



**50 Watt, 9 – 75VDC Wide Input  
DC/DC Converters  
Series DV50Q8**



**Features**

- 50 Watt Isolated Output
- Regulated Outputs
- 8 : 1 Wide Input Range
- Isolation I/O 3000Vac
- Fixed Switching Frequency
- Remote ON/OFF
- Shock & Vibration Meet EN50155 (EN61373)
- UL62368-1 (Reinforced Insulation) Approval
- Meet IEC62368-1
- Quarter Brick Size Meet Industrial Standard 57,9 x 36,8 x 12,7 (mm)
- Efficiency to 91%
- Continuous Short Circuit Protection
- Over Temperature Protection
- Over Voltage / Current Protection
- Operating Case Temperature -40 to +105°C
- Low No Load Power Consumption
- Fire & Smoke Meet EN45545-2
- EN50155 Compliant with External Circuits
- 5000m Operating Altitude

MODEL NUMBER	INPUT VOLTAGE [ VDC ]	OUTPUT VOLTAGE [ VDC ]	OUTPUT CURRENT [ A ] MAX.	INPUT CURRENT NO LOAD [ mA ]	INPUT CURRENT FULL LOAD [ A ]	EFF. [ % ] (Note (1))	EFF. [ % ] (Note (2))	CAP. LOAD Max. [ μF ]	CASE
DV50Q8-36S12	9 – 75	12	4,17	8	1,5	91	90	8000	Q
DV50Q8-36S15		15	3,33	8	1,5	90	90	6800	
DV50Q8-36S24		24	2,08	10	1,5	90	90	2350	
DV50Q8-36S28		28	1,79	10	1,5	90	90	2350	
DV50Q8-36S48		48	1,05	10	1,5	91	90	700	

NOTE:

1. Nominal Input Voltage 36 VDC.
2. Measured at 48V<sub>in</sub>
3. Example **DV50Q8-36S24N-C**  
50Watt, Q: Quarter Brick, 8: Input: 8:1, 36: 9-75Vdc, S: Output Single 24Vdc, N: Negative Logic, -C: Clear Mounting Insert
4. All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted.

## INPUT SPECIFICATIONS:

Input Voltage Range.....	36V .....	9-75Vdc
Input Surge Voltage.....	100ms max .....	100Vdc max.
Input Under Voltage Lockout .....	Turn-On Voltage Threshold .....	8,4V min / 9,0V max.
	Turn-Off Voltage Threshold .....	7,6V min. / 8,2V max.
Maximum Input Current.....	$V_{in}=9V$ , Full Load .....	6,7A typ.
Inrush Current.....		0,1 A <sup>2</sup> s max.
Input Reflected Ripple Current... P-P thru 12uH inductor, 5Hz to 20MHz .....		30mA typ.
Input Filter .....		PI Type
Positive Logic Remote On/Off, Refer to -Vin pin.		
Logic Low (Module Off) .....	$V_{on/off}$ at $I_{on/off}=1.0mA$ .....	0 to 1.0Vdc
Logic High (Module On) .....	$V_{on/off}$ at $I_{on/off}=0.0uA$ , Pin open=On .....	4,0 to 75Vdc
Suffix "N" to the model number with negative logic Remote On/Off		
Logic Low (Module Off) .....	$V_{on/off}$ at $I_{on/off}=0.0uA$ , Pin open=Off .....	4,0 to 75Vdc
Logic High (Module On) .....	$V_{on/off}$ at $I_{on/off}=1.0mA$ .....	0 to 1.0Vdc
On/Off Current (for both remote on/off logic).....	$I_{on/off}$ at $V_{on/off}=0V$ .....	1 mA max.
Leakage Current (both remote on/off logic).....	Logic High, $V_{on/off}=15V$ .....	30 uA max.
Off Converter Input Current .....	Shutdown input idle current .....	10 mA max.

## OUTPUT SPECIFICATION:

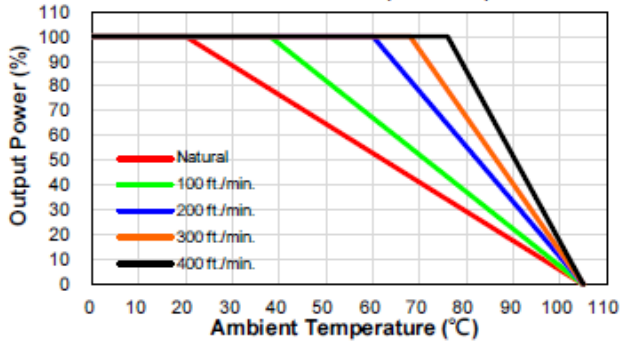
Voltage Set Point Accuracy .....	$V_{in}=36V$ , Full Load .....	±1,0% max.
Line Regulation.....	$V_{in}$ High Line to Low Line, Full Load .....	±0,2% max.
Load Regulation .....	Full Load to No Load .....	±0,2% max.
Temperature Coefficient.....		±0,02%/°C max.
Ripple and Noise (5Hz to 20 MHz BW) (Note 5).....	12V & 15V .....	80mV RMS / 150mV pk-pk max.
	24V & 28V .....	120mV RMS / 240mV pk-pk max.
	48V .....	220mV RMS / 480mV pk-pk max.
Current Current Protection .....		Hiccup Mode, Auto Recovery, 110%-210%
Short Circuit Protection .....		Continuous, Auto Recovery
External Trim Adj. Range .....	$P_o \leq \text{max rated power}$ , $I_o \leq I_{o\_max}$ .....	-20% min, +15% max.
Voltage Remote Sense ..	$P_o \leq \text{max rated power}$ , $I_o \leq I_{o\_max}$ % of nom. $V_o$ .....	+15% max.
Over Voltage Protection (Limited Voltage, % $V_o$ nom) .....		117-140%
Output Voltage Current Transient: 75% to 100% Step Load Change ( within 1% $V_{out}$ nominal )		
Error Band .....		±5% max.
Recover Time .....		250µ sec. max.
Output Voltage Rise Time .....	10% $V_{o\_set}$ to 90% $V_{o\_set}$ .....	10ms typ.
Start up Time .....		20ms typ.

## GENERAL SPECIFICATIONS:

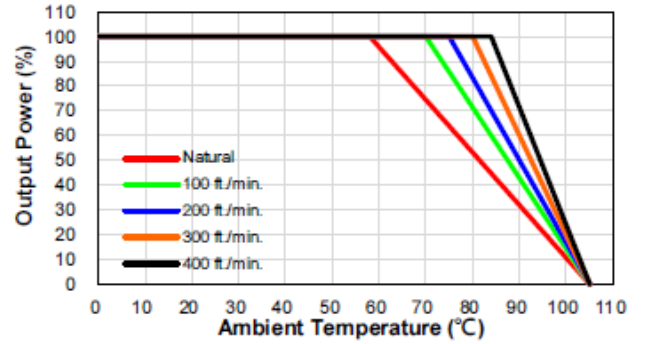
Efficiency .....		See Table
Isolation Voltage (1 Minute) .....	Input/Output .....	3000VAC max. / 4200VDC max.
	Input/Case (Baseplate) .....	2100VAC max. / 3000 VDC max.
	Output/Case (Baseplate) .....	1500VAC max. / 2100 VDC max.
Isolation Resistance .....		100 MΩ min.
Isolation Capacitance .....	Input/Output & Output to Case (Base Plate) .....	1000pF typ.
	Input to Case (Base Plate) .....	None
Switching Frequency .....		200 KHz typ.
Operating Case Temperature .....		-40°C to +105°C
Storage Temperature .....		-55°C to +125°C
Over Temperature Shutdown.....	Temp. at Center Part of Base Plate .....	110°C typ.
Over Temperature Recovery .....	Temp. at Center Part of Base Plate .....	100°C typ.
MTBF 25°C ( MIL-HDBK-217F, GB, Full Load) .....	12V .....	663 Hours typ.
	15V .....	759 Hours typ.
	24V .....	750 Hours typ.
	28V .....	740 Hours typ.
	48V .....	780 Hours typ.
Humidity .....		95% RH max. Non condensing
Altitude .....		5000m Operating Altitude, 12000m Transport Altitude
Thermal Shock .....		MIL-STD-810F
Fire & Smoke .....		Meet EN45545-2
Safety .....		Approved UL62368-1 2nd (Reinforced Insulation)
EMI .....		Meets EN55032 & EN50155 Class A (with external filter)
ESD .....		EN61000-4-2 Level 3: Air ±8kV, Contact ±6kV
Radiated immunity.....		EN61000-4-3 Level 3: 80-1000MHz, 20V/m
Fast Transient.....	EN61000-4-4 Level 3: On power input port, ±2kV, external input capacitor required	
Surge .....	EN61000-4-5 Level 4: Line to earth, ±4kV, Line to line, ±2kV	
Conducted immunity.....	EN61000-4-6 Level 3: 0.15-80MHz, 10V	
Interruptions of Voltage Supply / Supply Change Over .....		Meets EN50155: Class S3: 20ms interruptions
Supply Change Over .....		Meets EN50155: Class C2: During a supply break of 30 ms
Shock/Vibration .....		Meets MIL-STD-810F/EN61373
Dimensions .....		2.28x1.45x0.50 inches (57.9x36.8x12.7 mm)
Potting Material.....		UL 94-V0
Case Material .....		Aluminum Baseplate with Plastic Case, UL 94-V0
Weight.....		66g typ.

NOTE: 5. Full load, 22uF aluminum solid capacitor and 1uF ceramic capacitors

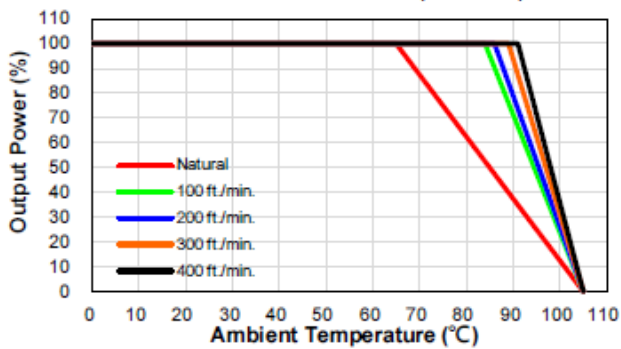
DV50Q8 Derating Curve  
without Heatsink (Vin=36V)



DV50Q8 Derating Curve  
with Heatsink KQ36127 (Vin=36V)

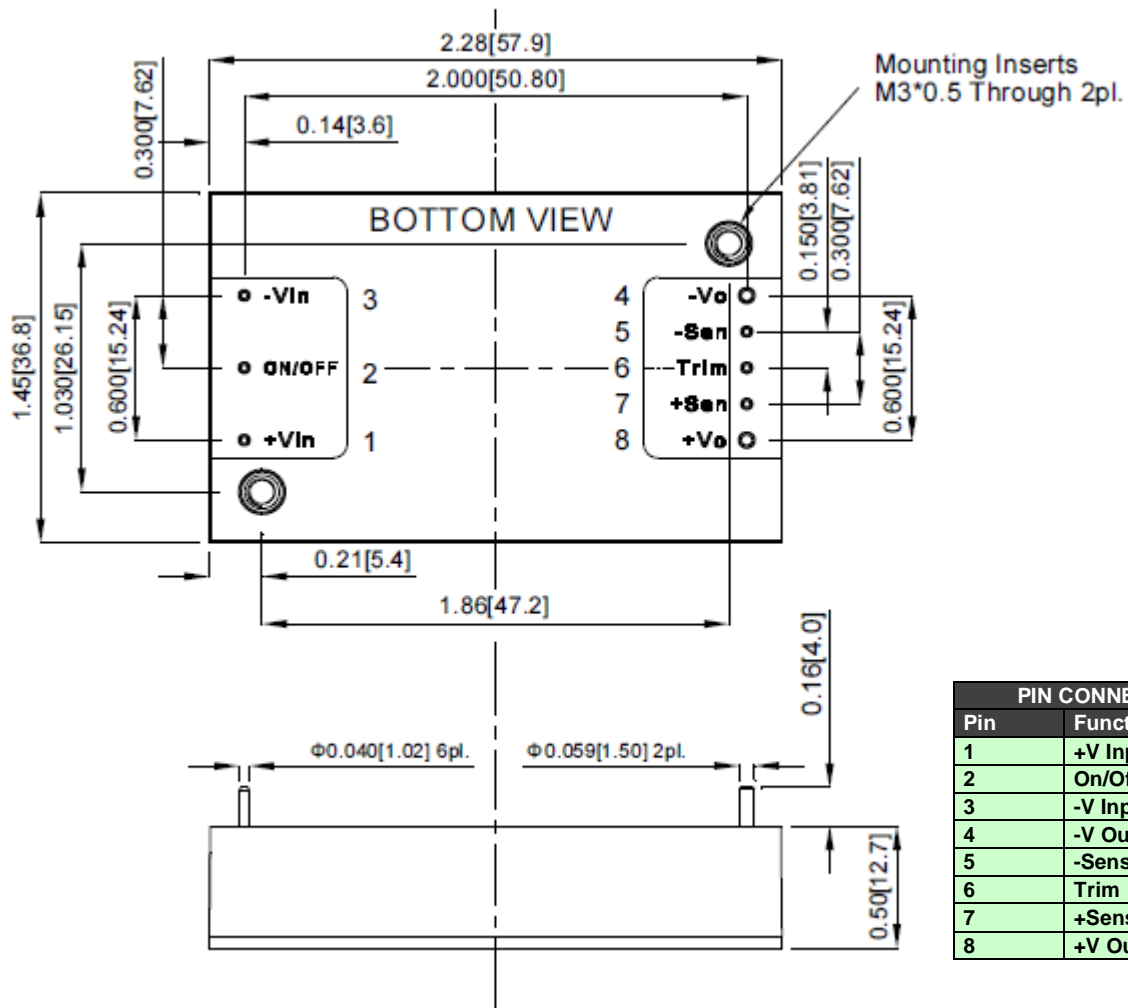


DV50Q8 Derating Curve  
with Heatsink KQ58210 (Vin=36V)



All Dimensions in Inches (mm)

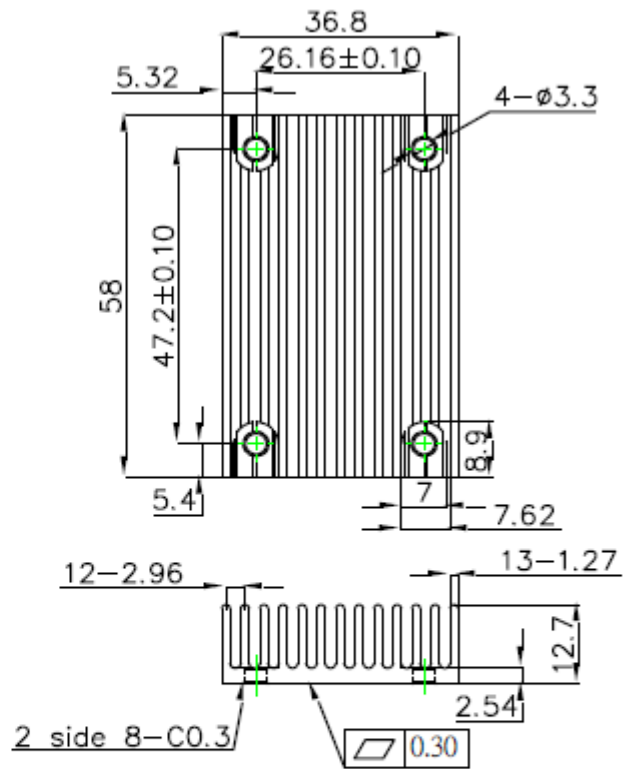
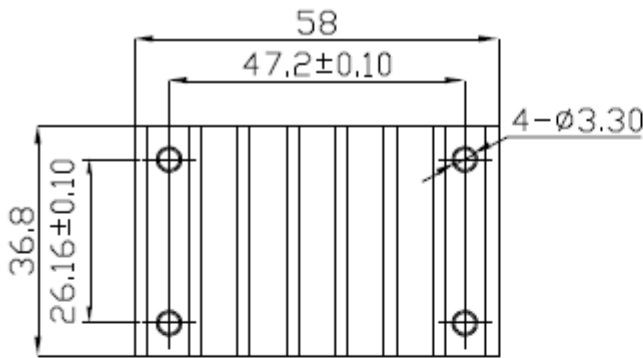
Tolerance Inches      x.xx±0.02      x.xxx±0.010  
 Millimeters          x.x±0.5          x.xx±0.25



**CASE Q: HEAT SINK**

Order No. 17.079.206  
 Model No. KQ580210  
 all dimensions in mm

Order No. 17.079.209  
 Model No. KQ368127



All Dimensions in mm

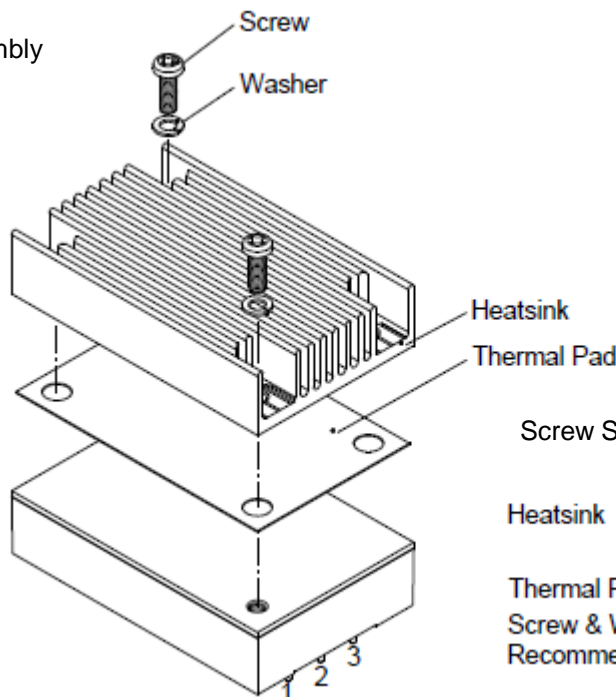
**KQ580210  
 Heat Sink**

Rca: 4.78°C/W (typ.), At natural convection  
 2.44°C/W (typ.), At 100LFM  
 2.06°C/W (typ.), At 200LFM  
 1.76°C/W (typ.), At 300LFM  
 1.58°C/W (typ.), At 400LFM

**KQ368127  
 Heat Sink**

Rca: 5.61°C/W (typ.), At natural convection  
 4.01°C/W (typ.), At 100LFM  
 3.39°C/W (typ.), At 200LFM  
 2.86°C/W (typ.), At 300LFM  
 2.49°C/W (typ.), At 400LFM

Heat Sink Assembly  
 example



Screw SMP+SW M3x8L

Heatsink KQ580210  
 KQ368127

Thermal Pad SZ35.8x56.9x0.25mm

Screw & Washer

Recommended torque 3 Kgf-cm