



NXP 16-channel
I²C-bus LED
controller
PCA9955ATW
for automotive

Advanced, single-chip 57 mA/20 V LED controller for automotive

This fully integrated, single-chip, sixteen-channel, constant-current LED controller with 57 mA/20 V drive capability offers diagnostic features and is AEC-Q100 compliant for automotive qualification. It is targeted at LCD backlighting, warning lights, and push-button illumination in instrument clusters, car radios, and climate-control units.

Features	Benefits
▶ High LED output voltage up to 20 V	LEDs can be directly connected to battery voltage
▶ High output drive up to 57 mA per channel	Eliminates external FET
▶ Constant-current output stages	Ensures constant light output
▶ High output-current accuracy: ±4% channel to channel and ±6% chip to chip	Ensures consistent color across all channels and from device to device
▶ 16 independent PWM channels with 8-bit resolution	Enables individual dimming per channel and color mixing
▶ Global output enable	Enables global dimming across all channels
▶ Gradation control for all channels	Programmable LED "breathing" effect (single or continuous)
▶ LED open or short error detection	Enables real-time LED monitoring
▶ Over-temperature shut-down function	Prevents device damage
▶ Programmable channel-to-channel switching delay	Ensures low EMI and reduced surge currents
▶ Robust ESD performance (4000V HBM; 300V MM)	Allows for reduced component count
▶ Large address range	Up to 125 devices on the same I2C-bus
▶ Thermally enhanced, space-saving HTSSOP package	Ensures optimum heat dissipation and minimal board-space requirements
▶ AEC-Q100 compliant qualification	Ensures highest robustness



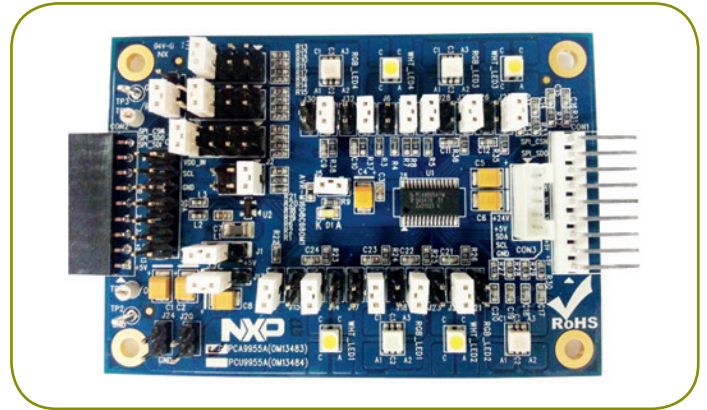
TARGET APPLICATIONS

- ▶ Tell-tale / warning light illumination
- ▶ Push-button illumination
- ▶ Cluster backlighting
- ▶ LCD backlighting



DEMO BOARD (OM13483)

Explore color mixing, blinking, and dimming. The demo board features four white LEDs and four RGB LED clusters. Control this demo board with an easy-to-use graphical user interface (GUI) running on the PC or a laptop. Expand the number of uniquely addressed LED channels with multiple demo boards connected together in series.



DOCUMENT INFORMATION

Item	Description
PCA9955A	Product data sheet
OM13483	PCA9955A demo board
UM10729	PCA9955A demo board user manual

SUPPORT INFORMATION

What	Where
To order the demo kit	visit www.nxp.com
For support tools	visit www.nxp.com/interface
For questions	e-mail i2c.support@nxp.com

ORDERING INFORMATION

Type number	Package	Description	Version
PCA9955A	Name		
PCA9955ATW/Q900 ⁽¹⁾	HTSSOP28	plastic thermal enhanced thin shrink small outline package; 28 leads; body width 4.4 mm; lead pitch 0.65 mm; exposed die pad	SOT1172-3

⁽¹⁾ PCA9955ATW/Q900 is AEC-Q100 compliant