



# NJM2703

## ■ABSOLUTE MAXIMUM RATING (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	7	V
Power Dissipation	P <sub>D</sub>	320	mW
Operating Temperature Range	T <sub>opr</sub>	-20 to +75	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +125	°C

## ■OPERATING VOLTAGE

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V <sup>+</sup>	-	1.8	3.0	6.0	V

## ■ELECTRICAL CHARACTERISTICS (V<sup>+</sup>=3V, Ta=25°C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION						MIN.	TYP.	MAX.	UNIT
		INPUT		OUTPUT	MODE	VR					
		L	R								
Operating Current	I <sub>cc</sub>	No Signal	0	0	-	Bypass	-	-	0.45	0.7	mA
			0	0	-	Surround	MAX	-	0.45	0.7	
Reference Voltage	V <sub>ref</sub>	No Signal	0	0	-	-	-	1.0	1.15	1.3	V

## ●AC CHARACTERISTICS

(V<sup>+</sup>=3V, Ta=25°C, V<sub>IN</sub>=-20dBV(100mVrms), f=1kHz, R<sub>L</sub>=10kΩ, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION						MIN.	TYP.	MAX.	UNIT
		INPUT		OUTPUT	MODE	VR					
		L	R								
Maximum Input Voltage	V <sub>IM</sub>	f=1kHz T.H.D.=1%	V <sub>IN</sub> 0	0 V <sub>IN</sub>	L R	Bypass	-	-	-2.0 (790)	-	dBV (mVrms)
		f=100Hz T.H.D.=1%	V <sub>IN</sub> 0	0 V <sub>IN</sub>	L R	Surround	MAX	-	-16.0 (160)	-	
		V <sup>+</sup> =1.8V f=1kHz T.H.D.=1%	V <sub>IN</sub> 0	0 V <sub>IN</sub>	L R	Bypass	-	-10.5 (300)	-8.5 (380)	-	
		V <sup>+</sup> =1.8V f=100Hz T.H.D.=1%	V <sub>IN</sub> 0	0 V <sub>IN</sub>	L R	Surround	MAX	-24.5 (60)	-22.5 (75)	-	
Output Noise	V <sub>NO</sub>	R <sub>g</sub> =0Ω A-Weighted	0	0	L R	Bypass	-	-	-112 (2.5)	-106 (5.0)	dBV (μVrms)
		R <sub>g</sub> =0Ω A-Weighted	0	0	L R	Surround	MAX	-	-100 (10)	-94 (20)	
Total Harmonic Distortion	T.H.D.	f=1kHz	V <sub>IN</sub> 0	0 V <sub>IN</sub>	L R	Bypass	-	-	0.02	0.05	%
		f=1kHz	V <sub>IN</sub> 0	0 V <sub>IN</sub>	L R	Surround	MAX	-	0.1	0.5	

## ●AC CHARACTERISTICS

( $V_+ = 3V$ ,  $T_a = 25^\circ C$ ,  $V_{IN} = -20dBV(100mV_{rms})$ ,  $f = 1kHz$ ,  $R_L = 10k\Omega$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION						MIN.	TYP.	MAX.	UNIT
		INPUT		OUTPUT	MODE	VR					
		L	R								
Bypass Gain	$G_{VBYP}$	$f = 1kHz$	$V_{IN}$ 0	0 $V_{IN}$	L R	Bypass	-	-1.0	0.0	1.0	dB
Surround Gain	$G_{VSUR}$	$f = 100Hz$	$V_{IN}$ 0	0 $V_{IN}$	L R	Surround	MAX	12.5	14.5	16.5	dB
		$f = 100Hz$	0 $V_{IN}$	$V_{IN}$ 0	L R	Surround	MAX	10.5	12.5	14.5	
		$f = 100Hz$	$V_{IN}$ 0	0 $V_{IN}$	L R	Surround	MIN	0.5	2.5	4.5	

## ●CONTROL CHARACTERISTICS ( $V_+ = 3V$ , $T_a = 25^\circ C$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION						MIN.	TYP.	MAX.	UNIT
		INPUT		OUTPUT	MODE	VR					
		L	R								
Mode Select Control Voltage	$V_{MODE}$	$V_{IN} =$ High Level	-	-	-	-	-	1.2	-	$V_+$	V
		$V_{IN} =$ Low Level	-	-	-	-	-	0.0	-	0.3	


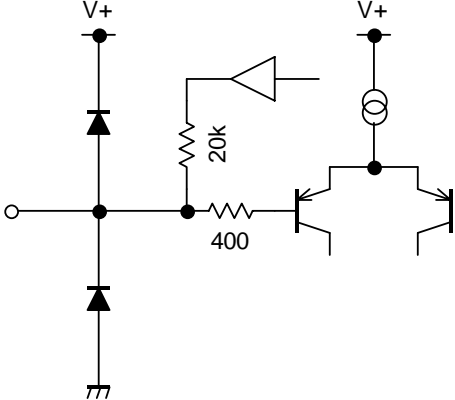
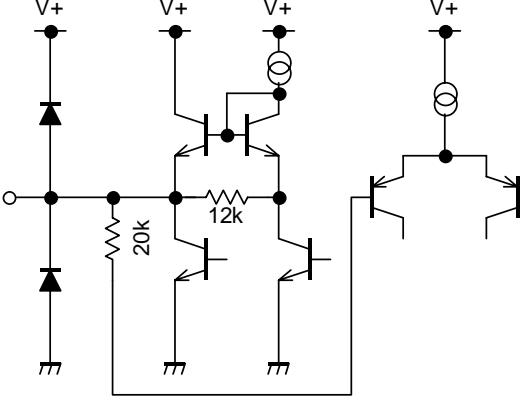
## ■MODE SWITCH

MODE	SW	NOTES
Bypass	L, open	Input Through
Surround	H	Surround Mode (Stereo Input)

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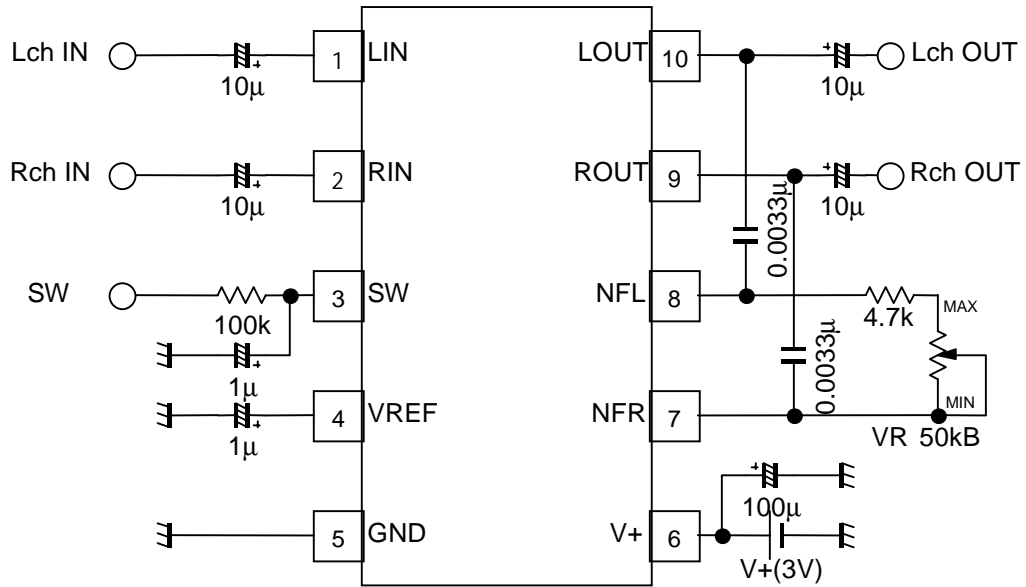
## ■ TERMINAL DESCRIPTION

PIN NO.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
1 2	LIN RIN	Rch Input Lch Input		1.15V
3	SW	Mode control switch		0V
4	VREF	Reference voltage		1.15V
5	GND	GND		0V

PIN NO.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
5	V+	Power Supply		V+
7 8	NFL NFR	Filter terminal Filter terminal		1.15V
9 10	ROUT LOUT	Rch Output Lch Output		1.15V

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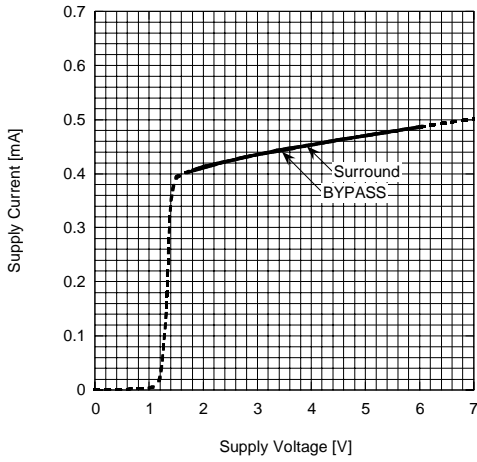
## APPLICATION CIRCUIT



## TYPICAL CHARACTERISTICS

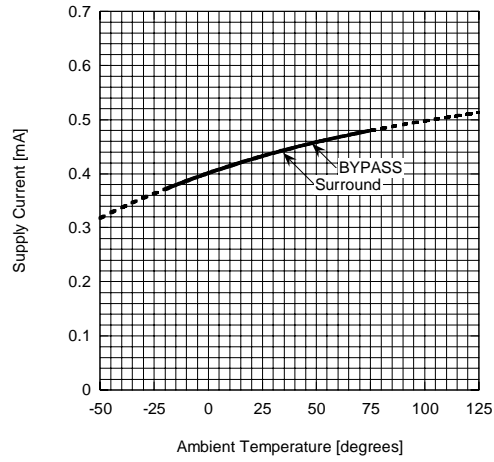
**Supply Current vs. Supply Voltage**

Ta=25degrees



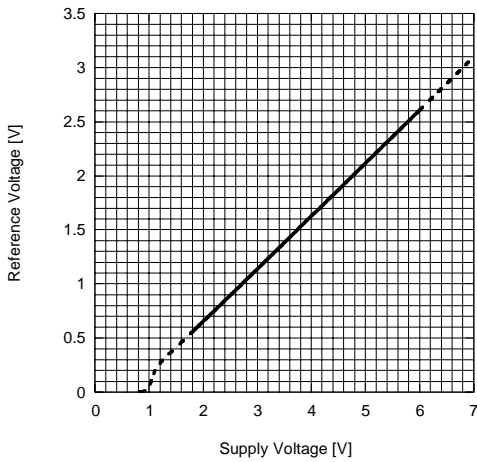
**Supply Current vs. Ambient Temperature**

V+=3V



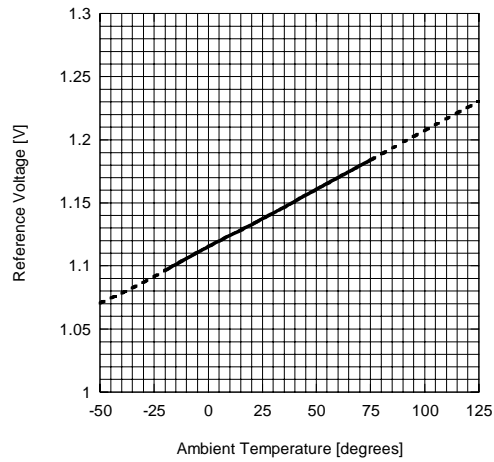
**Reference Voltage vs. Supply Voltage**

Ta=25degrees



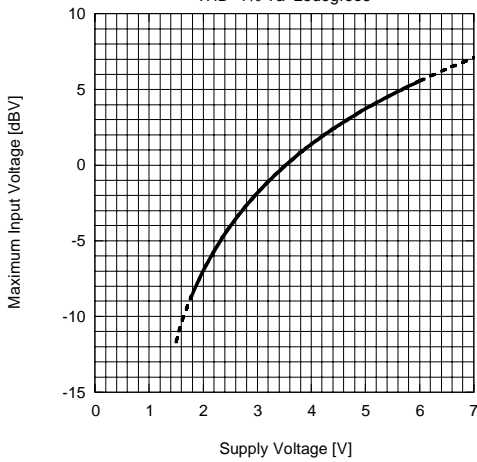
**Reference Voltage vs. Ambient Temperature**

V+=3V



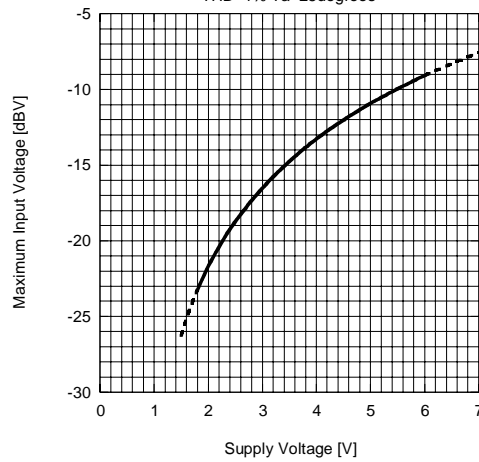
**Maximum Input Voltage vs. Supply Voltage (BYPASS)**

Vin=Lch f=1kHz Vout=Lch RL=10kohm  
THD=1% Ta=25degrees



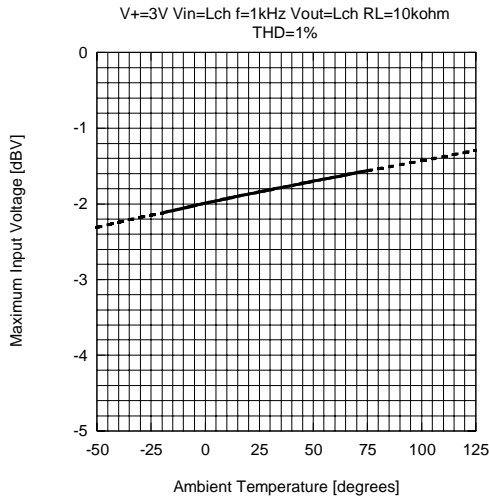
**Maximum Input Voltage vs. Supply Voltage (Surround)**

Vin=Lch f=100Hz Vout=Lch RL=10kohm VR=MAX  
THD=1% Ta=25degrees

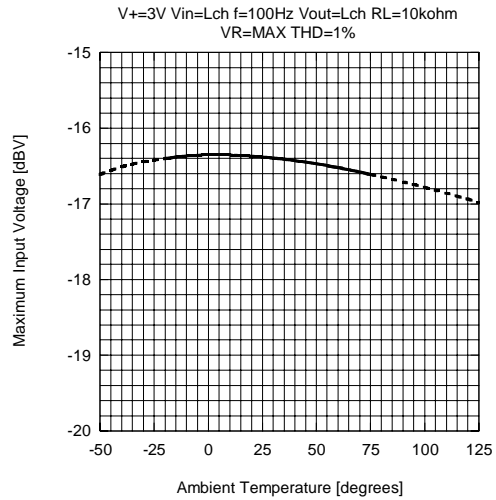


## TYPICAL CHARACTERISTICS

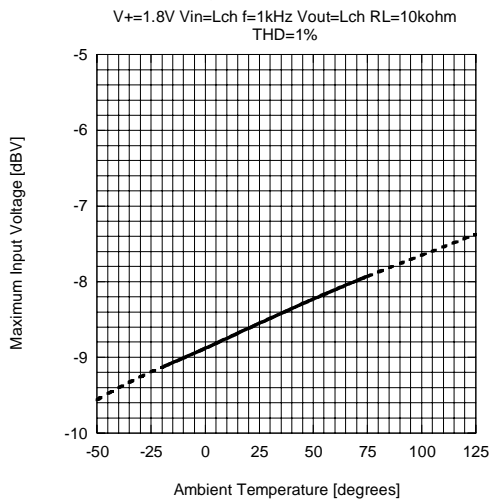
**Maximum Input Voltage vs. Ambient Temperature (BYPASS)**



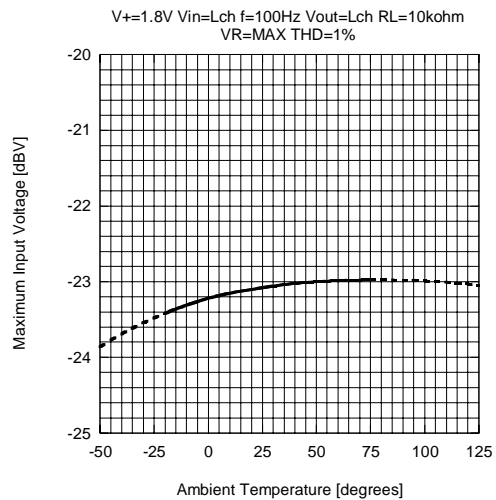
**Maximum Input Voltage vs. Ambient Temperature (Surround)**



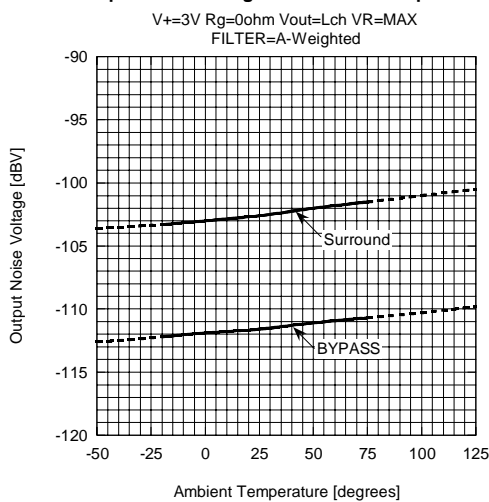
**Maximum Input Voltage vs. Ambient Temperature (BYPASS)**



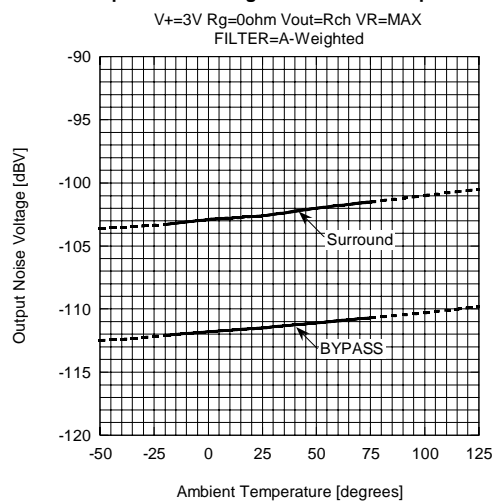
**Maximum Input Voltage vs. Ambient Temperature (Surround)**



**Output Noise Voltage vs. Ambient Temperature**



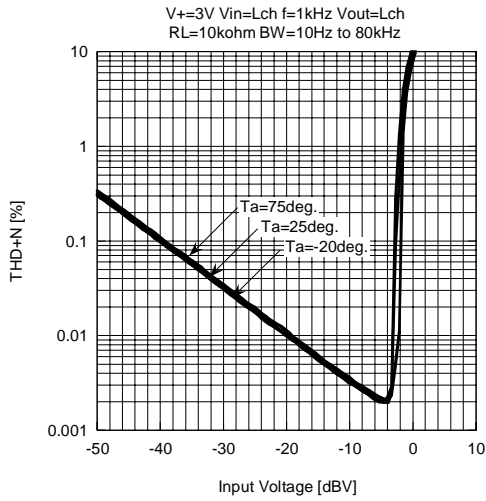
**Output Noise Voltage vs. Ambient Temperature**



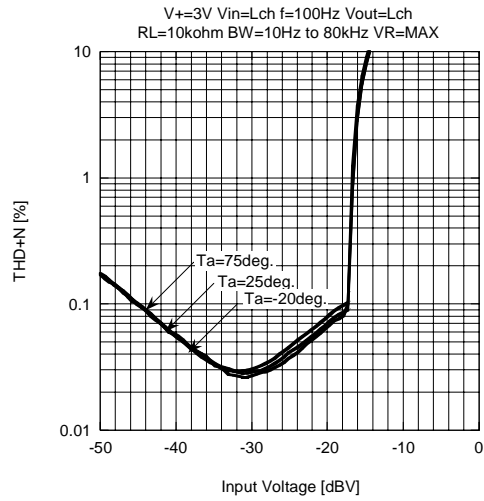


## TYPICAL CHARACTERISTICS

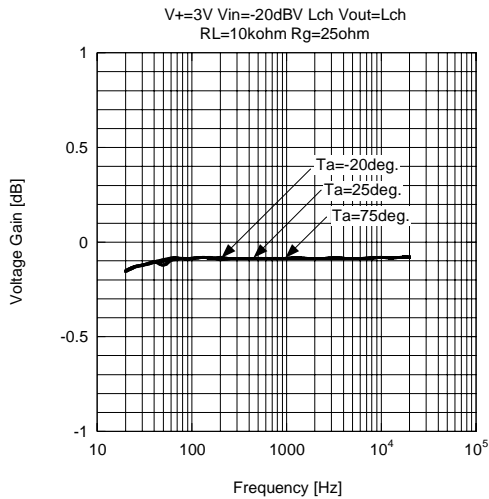
**Total Harmonic Distortion vs. Input Voltage (BYPASS)**



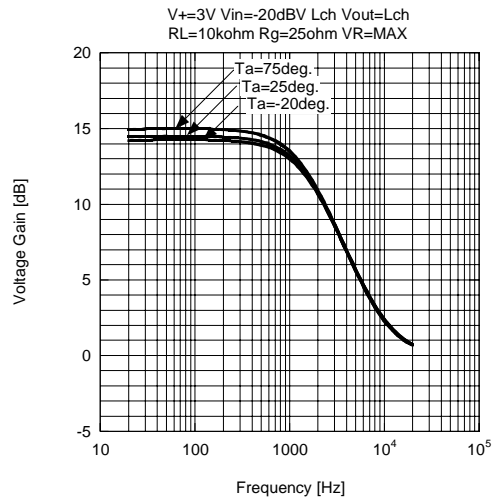
**Total Harmonic Distortion vs. Input Voltage (Surround)**



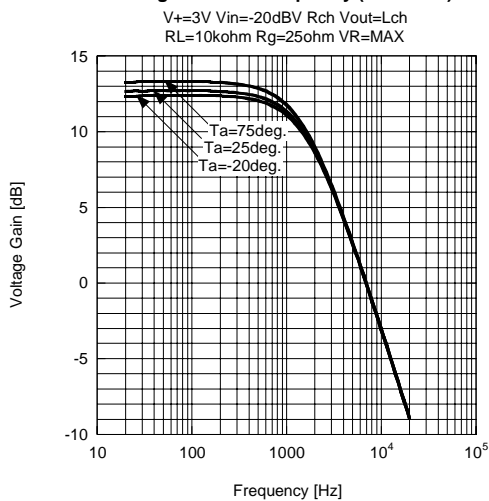
**Voltage Gain vs. Frequency (BYPASS)**



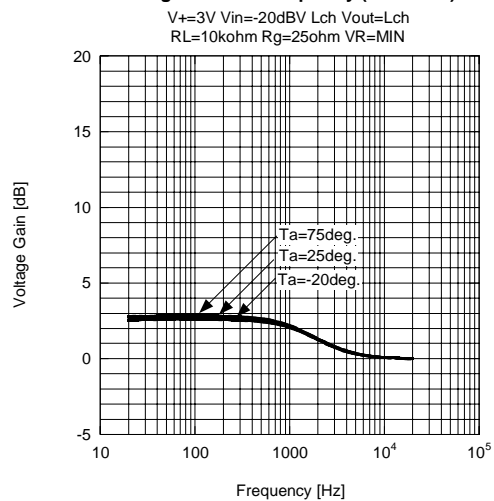
**Voltage Gain vs. Frequency (Surround)**



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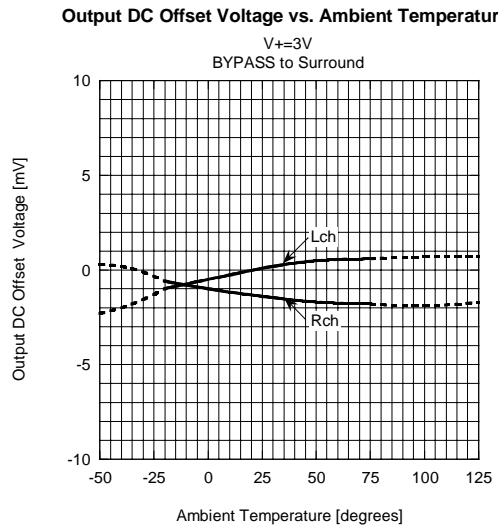
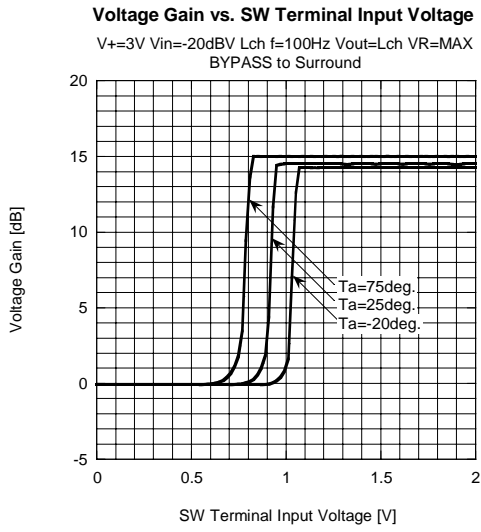


**Voltage Gain vs. Frequency (Surround)**



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## TYPICAL CHARACTERISTICS



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