TQD SERIES - DUAL OUTPUT, 100 WATT

DESCRIPTION

The TQD DC/DC converters are high power, dual output, fully isolated converters that feature high efficiency, 1500 VDC isolation, and open-frame packaging. The TQD family allows board designers to deliver any combination of power from either output, up to each model's maximum rating. The TQD series is available in 5V/3.3V or 3.3V/2.5V combinations. The TQD uses planar magnetics and has an MTBF of over a million hours.

FEATURES

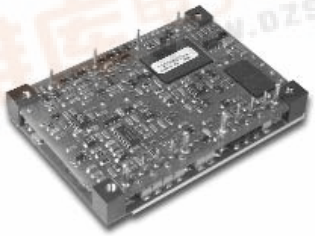
- Independent Dual Outputs
- Flexible Load Sharing
- High Efficiency
- Open Frame Design
- Planar Magnetics
- Synchronous Rectification
- Independent Trim For Each Output
- 1500V Isolation
- 100°C Baseplate Operation

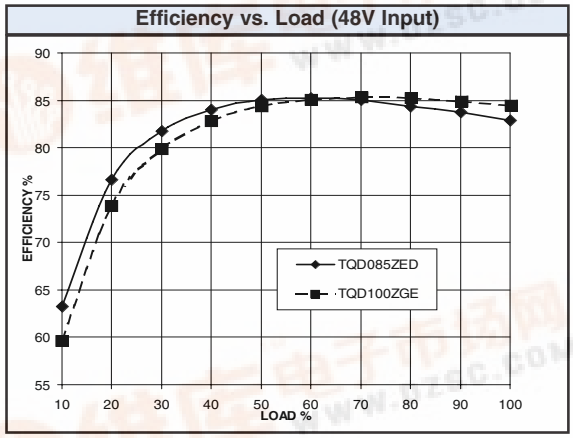
TECHNICAL SPECIFICATIONS

Input	
Voltage range	
5 VDC nominal	18 - 36 VDC
12 VDC nominal	36 - 72 VDC
Reflected ripple	50 mA
Input Reverse Voltage Protection	Shunt Diode

Output	
Setpoint Accuracy	±1%
Line Regulation V_{in} Min. - V_{in} Max., I_{out} Rated, Output 1	0.2% V_{out}
Load Regulation I_{out} Min. - I_{out} Max., V_{in} Nom., Output 1	0.3% V_{out}
Minimum Output Current, Each Output	10 % I_{out} Rated
Dynamic Regulation, Loadstep	25% I_{out}
Pk Deviation	4% V_{out}
Settling Time	500 µs
Voltage Trim Range	±10%
Power Limit Threshold Range, % of I_{out} Rated	110 - 130%
OVP Trip Range	115 - 140% V_{out} Nom.
UVP Trip Range	70 - 90%

General	
Turn-On Time	20 ms
Remote Shutdown	Positive Logic
Switching Frequency	250 kHz
Isolation	
Input - Output	1500 VDC
Input - Case	1050 VDC
Output - Case	500 VDC
Temperature Coefficient	0.03 %/°C
Case Temperature	
Operating Range	-40 To +100°C
Storage Range	-40 To +125°C
Thermal Shutdown Range	105 To 115°C
Humidity Max., Non-Condensing	95%
Vibration, 3 Axes, 5 Min Each	5 g
MTBF† (Bellcore TR-NWT-000332)	1.2 X 10^6 hrs
Safety	UL, cUL, TUV
Weight (Approx.)	3.8 oz





Notes

† MTBF predictions may vary slightly from model to model.

Specifications typically at 25°C, normal line, and full load, unless otherwise stated.

Soldering Conditions: I/O pins, 260°C, ten seconds; fully compatible with commercial wave-soldering equipment.

Units are water-washable and fully compatible with commercial spray or immersion post wave-solder washing equipment.

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MODELS - (See the last page of Section for options.)

MODEL	INPUT VOLTAGE (VOLTS)	INPUT VOLTAGE RANGE (VOLTS)	MAXIMUM INPUT CURRENT (AMPS)*	OUTPUT VOLTAGE (VOLTS)	RATED OUTPUT CURRENT (AMPS)	RIPPLE & NOISE pk-pk (mV)	TYPICAL EFFICIENCY**
TQD100YGE-A Δ	24	18-36	7.4	5.0/3.3	20/25	100/75	81%
TQD080Z2.0-A	48	36-72	1.9	3.3/2.0	15/15	100/75	80%
TQD085ZED-A	48	36-72	2.5	3.3/2.5	20/25	100/75	82%
TQD100ZGE-A	48	36-72	3.7	5.0/3.3	20/25	100/75	83%

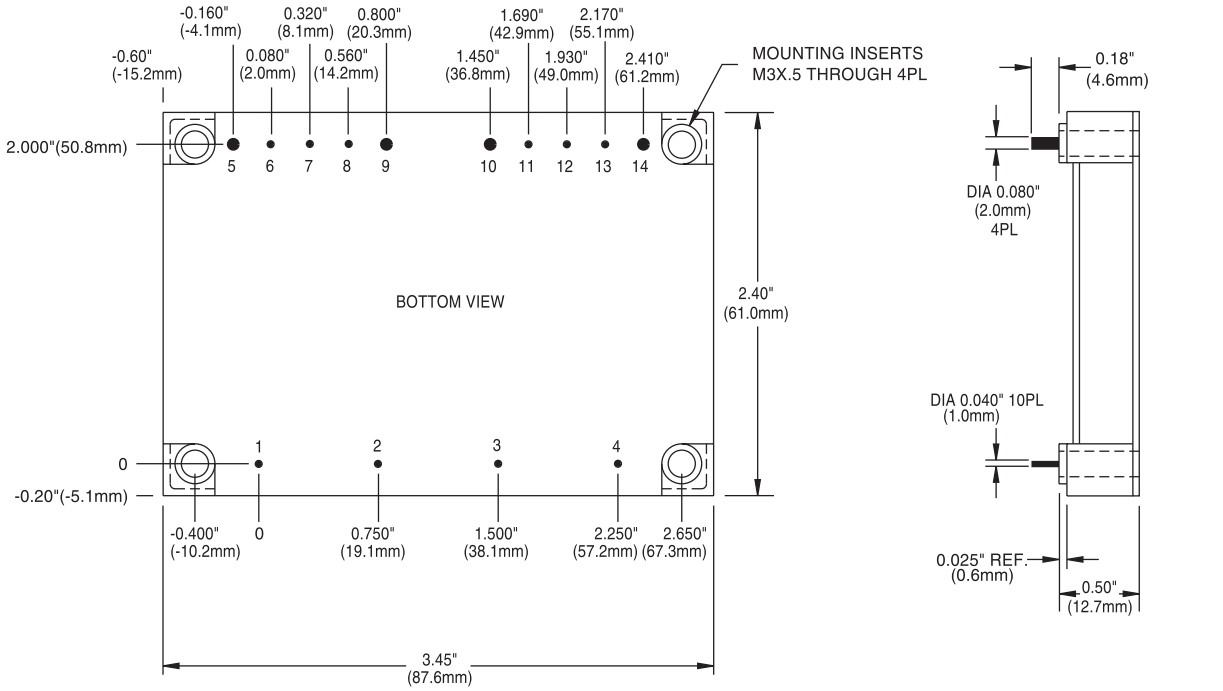
NOTES: Δ Advanced product release - consult factory.

* Maximum input current at minimum input voltage, maximum rated output power.

** At nominal V_{in}, rated output.

Current can be drawn from either output to its maximum value, or from both outputs.

MECHANICAL DRAWING



Thermal Impedance	
Natural Convection	5.7 °C/W
100 LFM	3.9 °C/W
200 LFM	2.6 °C/W
300 LFM	1.9 °C/W
400 LFM	1.7 °C/W

Note:
Thermal impedance data is dependent on many environmental factors. The exact thermal performance should be validated for specific application.

Pin	Function
1	$-V_{in}$
2	Enable
3	Case
4	$+V_{in}$
5	$+V_{out1}$
6	+ Sense 1
7	Trim 1
8	- Sense 1
9	$-V_{out1}$
10	$-V_{out2}$
11	- Sense 2
12	Trim 2
13	+ Sense 2
14	$+V_{out2}$

Tolerances	
Inches:	(Millimeters)
.XX ± 0.020	.X ± 0.5
.XXX ± 0.010	.XX ± 0.25
Pin:	
± 0.002	± 0.05

(Dimensions as listed unless otherwise specified.)

OPTIONS

When ordering equipment options, use the following suffix information. Select the option(s) that you prefer and add them to the model number. Example ordering options are located below the options table.

OPTION	SUFFIX	APPLICABLE SERIES	REMARKS
Negative Logic	N	HAS, HBD, HBS, HES, HLS, HLD, LES, QBS, QES, QLS, TES, TQD	TTL "Low" Turns Module ON TTL "High" Turns Module OFF
Lucent-Compatible	T	HAS, HBD, HBS, HES, HLS, QBS, QES, QLS	
Terminal Strip	TS	XWS, XWD, XWT	
Trim	1	IAS, LES	
Enable	2	IAD, IAS, LES, SMS	
Trim and Enable	3	IAS, LES	
Current Share	4	SMS	
Headerless	Y	Encapsulated EWS, IWS, OWS	
Pin Length and Heatsink Options			Standard Pin Length is 0.180" (4.6mm)
0.110" (2.8mm) Pin Length	8	All Units (Except SMS)	
0.150" (3.8mm) Pin Length	9	All Units (Except SMS)	
0.24" (6.1mm) Horizontal Heatsink	1H	All Units (All Units Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages)	Includes Thermal Pad
0.24" (6.1mm) Vertical Heatsink	1V	All Units (All Units Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages)	Includes Thermal Pad
0.45" (11.4mm) Horizontal Heatsink	2H	All Units (All Units Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages)	Includes Thermal Pad
0.45" (11.4mm) Vertical Heatsink	2V	All Units (All Units Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages)	Includes Thermal Pad
0.95" (24.1mm) Horizontal Heatsink	3H	All Units (All Units Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages)	Includes Thermal Pad
0.95" (24.1mm) Vertical Heatsink	3V	All Units (All Units Except DIP, HLS, HLD, QLS, SIP, SM, TLD, and TKD Packages)	Includes Thermal Pad

Example Options:

HBS050ZG-ANT3V = HBS050ZG-A with negative logic, Lucent-compatible trim, and 0.95” vertical heatsink.
LES015YJ-3N = LES015YJ with optional trim and enable, negative logic.
QBS066ZG-AT8 = QBS066ZG-A with Lucent-compatible trim and 0.110” pin length.