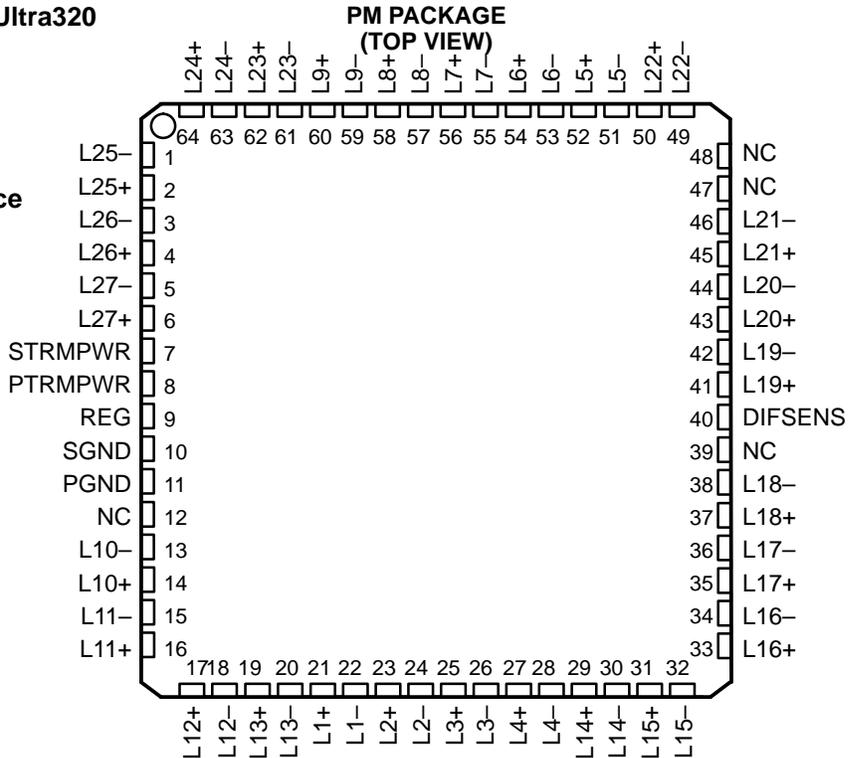**Unitrode Products
from Texas Instruments**

- **SCSI SPI-2, SPI-3, Ultra160, Ultra320 Compliance**
- **Smallest Footprint**
- **Lowest Channel Capacitance, 2 pF**
- **Less Than 0.5-pF Capacitance Differential Between Pairs**
- **2.7 V to 5.25 V Operation**
- **Differential Failsafe Bias**
- **64-Pin Low Profile QFP**

**PM PACKAGE
(TOP VIEW)**

description

The UCC5511 is a twenty-seven line active terminator for low-voltage-differential (LVD) SCSI networks. This LVD SCSI-only design allows the user to reach peak bus performance, while reducing system cost. The device is designed as an active Y-terminator to improve the frequency response of the LVD SCSI bus. Designed with a 2-pF (typical) channel capacitance, the UCC5511 allows for minimal bus loading for a maximum number of peripherals. With the UCC5511, the designer is able to comply with the Ultra2, Ultra3, Ultra160 and Ultra320 SCSI specifications. The UCC5511 also provides a much-needed system migration path for the ever improving SCSI system standards.

This device is available in the 64-pin low-profile QFP package for ease of layout use.

Single-ended (SE) and high-voltage differential (HVD) SCSI drivers are not supported.

AVAILABLE OPTIONS

T_A	PACKAGED DEVICES[†]
	LOW PROFILE QFP (PM)
0°C to 70°C	UCC5511PM

† The PM package is available taped and reeled. Add TR suffix to device type (e.g., UCC5511PMTR) to order quantities of 1000 devices per reel.
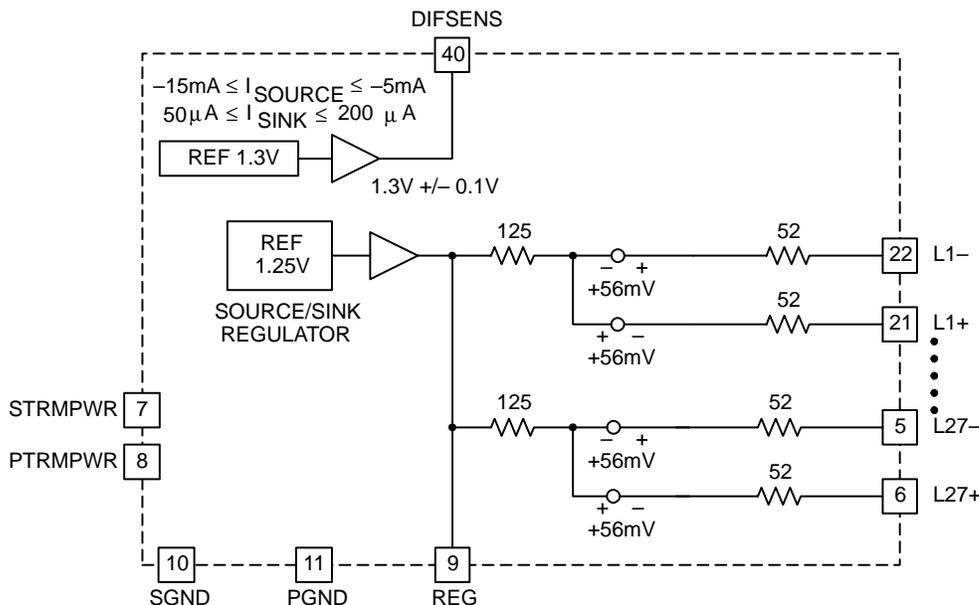
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block diagram

UDG-00132

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

Input voltage V_{IN} (STRMPWR, PTRMPWR) . . . . 6 V
Signal line input voltage . . . . 0 V to 5 V
Regulator output current . . . . 0.75 A
Storage temperature range, T_{stg} . . . . −55°C to 150°C
Operating virtual junction temperature range, T_J . . . . −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.

‡ Unless otherwise indicated, voltages are reference to ground and currents are positive into and negative out of the specified terminals. Consult
  Packaging Section of the Databook for thermal limitations and considerations of packages. All voltages are referenced to GND.

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electrical characteristics over recommended operating free-air temperature range,
xTRMPWR = 2.7 V to 5.25 V, T_A = 0°C to 70°C, T_A = T_J. (unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
xTRMPWR Supply Current Section					
xTRMPWR supply current				65	mA
1.25 V Regulator Section					
1.25 V regulator	0.5 V ≤ V_{CM} ≤ 2.0 V, See Note 1	1.15	1.25	1.35	V
Regulator source current	V_{REG} = 0 V		−300	−240	mA
Regulator sink current	V_{REG} = 3.0 V	240	300		mA
1.3 V (DIFSENS) Regulator Section					
1.3 V regulator	−5mA ≤ $I_{DIFSENS}$ ≤ 50 μA	1.2	1.3	1.4	V
Short-circuit source current	$V_{DIFSENS}$ = 0 V	−5	−8	−15	mA
Short-circuit sink current	$V_{DIFSENS}$ = 2.75 V	50		200	μA
Differential Termination Section (Applies to each line pair 1–27)					
Differential bias voltage		100		125	mV
Differential impedance		100	105	110	Ω
Common-mode bias voltage	L+ and L– shorted together	1.15	1.25	1.35	V
Common-mode impedance	L+ and L– shorted together, See Note 2	110	140	165	Ω
Thermal Shutdown Section					
Thermal shutdown threshold	For increasing temperature		155		°C
Thermal shutdown hysteresis			10		°C

NOTES: 1. VCM is applied to all L+ and L– lines simultaneously.

2. $Z_{CM} = \dfrac{2.0\ V - 0.5\ V}{\left[I_{VCM\ (max)} - I_{VCM\ (min)}\right]}$, $V_{CM(max)}$ = 2.0 V, $V_{CM(min)}$ = 0.5 V

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UCC5511
27−LINE 3-V − 5-V LVD TERMINATOR
FOR WIDE ULTRA2 AND ULTRA160 SCSI

SLUS469 − SEPTEMBER 2000

pin descriptions

STRMPWR: 2.7 V to 5.25 V power supply for all circuitry except the 1.25-V regulator.

SGND: Ground reference for all circuitry except the 1.25-V regulator.

PTRMPWR: 2.7 V to 5.25 V power supply for the 1.25-V regulator.

PGND: Ground reference for the 1.25-V regulator.

REG: Output of the internal 1.25-V regulator; must be connected to a 4.7-µF bypass capacitor and a high-frequency, low-ESR 0.01-µF capacitor to GND.

DIFSENS: Drives the SCSI bus DIFF SENSE line to 1.3 V to allow detection of device types that are tied to the bus.

L1− thru L27−: Negative lines for the SCSI bus.
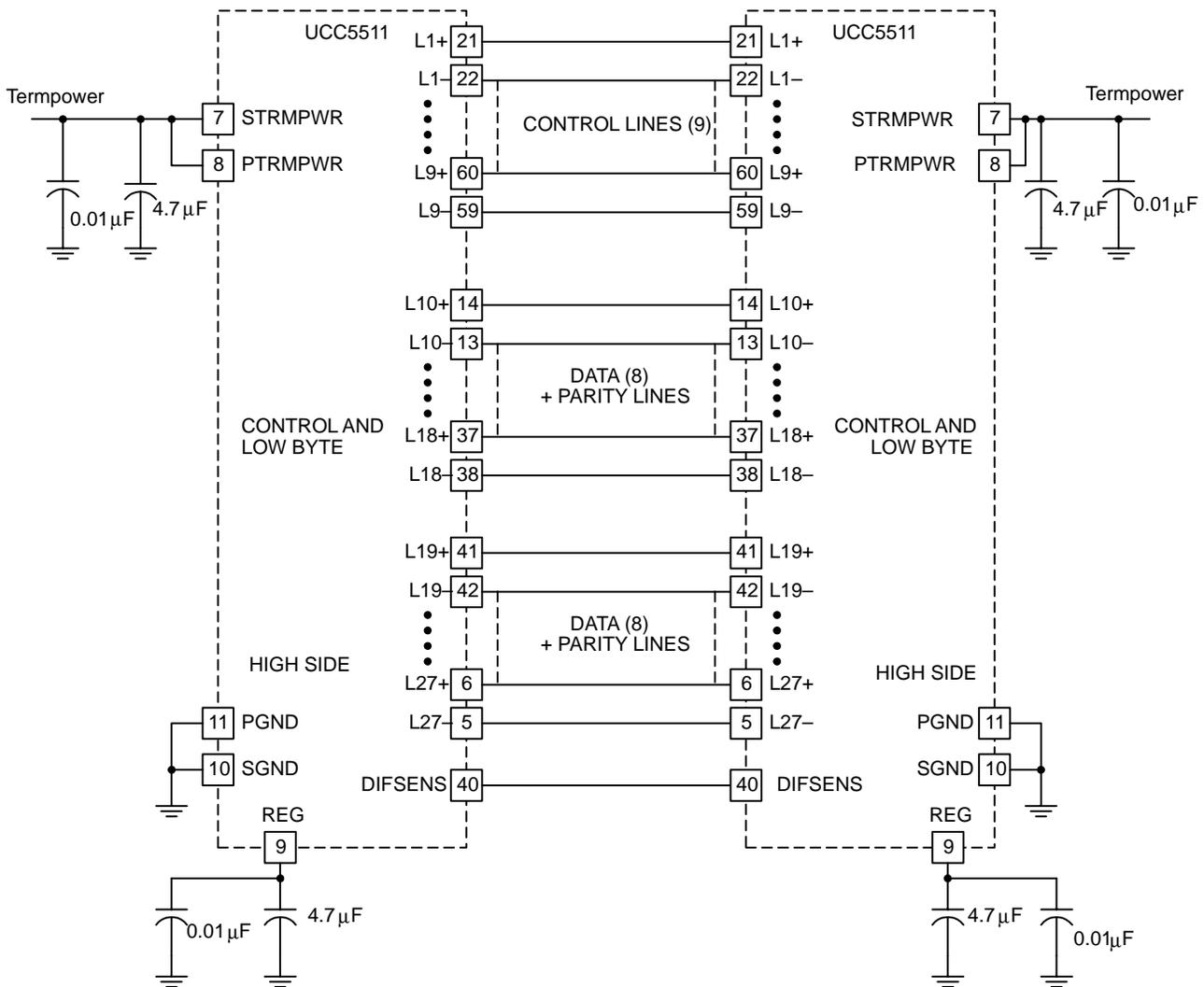
L1+ thru L27+: Positive lines for the SCSI bus.

Figure 1. Typical Application Diagram

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