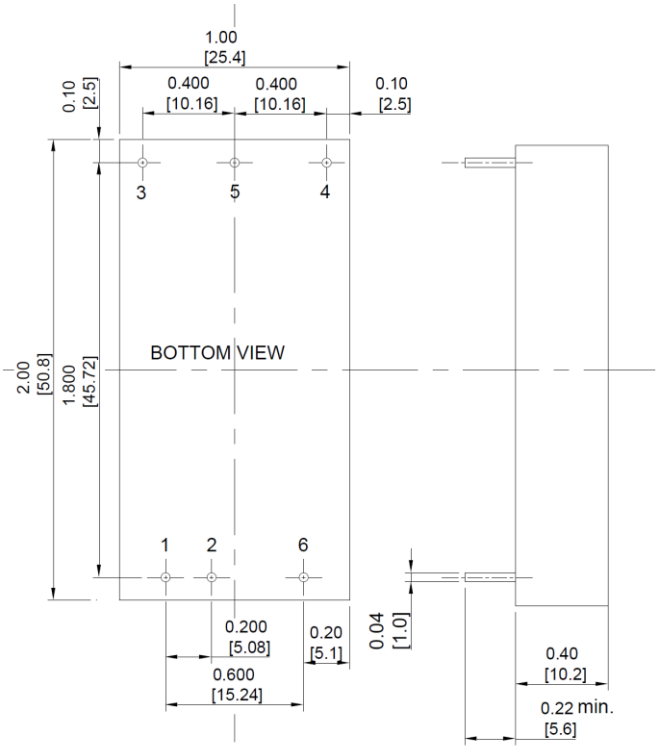
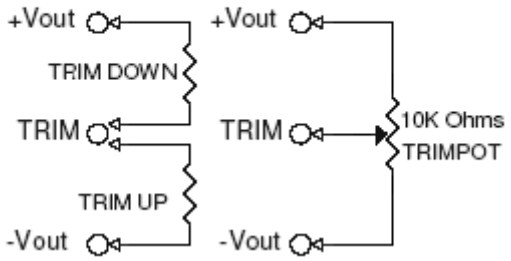
All Dimensions in Inches (mm)

NOTE: Pin Size is 0.04±0.004 Inch (1.0±0.1 mm)DIA
Tolerances Inches: X.XX= ±0.02 , X.XXX= ±0.010
Millimeters: X.X= ±1.0, X.XX= ±0.25



PIN CONNECTION DV204X-Railway		
Pin	**Single**	**Dual**
1	**+V Input**	**+V Input**
2	**-V Input**	**-V Input**
3	**+V Output**	**+V Output**
4	**Trim**	**-V Output**
5	**-V Output**	**Common**
6	**Remote ON/OFF**	**Remote ON/OFF**

EXTERNAL OUTPUT TRIM



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