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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Input voltage ranges up to 168 V DC
 1 or 2 isolated outputs 3.3...48 V DC
 3 kV AC I/O electric strength test voltage

LGA  

- Extremely slim case (4TE wide), fully enclosed
- Extremely low inrush current, hot swappable
- Operating ambient temperature range -40...71°C with convection cooling

Selection chart

Output 1			Output 2			Type	Type	Options
$U_{o\ nom}$ [V DC]	$I_{o\ nom}$ [A]	$I_{o\ max}$ [A]	$U_{o\ nom}$ [V DC]	$I_{o\ nom}$ [A]	$I_{o\ max}$ [A]	Input Voltage 16...36 V DC	Input Voltage 38...75 V DC	
5.1	16	16	-	-	-	24Q1001-2R	48Q1001-2R	P
12	8	8	-	-	-	24Q2320-2R	48Q2320-2R	P
15	6.6	6.6	-	-	-	24Q2540-2R	48Q2540-2R	P
24	4	4	-	-	-	24Q2320-2R	48Q2320-2R	P
24	4.4	4.4	-	-	-	24Q2660-2R	48Q2660-2R	P
30	3.3	3.3	-	-	-	24Q2540-2R	48Q2540-2R	P
48	2.2	2.2	-	-	-	24Q2660-2R	48Q2660-2R	P
5.1	7.5	7.5	5.1	7.5	7.5	24Q2001-2R	48Q2001-2R	P
12	4	4	12	4	4	24Q2320-2R	48Q2320-2R	P
15	3.3	3.3	15	3.3	3.3	24Q2540-2R	48Q2540-2R	P
24	2.2	2.2	24	2.2	2.2	24Q2660-2R	48Q2660-2R	P

Output 1			Output 2			Type	Type	Type	Options
$U_{o\ nom}$ [V DC]	$I_{o\ nom}$ [A]	$I_{o\ max}$ [A]	$U_{o\ nom}$ [V DC]	$I_{o\ nom}$ [A]	$I_{o\ max}$ [A]	Input Voltage 14.4...36 V DC	Input Voltage 21.6...54 V DC	Input Voltage 35...75 V DC	
3.3	18	22	-	-	-	BQ 1101-7	GQ 1101-7	CQ 1101-7	-9
5.1	16	20	-	-	-	BQ 1001-7R	GQ 1001-7R	CQ 1001-7R	-9, P
12	8	10	-	-	-	BQ 2320-7R	GQ 2320-7R	CQ 2320-7R	-9, P
15	6.6	8	-	-	-	BQ 2540-7R	GQ 2540-7R	CQ 2540-7R	-9, P
24	4.4	5.5	-	-	-	BQ 2660-7R	GQ 2660-7R	CQ 2660-7R	-9, P
24	4	5	-	-	-	BQ 2320-7R	GQ 2320-7R	CQ 2320-7R	-9, P
30	3.3	4	-	-	-	BQ 2540-7R	GQ 2540-7R	CQ 2540-7R	-9, P
48	2.2	2.75	-	-	-	BQ 2660-7R	GQ 2660-7R	CQ 2660-7R	-9, P
5.1	7.5	9.5	5.1	7.5	9.5	BQ 2001-7R	GQ 2001-7R	CQ 2001-7R	-9, P
12	4	5	12	4	5	BQ 2320-7R	GQ 2320-7R	CQ 2320-7R	-9, P
15	3.3	4	15	3.3	4	BQ 2540-7R	GQ 2540-7R	CQ 2540-7R	-9, P
24	2.2	2.75	24	2.2	2.75	BQ 2660-7R	GQ 2660-7R	CQ 2660-7R	-9, P

Output 1			Output 2			Type	Type	Options
$U_{o\ nom}$ [V DC]	$I_{o\ nom}$ [A]	$I_{o\ max}$ [A]	$U_{o\ nom}$ [V DC]	$I_{o\ nom}$ [A]	$I_{o\ max}$ [A]	Input Voltage 43...108 V DC	Input Voltage 65...168 V DC	
3.3	18	22	-	-	-	DQ 1101-7	EQ 1101-7	-9
5.1	16	20	-	-	-	DQ 1001-7R	EQ 1001-7R	-9, P
12	8	10	-	-	-	DQ 2320-7R	EQ 2320-7R	-9, P
15	6.6	8	-	-	-	DQ 2540-7R	EQ 2540-7R	-9, P
24	4	5.5	-	-	-	DQ 2660-7R	EQ 2660-7R	-9, P
24	4	5	-	-	-	DQ 2320-7R	EQ 2320-7R	-9, P
30	3.3	4	-	-	-	DQ 2540-7R	EQ 2540-7R	-9, P
48	2.2	2.75	-	-	-	DQ 2660-7R	EQ 2660-7R	-9, P
5.1	7.5	9.5	5.1	7.5	9.5	DQ 2001-7R	EQ 2001-7R	-9, P
12	4.4	5	12	4.4	5	DQ 2320-7R	EQ 2320-7R	-9, P
15	3.3	4	15	3.3	4	DQ 2540-7R	EQ 2540-7R	-9, P
24	2.2	2.75	24	2.2	2.75	DQ 2660-7R	EQ 2660-7R	-9, P

Input

Input voltage	refer to selection chart
Inrush current	ETS 300 132-2 typ. 40 A

Output

Efficiency	$U_{i\ nom}, I_{o\ nom}$	up to 88%
Output voltage setting accuracy	$U_{i\ nom}, I_{o\ nom}$	$\pm 0.6\% U_{o\ nom}$
Worst case output voltage 1	$U_{i\ min} \dots U_{i\ max}, 0 \dots I_{o1\ max}, T_{C\ min} \dots T_{C\ max}$	$\pm 1.8\% U_{o\ nom}$
Minimum output current 1, 2	in parallel configuration not required	0 A
Minimum output current 1, 2	in individual or series configuration	10% $I_{o1,2\ nom}$
Load regulation output 2	$I_{o1,2\ min} \dots I_{o1,2\ max}$	typ. $100\ m\Omega \cdot (I_{o1} - I_{o2})$
Output voltage switching noise	IEC/EN 61204, total, peak-peak	typ. $0.3\% U_{o\ nom}$
Common current limit. $I_{o1} + I_{o2}$	rectangular U/I characteristic	typ. 130% $(I_{o1\ max} + I_{o2\ max})$
Operation of units in parallel	by connecting the current sharing pins T	

Protection

Input reverse polarity	built-in fuse	
Input undervoltage lockout		typ. 90% $U_{i\ min}$
Input overvoltage lockout		typ. 110% $U_{i\ max}$
Input transient protection	varistor	
Output	no-load, overload and short-circuit proof	
Output overvoltage	second control loop	typ. 125% $U_{o\ nom}$
Overtemperature	switch-off with auto restart (-7 units)	T_C typ. 100°C

Control

Output voltage adjustment	with feature R	60/80...110% $U_{o\ nom}$
Inhibit on input side	TTL input, output(s) disabled if left open circuit	
Status indication	LEDs: In OK (-7 units), Out OK (all)	
Output good signal (Out OK)	isolated open collector signal	

Safety

Approvals	EN 60950, UL 1950, CSA C22.2 No. 950	
Class of equipment		class I
Protection degree		IP 20/30
Electric strength test voltage	I/case, O/case, Out OK/case	1.5 kV AC
	I/O, Out OK/I, Out OK/O	3 kV AC
	O/O	300 V DC

EMC

Electrostatic discharge	IEC/EN 61000-4-2, level 4 (8/15 kV)	criterion B
Electromagnetic field	IEC/EN 61000-4-3, level 3 (10 V/m)	criterion A
Electr. fast transients/bursts	IEC/EN 61000-4-4, output/input, level 3/4 (2/4 kV)	criterion B
Surge	IEC/EN 61000-4-5, input, level 2/3 (1/2 kV)	criterion B
Conducted disturbances	IEC/EN 61000-4-6, level 2/3 (3/10 V)	criterion A
Electromagnetic emissions	CISPR 22/EN 55022, 24/48/BQ/CQ/GQ, conducted	class B

Environmental –2 units

Operating ambient temperature	$U_{I\text{ nom}}, I_{O\text{ nom}}$, convection cooled	-10...50°C
Operating case temperature T_C	$U_{I\text{ nom}}, I_{O\text{ nom}}$	-10...80°C
Storage temperature	non operational	-25...100°C
Damp heat	IEC/EN 60068-2-3, 93%, 40°C	21 days
Vibration, sinusoidal	IEC/EN 60068-2-6, 10...60/60...2000 Hz	0.15 mm/2 g_n
Shock	IEC/EN 60068-2-27, 6 ms	15 g_n
Bump	IEC/EN 60068-2-29, 6 ms	10 g_n
MTBF	MIL-HDBK-217F, G_B , 40°C, 24/48Q1000	588'000 h

Environmental –7 units

Operating ambient temperature	$U_{I\text{ nom}}, I_{O\text{ nom}}$, convection cooled	-25...71°C
	$U_{I\text{ nom}}, I_{O\text{ max}}$, convection cooled	-25...50°C
Operating case temperature T_C	$U_{I\text{ nom}}, I_{O\text{ nom}}$	-25...95°C
	$U_{I\text{ nom}}, I_{O\text{ max}}$	-25...85°C
Storage temperature	non operational	-40...100°C
Damp heat	IEC/EN 60068-2-3, 93%, 40°C	56 days
Vibration, sinusoidal	IEC/EN 60068-2-6, 10...60/60...2000 Hz	0.35 mm/5 g_n
Shock	IEC/EN 60068-2-27, 11 ms	50 g_n
Bump	IEC/EN 60068-2-29, 11 ms	25 g_n
Random vibration	IEC/EN 60068-2-64, 20...500 Hz	4.9 g_n rms
MTBF	MIL-HDBK-217F, notice 2, G_B , 40°C, BQ 2000	853'000 h

Options

Extended temperature range	-40...71°C, ambient, operating, for -7 units	-9
Output voltage adjustment	±10% $U_{O\text{ nom}}$, excludes feature R and vice versa	P

Accessories

Front panels for 19" rack mounting in 3U or 6U configuration (Schroff/Intermas)

Mating H15 connectors with screw, solder, fast-on or press-fit terminals

Connector retention facilities and code key system for connector coding

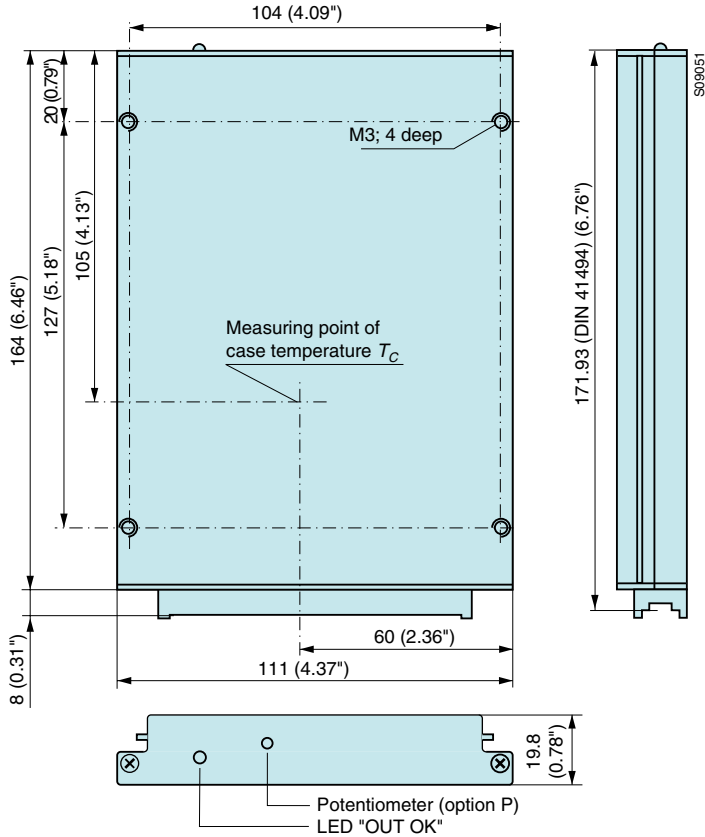
Additional external input or output filters

Mechanical mounting supports for chassis, DIN-rail and PCB mounting



Mechanical data

Tolerances ± 0.3 mm (0.012") unless otherwise indicated.



Pin allocation

Pin	Electrical determination	Q 1000	Q 2000
4	Output voltage (positive)	Vo1+	Vo1+
6	Output voltage (positive)	Vo1+	Vo2+
8	Output voltage (negative)	Vo1-	Vo1-
10	Output voltage (negative)	Vo1-	Vo2-
12	Sense line (positive)	S+	S+
14	Sense line (negative)	S-	S-
16	Output voltage control input	R	R
18	Current sharing control input	T	T
20	Do not connect (internal Gnd.)	-	-
22	Output good signal (positive)	Out OK+	Out OK+
24	Output good signal (negative)	Out OK-	Out OK-
26	Protective earth	\oplus	\oplus
28	Inhibit control input	i	i
30	Input voltage (positive)	Vi+	Vi+
32	Input voltage (negative)	Vi-	Vi-