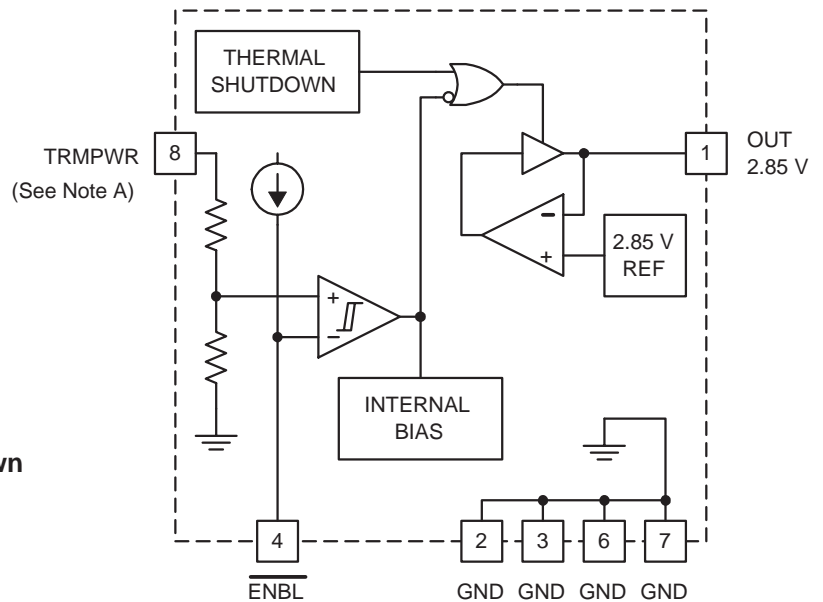


- SPI-2 and SPI-3 Compliant
- 2.85-V Regulated Output Voltage with 1.4% Tolerance
- Provides Current for up to 27 Lines of Active Termination for SCSI Buses
- -750-mA Sourcing Current for Termination
- 300-mA Sinking Current for Active Negation Drivers
- 0.9-V Dropout Voltage Regulator at 750 mA and 2.75 V Output
- 100- μ A Supply Current in Disconnect Mode
- Current Limit and Thermal Shutdown Protection
- Low Thermal Resistance Surface Mount Package

simplified block diagram



Note A: 4.0 V TO 6.0 V (4.75 V NOMIMAL)

description

The UC560 provides current for up to 27 lines of active termination for a SCSI (small computers systems interface) parallel bus. The SCSI standard requires active termination at both ends of the cable. The UC560 is based on the UC5603 and UC5613 SCSI active terminators. It uses the voltage regulator and internal logic circuits of those parts, but has no termination circuits. The UC560 provides greater source current-drive capability compared to the UC5603 and UC5613.

The UC560 sink current maintains regulation with all active-negation drivers negated. It provides a disconnect feature which disables the regulator to greatly reduce standby power. Internal circuit trimming is utilized for a 1.4% tolerance output voltage. Other features include thermal shutdown and current limit for short circuit conditions.

The UC560 is available in low-thermal-resistance version of the industry standard 8-pin power SOIC.

AVAILABLE OPTIONS

T _A	PACKAGED DEVICES
	0°C to 70°C

[†] The DP package is available taped and reeled. Add TR suffix to device type (e.g. UC560DPTR) to order quantities of 3000 devices per reel.

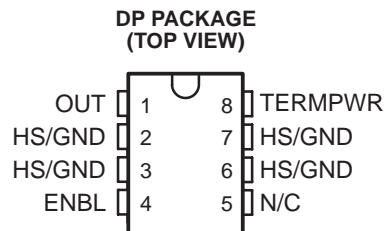


Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

UC560

27-LINE SCSI SOURCE/SINK REGULATOR

SLUS213B – APRIL 1998 – REVISED FEBRUARY 2001



NOTE 1: For DP package, pins 2, 3, 6 and 7 are heat sinking pins. Pin 2 is the connect point for electrical ground.

NOTE 2: For all packages, N/C is no connection.

absolute maximum ratings over operating free-air temperature (unless otherwise noted)† ‡

Input voltage,	
TERMPWR	7 V
ENBL	-0.3 V to TERMPWR + 0.3 V
Regulator Output Current	1.4 A
Power Dissipation	2.5 W
Storage Temperature	-65°C to 150°C
Junction Temperature	-55°C to 150°C
Lead Temperature (Soldering, 10 seconds)	300°C

† Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

‡ Currents are positive into and negative out of the specified terminal. Consult Packaging Section of Interface Products Data Book (*TI Literature Number SLUD002*) for thermal limitations and considerations of packages.

recommended operating conditions

	MIN	MAX	UNIT
Input voltage, TERMPWR	4.0	6.0	V
Operating virtual junction temperature, T _J [¶]	0	70	°C

¶ It is not recommended that the device operate under conditions beyond those specified in this table for extended periods of time.



POST OFFICE BOX 655303 • DALLAS, TEXAS 75265

UC560

27-LINE SCSI SOURCE/SINK REGULATOR

SLUS213B – APRIL 1998 – REVISED FEBRUARY 2001

electrical characteristics over recommended operating free-air temperature range, $T_A = 0^\circ\text{C}$ to 70°C , $T_{\text{EMPWR}} = 4.75\text{ V}$, $\overline{\text{ENBL}} = 0\text{ V}$, $C_{\text{OUT}} = 4.7\ \mu\text{F}$, $C_{T_{\text{EMPWR}}} = 4.7\ \mu\text{F}$, $T_A = T_J$, unless otherwise specified.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Supply Current Section					
TERMPWR supply current	No load		18	25	mA
	$I_{\text{OUT}} = -700\text{ mA}$		710	750	mA
Power down mode	$\overline{\text{ENBL}} = 2.0\text{ V}$		100	140	μA
Regulator Section					
Regulator output voltage	25°C , No load	2.81	2.85	2.89	V
Load regulation	$I_{\text{OUT}} = 300\text{ mA}$ to -750 mA See Note 1		25	30	mV
Line regulation	$T_{\text{EMPWR}} = 4.0\text{ V}$ to 6.0 V No load, See Note 1		10	20	mV
Dropout voltage	$I_{\text{OUT}} = -750\text{ mA}$ $V_{\text{OUT}} = 2.75\text{ V}$		0.9	1.2	V
Short circuit current	$V_{\text{OUT}} = 0.0\text{ V}$		-1.3	-0.85	A
Sinking current	$V_{\text{OUT}} = 3.5\text{ V}$		500	600	mA
	$\overline{\text{ENBL}} = 2.0\text{ V}$ $V_{\text{OUT}} = 3.0\text{ V}$		1	2	mA
Thermal shutdown	See Note 2		170		$^\circ\text{C}$
Thermal shutdown hysteresis	See Note 2		10		$^\circ\text{C}$
Shutdown Section					
$\overline{\text{ENBL}}$ threshold		1.1	1.4	1.7	V
Threshold hysteresis			100		mV
$\overline{\text{ENBL}}$ output current		-15	-10		μA

- NOTES: 1. Tested at a constant junction temperature by low duty cycle pulse testing.
2. Ensured by design. Not production tested.

pin descriptions

$\overline{\text{ENBL}}$: (Enable pin) The $\overline{\text{ENBL}}$ function is active low, and the pin sources $10\ \mu\text{A}$ (typical) when at ground and T_{EMPWR} is between 4 V and 6 V . The part goes into disable mode if $\overline{\text{ENBL}}$ is above 1.4 V (typical), and returns to enable mode when $\overline{\text{ENBL}}$ drops below 1.3 V typical. The part also greatly reduces T_{EMPWR} current when disabled ($100\ \mu\text{A}$ typical).

GND: Ground pin.

OUT: (2.85-V regulated output voltage pin) The part is internally current limited for both sinking and sourcing current to prevent damage. When the part is in disabled mode ($\overline{\text{ENBL}} = 1.4\text{ V}$ typical), the output goes to 0 V with no external supply source on OUT. The IC current sinks if there is an external supply voltage applied to OUT when in disabled mode. For best performance, a $4.7\text{-}\mu\text{F}$ low-ESR capacitor is recommended.

T_{EMPWR} : (Supply voltage pin) The pin should be decoupled with at least a $2.2\text{-}\mu\text{F}$ low-ESR output capacitor. For best performance, a $4.7\text{-}\mu\text{F}$ low-ESR capacitor is recommended. Lead lengths should be kept at a minimum.



UC560 27-LINE SCSI SOURCE/SINK REGULATOR

SLUS213B – APRIL 1998 – REVISED FEBRUARY 2001

APPLICATION INFORMATION

TYPICAL SCSI BUS CONFIGURATION
(18 TERMINATION LINES)

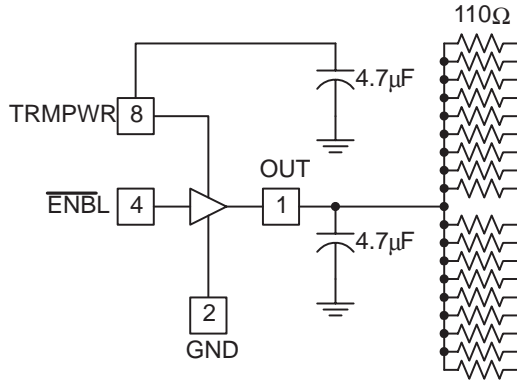


Figure 1

UDG-00075

TYPICAL WIDE SCSI BUS CONFIGURATION
(27 TERMINATION LINES)

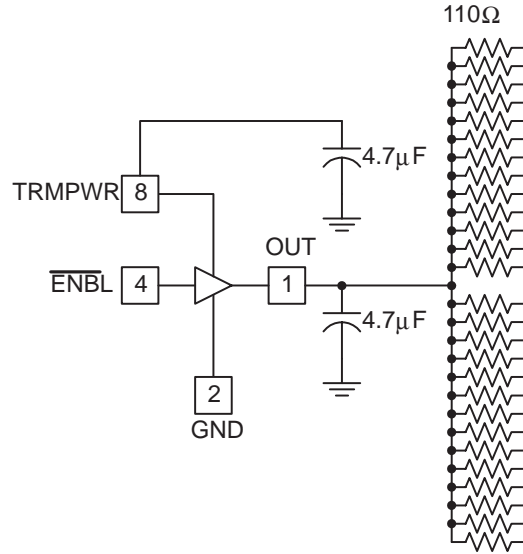


Figure 2

UDG-00076

TYPICAL CHARACTERISTICS

OUTPUT VOLTAGE
vs
TEMPERATURE

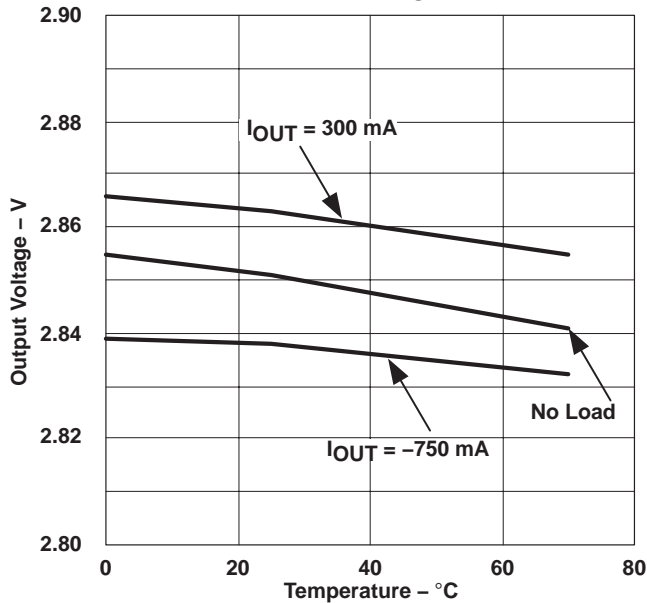


Figure 3

DROPOUT VOLTAGE
vs
TEMPERATURE

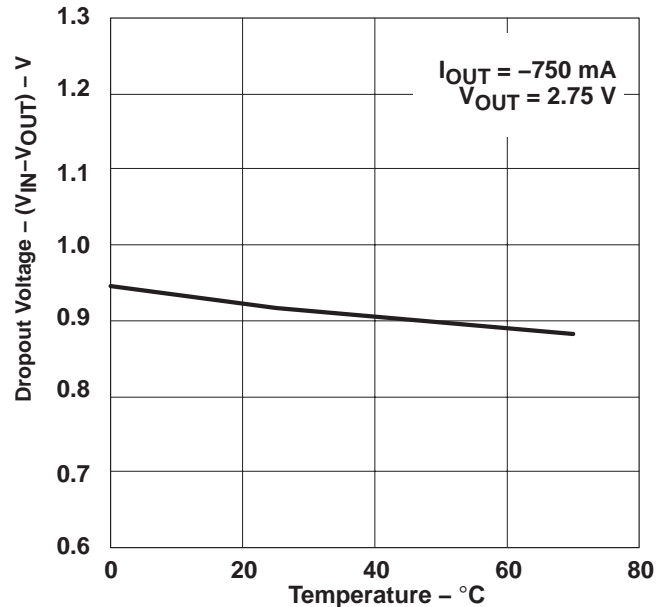
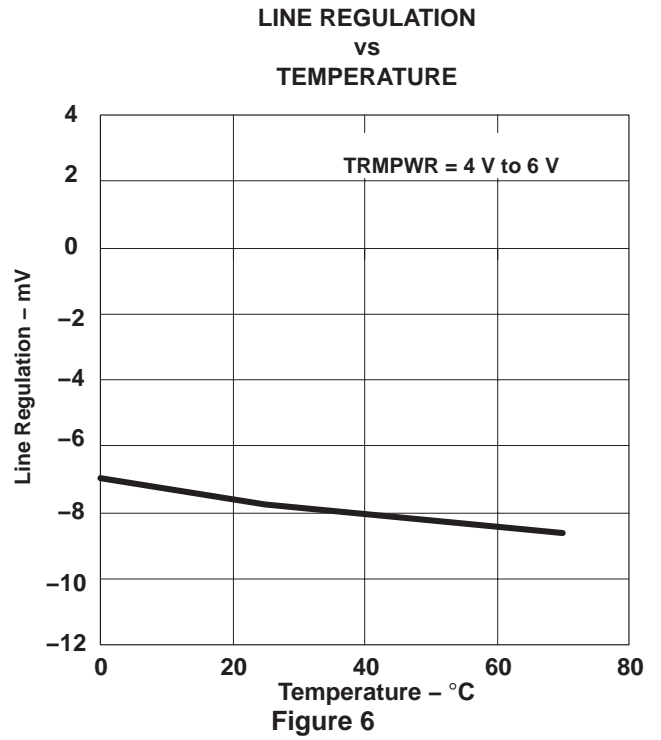
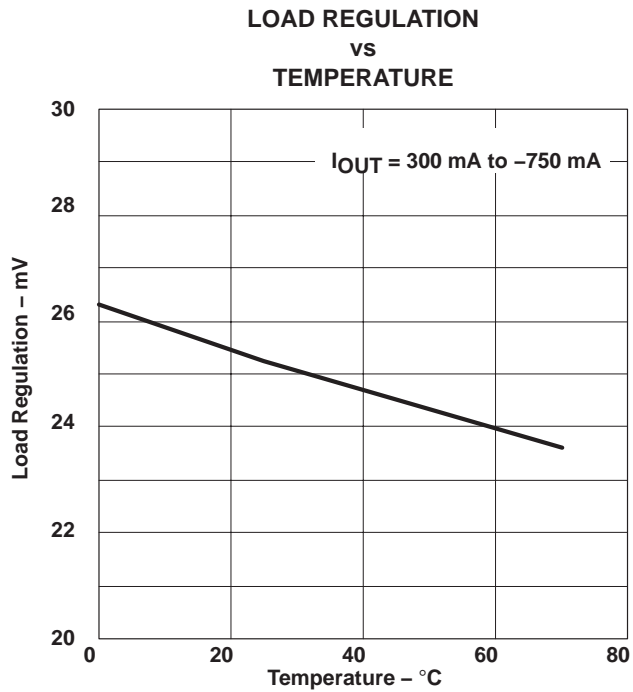


Figure 4



POST OFFICE BOX 655303 • DALLAS, TEXAS 75265



IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products

Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
RF/IF and ZigBee® Solutions	www.ti.com/lprf

Applications

Audio	www.ti.com/audio
Automotive	www.ti.com/automotive
Broadband	www.ti.com/broadband
Digital Control	www.ti.com/digitalcontrol
Medical	www.ti.com/medical
Military	www.ti.com/military
Optical Networking	www.ti.com/opticalnetwork
Security	www.ti.com/security
Telephony	www.ti.com/telephony
Video & Imaging	www.ti.com/video
Wireless	www.ti.com/wireless

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2009, Texas Instruments Incorporated