

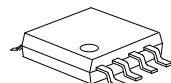


### 160V/μs, RAIL-TO-RAIL I/O, CMOS OPERATIONAL AMPLIFIER

#### ■ DESCRIPTION

The UTC **ULV3542** is high-speed, voltage-feedback CMOS operational amplifiers. It is optimized for operation on single or dual supplies as low as 2.7V ( $\pm 1.35V$ ) and up to 5.5V ( $\pm 2.75V$ ). Input common mode range extends beyond the supplies. Quiescent current is only 4.5mA/Amplifier.

The UTC **ULV3542** is suitable for applications requiring high continuous output current. It is designed for video and other applications which require wide bandwidth. It is unity-gain stable and can provide large output current.



MSOP-8

#### ■ FEATURES

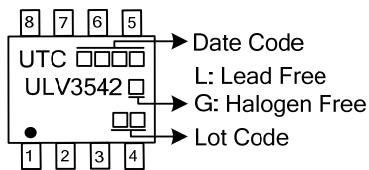
- \* Supply Voltage: 2.7V ~ 5.5V
- \* Supply Current/Amplifier: 7 mA (Max.)
- \* Input Offset Voltage: 10mV (Max.)
- \* Rail-to-Rail Input and Output
- \* Slew Rate: 160V/μs (Typ.)
- \* Thermal Shutdown

#### ■ ORDERING INFORMATION

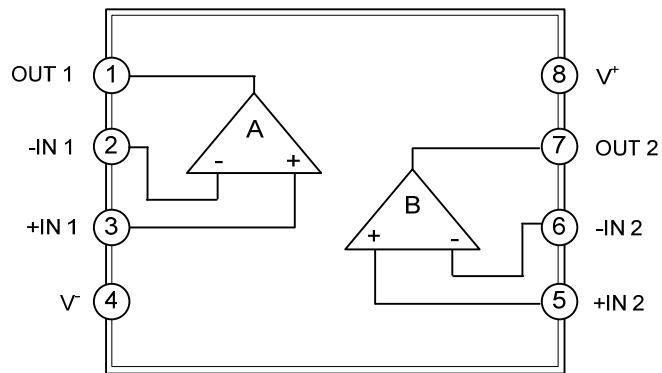
Ordering Number		Package	Packing
Lead Free	Halogen Free		
ULV3542L-SM1-R	ULV3542G-SM1-R	MSOP-8	Tape Reel

	<p>(1)R: Tape Reel (2)SM1: MSOP-8 (3)G: Halogen Free and Lead Free, L: Lead Free</p>
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#### ■ MARKING



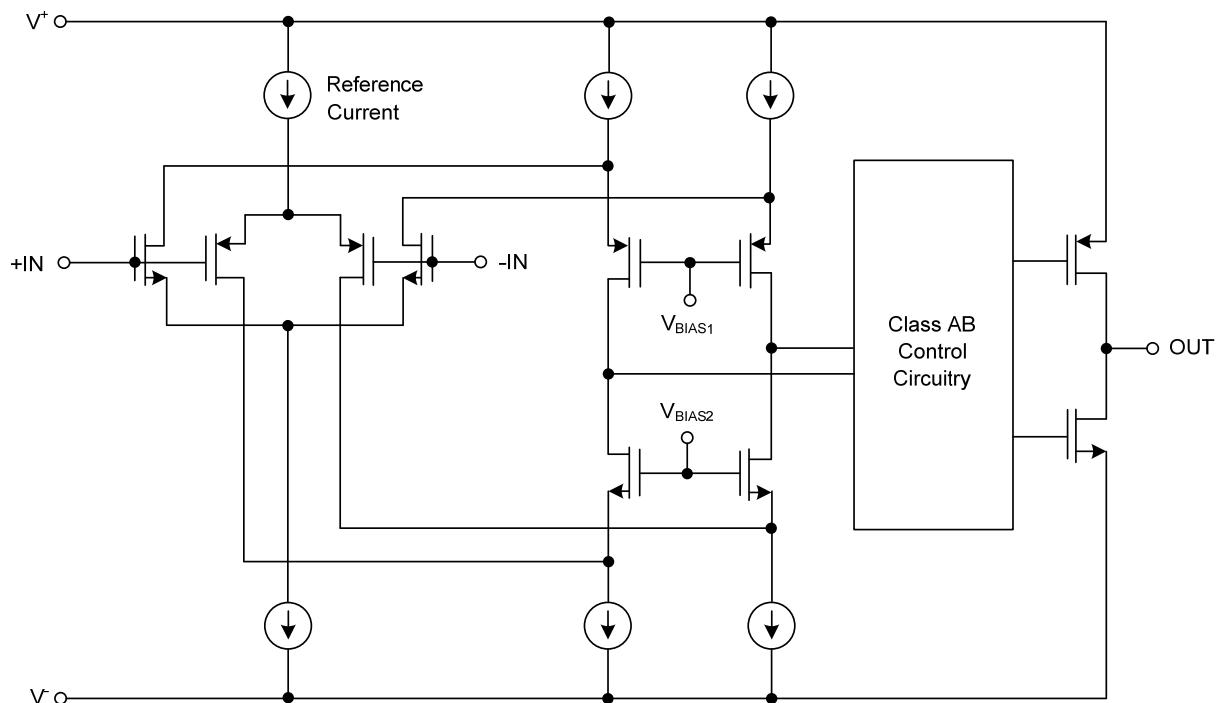
### ■ PIN CONFIGURATION



### ■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	OUT 1	Output of 1 AMP
2	-IN 1	Inverting input of 1 AMP
3	+IN 1	Non-inverting input of 1 AMP
4	V-	Negative power supply
5	+IN 2	Non-inverting input of 2 AMP
6	-IN 2	Inverting input of 2 AMP
7	OUT 2	Output of 2 AMP
8	V <sup>+</sup>	Positive power supply

### ■ BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	(V <sup>+</sup> - V <sup>-</sup> )	6	V
Input Common Mode Voltage Range	V <sub>CM</sub>	V <sup>-</sup> -0.1 ~ V <sup>+</sup> +0.1	V
Junction Temperature (Note 3)	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-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.

### ■ RECOMMENDED OPERATING CONDITIONS

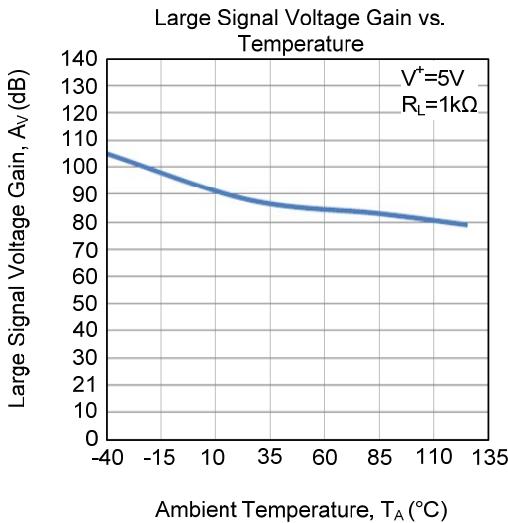
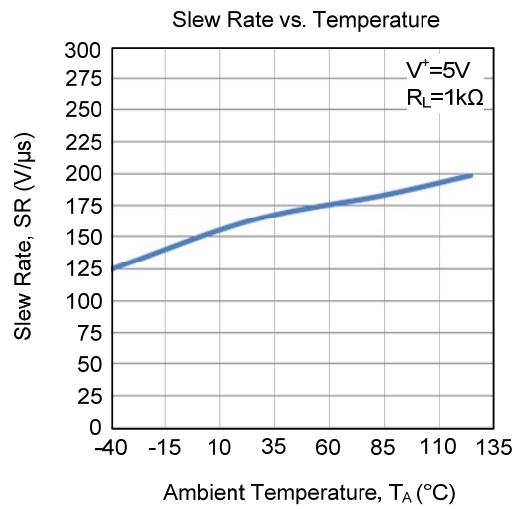
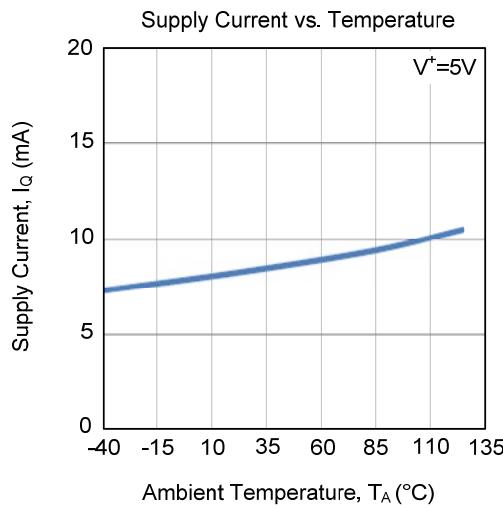
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage Range	V <sup>+</sup> - V <sup>-</sup>	2.7 ~ 5.5	V
Operating Temperature Range	T <sub>OPR</sub>	-40 ~ +125	°C

### ■ ELECTRICAL CHARACTERISTICS

(T<sub>A</sub>=25°C, V<sup>+</sup>=2.7~5.5V, V<sup>-</sup>=0V, V<sub>IC</sub>=V<sup>+</sup>/2V, V<sub>O</sub>=V<sup>+</sup>/2V and R<sub>L</sub>=1kΩ connected to GND.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current/Amplifier	I <sub>Q</sub>			4.3	7	mA
Power Supply Rejection Ratio	PSRR	2.7V ≤ V <sup>+</sup> ≤ 5.5V, V <sub>IC</sub> =0V	70	100		dB
Input Offset Voltage	V <sub>OS</sub>			-2	±10	mV
Input Bias Current	I <sub>B</sub>			5		pA
Input Offset Current	I <sub>OS</sub>			0.8		pA
Common-Mode Voltage Range	V <sub>CM</sub>		V <sup>-</sup> -0.1		V <sup>+</sup> +0.1	V
Common Mode Rejection Ratio	CMRR	V <sup>-</sup> -0.1 ≤ V <sub>IC</sub> ≤ V <sup>+</sup> +0.1	60	90		dB
Large Signal Voltage Gain	A <sub>V</sub>	R <sub>L</sub> =1kΩ, V <sub>O</sub> =V <sup>+</sup> +0.3V ~ V <sup>+</sup> -0.3V	70	85		dB
Output Voltage	V <sub>O</sub>	R <sub>L</sub> =1kΩ	V <sub>OH</sub> V <sub>OL</sub>	V <sup>+</sup> -0.09 0.005	V <sup>+</sup> -0.07 0.06	V
Short-Circuit Current	I <sub>SC</sub>	Sourcing, V <sup>+</sup> =3V, V <sub>O</sub> =0V Sinking, V <sup>+</sup> =3V V <sub>O</sub> =V <sup>+</sup>		90 90		mA
Slew Rate	SR	V <sup>+</sup> =5V, V <sub>O</sub> =2V <sub>PP</sub>		160		V/μs
Gain-Bandwidth Product	GBW	G = +10, V <sub>O</sub> = 100mV <sub>PP</sub>		100		MHz
Input-Referred Voltage Noise	e <sub>n</sub>	f =1MHz		10		nV/√Hz
Input-Referred Current Noise	i <sub>n</sub>	f =1MHz		20		fA/√Hz
Thermal Shutdown				150		°C

## ■ TYPICAL CHARACTERISTICS



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