



**THE DATASHEET OF
PQ1DX095MZPQ**





Low Power-Loss Voltage Regulators

TO-220 Type

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings				Electrical characteristics			Built-in functions						Package	
		Output current I _o (A)	Input voltage V _{in} (V)	Power dissipation (W)		Output voltage V _o ^{*3} (V) TYP.	Output voltage precision (%)	Dropout voltage V _{i-o} ^{*5} (V)	Overheat protection	Overcurrent protection	ON/OFF control	Low dissipation current at OFF state	Variable output voltage	Lead forming available		Package shape type ^{*7}
PQxxxRDA1SZH series	ASO protection function, low dissipation current at OFF state (I _{qs} : 5 μA (MAX.))	1	24	1.4	15	3.3, 5, 9, 12	±3	0.5	○	○	○	○			TO-220	A
PQxxxRDA2SZH series		2	20			3.3, 5, 9, 12	±2.5	1.0	○	○	○	○				A
PQ30RV11J00H	Variable output voltage	1	35	1.5	18	1.5 to 30	±2 ^{*4}	0.5	○	○	△ ^{*6}		○	○		B
PQ30RV21J00H		2							○	○	△ ^{*6}		○	○		B
PQ30RV31J00H		3		2	20				○	○	△ ^{*6}		○	○	B	

*1 At self-cooling

*2 With infinite heat sink attached

*3 The xxx in the model No. refer to the output voltage values of the model (e.g. 050 for 5 V, 120 for 12 V, 015 for 1.5 V).

*4 Reference voltage precision

*5 Current ratings are defined individually.

*6 △ : Available by adding circuit

*7 Refer to page 35

Surface Mount Type Low Power-Loss Voltage Regulators

SOT-89 Type

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings			Electrical characteristics			Built-in functions					Package
		Output current I _o (A)	Input voltage V _{in} (V)	Power dissipation P _d ^{*1} (W)	Output voltage V _o ^{*2} (V) TYP.	Output voltage precision (%)	Dropout voltage V _{i-o} ^{*3} (V)	Overheat protection	Overcurrent protection	ON/OFF control	Low dissipation current at OFF state	Variable output voltage	
PQ1LAXx5MSPQ	Compact, high radiation package, ceramic capacitor compatible	0.5	15	0.9	1.2, 1.5, 1.8, 2.5, 3.3, 5.0	±2.0	0.7	○	○	○	○		SOT-89
PQ1LAX95MSPQ	Ceramic capacitor compatible, variable output voltage				1.5 to 9.0	±2.0 ^{*4}		○	○	○	○	○	

*1 When mounted on a board

*2 The xx in the model No. refer to the output voltage values of the model (e.g. 25 for 2.5 V, 50 for 5.0 V).

*3 Current ratings are defined individually.

*4 Reference voltage precision

Notice

In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc.

Except where specially indicated, models listed on this page comply with the RoHS Directive*. For details, please contact SHARP.

*RoHS Directive: Prohibits use of lead, cadmium, hexavalent chromium, mercury and specific brominated flame retardants (PBBs and PBDEs), with certain exceptions.

Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.



●SC-63 Type (1) Output Voltage Fixed Type

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings			Electrical characteristics				Built-in functions						Package Package shape type ^{*4}			
		Output current I _o (A)			Input voltage V _{in} (V)	Power dissipation P _d ^{*1} (W)	Output voltage V _o ^{*2} (V) TYP.	Output voltage precision (%)	Dropout voltage V _{i-o} ^{*3} (V)	Overheat protection	Overcurrent protection	ON/OFF control	Low dissipation current at OFF state	Variable output voltage		Taped package		
		0.5	1	1.5														
PQxxxDNA1ZPH series	Ceramic capacitor compatible, ASO protection function, low dissipation current at OFF state (I _{qs} : 5 μA (MAX.)), solder dip compatible lead shape	○			24	8	3.3, 5, 9, 12	±2.5	0.5	○	○	○	○	-	○	SC-63	F	
PQxxxENA1ZPH series	Minimum operating input voltage: 2.35 V, ceramic capacitor compatible, solder dip compatible lead shape	○			10	8	1.5, 1.8, 2.5, 3.3	±2.0	0.3	○	○	○	○	-	○		F	
PQxxxENB1ZPH series		○				5	1.2, 1.5, 1.8, 2.5, 3.3			○	○	○	○	-	○		F	
PQxxxENAHZPH series				○			1.5, 1.8, 2.5, 3.3			0.9	○	○	○	○	-		○	F
PQxxxGN01ZPH series		Minimum operating input voltage: 1.7 V (Dual power supply type), ceramic capacitor compatible, solder dip compatible lead shape	○				5.5			8	1.0, 1.2	±30 mV	-	○	○			
PQxxxGN1HZPH series				○						○	○			-	○		F	

*1 With infinite heat sink attached

*2 The xxx in the model No. refer to the output voltage values of the model (e.g. 033 for 3.3 V, 050 for 5 V, 120 for 12 V).

*3 Current ratings are defined individually.

*4 Refer to page 35

●SC-63 Type (2) Output Voltage Variable Type

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings			Electrical characteristics				Built-in functions						Package Package shape type ^{*4}					
		Output current I _o (A)			Input voltage V _{in} (V)	Power dissipation P _d ^{*1} (W)	Output voltage V _o (V) TYP.	Output voltage precision (%)	Dropout voltage V _{i-o} ^{*3} (V)	Overheat protection	Overcurrent protection	ON/OFF control	Low dissipation current at OFF state	Variable output voltage		Taped package				
		0.5	1	1.5																
PQ070XNA1ZPH	Minimum operating input voltage: 2.35 V, ceramic capacitor compatible, solder dip compatible lead shape	○			10	8	1.5 to 7	±2.0 ^{*2}	0.5	○	○	○	○	○	○	SC-63	F			
PQ070XNAHZPH				○						5	1.2 to 7	0.3	○	○	○		○	○	○	F
PQ070XNA2ZPH				○ (2 A)													○	○	○	○
PQ070XNB1ZPH				○										○	○		○	○	○	F
PQ035ZN01ZPH	Reference voltage (V _{ref}): 0.6 V, minimum operating input voltage: 1.7 V (Dual power supply type), ceramic capacitor compatible, solder dip compatible lead shape	○			5.5	8	0.8 to 3.5	±30 mV	-	○	○			○	○	F				
PQ035ZN1HZPH				○								-	○	○			○	○	F	
PQ200WNA1ZPH	Minimum operating input voltage: 3.5 V, ASO protection function, low dissipation current at OFF state (I _{qs} : 5 μA (MAX.)), ceramic capacitor compatible, solder dip compatible lead shape	○			24	8	3.0 to 20	±2.5 ^{*2}	0.5	○	○	○	○	○	○	F				
PQ200WN3MZPH	Minimum operating input voltage: 5.5 V, low dissipation current at OFF state (I _{qs} : 5 μA (MAX.)), ceramic capacitor compatible, current limit: 800 mA	○ (0.3)												○	○	○	○	○	○	F

*1 With infinite heat sink attached

*2 Reference voltage precision

*3 Current ratings are defined individually.

*4 Refer to page 35

Notice

In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc.
 Except where specially indicated, models listed on this page comply with the RoHS Directive*. For details, please contact SHARP.
 *RoHS Directive: Prohibits use of lead, cadmium, hexavalent chromium, mercury and specific brominated flame retardants (PBBs and PBDEs), with certain exceptions.
 Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.



●SOP-8 Type

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings			Electrical characteristics		Built-in functions		Taped package	Package
		Output current I _o (A)	Input voltage V _{in} (V)	Power dissipation Pd* ¹ (W)	Output voltage V _o (V) TYP.	Output voltage precision* ² (mV)	Overheat protection	Overcurrent protection		
PQ1DX095MZPQ	Built-in sink source function (For DDR II memory)	±0.8	6	0.6	V _{DD} x 1/2 (V _{DDQ} : 1.5 V (MIN.))	±25	○	○	○	SOP-8

*1 When mounted on a board
*2 Reference voltage precision

■Surface Mount Type Chopper Regulators (DC-DC Converters)

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings		Electrical characteristics					Package	
		Switching current I _{sw} (A)	Power dissipation Pd* ¹ (W)	Input voltage range V _{in} (V)	Output voltage V _o (V)	Output type	Oscillation frequency f _o (Hz) TYP.	Output saturation voltage V _{sat} (V) TYP.	Outline shape type* ⁴	
PQ6CU12X2APQ	<ul style="list-style-type: none"> High switching voltage: 40 V (MAX.) For tuner power supply Variable oscillation frequency Ceramic capacitor compatible 	0.25	0.35	3.0 to 5.5	up to 36	Step-up	300 k to 800 k	R _{on} TYP. 1.7Ω	SOT-23-6W	
PQ1CN38M2ZPH	<ul style="list-style-type: none"> PWM chopper regulator (high oscillation frequency) Output ON/OFF control function Overcurrent/overheat protection circuits For light load 	0.8	8	4.5 to 40	V _{REF} * ³ to 35 (step-down type) / -V _{REF} to -30 (inverting type)	Step-down	300 k	0.9	SC-63	F
PQ1CN41H2ZPH	<ul style="list-style-type: none"> PWM chopper regulator (high oscillation frequency) Overcurrent/overheat protection circuits 	1.5	8			Step-down	300 k	0.9		F
PQ1CX41H2ZPQ	<ul style="list-style-type: none"> Bootstrap system for high efficiency (Efficiency 90% (TYP.)) Low voltage output: 0.8 V (MIN.) Ceramic capacitor compatible 	1.5	0.8 When mounted on board	4.75 to 27	0.8 to 20	Step-down	400 k	R _{Dson} TYP. 0.45Ω	SOP-8	
PQ1CX53H2MPQ	<ul style="list-style-type: none"> Bootstrap system for high efficiency (Efficiency 89% (TYP.)) Low voltage output: 0.8 V (MIN.) Ceramic capacitor compatible 	3.5	2 When mounted on board	4.75 to 27	0.8 to 16	Step-down	400 k	R _{Dson} TYP. 0.15Ω	USB-8	
PQ1CX61H1ZPQ	<ul style="list-style-type: none"> Bootstrap system for high efficiency (Efficiency 88% (TYP.)) Low voltage output: 1.0 V (MIN.) Ceramic capacitor compatible 	1.5	0.8 When mounted on board	4.75 to 28	1.0 to 18.9	Step-down	900 k	R _{Dson} TYP. 0.55Ω	SOP-8	

*1 With infinite heat sink attached or when mounted on a board listed in the specification sheets.
*2 Output variable range (step-down/inversion).
*3 V_{REF} nearly equal to 1.26 V
*4 Refer to page 35

Notice

In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc.
Except where specially indicated, models listed on this page comply with the RoHS Directive*. For details, please contact SHARP.
*RoHS Directive: Prohibits use of lead, cadmium, hexavalent chromium, mercury and specific brominated flame retardants (PBBs and PBDEs), with certain exceptions.
Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.



■ Chopper Regulators (DC-DC Converters)

● TO-220 Type

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings		Electrical characteristics				Package		
		Switching current I _{sw} (A)	Power dissipation P _d *1 (W)	Input voltage range V _{in} (V)	Output voltage V _o *2 (V)	Output type	Oscillation frequency f _o (kHz) TYP.	Output saturation voltage V _{sat} (V) TYP.	Outline shape type*5	
PQ1CG21H2FZH	<ul style="list-style-type: none"> • PWM chopper regulator • Built-in overcurrent/overheat protection circuits • Output ON/OFF control function 	1.5*3	14	40	V _{REF} *4 to 35 (step-down type)/ -V _{REF} *4 to -30 (inverting type)	Step-down	100	1.0	TO-220	E
PQ1CG41H2FZH	<ul style="list-style-type: none"> • PWM chopper regulator (high oscillation frequency) • Built-in overcurrent/overheat protection circuits • Output ON/OFF control function 						300	1.0		E
PQ1CG2032FZH	<ul style="list-style-type: none"> • PWM chopper regulator • Built-in overcurrent/overheat protection circuits • Output ON/OFF control function 	3.5*3					70	1.4		E
PQ1CG3032FZH	<ul style="list-style-type: none"> • PWM chopper regulator (high oscillation frequency) • Built-in overcurrent/overheat protection circuits • Output ON/OFF control function 						150			E

*1 With infinite heat sink attached

*2 Output voltage variable range

*3 Peak current

*4 V_{REF} nearly equal to 1.26 V (TYP.)

*5 Refer to page 35

Notice

In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc.

Except where specially indicated, models listed on this page comply with the RoHS Directive*. For details, please contact SHARP.

*RoHS Directive: Prohibits use of lead, cadmium, hexavalent chromium, mercury and specific brominated flame retardants (PBBs and PBDEs), with certain exceptions.

Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View PQ1DX095MZPQ on WIN SOURCE](#)

 [Sharp Microelectronics](#) Information

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management