

# Q Series

0.5-1.25 WATTS-100-10KV - DC/DC SINGLE OUTPUT

DC-DC PCB MOUNTED CONVERTERS & POWER MODULES

## FEATURES

- Ultra-Miniature Case Size
- Proven Reliability
- No External Components Required
- Low Ripple and EMI/RFI
- Proportional Input/Output
- Input/Output Isolation
- Low Leakage Current <250nA
- Low input/output coupling capacitance, <50 pF typical
- Designed to meet UL 94 V0
- MTBF: >3 million hrs. per Bellcore TR 332
- Short circuit protection, 1 minute minimum
- Control Pin can be used for ON/OFF control



## SPECIFICATIONS

INPUT	
Voltage	0-5, 12,15 or 24VDC (model dependant)
Typical turn-on voltage	0.7 volts
OUTPUT	
DC voltage range	See tables
Current range	See tables
Power	0.5W & 1.25W models
Voltage tolerance	±5%, -10% at 100% full load
Isolation	±500V DC bias on output return (pin 4)
Frequency	75-350kHz typical
Control pin	0 to voltage input
ENVIRONMENTAL	
Operating temperature	-25°C to +70°C (Case) -10°C to +60°C, (Case) 6kV to 10kV models
Storage temperature	-55°C to +105°C
GENERAL	
Dimensions	12.7 x 12.7 x 12.7 mm ,100V to 5kV models 21.59 x 21.59 x 21.59 mm, 6kV to 10kV models
Weight	4.25g, 100V to 5kV models 28.3g, 6kV to 10kV models
Case material	Glass-filled Epoxy

100V TO 2,000V				
Q MODELS – 0.50 WATTS			QH MODELS 1.25 WATT	
VIN	NO LOAD	FULL LOAD	NO LOAD	FULL LOAD
5V DC	<100 mA	<200 mA	<250 mA	<500 mA
12V DC	<40 mA	<100 mA	<100 mA	<250 mA
15V DC	<32 mA	<80 mA	<80 mA	<200 mA
24V DC	<20 mA	<50 mA	<50 mA	<125 mA
2,500V TO 5,000V				
Q MODELS – 0.50 WATTS			QH MODELS – 1.25 WATT	
VIN	NO LOAD	FULL LOAD	NO LOAD	FULL LOAD
5V DC	<250 mA	<400 mA	<625 mA	<1.5 A
12V DC	<100 mA	<250 mA	<250 mA	<625 mA
15V DC	<80 mA	<200 mA	<200 mA	<500 mA
24V DC	<50 mA	<135 mA	<125 mA	<312 mA
6,000V TO 10,000V				
Q MODELS – 0.50 WATTS				
VIN	NO LOAD	FULL LOAD		
5V DC	<175 mA	<250 mA		

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## SELECTION TABLE (100V - 900V)

Q MODELS - 0.50 WATT				QH MODELS - 1.25 WATT		
OUTPUT VOLTAGE*2	MODEL	MAXIMUM OUTPUT CURRENT*1	RIPPLE P-P	MODEL	MAXIMUM OUTPUT CURRENT*1	RIPPLE P-P
REVERSIBLE						
0 to 100VDC	Q01	5.000 mA	<1.000 %	QH01	12.500 mA	<2.500 %
0 to 150VDC	Q015	3.333 mA	<0.500 %	QH015	8.333 mA	<1.125 %
0 to 200VDC	Q02	2.500 mA	<0.250 %	QH02	6.250 mA	<1.125 %
0 to 250VDC	Q025	2.000 mA	<0.250 %	QH025	5.000 mA	<1.125 %
0 to 300VDC	Q03	1.667 mA	<0.250 %	QH03	4.167 mA	<1.125 %
0 to 350VDC	Q035	1.429 mA	<0.250 %	QH035	3.571 mA	<1.125 %
0 to 400VDC	Q04	1.250 mA	<0.100 %	QH04	3.125 mA	<0.500 %
0 to 450VDC	Q045	1.111 mA	<0.150 %	QH045	2.778 mA	<0.625 %
0 to 500VDC	Q05	1.000 mA	<0.150 %	QH05	2.500 mA	<0.625 %
0 to 600VDC	Q06	0.833 mA	<0.100 %	QH06	2.083 mA	<0.500 %
0 to 700VDC	Q07	0.714 mA	<0.250 %	QH07	1.786 mA	<0.625 %
0 to 800VDC	Q08	0.625 mA	<0.300 %	QH08	1.563 mA	<1.0 %
0 to 900VDC	Q09	0.556 mA	<0.250 %	QH09	1.389 mA	<1.0 %
CENTER TAP						
0 to +/-50 VDC	Q01CT	5.000 mA	<1.000 %	QH01CT	12.500 mA	<2.500 %
0 to +/-75 VDC	Q015CT	3.333 mA	<0.500 %	QH015CT	8.333 mA	<1.125 %
0 to +/-100 VDC	Q02CT	2.500 mA	<0.250 %	QH02CT	6.250 mA	<1.125 %
0 to +/-125 VDC	Q025CT	2.000 mA	<0.250 %	QH025CT	5.000 mA	<1.125 %
0 to +/-150 VDC	Q03CT	1.667 mA	<0.250 %	QH03CT	4.167 mA	<1.125 %
0 to +/-175 VDC	Q035CT	1.429 mA	<0.250 %	QH035CT	3.571 mA	<1.125 %
0 to +/-200 VDC	Q04CT	1.250 mA	<0.100 %	QH04CT	3.125 mA	<0.500 %
0 to +/-225 VDC	Q045CT	1.111 mA	<0.150 %	QH045CT	2.778 mA	<0.625 %
0 to +/-250 VDC	Q05CT	1.000 mA	<0.150 %	QH05CT	2.500 mA	<0.625 %
0 to +/-300 VDC	Q06CT	0.833 mA	<0.100 %	QH06CT	2.083 mA	<0.500 %
0 to +/-350 VDC	Q07CT	0.714 mA	<0.250 %	QH07CT	1.786 mA	<0.625 %
0 to +/-400 VDC	Q08CT	0.625 mA	<0.300 %	QH08CT	1.563 mA	<1.0 %
0 to +/-450 VDC	Q09CT	0.556 mA	<0.250 %	QH09CT	1.389 mA	<1.0 %

## SELECTION TABLE (1,000V - 2,000V)

Q MODELS - 0.50 WATT				QH MODELS - 1.25 WATT		
OUTPUT VOLTAGE*2	MODEL	MAXIMUM OUTPUT CURRENT*1	RIPPLE P-P	MODEL	MAXIMUM OUTPUT CURRENT*1	RIPPLE P-P
POSITIVE						
0 to +1000 VDC	Q10	0.500 mA	<0.250 %	QH10	1.250 mA	<1.0%
0 to +1200 VDC	Q12	0.417 mA	<0.250 %	QH12	1.042 mA	<1.0%
0 to +1500 VDC	Q15	0.333 mA	<0.250 %	QH15	0.833 mA	<1.0%
0 to +2000 VDC	Q20	0.250 mA	<0.250 %	QH20	0.625 mA	<1.0%
NEGATIVE						
0 to -1000 VDC	Q10N	0.500 mA	<0.250 %	QH10N	1.250 mA	<1.0%
0 to -1200 VDC	Q12N	0.417 mA	<0.250 %	QH12N	1.420 mA	<1.0%
0 to -1500 VDC	Q15N	0.333 mA	<0.250 %	QH15N	0.833 mA	<1.0%
0 to -2000 VDC	Q20N	0.250 mA	<0.250 %	QH20N	0.625 mA	<1.0%

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DC-DC PCB MOUNTED CONVERTERS & POWER MODULES

## INPUT CURRENT

VIN	Q MODELS - 0.50 WATT		QH MODELS - 1.250 WATT	
	NO-LOAD	FULL-LOAD	NO-LOAD	FULL-LOAD
5 VDC	<100 mA	<200 mA	<250 mA	<500 mA
12 VDC	<40 mA	<100 mA	<100 mA	<250 mA
15 VDC	<32 mA	<80 mA	<80 mA	<200mA
24 VDC	<20 mA	<50 mA	<50 mA	<125 mA

## SELECTION TABLE (2,500V - 5,000V)

OUTPUT VOLTAGE*2	Q MODELS - 0.50 WATT			QH MODELS - 1.25 WATT		
	MODEL	MAXIMUM OUTPUT CURRENT*1	RIPPLE P-P	MODEL	MAXIMUM OUTPUT CURRENT*1	RIPPLE P-P
POSITIVE						
0 to +2,500 VDC	Q25	0.200 mA	<0.500 %	QH25	0.500 mA	<2.0 %
0 to +3,000 VDC	Q30	0.167mA	<0.500 %	QH30	0.417 mA	<2.0 %
0 to +3,500 VDC	Q35	0.143 mA	<0.500 %	QH35	0.357 mA	<2.0 %
0 to +4,000 VDC	Q40	0.125 mA	<0.500 %	QH40	0.313 mA	<2.0 %
0 to +4,500 VDC	Q45	0.111 mA	<0.500 %	QH45	0.278 mA	<2.0 %
0 to +5,000 VDC	Q50	0.100 mA	<0.500 %	QH50	0.250 mA	<2.0 %
NEGATIVE						
0 to -2,500 VDC	Q25N	0.200 mA	<0.500 %	QH25N	0.500 mA	<2.0 %
0 to -3,000 VDC	Q30N	0.167 mA	<0.500 %	QH30N	0.417 mA	<2.0 %
0 to -3,500 VDC	Q35N	0.143 mA	<0.500 %	QH35N	0.357 mA	<2.0 %
0 to -4,000 VDC	Q40N	0.125 mA	<0.500 %	QH40N	0.313 mA	<2.0 %
0 to -4,500 VDC	Q45N	0.111 mA	<0.500 %	QH45N	0.278 mA	<2.0 %
0 to -5,000 VDC	Q50N	0.100 mA	<0.500 %	QH50N	0.250 mA	<2.0 %

## INPUT CURRENT

VIN	Q MODELS - 0.50 WATT		QH MODELS - 1.250 WATT	
	NO-LOAD	FULL-LOAD	NO-LOAD	FULL-LOAD
5 VDC	<250 mA	<400 mA	<625 mA	<1.5 A
12 VDC	<100 mA	<250 mA	<250 mA	<625 mA
15 VDC	<80 mA	<200 mA	<200 mA	<500mA
24 VDC	<50 mA	<123 mA	<125 mA	<312 mA

## SELECTION TABLE (6,000V - 10,000V)

OUTPUT VOLTAGE*2	Q MODELS - 0.50 WATT		
	MODEL	MAXIMUM OUTPUT CURRENT*1	RIPPLE P-P
POSITIVE			
0 to +6,000 VDC	Q60	83 µA	<1.000 %
0 to +8,000 VDC	Q80	62.5 µA	<1.000 %
0 to +10,000 VDC	Q101	50 µA	<1.000 %
NEGATIVE			
0 to -6,000 VDC	Q60N	83 uA	<1.000 %
0 to -8,000 VDC	Q80N	62.5 uA	<1.000 %
0 to -10,000 VDC	Q101N	50 uA	<1.000 %

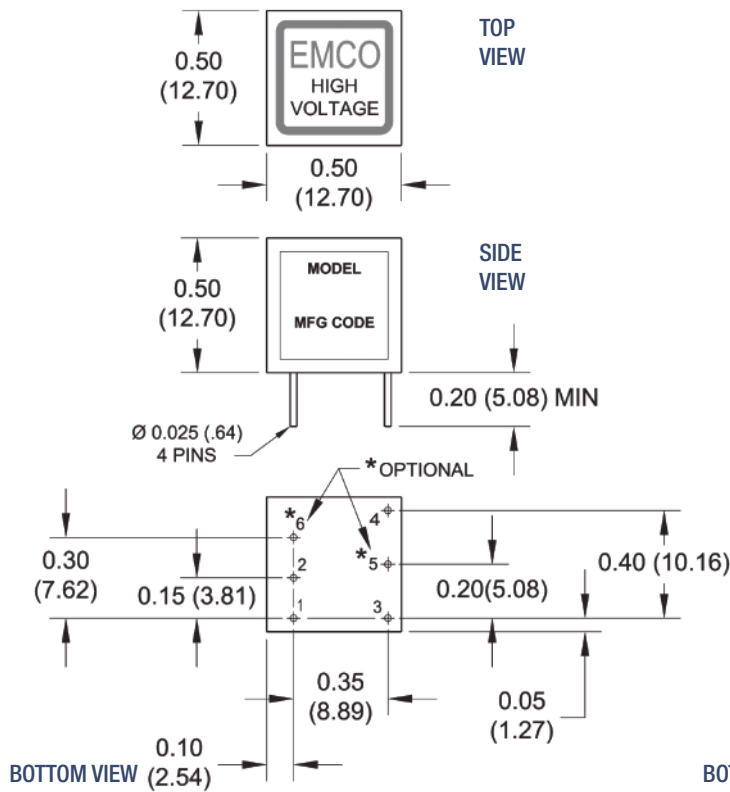
## INPUT CURRENT

Q MODELS - 0.50 WATT		
VIN	NO-LOAD	FULL-LOAD
5 VDC	<175 mA	<250 mA

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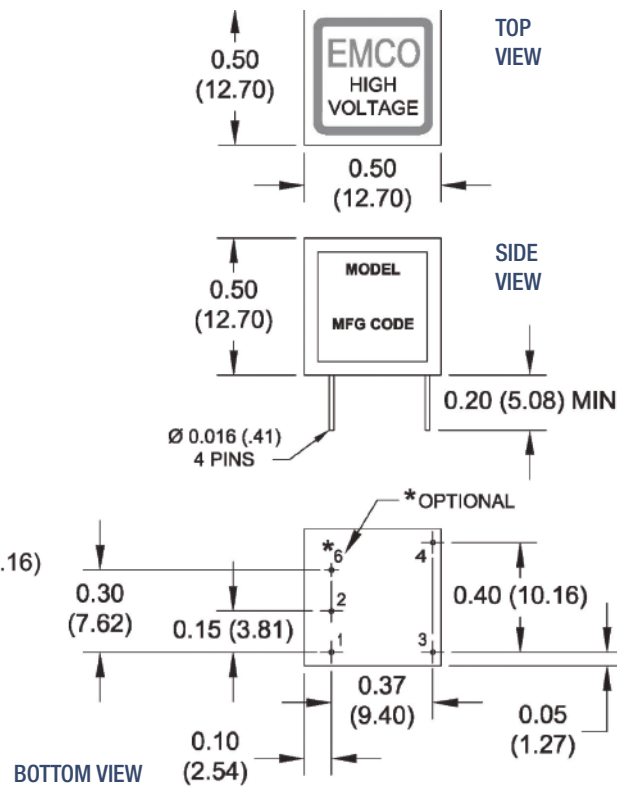
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## MECHANICAL SPECIFICATIONS (100V - 2,000V)



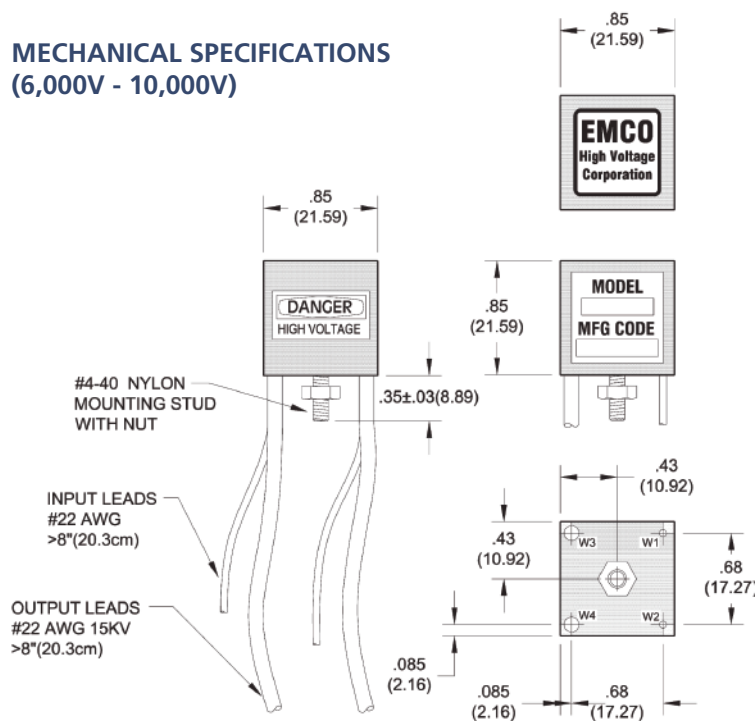
PIN	FUNCTION
1	INPUT (-)
2	INPUT (+)
3	HV OUTPUT
4	HV RETURN
5*	CENTER TAP
6*	CONTROL PIN

## MECHANICAL SPECIFICATIONS (2,500V - 5,000V)



PIN	FUNCTION
1	INPUT (-)
2	INPUT (+)
3	HV OUTPUT
4	HV RETURN
5*	CENTER TAP
6*	CONTROL PIN

## MECHANICAL SPECIFICATIONS (6,000V - 10,000V)



WIRE	COLOR	FUNCTION	QXX
1	RED	INPUT (+)	
2	BLACK	INPUT (-)	
3	BROWN	HV OUTPUT	
4	VIOLET	HV RETURN	