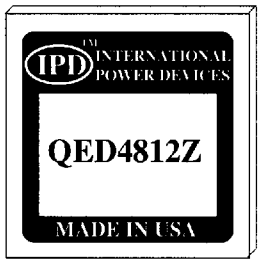
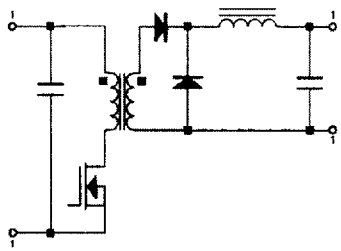
STANDARD HIGH-DENSITY DC/DC CONVERTERS WITH SINGLE, DUAL OR TRIPLE REGULATED OUTPUTS. ALL MODELS FEATURE AN ULTRA-WIDE INPUT RANGE. AN INTERNAL ∏ (Pi) INPUT FILTER IS STANDARD AND IS USED TO REDUCE REFLECTED RIPPLE CURRENT. ALL MODELS FEATURE A NICKEL-PLATED COPPER CASE WITH SIX-SIDED SHIELDING.



DIMENSIONS:
2.56" x 3.00" x 0.83"
(65.02) x (76.20) x (21.10)mm

BLOCK DIAGRAM



FEATURES

- Industry Standard Pin Out
- Up to 84% Efficiency
- Current Mode Control
- Ultra-Wide Input Voltage Range
- 500 VDC I/O Isolation
- ContinuousShort Circuit Protection
- Input ∏ (Pi) Filter

APPLICATIONS

- Telecommunication
- Data Processing Equipment
- Industrial Equipment
- Medical Equipment
- A/D and D/A Converters
- Distributed Power Systems

PART NUMBER SELECTION GUIDE

Q	E	D	48	12		Z	MS - A
SERIES NAME	FEATURES	# OF OUTPUTS	Vin NOMINAL	Vout SINGLES / DUALS	Vout TRIPLES	OPTIONS	ACCESSORIES / TYPE

Features
- Extra-Wide Input Voltage Range
- Regulated

# of Outputs
S = SINGLE
D = DUAL
T = TRIPLE

Input Voltage Range (VDC)
24 = 9.0 to 36.0
48 = 18.0 to 72.0

Output Voltage (VDC)

Single Output:
05 = 5V @ 5.0A
12 = 12V @ 2.5A
15 = 15V @ 2.0A

Dual Output:
05 = ± 5V @ ±2.50A
12 = ±12V @ ±1.25A
15 = ±15V @ ±1.00A

Triple Output:
05-12 = 5V @ 3.8A, ±12V @±0.31A
05-15 = 5V @ 3.8A, ±15V @±0.25A
12-05 = 12V @ 1.50A, ±5V @±1.00A

Options
S (#) = Modification Number
I = Industrial Temperature Range (-40°C to +85°C)
Z = Water-washable sealed case

Accessories / Type
MS = Mating Socket
Type = A *Please Consult Accessories Page for Mating Socket Selection*

INTERNATIONAL POWER DEVICES, INC.
20 Linden Street, Boston, MA 02134 • Phone: (617)782-3331 • Fax: (617)782-7416

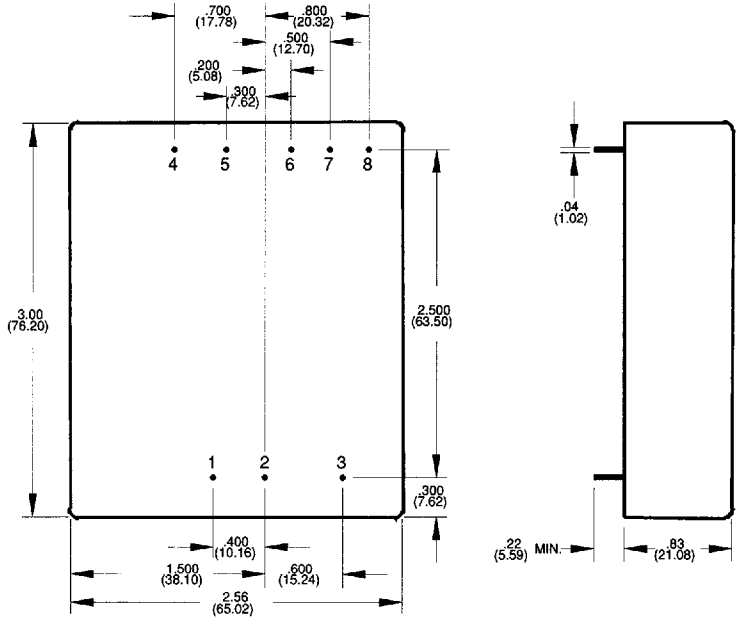
PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS	NOTES
GENERAL:						
Switching Frequency	180	200	220	KHz		1. No derating required up to a maximum case temperature of 85°C. See efficiency and thermal impedence data provided. Internal Power Dissipation = Pout* (1-Eff) / Eff.
Isolation Voltage						
Input to Output	500			VDC		
Input to Case				VDC	Note 5	
Output to Case				VDC	Note 5	
Isolation Resistance						
Input to Output	10^9			Ohms		
Isolation Capacitance						
Input to Output			500	pF		
Short Circuit Protection					Note 3	
ENVIRONMENTAL:						2. Provided for input fuse selection.
Operating Temperature	-25		85	°C	Note 1	
Storage Temperature	-40		125	°C	Ambient	
Operating Humidity			95%		Non-Condensing	3. Continuous Short Circuit Protection is provided. For dual output units the short circuit current on each individual output is equivalent to the short circuit current for a single output unit.
Storage Humidity			95%		Non-Condensing	
REMOTE ON/OFF CONTROL:						
Compatibility					TTL,CMOS,Relay	
On Control					>5.5 VDC or open circuit	
Off Control					<1.8 VDC, Note 4	
INPUT:						
Input Voltage						4. Long term continuous operation in this mode is not recommended. Converter will auto-restart once short has been removed.
24 Vin	9.00	24.00	36.00	VDC		
48 Vin	18.00	48.00	72.00	VDC		
Input Current						
24 Vin			4.00	Amps	Note 2	
48 Vin			2.00	Amps	Note 2	
Input Ripple Current			20%	Iin max		
Reverse Input Current			100%	Iin max		
OUTPUT:						5. For 48V input models, the case is connected to +Vin. For all other input voltages, the case is tied to either -Vout (Singles) or the Output Common (Duals).
Singles:						
Trim			±10.0%	Vout		
Voltage Accuracy			±1.00%	Vout	Full Load	
Load Regulation			±1.00%	Vout	10% to 100%	
Line Regulation			±1.00%	Vout	LL to HL	
Current Limit			140%	Iout	Note 3	
Duals:						
Voltage Accuracy						
+Vout			±1.00%	Vout	Full Load	
-Vout			±1.00%	Vout	Full Load	
Load Regulation						

* All specifications typical at +25°C Nominal Line and Full Load unless otherwise noted.
* Specifications subject to change without notice.

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS	NOTES
OUTPUT (Con't.)						
Triples:						4. Long term continuous operation in this mode is not recommended. Converter will auto-restart once short has been removed.
Voltage Accuracy						
Vout 1			±1.00%	Vout	Full Load	
Vout 2			±5.00%	Vout	Full Load	
Vout 3			±5.00%	Vout	Full Load	
Load Regulation						
Vout1			±1.00%	Vout	10% to 100%	
Vout 2			±5.00%	Vout	10% to 100%	
Vout 3			±5.00%	Vout	10% to 100%	
Line Regulation			±1.00%	Vout	LL to HL	
Current Limit			140%	Iout	Note 4	
Temp. Coefficient			±0.02%	/°C		
Voltage Stability			±0.05%	Vout		
Ripple and Noise			1.00 %	Vout	p-p, 20MHz BW	
Transient Response						
25% step full load			500	µS	1% Error Band	

BOTTOM VIEW

Mechanical tolerances are ± 0.040"



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All Dimensions are in inches (MM)

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PIN CONNECTIONS

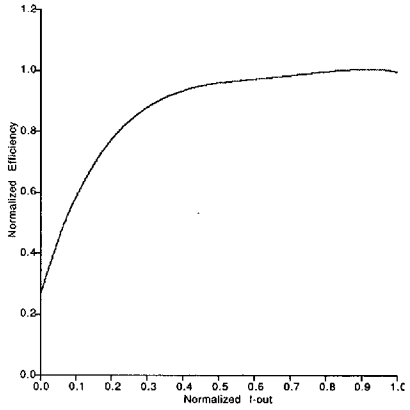
PIN #	SINGLE	DUAL	TRIPLE
1	-Vin	-Vin	-Vin
2	+Vin	+Vin	+Vin
3	S/D (Optional)	Shut Down	Shut Down
4	-Vout	No Connect	No Connect
5	+Vout	No Connect	+5Vout
6	-Sense Out	-Vout	-Vout
7	Trim	Common	Common
8	+Sense Out	+Vout	+Vout

THERMAL IMPEDANCE

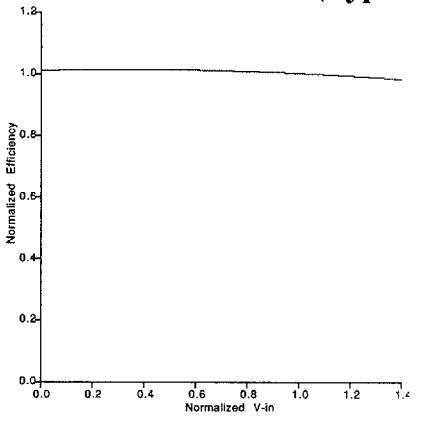
	Typical RθCA
NATURAL CONVECTION	6.8°C/W
100 LFPM	4.0°C/W
200 LFPM	3.43°C/W
300 LFPM	2.5°C/W
400 LFPM	1.6°C/W

Thermal Impedance data depends upon many environmental factors and may vary from application to application. The numbers provided are intended as a guide. The exact thermal performance should be validated in each application.

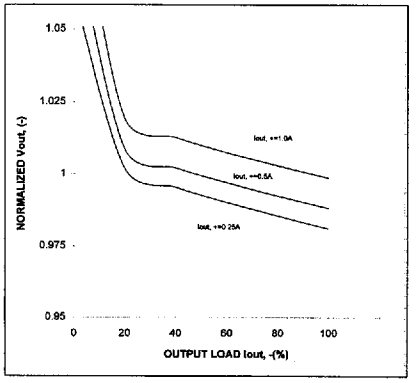
EFFICIENCY vs. LOAD (Typical)



EFFICIENCY vs. Vin (Typical)



TYPICAL CROSS-REGULATION (Dual Output Units)



TYPICAL CROSS-REGULATION (Triple Output Units)