

**HIGH PERFORMANCE CCFL CONTROLLER**
**PRODUCTION DATASHEET**
**DESCRIPTION**

The LX6503 is a high performance CCFL controller optimized for LCD-TV and other multi-lamp LCD display systems. It particularly provides a cost competitive solution for off-PFC inverter applications.

The controller provides a pair of push-pull PWM drive signals with adequate capacity to drive a push-pull, half bridge, or full bridge CCFL inverter configuration with the addition of simple external circuitry.

An on-chip regulator supplies both the operating voltage for the output gate drive and bias to the internal control circuitry. This allows a direct connection of the controller to the system supply extending the voltage up to 27V without external regulators.

In addition the controller includes a synchronization capability that allows the user to synchronize both the frequency and phase of the lamp current between inverters or to an external synchronization signal.

The lamp current regulation circuit comprises a simple and robust control loop design with good regulation accuracy and dynamic response at transient conditions. Furthermore a soft start feature provides more reliable lamp strike and allows effective control of the possible inverter start up surge current and lamp current/voltage overshoot.

Lamp dimming operation is also well considered to facilitate convenient and flexible dimming control design with synchronization capability.

In addition, reliable fault detection and protection functions are facilitated including open lamp, over voltage, short circuit, and over current protection. Furthermore, programmable striking frequency, programmable strike and protection timing, and fault indication are all built-in with the very compact chip design.

The device is available in the 16 lead TSSOP and SOIC wide body surface mount packages in the industrial temperature range.

**KEY FEATURES**

- Push-Pull Output to Provide Low Cost Solution for Multiple Topology Configuration
- 0.6A Peak Source and Sink Drive Current
- 6V to 27V Power Rail operation (36V Absolute Maximum)
- On Chip Regulator with Under Voltage Lock Out Protection
- Inverter Operating Frequency Synchronization
- Soft Start Control
- Programmable Strike Time, Fault Time, Strike Frequency, and Burst Dimming Frequency
- Comprehensive Brightness Control Modes
- Provide Optimized Solution for Off PFC Inverter Applications

**APPLICATIONS**

- LCD-TV
- Multi-Lamp LCD Monitors
- CCFL, EEFL, FFL Backlight Systems

**IMPORTANT:** For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>  
 Patents Pending

**PACKAGE ORDER INFO**
**THERMAL DATA**

$T_A$ (°C)	<b>DW</b>	<b>Plastic SOWB 16 Pin</b>	$\theta_{JA} = 69.1$ °C/W
		RoHS Compliant / Pb-free	THERMAL RESISTANCE-JUNCTION TO AMBIENT
-40 to 85		<b>LX6503IDW</b>	Junction Temperature Calculation: $T_J = T_A + (P_D \times \theta_{JA})$ . The $\theta_{JA}$ numbers are guidelines for the thermal performance of the device/pc-board system. All of the above assume no ambient airflow.
Note: Available in Tape & Reel. Append the letters "TR" to the part number. (i.e. LX6503IDW-TR)			
$T_A$ (°C)	<b>PW</b>	<b>Plastic TSSOP 16 Pin</b>	$\theta_{JA} = 105.6$ °C/W
		RoHS Compliant / Pb-free	THERMAL RESISTANCE-JUNCTION TO AMBIENT
-40 to 85		<b>LX6503IPW</b>	Junction Temperature Calculation: $T_J = T_A + (P_D \times \theta_{JA})$ . The $\theta_{JA}$ numbers are guidelines for the thermal performance of the device/pc-board system. All of the above assume no ambient airflow.
Note: Available in Tape & Reel. Append the letters "TR" to the part number. (i.e. LX6503IPW-TR)			



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## INFORMATION

*Thank you for your interest in Microsemi<sup>®</sup> Analog Mixed Signal products.*

The full data sheet for this device contains proprietary information.

To obtain a copy, please contact your local Microsemi sales representative. The name of your local representative can be obtained at the following link

<http://www.microsemi.com/contact/contactfind.asp>

**or**

Contact us directly by sending an email to:

[IPGdatasheets@microsemi.com](mailto:IPGdatasheets@microsemi.com)

Be sure to specify the data sheet you are requesting and include your company name and contact information and or vcard.

*We look forward to hearing from you.*