

# AUTOMOTIVE SOLUTIONS

## ADVANCED ANALOG

With more than 25 years of delivering superior, high-performance mixed-signal electronics to the automotive industry, NXP's robust portfolio of automotive-compliant products includes over 700 devices and solutions that help enable breakthrough automotive designs.

### LCD DRIVERS

- Instrument clusters
- Climate controls
- Tachographs
- Car radios
- Key fobs



### REAL-TIME CLOCKS

- Tachographs
- Black boxes
- Battery management units
- Navigation systems
- Car radios



### LED CONTROLLERS

- Instrument clusters
- dashboards
- Gauges/tell-tales
- Car radios
- Climate controls



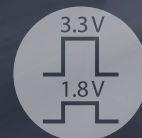
### I/O EXPANDERS (GPIOs)

- Body control units
- Instrument clusters
- Car radios



### LEVEL TRANSLATORS

- Processor to peripherals in infotainment systems



## LCD DISPLAY SEGMENT DRIVERS

Products	Description	Size	V <sub>DD1</sub> (Min – Max) (V)	V <sub>LCD</sub> (Min – Max) (V)	IDD [typ] (μA)	Interface	Temperature (Min – Max) (°C)	Package Version
PCA2117	LCD driver for character displays	2 x 20 plus 200 icons	2.5 to 5.5	2.5 to 5.5	70	I <sup>2</sup> C/SPI	-40 to 105	bare die
PCA85132	LCD driver for low multiplex rates	4 x 160	1.8 to 5.5	1.8 to 8	60 (max)	I <sup>2</sup> C	-40 to +95	bare die
PCA85133	LCD driver for low multiplex rates	4 x 80	1.8 to 5.5	2.5 to 8	16	I <sup>2</sup> C	-40 to +95	bare die
PCA85134	LCD driver for multiplex rates up to 1:4	4 x 60	1.8 to 5.5	2.5 to 8	24	I <sup>2</sup> C	-40 to +95	LQFP80
PCA85162	LCD driver for low multiplex rates	4 x 32	1.8 to 5.5	2.5 to 8	2.7	I <sup>2</sup> C	-40 to +95	TSSOP48
PCA85176	LCD driver for low multiplex rates	4 x 40	1.8 to 5.5	2.5 to 8	3.5	I <sup>2</sup> C	-40 to +95	TQFP64, TSSOP56
PCA85232	LCD driver for low multiplex rates	4 x 160	1.8 to 5.5	1.8 to 8	80 (max)	I <sup>2</sup> C	-40 to +95	bare die
PCA85233	LCD driver for low multiplex rates	4 x 80	1.8 to 5.5	2.5 to 8	3	I <sup>2</sup> C	-40 to +105	bare die
PCA85262	LCD driver for low multiplex rates	4 x 32	1.8 to 5.5	2.5 to 8	6	I <sup>2</sup> C	-40 to +105	TSSOP48
PCA85276	LCD driver	4 x 40	1.8 to 5.5	2.5 to 8	2.7	I <sup>2</sup> C	-40 to +105	TSSOP56
PCA8534	LCD driver for low multiplex rates	4 x 60	1.8 to 5.5	2.5 to 6.5	8	I <sup>2</sup> C	-40 to +85	LQFP80
PCA8536	LCD driver for low multiplex rates including a 6-channel PWM generator	8 x 40	1.8 to 5.5	2.5 to 9	30	I <sup>2</sup> C	-40 to +95	TSSOP56
PCA8537	LCD driver for multiplex rates up to 1:8	8 x 44	1.8 to 5.5	2.5 to 9	290	I <sup>2</sup> C/SPI	-40 to +95	TQFP64
PCA8543	LCD driver with integrated charge pump	4 x 60	2.5 to 5.5	2.5 to 9	350	I <sup>2</sup> C	-40 to +105	LQFP80
PCA8546	LCD driver	4 x 44	1.8 to 5.5	2.5 to 9	85	I <sup>2</sup> C	-40 to +95	TSSOP56
PCA8547	LCD driver with integrated charge pump	4 x 44	1.8 to 5.5	2.5 to 9	290	I <sup>2</sup> C	-40 to +95	TQFP64
PCA8551	LCD driver	4 x 36	1.8 to 5.5	1.8 to 5.5	0.6	I <sup>2</sup> C	-40 to +105	TSSOP48
PCA8553	LCD driver	4 x 40	1.8 to 5.5	1.8 to 5.5	0.6	I <sup>2</sup> C	-40 to +105	TSSOP56
PCA8561	LCD driver	4 x 18	1.8 to 5.5	1.8 to 5.5	0.6	I <sup>2</sup> C/SPI	-40 to +105	HVQFN32
PCA8576	LCD driver for low multiplex rates	4 x 40	2 to 6	2.5 to 6	120 (max)	I <sup>2</sup> C	-40 to +85	VSO56, LQFP64
PCA9620	LCD high-drive segment driver	8 x 60	2.5 to 5.5	2.5 to 9	100	I <sup>2</sup> C	-40 to +105	LQFP80, bare die

## REAL-TIME CLOCKS

Products	Description	V <sub>DD</sub> (interface)	V <sub>DD</sub> (clock)	I <sub>DD</sub> (nA) typical	Watchdog Timer	Programmable Alarm	Temperature Compensation	Interface	Temperature (Min – Max) (°C)	Package Version
PCA8539	Chip-on-glass LCD dot matrix driver	2.5 to 5.5	2.5 to 5.5	70	N	Y	N	I <sup>2</sup> C/SPI	-40 to +105	bare die
PCA85073A	Tiny real-time clock/calendar with alarm function and I <sup>2</sup> C-bus	1.8 to 5.5	0.9 to 5.5	250	N	Y	N	I <sup>2</sup> C	-40 to +105	TSSOP8
PCA8565	High-temperature real-time clock/calendar with I <sup>2</sup> C-bus	1.8 to 5.5	0.9 to 5.5	600	Y	Y	N	I <sup>2</sup> C	-40 to +125	TSSOP8
PCA2129	Accurate real-time clock with integrated quartz crystal	1.8 to 4.2	1.8 to 4.2	470	Y	Y	Y	I <sup>2</sup> C/SPI	-40 to +85	SO16
PCA21125	SPI-bus real-time clock and calendar	1.6 to 5.5	1.3 to 5.5	820	N	Y	N	SPI	-40 to +125	TSSOP14
PCA2131	Very-low-power accurate real-time clock with integrated quartz crystal	1.2 to 5.5	1.2 to 5.5	68	Y	Y	Y	I <sup>2</sup> C/SPI	-40 to +125	HLSO16 (3.5 x 4.5 x 1.4 mm)

## LED CONTROLLERS

Products	Description	LED Supply Maximum Voltage	Maximum Current per LED Output	Operating Voltage (VDC)	No. of Addresses	Interface	Temperature (Min – Max) (°C)	Package Version
PCA9635	16-bit Fm+ I <sup>2</sup> C-bus LED driver	5 V	25 mA	2.3 to 5.5	126	I <sup>2</sup> C 1000 kHz	40 to +85	TSSOP28
PCA9685	16-channel, 12-bit PWM Fm+ I <sup>2</sup> C-bus LED controller	5 V	25 mA	2.3 to 5.5	126	I <sup>2</sup> C 1000 kHz	40 to +85	TSSOP28
PCA9745B	16-channel SPI 20 V CS LED controller	20 V	57 mA	3 to 5.5	n/a	4-wire SPI	-40 to +105	HTSSOP28
PCA9955B	16-channel SPI 20 V CS LED controller	20 V	57 mA	3 to 5.5	8	I <sup>2</sup> C 1000 kHz	-40 to +85	HTSSOP28
PCA9955	16-channel I <sup>2</sup> C Fm+ HV CS LED controller without OE	40 V	57 mA	3 to 5.5	16	I <sup>2</sup> C 1000 kHz	-40 to +85	HTSSOP28
PCA9952	16-channel I <sup>2</sup> C Fm+ HV CS LED controller with OE	40 V	57 mA	3 to 5.5	8	I <sup>2</sup> C 1000 kHz	-40 to +105	HTSSOP28

## GPIO EXPANDERS

Products	Description	No. of Bits	VCC Range	No. of Addresses	Output Mode	Interface	Temperature (Min – Max) (°C)	Package Version
PCA9538	8-bit I <sup>2</sup> C-bus and SMBus low-power I/O port with interrupt and reset	8	2.3 to 5.5	4	Totem Pole	I <sup>2</sup> C 400 kHz	40 to +85	TSSOP16
PCA9704	8-bit, 18 V tolerant SPI GPI with maskable INT	8	4.5 to 5.5	n/a	Open Drain	SPI	40 to +125	TSSOP16
PCA9539	16-bit I <sup>2</sup> C-bus and SMBus low-power I/O port with interrupt and reset	16	2.3 to 5.5	4	Totem Pole	I <sup>2</sup> C 400 kHz	40 to +85	TSSOP24
PCA9539R	16-bit I <sup>2</sup> C-bus and SMBus low-power I/O port with interrupt and reset that only resets the I <sup>2</sup> C state machine/interface and not the IO Port registers so control of the output signals are not affected if the device is hardware reset should the I <sup>2</sup> C bus hang	16	2.3 to 5.5	4	Totem Pole	I <sup>2</sup> C 400 kHz	40 to +85	TSSOP24
PCA9703	16-bit, 18 V tolerant SPI GPI with maskable INT	16	4.5 to 5.5	n/a	Open Drain	SPI	40 to +125	TSSOP24

## LEVEL TRANSLATORS

Products	Description	Number of Bits	VCCA Range	VCCB Range	Data Rate (typ) Mb/s	One Shot	Buffer	Temperature (Min – Max) (°C)	Package Version
NTB0101	Dual-supply translating transceiver; auto direction sensing; 3-state	1	1.2 to 3.6	1.65 to 5.5	100	No	Yes	-40 to +125	SC-88
NTB0102	Dual-supply translating transceiver; auto direction sensing; 3-state	2	1.2 to 3.6	1.65 to 5.5	100	No	Yes	-40 to +125	TSSOP8
NTB0104	Dual-supply translating transceiver; auto direction sensing; 3-state	4	1.2 to 3.6	1.65 to 5.5	100	No	Yes	-40 to +125	WLCSPI2, DHVQFN14
NTS0102	Dual-supply translating transceiver; open drain; rise time accelerator	2	1.65 to 3.6	2.3 to 5.5	50	Yes	No	-40 to +125	TSSOP8, XSON8
NTS0104	Dual-supply translating transceiver; open drain; rise time accelerator	4	1.65 to 3.6	2.3 to 5.5	50	Yes	No	-40 to +125	DHVQFN14, TSSOP14

## MUX/SWITCH

Products	Description	No. of Channels	VCC Range	No. of Addresses	Interface	Temperature (Min – Max) (°C)	Package Version
PCA9540B	2-channel I <sup>2</sup> C-bus multiplexer	1:2	2.3 to 5.5	1	I <sup>2</sup> C 400 kHz	-40 to +105	TSSOP8