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Product Scout Automotive

	RH850/P1M	R7F701311	1 MB	128 K	32 KB	RH850	✓	87	'8/5/2	2	–	–	2x FlexRay, 2x PSI5, 6x SENT	-/50/19	60	160	8 MHz	–	24x 12-bit/-	3.0...5.5	144	PLQP0144KA-A	Tj = 150 °C	even part numbers = SVS, odd part numbers = DVS																	
		R7F701314																																							
		R7F701315																																							
		R7F701318	2 MB		64 KB					3												PLQP0144KA-A																			
		R7F701319																																							
		R7F701322																																							
		R7F701323																			PLQP0144LA-A																				
	RH850/P1M-C	R7F701374	2 M	448 K	96 K	RH850	1	86	4/2/2	3	–	–	2x Flexray, 1x Ethernet, 6x SENT	33x 24-bit	20	240	16 MHz	–	20x 12 bit / -	3.0...3.6	144	PLQP0144LA-A	Tj = 150 °C	voltage/clock/ temperature monitor, ECM, POC, DMA, DTS, MPU, I-Cache, WDT & SWDT, BHP, crypto core (ICU-M), Flash BGO																	
		R7F701373						104											24x 12 bit / -		292	PRBG0292GC-A																			
	RH850/P1H-C	R7F701372	4 M	1088 K	160 K	2x RH850	2x 1	136	4/4/4	3	–	✓	4x Flexray, 2x Ethernet, 8x SENT	49x 24-bit	33	2x 240	16 MHz	–	32x 12 bit / -	3.0...3.6	292	PRBG0292GC-A	Tj = 150 °C																		
		R7F701371	8 M		192 K																																				
	RH850/P1H-CE	R7F701370	10 M	1536 K	192 K					4			4x Flexray, 2x Ethernet, 10x SENT, 1x Aurora					40x 12 bit / -			404	PRBG0404GA-A																			
SH-2A 	SH726A	R5S726A0	-	1.25 M	–	SH-2A	✓	57	3/5/-	-	4	✓	4x I²S, MMC, SD, SPDIF, 2x SRC, USB FS	-/7/-	5	216	-	✓	6x 10-bit/-	3.0...3.6	120	PLQP0120KB-A	85	CDROM dec, DMA, RTC, SRC, WDT, XIP																	
		R5S726A1								2																															
		R5S726A2								-												PLQP0120LA-A																			
		R5S726A3								2																															
	SH726B	R5S726B0	-	1.25 M	–	SH-2A	✓	74	4/5/-	-	4	✓	4x I²S, MMC, SD, SPDIF, 2x SRC, USB FS	-/7/-	5	216	-	✓	8x 10-bit/-	3.0...3.6	144	PLQP144KA-A	85	CDROM dec, DMA, RTC, SRC, WDT, XIP																	
		R5S726B1								2																															
	SH7268	R5S72680	-	2.5 M	–	SH-2A	✓	111	4/5/-	-	2	✓	Display Unit, 4x I²S, MMC, USB HS, SD, SPDIF, 3x SRC	-/7/-	7	266	–	✓	6x 10-bit/-	3.0...3.6	208	PLQP0208KB-A	85	CDROM dec, DMA, GFX, IMR, JPEG dec, RTC, 3 SRC, video dec, WDT, XIP																	
		R5S72681								3																															
	SH7269	R5S72690	-	2.5 M	–	SH-2A	✓	148	4/8/-	-	4	✓	Display Unit, 6x I²S, MMC, 2x SD, SPDIF, 3x SRC, USB HS	-/7/-	7	266	–	✓	8x 10-bit/-	3.0...3.6	256, 272	PLQP0256LB-A, PLBG0272GA-A	85	CDROM dec, DMA, GFX, IMR, JPEG dec, RTC, 3 SRC, video dec, WDT, XIP																	
		R5S72691								3																															
R-Car Gen 2 	R-Car E2	R8A77941DAxxBG	–	512 K L2\$	–	Cortex A7	✓	208	3/12/- + QSPI	2	7	✓	1x DDR3/DDR3L- 1333/32bit, 2x display out, 2x video in, 10x I²S, MMC, 3x SD, 2x USB2.0, Ethernet MAC+AVB, MLB/ MOST, Tuner (I/Q)-IF	-/4/16 + 8ch 48-bit + 2ch 16-bit WDT	11	1000	–	–	–	3.0...3.6	501	BGA (21x21, 0.8)	85	DMA, INT, ICU, ASRC, audio mixer, volume ctrl, audio DSP (option), WDT, RTC, GPU SGX540, image renderer, video decoder, crypto core (option)																	
		R8A77940DAxxBG				2x Cortex A7																																			
	R-Car M2N	R8A77931DAxxBG	–	1 M L2\$	–	Cortex A15	✓	244	3/12/- + QSPI	2	6	✓	1x DDR3- 1600/32bit, 2x display out, 3x video in, 10x I²S, MMC, 3x SD, 2x USB2.0, 1x USB3.0, Ethernet MAC+AVB, MLB/ MOST, SATA, PCIe, Tuner (I/Q)-IF	-/4/16 + 8ch 48-bit + 2ch 16-bit WDT	11	1500	–	–	–	3.0...3.6	831	BGA (27x27, 0.8)	85	DMA, INT, ICU, ASRC, audio mixer, volume ctrl, audio DSP, WDT, RTC, GPU SGX544, JPEG codec, image renderer, video decoder, thermal sensor, GPS (option), crypto core (option)																	
		R8A77930DAxxBG				2x Cortex A15																																			
	R-Car M2W	R8A77911DAxxBG	–	1 M L2\$	–	Cortex A15	✓	244	3/12/- + QSPI	2	6	✓	2x DDR3- 1600/32bit, 2x display out, 3x video in, 10x I²S, MMC, 3x SD, 2x USB2.0, 1x USB3.0, Ethernet MAC+AVB, MLB/ MOST, SATA, PCIe	-/4/16 + 8ch 48-bit + 2ch 16-bit WDT	11	1500	–	–	–	3.0...3.6	831	BGA (27x27, 0.8)	85	DMA, INT, ICU, ASRC, audio mixer, volume ctrl, audio DSP, WDT, RTC, GPU SGX544, JPEG codec, image renderer, video decoder, thermal sensor, D-TV (option), GPS (option), image recognition (option), crypto core (option)																	
		R8A77910DAxxBG				2x Cortex A15																																			
	R-Car H2	R8A77901DAxxBG	–	2 M L2\$ + 2M L3\$	–	2x Cortex A7 2x Cortex A15	✓	188	'4/8/- + QSPI	2	8	✓	2x DDR3- 1600/32bit, 3x display out, 4x video in, 10x I²S, MMC, 4x SD, 3x USB2.0, 1x USB3.0, Ethernet MAC+AVB, MLB/ MOST, 2x SATA, PCIe	-/4/16 + 8ch 48-bit + 2ch 16-bit WDT	11	1400 (Cor- tex A15)	–	–	–	3.0...3.6	831	BGA (27x27, 0.8)	85	DMA, INT, ICU, ASRC, audio mixer, volume ctrl, audio DSP, WDT, RTC, GPU G6400, JPEG codec, image renderer, video decoder, thermal sensor, D-TV (option), GPS (option), image recognition (option), crypto core (option)																	
		R8A77900DAxxBG				4x Cortex A7 4x Cortex A15																																			
	R-Car V2H360	R8A77920DAxxBG	-	1 M L2\$	–	2 x Cortex A15	✓	276	4/4/- + QSPI	2	6	✓	2x DDR3- 1600/32bit, 2x display out, 6 x video in, 2x MSIOF, 2x SSI, 1x ADG, 1x SDHI, 1x IIC, Gyro ADC, Ether- net MAC+AVB	-/4/16 + 8ch 48-bit + 12ch 32-bit + 2ch 32-bit (op- tional) + 2ch 16-bit WDT (op- tional)	5	1000 (Cor- tex A15)	–	–	–	3.0...3.6	647	PLQP0208KB-A	85	DMA, INT, CRC (option), 1 RWDT, 1 Secure WDT, GPU SGX531 (option), 5 channels H264/JPEG Low Latency Decoder, JPEG codec, Video signal processor, video de- coder, thermal sensor, 6 image correction, image recognition (option), crypto core (option)																	
	R-Car V2H-2	R8A77921DAxxBG											2x DDR3- 1600/32bit, 2x display out, 2x video in, 2x MSIOF, 2x SSI, 1x ADG, 1x SDHI, 1x IIC, Ethernet MAC+AVB											DMA, INT, CRC (option), 1 RWDT, 1 Secure WDT, JPEG codec, Video signal processor, video decoder, thermal sensor, 2 image correction, image recognition option), crypto core (option)																	

Other features:	CMP	Comparator(s)	DVS	Dual voltage supply	GPS	GPS baseband controller	MCT	Motor control timer	SPF	System Protection Function
	DMA	Direct memory access	ECM	Error Control Module	GPU	Graphics processing unit	PAD	PWM with analogue diagnostic function	SRC	Sample Rate Converter
	DRI	Direct RAM Input	ELC	Event Link Controller	ICU	Intelligent Cryptographic Unit	POC	Power-On Clear	SVS	Single voltage supply
	DRO	Direct RAM Output	EMC	Controller for external analogue MUX	IMR	Image renderer	RTC	Real-Time Clock	THS	Thermal sensor
	DTC	Data Transfer Controller	ENC	Encoder timer for rotary switch	LCD	LCD controller/driver	SMC	Stepper motor controller	WDT	Window Watchdog Timer
	DTS	Data Transfer System	GFX	2D/3D graphics engine	LVI	Low-voltage indicator	SND	Sound generator	XIP	Execute in Place from serial flash

- Board dimensions: 210 mm x 180 mm
- Package includes CD with user's manual, schematic and boot software
- Order code: Y-R-CAR-H2-BOARD
- » switches, LEDs, I/O expansion headers
- » JTAG debug/trace connectors
- » expansion connectors
- » Five-channel low-delay H.264/JPEG decoder
- » Image recognition engines
- Board dimensions: 210 mm x 160 mm
- Package includes CD with user's manual and schematic
- Order code: Y-R-CAR-V2H-BOARD

Package Dimensions

Pincount	Code	Type	Body Size [mm ²]	Pin Pitch [mm]
20	PLSP0020JC-A	SOP	6.1 x 6.65	0.65
	PLSP0020JC-B		6.1 x 6.5	
30	PLSP0030JB-A	SOP	6.1 x 9.7	0.65
	PLSP0030JB-B		6.1 x 9.85	
32	PVQN0032KD-A	QFN	5 x 5	0.5
	PWQN0032KB-A			
48	PLQP0048KF-A	QFP	7 x 7	0.5
	PLQP0048KF-B			
	PVQN0048KG-A	QFN		
64	PLQP0064KB-A	QFP	10 x 10	0.5
	PLQP0064KF-A			
80	PLQP0080KE-A	QFP	12 x 12	0.5
	PLQP0080KE-B			
100	GC-UEU-G	QFP	14 x 14	0.5
	PLQP0100KB-A			
	PLQP0100KE-A			
	PLQP0100LA-A		12 x 12	0.4

Pincount	Code	Type	Body Size [mm ²]	Pin Pitch [mm]
120	PLQP0120KB-A	QFP	16 x 16	0.5
	PLQP0120LA-A		14 x 14	0.4
144	GJ-GBG-G	QFP	20 x 20	0.5
	PLQP0144KA-A			
	PLQP0144KD-E			
	PLQP0144LA-A		16 x 16	0.4
176	PLQP0176KB-A	QFP	24 x 24	0.5
	PRBG0176GA-A	BGA	13 x 13	0.8
208	PLQP0208KB-A	QFP	28 x 28	0.5
	PLBG0208GC-A			
233	PLBG0233GC-A	BGA	15 x 15	0,8
256	PLQP0256LB-A	QFP	28 x 28	0.4
272	PLBG0272GA-A	BGA	17 x 17	0.8
	PRBG0272FA-A		21 x 21	1.0
	PRBG0272GA-A		17 x 17	0.8
292	PRBG0292GB-A	BGA	17 x 17	0.8



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	UMOS-3	100	18.0	-	62	180	1.85	51	2500	TO-263ZP	NP62N10KUF
			20.0	-	70	120	1.25	50	2500	TO-263ZK	NP70N10KUF
			25.0	36.0	40	120	1.25	47	2100	HSO N-8	NP40N10YDF
			26.0	37.0	40	120	1.25	47	2100	TO-252ZP	NP40N10VDF
			27.0	38.0	40	120	1.25	47	2100	TO-263ZP	NP40N10PDF
P-Channel	UMOS-4	-30	55.0	68.0*	20	73	2.06	23	1100	HSO N-8	NP20N10YDF
			6.2	10.3*	-75	138	1.09	94	3200	HSO N-8	NP75P03YDG
			9.0	15.0	-50	102	1.47	64	2300	HSO N-8	NP50P03YDG
		-40	3.5	5.1	-100	200	0.75	320	15100	TO-263ZP	NP100P04PDG
			3.7	5.1	-100	200	0.75	320	15100	TO-263ZP	NP100P04PLG
			5.3	8.0	-83	150	1.00	200	9820	TO-263ZP	NP83P04PDG
			9.6	15.0	-50	90	1.78	100	5100	TO-252ZK	NP50P04SDG
			10.0	15.0	-50	90	1.67	100	5100	TO-263ZK	NP50P04KDG
			10.7	13.0*	-75	138	1.09	91	3200	HSO N-8	NP75P04YLG
			17.0	23.5	-36	56	2.68	55	2800	TO-263ZK	NP36P04KDG
			17.0	23.5	-36	56	2.68	55	2800	TO-252ZK	NP36P04SDG
			25.0	38.0	-20	38	3.90	34	1650	TO-252ZK	NP20P04SLG
			40.0	60.0	-15	30	5.00	23	1100	TO-252ZK	NP15P04SLG
		-60	6.0	7.8	-100	200	0.75	300	15000	TO-263ZP	NP100P06PLG
			6.0	7.8	-100	200	0.75	300	15000	TO-263ZP	NP100P06PDG
			8.8	12.0	-83	150	1.00	190	10100	TO-263ZP	NP83P06PDG
			16.5	23.5	-50	90	1.78	100	5000	TO-252ZK	NP50P06SDG
			17.0	23.0	-50	90	1.67	95	5000	TO-263ZK	NP50P06KDG
			29.5	37.5	-36	56	2.68	54	3100	TO-263ZK	NP36P06KDG
			30.0	40.0	-36	56	2.68	52	3200	TO-252ZK	NP36P06SLG
			48.0	64.0	-20	45	3.90	34	1700	TO-252ZK	NP20P06SLG
			49.0	64.0	-20	67	2.24	34	1600	HSO N-8	NP20P06YLG
			70.0	95.0	-15	30	5.00	23	1100	TO-252ZK	NP15P06SLG

Intelligent Power Devices

Automotive Body Solutions

- High-side drivers designed for car lighting, fitting all types of grounded load
- Overcurrent and overtemperature protected

Family Name	Product Name	Package	Channels	Channel Type	Supply Voltage [V]	R _{DS(on)} [mΩ]	Current Sense	Sense Ratio typ.	Diagnostic	Overtemperature Protection	Overcurrent / Overload Protection	Control	
HOpe*	RAJ280002 4H12HPF	T0263-7p	1	N	4.5 - 28.0	1,6	✓	70000	✓	Shutdown and Latch	Shutdown and Latch / Power dissipation control	Voltage	
	1,6					Current							
	RAJ280003 4H12HPF					2,5		44000				Voltage	
	RAJ280003 4H11HPF					2,5						Current	
	RAJ280004 4H12HPF					3,8		32000				Voltage	
	RAJ280004 4H11HPF					3,8						Current	
RoSa	μPD166033	TO-252-7p	1	N	4.5 - 28.0	6	✓	12500	✓	Autorestart on cooling	Shutdown and Latch / Power dissipation control	Voltage	
	μPD166034					8							9400
	μPD166031					10							7500
	μPD166032					12							6250
	μPD166023	HSSOP12	1			12		6250					
	μPD166024	HSSOP24	2			12		6250					
	μPD166025	HSSOP12	1			16		5800					
	μPD166026	HSSOP24	2			16		5800					
	μPD166038	HSSOP12	2			20		3400					
	μPD166037	HSSOP12	2			30		3400					
	μPD166027	HSSOP12	2			35		3400					
	μPD166028	HSSOP24	4			35		3400					
	μPD166029	HSSOP12	2			70		1400					
	μPD166030	HSSOP24	4			70		1400					

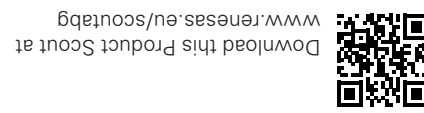
Notes: All devices are qualified according to AEC-Q100/AEC-Q100-012/AEC-Q101.
All devices are RoHS compliant.

*: Family of product under development, part number and specification can be changed without prior notification
**: Product under development, part number and specification can be changed without prior notification

Top view dimensions: 7.8±0.15, 10.3±0.2, 6.4±0.1, 7.5±0.1. Pin pitch: 0.20. Pin 1 indicator: 1. Side view dimensions: 2.55MAX, 0.82, 0.05±0.05, 0.42±0.05, 0.08. Feature callouts: 0.20 S A, 0.20 S B, 0.1 S.	Top view dimensions: 13.8±0.15, 10.3±0.2, 12.4±0.1, 7.5±0.1. Pin pitch: 0.20. Pin 1 indicator: 1. Side view dimensions: 2.55MAX, 0.82, 0.05±0.05, 0.42±0.05, 0.08. Feature callouts: 0.20 S B, 0.20 S A B, 0.1 S.	Dimensions: 3.18±0.2, 0.6±0.15, 0.8±0.15.
HSSOP-12	HSSOP-24	



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