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**

- High LED output voltage up to 20 V
- High output drive up to 57 mA per channel
- Constant-current output stages
- High output-current accuracy: ±4% channel to channel and ±6% chip to chip
- 16 independent PWM channels with 8-bit resolution
- Global output enable
- Gradation control for all channels
- LED open or short error detection
- Over-temperature shut-down function
- Programmable channel-to-channel switching delay
- Robust ESD performance (4000V HBM; 300V MM)
- Large address range
- Thermally enhanced, space-saving HTSSOP package
- AEC-Q100 compliant qualification

**Benefits**

- LEDs can be directly connected to battery voltage
- Eliminates external FET
- Ensures constant light output
- Ensures consistent color across all channels and from device to device
- Enables individual dimming per channel and color mixing
- Enables global dimming across all channels
- Programmable LED “breathing” effect (single or continuous)
- Enables real-time LED monitoring
- Prevents device damage
- Ensures low EMI and reduced surge currents
- Allows for reduced component count
- Up to 125 devices on the same I2C-bus
- Ensures optimum heat dissipation and minimal board-space requirements
- 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

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<tr>
<th>Item</th>
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<tbody>
<tr>
<td>PCA9955A</td>
<td>Product data sheet</td>
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<tr>
<td>OM13483</td>
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<td>UM10729</td>
<td>PCA9955A demo board user manual</td>
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SUPPORT INFORMATION

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<tr>
<td>To order the demo kit</td>
<td>visit <a href="http://www.nxp.com">www.nxp.com</a></td>
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<tr>
<td>For support tools</td>
<td>visit <a href="http://www.nxp.com/interface">www.nxp.com/interface</a></td>
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<tr>
<td>For questions</td>
<td>e-mail <a href="mailto:i2c.support@nxp.com">i2c.support@nxp.com</a></td>
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ORDERING INFORMATION

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<thead>
<tr>
<th>Type number</th>
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<tbody>
<tr>
<td>PCA9955A</td>
<td></td>
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</tr>
<tr>
<td>PCAPC9955ATW/Q900[1]</td>
<td>HTSSOP28</td>
<td>plastic thermal enhanced thin shrink small outline package; 28 leads; body width 4.4 mm; lead pitch 0.65 mm; exposed die pad</td>
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[1] PCA9955ATW/Q900 is AEC-Q100 compliant