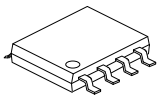
2A DDR BUS TERMINATION REGULATOR



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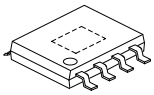

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■ DESCRIPTION

The **UR6511** is a linear regulator providing up to 2A transient current sourcing and sinking capability for DDR bus terminator applications while regulating an output voltage to within 20mV. It contains a high speed operational amplifier which provides fast load transient response and only requires 10uF of ceramic output capacitance.

The **UR6511** output termination voltage tracks the reference voltage applied at V_{REF} pin. A resistor divider connected to V_{IN}, GND and V_{REF} pins is used to force the reference voltage to V_{REF} pin. Additional features include current limiting protection and thermal shutdown protection.

■ FEATURES

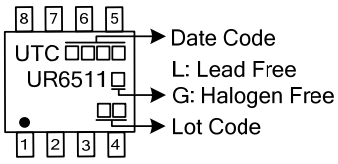
*DDR1/ DDR2/DDR3/Low Power DDR3 termination voltage applications
*Sink and Source Current：2A
*Low output voltage offset within 20mV
*Adjustable output voltage by external resistors
*Integrated power MOS devices
*Suspend to RAM(STR) functionality
*Current Limiting Protection
*Thermal Shutdown Protection
*Cost-effective and easy to use

■ ORDERING INFORMATION

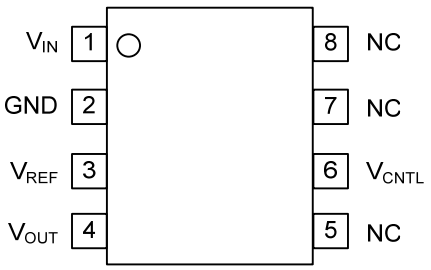
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UR6511L-S08-R	UR6511G-S08-R	SOP-8	Tape Reel
UR6511L-SH2-R	UR6511G- SH2-R	HSOP-8	Tape Reel

UR6511G-S08-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) S08: SOP-8, SH2: HSOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ PIN CONFIGURATIONS



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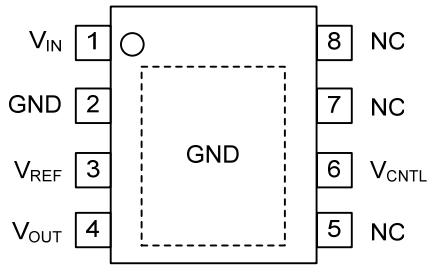

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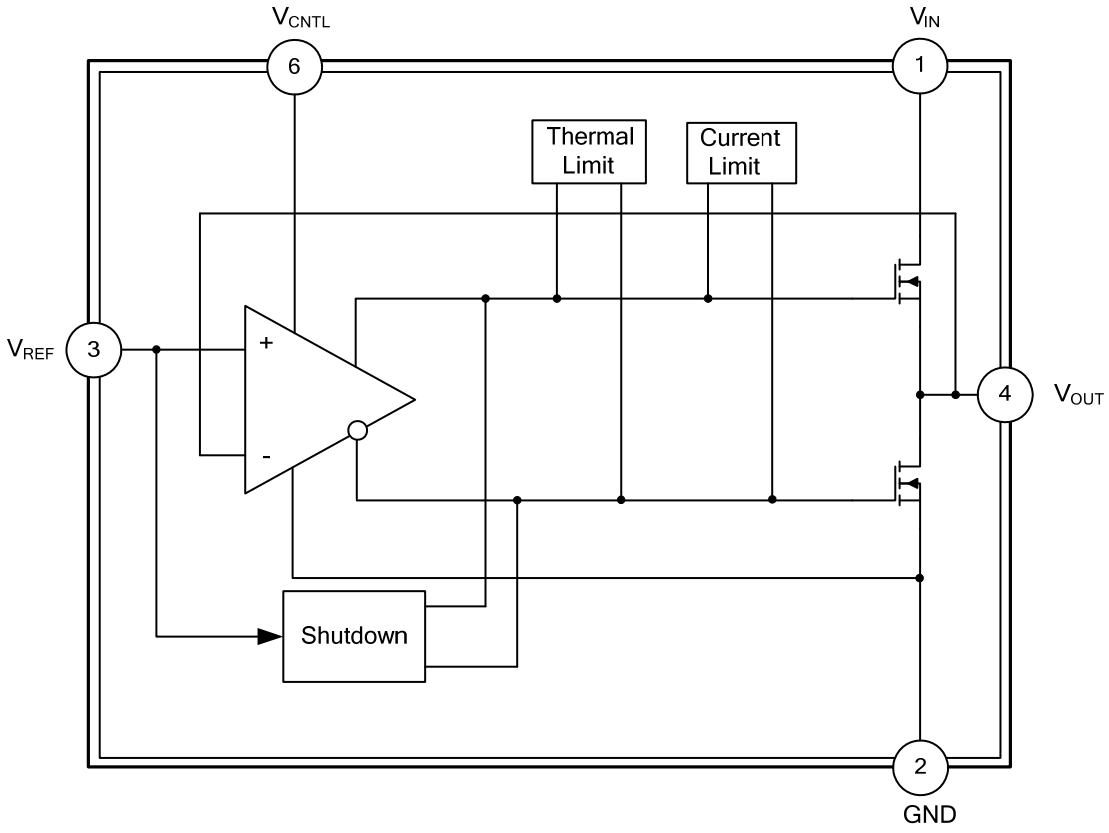
■ PIN DESCRIPTION

No.	PIN NAME	PIN TYPE	PIN DESCRIPTION
1	V_{IN}	I	Power supply pin for the VOUT output
2	GND	O	Ground pin
3	V_{REF}	I	Reference voltage input and active-low shutdown control pin
4	V_{OUT}	O	Output voltage pin
5, 7, 8	NC		
6	V_{CNTL}	I	Power supply pin for the internal control circuits

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
V_{CNTL} Control Voltage	V_{CNTL}	7	V
V_{IN} Supply Voltage	V_{IN}	7	V
Power Dissipation (T_A=25°C)	P_D	0.87	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	143	°C/W
Junction to Case	θ_{JC}	45	°C/W

■ RECOMMENDED OPERATING CONDITIONS (Note)

PARAMETER	SYMBOL	RATINGS	UNIT
V_{CNTL} Control Voltage	V_{CNTL}	3.0 ~ 5.5	V
V_{IN} Supply Voltage	V_{IN}	1.0 ~ 5.5	V
Junction Temperature	T_J	-40 ~ +125	°C
Ambient Temperature	T_A	-40 ~ +85	°C

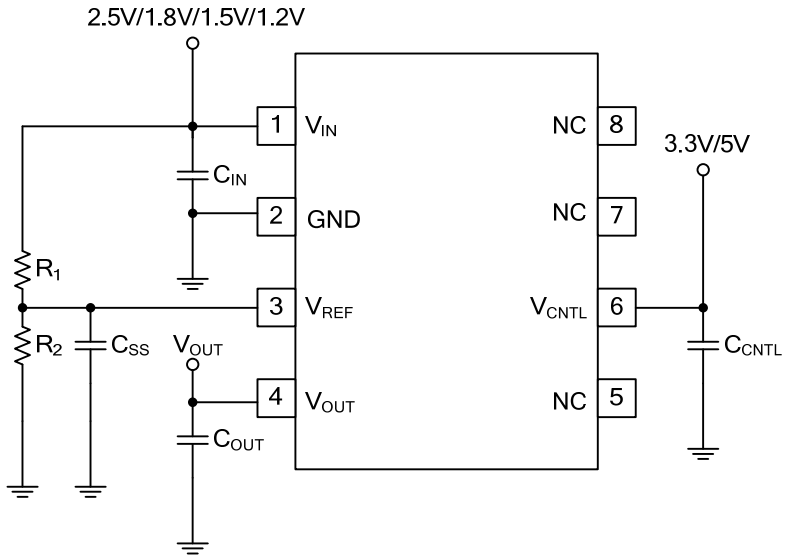
Note: All voltage values are with respect to the network ground terminal unless otherwise noted.

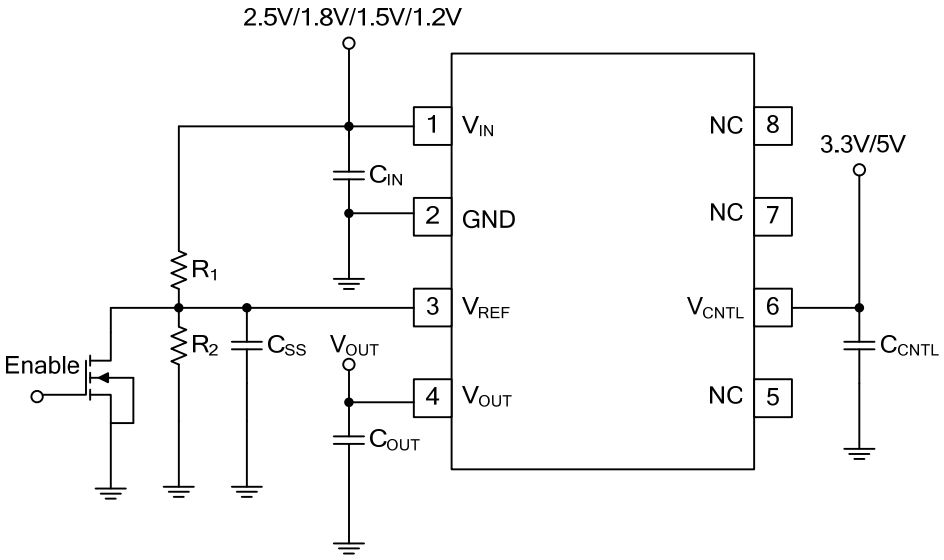
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

(V_{IN}=2.5V/1.8V/1.5V, V_{CNTL}=3.3V/5V, V_{REF}=1.25V/0.9V/0.75V, C_{OUT} = 10μF (Ceramic))

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
INPUT CURRENT						
Operation Current of V_{CNTL}	I_{CNTL}	I_{OUT} =0A, V_{CNTL}=5V		0.7	1.5	mA
Standby Current	I_{STB}	V_{REF}<0.15V, V_{CNTL}=5V		30	50	μA
OUTPUT VOLTAGE (DDR/DDR II/DDR III)						
Output Voltage Offset (V_{REF}-V_{OUT})	V_{OS}	I_{OUT} =0A	-10		10	mV
Load Regulation	ΔV_{LOAD}	I_{OUT} =±2A	-20		20	mV
PROTECTION						
Current Limit	I_{LIMIT}		2			A
Thermal Shutdown Temperature	T_{SD}	V_{CNTL}=3.3V~5V		165		°C
Thermal Shutdown Hysteresis	ΔT_{SD}	V_{CNTL}=3.3V~5V		30		°C
V_{REF} Shutdown						
Shutdown Threshold	V_{IH}	Enable	0.4			V
	V_{IL}	Shutdown			0.15	V

■ TYPICAL APPLICATIONS CIRCUITS





R_1=R_2=1KΩ~5 KΩ, C_{OUT}=10μF(Ceramic)under the worst case testing condition
C_{SS}=0.1μF to 1μF, C_{IN}=10μF(Low ESR), C_{CNTL}=0.1μF

$V_{REF} = \frac{R_2}{R_1 + R_2} V_{IN}(V)$, V_{OUT} track V_{REF}