

20 Watt QMJ Single and Dual Series

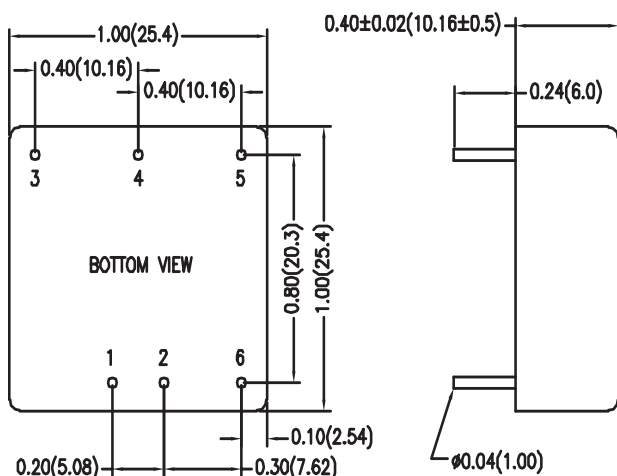


- Efficiency up to 90%
- 1500 VDC Isolation
- Single Output Up to 4.5A
- Over Voltage Protection
- 4:1 Ultra Wide Input Range
- Six Sided Shielding
- Remote On/Off Control
- Optional Heatsink
- RoHS Compliant
- CSA Approved



Model Number	Voltage			Current				Reflected Ripple	Over Voltage Protection	Input Overvoltage (1000ms)	Efficiency*	Capacitive Load
	Input		Output	Input		Output						
	Nom. (VDC)	Range (VDC)	(VDC)	@ No Load (mA)	@ Max Load (mA)	Min (mA)	Max (mA)	Typ (mA)	VDC (Typ.)	Max (VDC)	@ Max Load (%, Typ)	Max (Dual each output)
QMJ15H24S3R3	24	(9-36)	3.3	80	711	0	4500	50	3.9	50	87	10300
QMJ20H24S5	24	(9-36)	5	90	936	0	4000	50	6.2	50	89	6800
QMJ20H24S12	24	(9-36)	12	40	938	0	1670	50	15	50	89	1200
QMJ20H24S15	24	(9-36)	15	40	941	0	1340	50	18	50	89	750
QMJ20H24S24	24	(9-36)	24	40	949	0	835	50	30	50	88	300
QMJ20H24D12	24	(9-36)	±12	40	938	±60	±835	50	±15	50	89	680
QMJ20H24D15	24	(9-36)	±15	40	941	±50	±670	50	±18	50	89	380
QMJ15H48S3R3	48	(18-75)	3.3	40	352	0	4500	30	3.9	100	88	10300
QMJ20H48S5	48	(18-75)	5	45	468	0	4000	30	6.2	100	89	6800
QMJ20H48S12	48	(18-75)	12	25	469	0	1670	30	15	100	89	1200
QMJ20H48S15	48	(18-75)	15	25	471	0	1340	30	18	100	89	750
QMJ20H48S24	48	(18-75)	24	25	474	0	835	30	30	100	88	300
QMJ20H48D12	48	(18-75)	±12	25	469	±60	±835	30	±15	100	89	680
QMJ20H48D15	48	(18-75)	±15	25	471	±50	±670	30	±18	100	89	380

* Efficiency for 24 VDC Input units measured at 12 VDC.
Efficiency for 48 VDC Input units measured at 24 VDC.



Pin Connections		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	Common
5	-Vout	-Vout
6	Remote On/Off	Remote On/Off

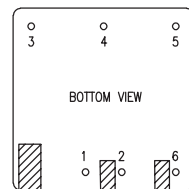


FIGURE 1

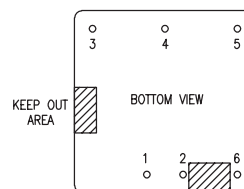


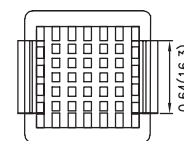
FIGURE 2

KEEP OUT AREAS:
Keep copper traces in mating assembly away from this area to prevent shorting.

Figure 1:
QMJ15H24S3R3, QMJ20H24S5
QMJ15H48S3R3, QMJ20H48S5

Figure 2: All other models

Optional Heatsink
For heatsink order HS03.
Comes with thermal pad and clamps.



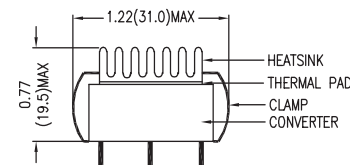
Dimensions are inches (mm) unless noted

Tolerance: Inches Millimeters

X.XX ±0.01 X.X ±0.25

X.XXX ±0.005 X.XX ±0.13

Pin ±0.002 ±0.05



See Model Selection Table for Model Specific Parameters

Input Parameters	Min	Typ	Max	Units
Input Surge Voltage (1 sec max.) 24 Vin 48 Vin	-0.7 -0.7		50 100	VDC
Start Voltage 24 Vin 48 Vin			9 18	VDC
Start Up Time		30		mS
Switching Frequency		330		kHz
Input Filter	LC Filter			
Output Parameters	Min	Typ	Max	Units
Output Voltage Accuracy			±1.0	%
Output Voltage Balance Dual Output, Balanced Loads			±2.0	%
Load Regulation Min. Load to Full Load Single 3.3V & 5V 12V, 15V & 24V Dual ±12V & ±15V			±0.5 ±0.2 ±1.0	%
Line Regulation Single Output Vin=Min. to Max. Dual Output			±0.2 ±0.5	%
Ripple & Noise (20MHz) 3.3V & 5V Output Models 12V & 15V Output Models 24V Output Models ±12V, ±15V Output Models		75 100 150 100		mV P-P
Over Current Protection		150		% of Iout
Transient Recovery Time 25% Load Step Change		300		µs
Temperature Coefficient			±0.02	% / °C
Short Circuit Protection	Hiccup Automatic Recovery			
Remote On Off	Min	Typ	Max	Units
DC/DC On	3.5V-12V or Open Circuit			
DC/DC Off	0v -1.2V or Short Circuit			
Control Input Current (on) Vctrl = 5.0V			0.5	mA
Control Input Current (off) Vctrl = 0V			-0.5	mA
Control Common	Referenced to Negative Input			
Standby Input Current Supply Off & Nominal Vin		10		mA
Output Voltage Trim	Min	Typ	Max	Units
Trim Up / Trim Down (7) % of nominal output voltage	±10			%

General Specifications	Min	Typ	Max	Units
Isolation Voltage, 60 seconds	1500			VDC
Isolation Resistance 500VDC	1000			Mohms
Isolation Capacitance, 100kHz, 1V			1500	pF
Operating Temperature (Ambient)	-40		+85	°C
Operating Temperature (Case)	-40		+105	°C
Thermal Impedance Natural Convection without heatsink Natural Convection with heatsink	18.2 15.3			°C/W
Storage Temperature	-50		+125	°C
Humidity			95	%
MTBF MIL-HDBK-217F @25°C, Ground Benign		451		K Hours
Cooling	Free-Air Convection			
Case Size	1.0 x 1.0x 0.4 inches 25.4 x 25.4 x 10.16 mm			
Case Material	Six-Sided shielded, Metal Case (UL-94V-0)			
Weight	15g			
Agency Approvals	CSA 60950-1 Approved			

Notes:

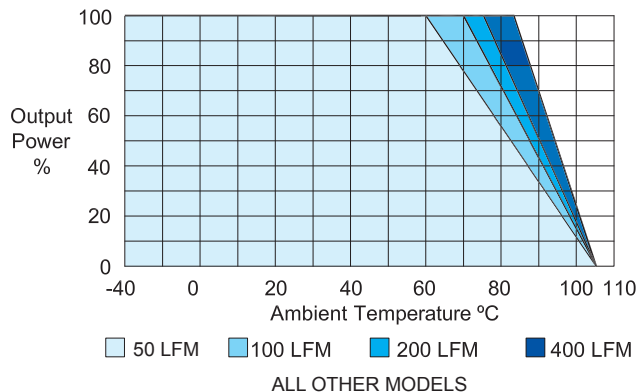
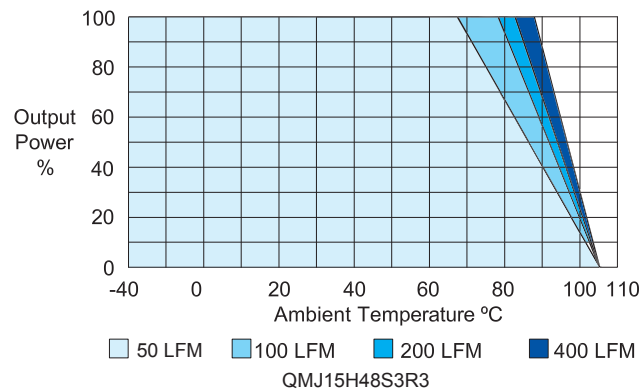
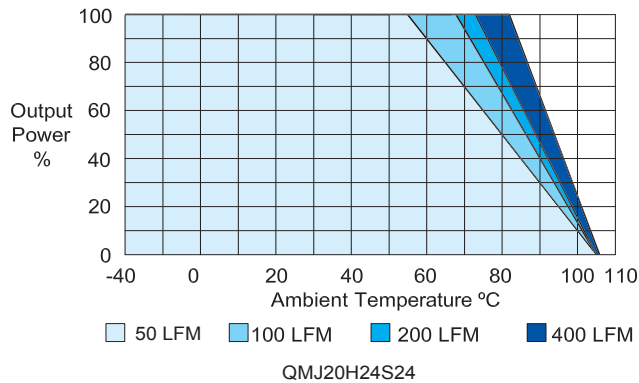
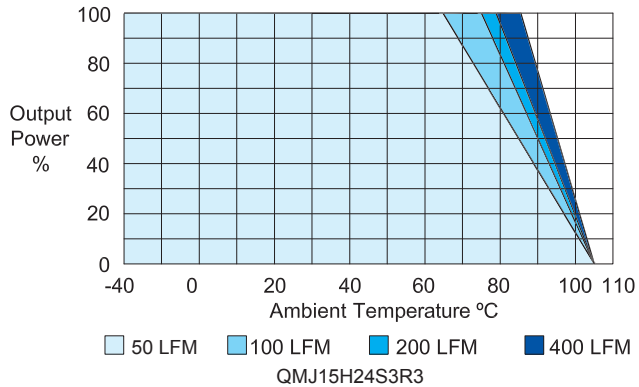
- Specifications typical at Ta=+25°C, resistive load, nominal input voltage, full rated output current unless otherwise noted.
- Ripple & Noise measurement bandwidth is 20MHz, measured with a 1µF MLCC and a 10µF Tantalum Capacitor.
- Transient recovery time is measured to within 1% error band for a step change in output load 75% to 100%.
- Water washability - ConTech DC/DC converters are designed to withstand most solder/wash processes. Careful attention should be used when assessing the applicability in your specific manufacturing process. Converters are not hermetically sealed.
- See ConTech website for Definition of Terms, Application Notes, and Test Setups and Parameters. www.ConTech-us.com/appnotes.html.
- Specifications subject to change without notice.
- Output voltage trimming must use resistive components only. Applying external voltages to the trim pin can cause damage.
- See ConTech website www.ConTech-us.com/pdf/rohs.pdf for RoHS Statement.



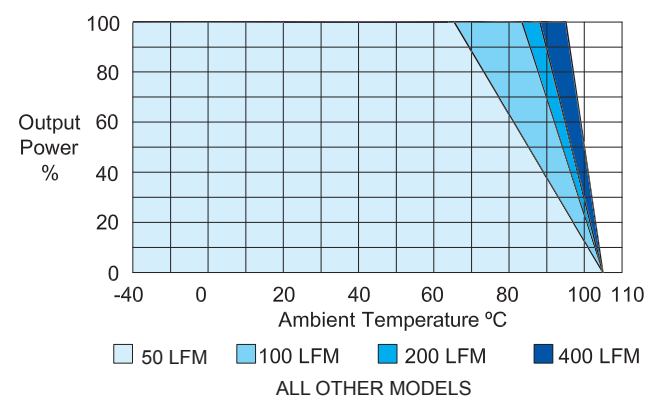
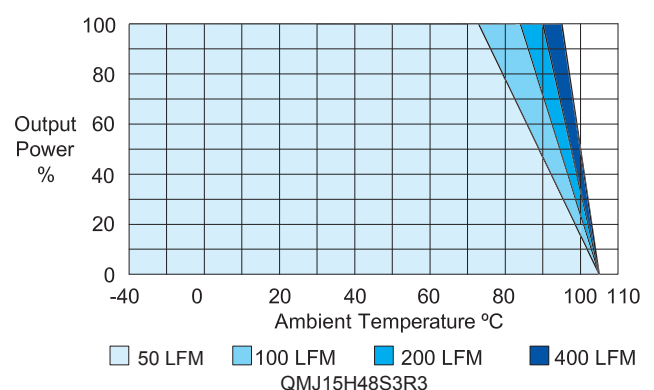
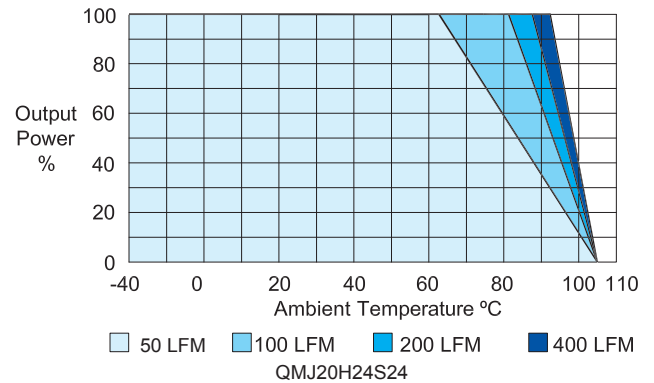
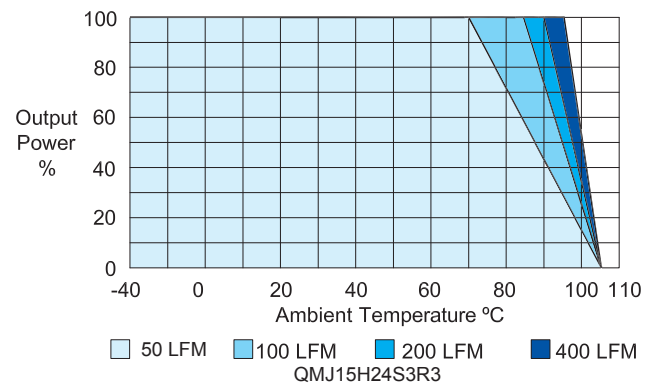
Derating Curves

To avoid exceeding the maximum temperature rating of the components inside the power module, the case temperature must be kept below 105°C.

WITHOUT HEATSINK



WITH HEATSINK



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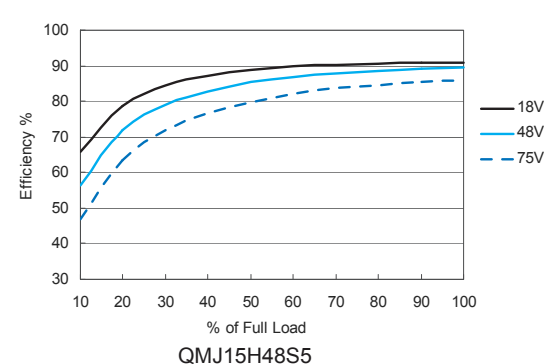
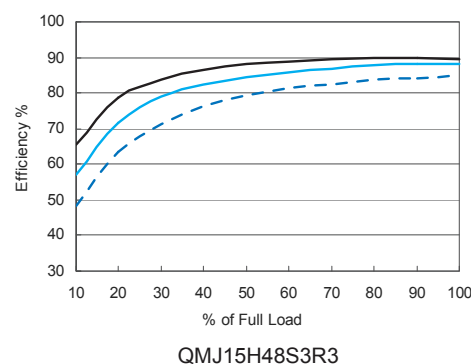
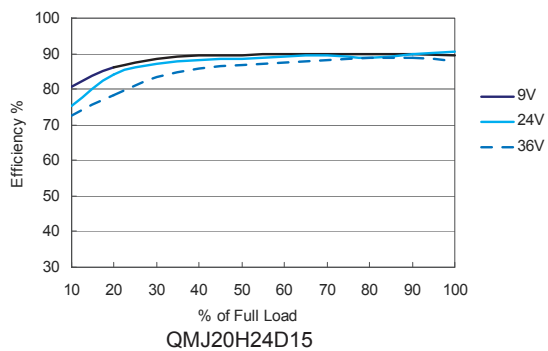
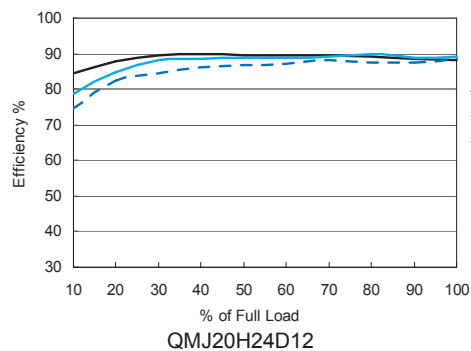
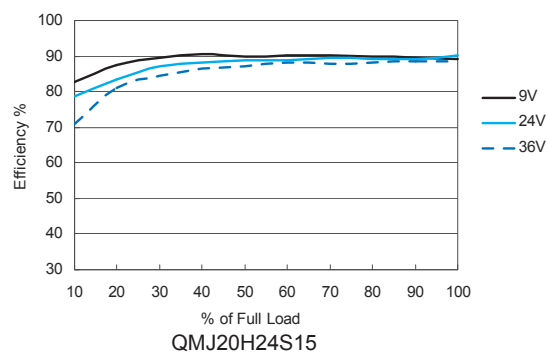
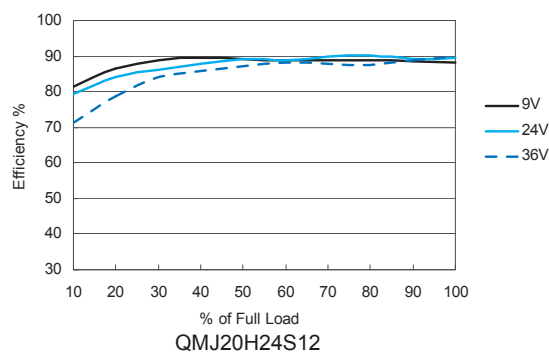
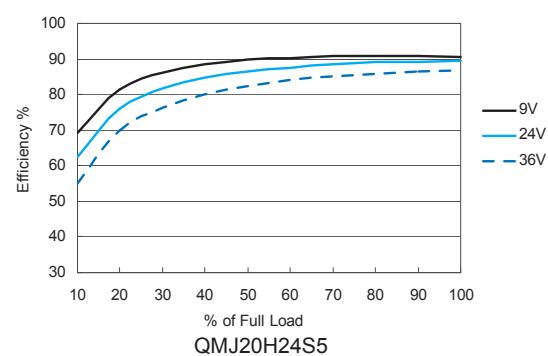
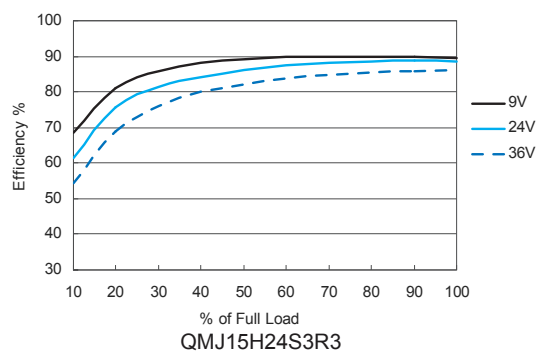


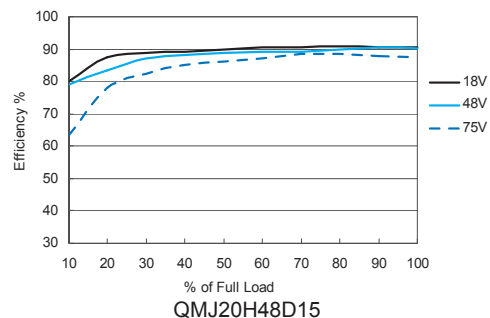
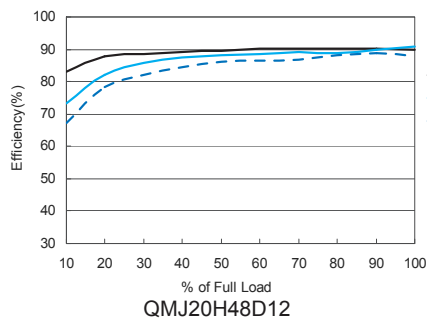
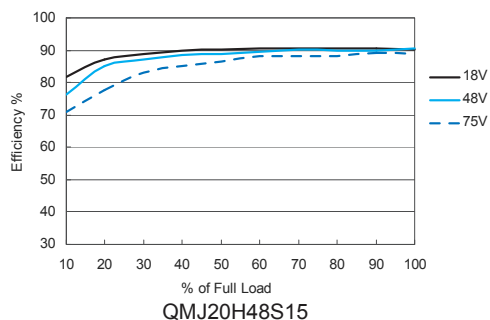
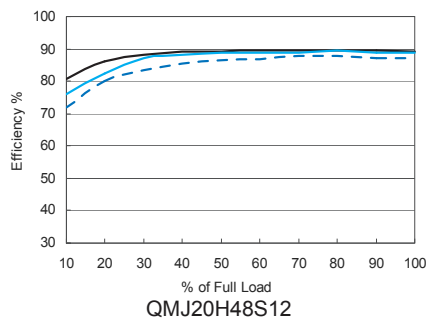
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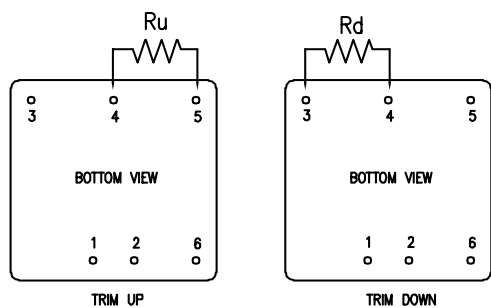
e-mail : comp@es-france.com
Site Web : www.es-france.com

Efficiency Curves



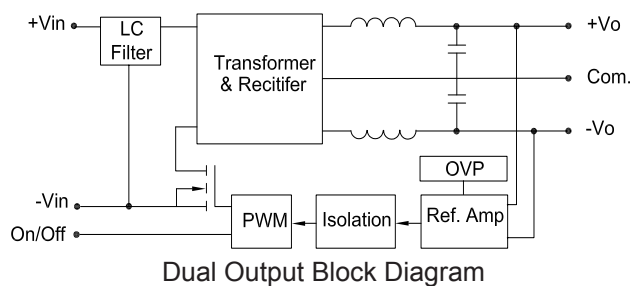
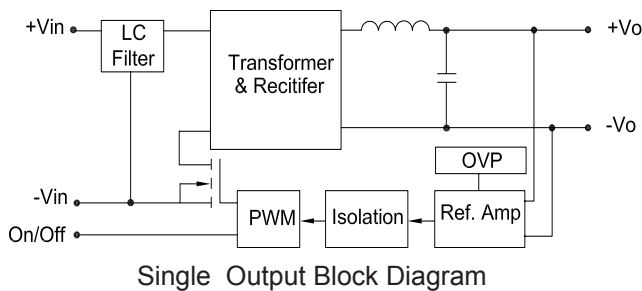


Trimming



External Output Trimming
Output can be externally trimmed as shown.

Block Diagrams



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ES France - Département Composants & Modules
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Tél. 01 47 95 99 89
Fax. 01 47 01 16 22



e-mail : comp@es-france.com
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