



## 20 Watt, 43 – 160VDC Wide Input DC/DC Converters Series DV204X-Railway



### Features

- 20 Watt Isolated Output
- Regulated Outputs
- 4:1 Wide Input Range
- Remote ON/OFF
- Efficiency to 90%
- Fire & Smoke meet EN45545-2
- UL60950-1 Approval, Basic Insulation
- I/O Isolation 3000 VDC
- Input Under-Voltage Protection
- Continuous Short Circuit Protection
- Over Current/Voltage Protection
- 2"x1"x0,4" Package
- Meets IEC62368-1 / EN62368-1
- Meet EN50155 with external Circuits

MODEL NUMBER	INPUT VOLTAGE [ VDC ]	OUTPUT VOLTAGE [ VDC ]	OUTPUT CURRENT [ mA ] MIN.	OUTPUT CURRENT [ mA ] MAX.	INPUT CURRENT NO LOAD [ mA ]	INPUT CURRENT FULL LOAD [ mA ]	EFF. [ % ]	CAP. LOAD Max. [ $\mu$ F ]	CASE
DV43-160-05S4000X	43 – 160	5	0	4000	3	205	88	5600	X
DV43-160-12S1670X		12	0	1670	3	202	90	1000	
DV43-160-15S1340X		15	0	1340	3	203	89	1000	
DV43-160-12D833X		$\pm 12$	0	$\pm 833$	3	204	89	680	
DV43-160-15D667X		$\pm 15$	0	$\pm 667$	3	205	88	350	

Note: Nominal Input Voltage 110Vdc.

## INPUT SPECIFICATIONS:

Input Voltage Range.....	110V .....	43 – 160VDC
Input Surge Voltage (100mS max.) .....		200Vdc max.
Under Voltage lockout .....	power up .....	40VDC typ.
	power down .....	38VDC typ.
Input Filter .....		Pi Type
Positive Logic Remote ON/OFF Control( Note 4&5 ):		

## OUTPUT SPECIFICATIONS:

Voltage Accuracy.....		±1,5%max.
Voltage Balance (Dual Output) .....		±1,0%max.
External Trim Adj. Range ( Single Output only ) .....		±10%
Transient Response: 25% Step Load Change.....		<250µ sec.
Temperature Coefficient.....		0,03%/°C max.
Ripple and Noise, 20 MHz BW ( Note 3 ).....	Vo=5V .....	40mV RMS, max. / 75mV p-p max.
	Vo=12 & 15V & ±12V & ±15V .....	40mV RMS, max. / 100mV p-p max.
Short Circuit Protection .....		continuous
Line Regulation ( Note 1 ) .....		±0,2% max.
Load Regulation ( Note 2 ) .....	Single .....	±0,5% max.
	Dual .....	±1,0% max.
Cross Regulation (Dual Output) Load cross variation.....	10%/100% .....	±5,0% max.
Over Voltage Protection .....		Zener or TVS Clamp
Current Limit .....		110% to 160% Nominal Output
Start up time .....	Single .....	15ms typ.
	Dual .....	25ms typ.

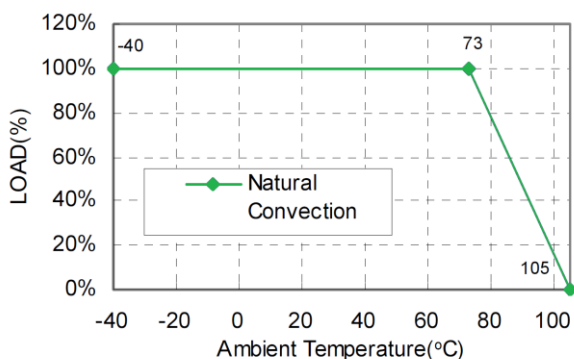
## GENERAL SPECIFICATIONS:

Efficiency .....		See Table
Isolation Voltage I/O .....		3000 VDC min.
Isolation Resistance .....		10 <sup>9</sup> Ω min.
Isolation Capacitance.....		1000pF typ.
Switching Frequency .....		250KHz, typ.
EMI/RFI.....		Conductive EMI Meets EN55032 Class A
Operating Ambient Temperature Range .....		-40°C to +85°C
Derating, above 73°C .....		Linearly to Zero Power at 105°C
Case Temperature .....		105°C max.
Cooling.....		Natural Convection
Storage Temperature Range .....		-55°C to +125°C
Humidity .....		95% RH max. Non condensing
MTBF ( MIL-STD-217F,GB, 25°C, Full Load .....		880Khrs typ.
Safety.....		UL60950-1 2 <sup>nd</sup> (basic insulation) Approved, meets IEC/EN62368-1
EMC ( Note 6).....		EN50155 (EN50121-3-2) with external filter
Shock/Vibration meet .....		EN50155 ( EN61373 )
Fire & Smoke.....		Meet EN45545-2
Dimensions .....		( 2,00 x 1,00 x 0,40 inches ) 50,8 x 25,4 x 10,2 mm
Case Material .....		Black Coated Copper with Non-Conductive Base
Weight.....		35g typ.

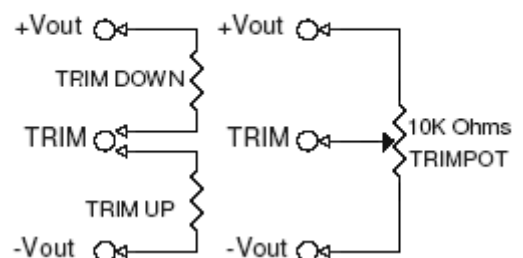
### Note:

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 1µF ceramic capacitor across output.
4. Logic compatibility ..... open collector ref. to -Input  
 Module on ..... > 3.5VDC to 75VDC 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 ..... >3.5VDC 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

Typical Derating curve for Natural Convection



## EXTERNAL OUTPUT TRIM



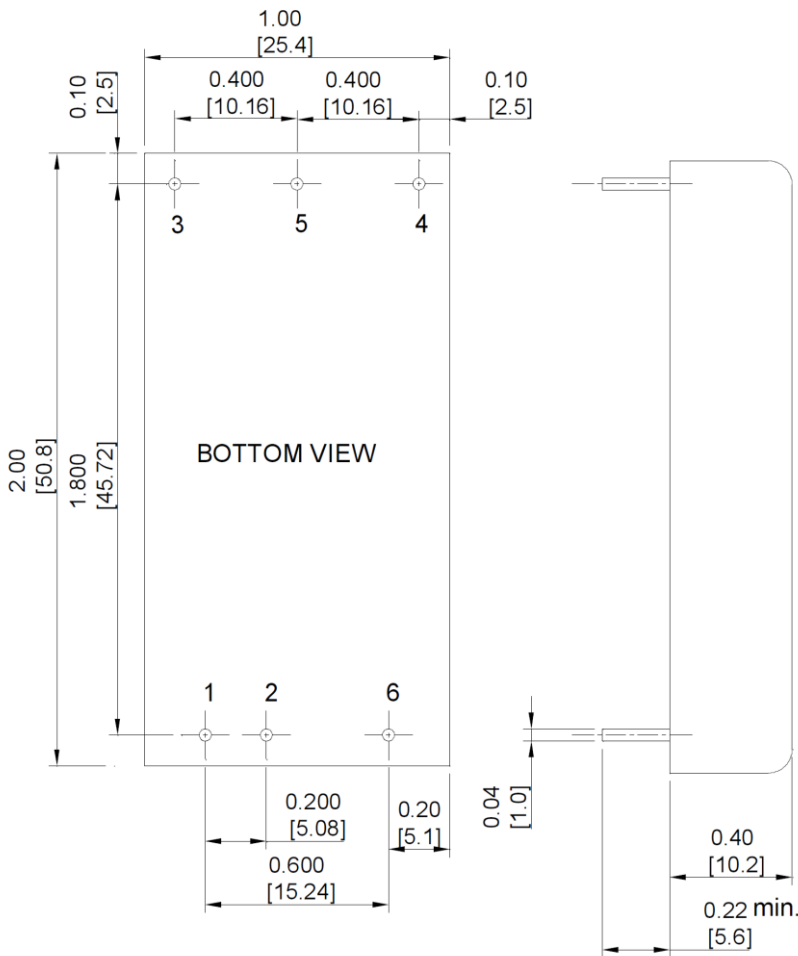
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# CASE X

# Series DV204X-Railway

All Dimensions in Inches ( mm )

Tolerance x.xx=±0.04(x.x = ±1,0mm) ; x.xxx=±0.010(x.xx = ±0.25mm)



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