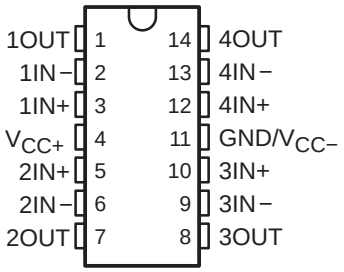
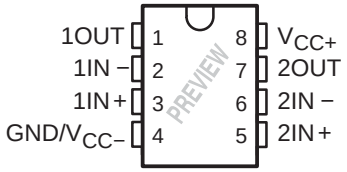
- **2.5-V, 2.7-V, and 5-V Performance**
- **−40°C to 125°C Operation**
- **No Crossover Distortion**
- **Low Supply Current at V_{CC+} = 5 V:**
  - **LMV821 . . . 0.3 mA Typ**
  - **LMV822 . . . 0.5 mA Typ**
  - **LMV824 . . . 1 mA Typ**
- **Rail-to-Rail Output Swing**
- **Gain Bandwidth of 5.5 MHz Typ at 5 V**
- **Slew Rate of 1.9 V/μs Typ at 5 V**

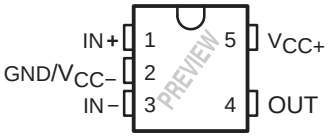
LMV824 . . . D OR PW PACKAGE
(TOP VIEW)



LMV822 . . . D OR DGK PACKAGE
(TOP VIEW)



LMV821 . . . DBV OR DCK PACKAGE
(TOP VIEW)



description/ordering information

The LMV821, LMV822, and LMV824 single, dual, and quad devices are low-voltage (2.5 V to 5.5 V), low-power commodity operational amplifiers. Electrical characteristics are very similar to the LMV3xx operational amplifiers (low supply current, rail-to-rail outputs, input common-mode range, which includes ground). However, the LMV8XX devices offer a higher bandwidth (5.5 MHz typical) and faster slew rate (1.9 V/μs typical).

The LMV8xx devices are cost-effective solutions for applications requiring low-voltage/low-power operation and space-saving considerations. The LMV821 is available in the ultra-small DCK package, which is approximately half the size of SOT23-5. The DCK package saves space on printed circuit boards and enables the design of small portable electronic devices (cordless and cellular phones, laptops, PDAs, PCMIA). It also allows the designer to place the device closer to the signal source to reduce noise pickup and increase signal integrity.

The LMV8xx devices are characterized for operation from −40°C to 85°C. The LMV8xxI devices are characterized for operation from −40°C to 125°C.

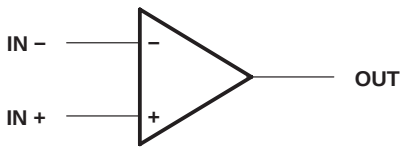
ORDERING INFORMATION

T_A	PACKAGE†			ORDERABLE PART NUMBER	TOP-SIDE MARKING‡
−40°C to 85°C	Single	SC-70 (DCKR)	Reel of 3000	LMV821DCKR	PREVIEW
		SC-70 (DCKT)	Reel of 250	LMV821DCKT	
		SOT-23 (DBVR)	Reel of 3000	LMV821DBVR	PREVIEW
		SOT-23 (DBVT)	Reel of 250	LMV821DBVT	
	Dual	SOIC (D)	Tube of 75	LMV822D	PREVIEW
			Reel of 2500	LMV822DR	
		MSOP/VSSOP (DGK)	Tube of 100	LMV822DGK	PREVIEW
			Reel of 2500	LMV822DGKR	
	Quad	SOIC (D)	Tube of 50	LMV824D	LMV824
			Reel of 2500	LMV824DR	
		TSSOP (PW)	Tube of 90	LMV824PW	LMV824
			Reel of 2000	LMV824PWR	
−40°C to 125°C	Single	SC-70 (DCKR)	Reel of 3000	LMV821IDCKR	PREVIEW
		SC-70 (DCKT)	Reel of 250	LMV821IDCKT	
		SOT-23 (DBVR)	Reel of 3000	LMV821IDBVR	PREVIEW
		SOT-23 (DBVT)	Reel of 250	LMV821IDBVT	
	Dual	SOIC (D)	Tube of 75	LMV822ID	PREVIEW
			Reel of 2500	LMV822IDR	
		MSOP/VSSOP (DGK)	Tube of 100	LMV822IDGK	PREVIEW
			Reel of 2500	LMV822IDGKR	
	Quad	SOIC (D)	Tube of 50	LMV824ID	LMV824I
			Reel of 2500	LMV824IDR	
		TSSOP (PW)	Tube of 90	LMV824IPW	MV824I
			Reel of 2000	LMV824IPWR	

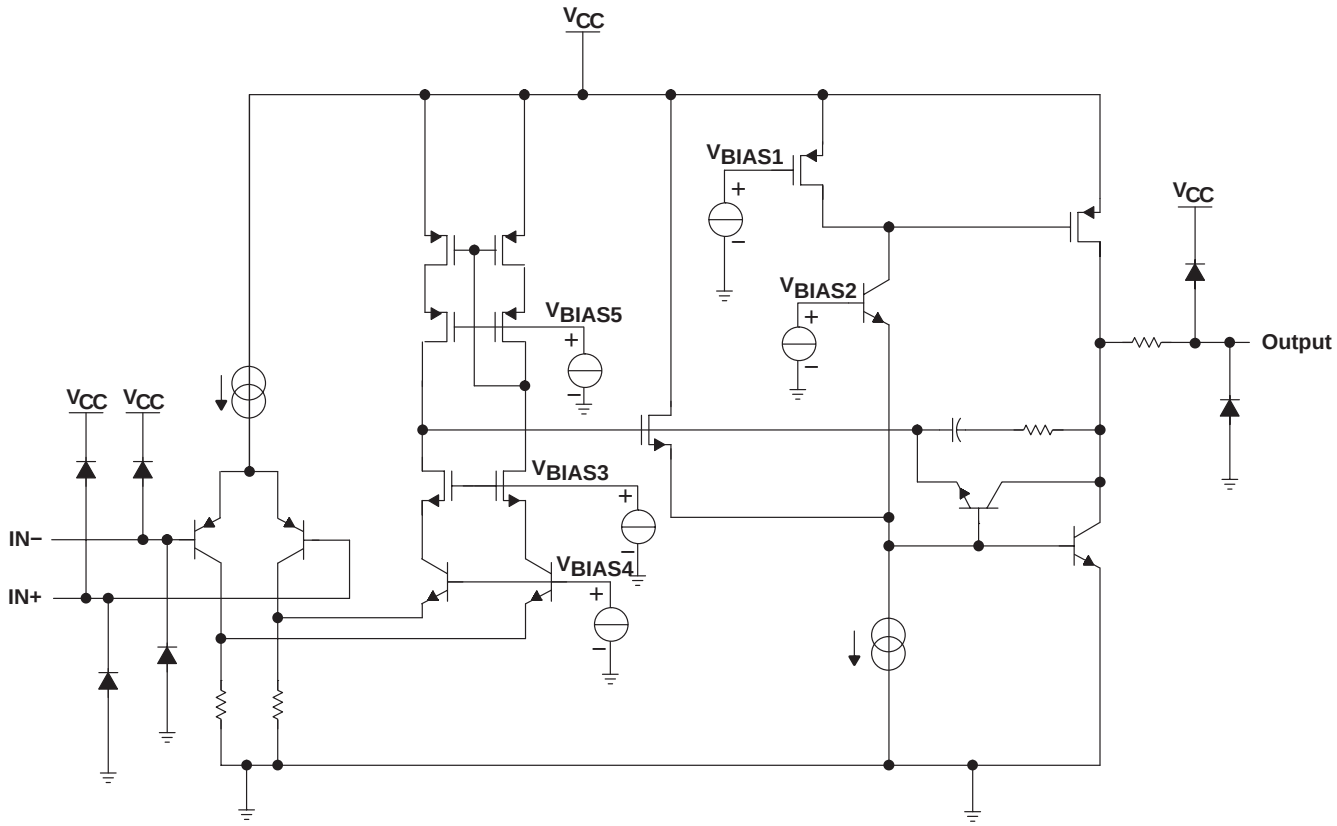
† Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.

‡ DBV/DCK: The actual top-side marking has one additional character that designates the assembly/test site.

symbol (each amplifier)



LMV824 simplified schematic



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

Supply voltage, V_{CC} (see Note 1)	5.5 V
Differential input voltage V_{ID} (see Note 2)	$\pm V_{CC}$
Input voltage range, V_I (either input)	V_{CC-} to V_{CC+}
Duration of output short circuit (one amplifier) to ground at (or below), T_A = 25°C, $V_{CC} \le$ 5.5 V (see Note 3)	Unlimited
Package thermal impedance, θ_{JA} (see Notes 4 and 5): D (8-pin) package	97°C/W
D (14-pin) package	86°C/W
DBV package	206°C/W
DCK package	252°C/W
DGK package	172°C/W
PW package	113°C/W
Operating virtual junction temperature, T_J	150°C
Storage temperature range, T_{stg}	−65°C to 150°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.

NOTES:
1. All voltage values (except differential voltages and V_{CC} specified for the measurement of I_{OS}) are with respect to the network GND.
2. Differential voltages are at IN+ with respect to IN−.
3. Short circuits from outputs to V_{CC} can cause excessive heating and eventual destruction.
4. Maximum power dissipation is a function of T_J(max), θ_{JA}, and T_A. The maximum allowable power dissipation at any allowable ambient temperature is $P_D = (T_J(max) - T_A)/\theta_{JA}$. Selecting the maximum of 150°C can affect reliability.
5. The package thermal impedance is calculated in accordance with JESD 51-7.

recommended operating conditions

			MIN	MAX	UNIT
V_{CC}	Supply voltage (single-supply operation)		2.5	5	V
T_A	Operating free-air temperature	LMV8xxI	−40	125	°C
		LMV8xx	−40	85	°C

2.5-V electrical characteristics, T_A = −40°C to 85°C, V_{CC+} = 2.5 V, V_{CC-} = 0 V, V_{IC} = 1 V, V_O = 1.25 V, and $R_L > 1$ MΩ (unless otherwise noted)

PARAMETER		TEST CONDITIONS		T_A	LMV8xx			UNIT
					MIN	TYP	MAX	
V_{IO}	Input offset voltage			25°C		1	3.5	mV
				−40°C to 85°C			4	
V_O	Output swing	V_{CC+} = 2.5 V, R_L = 600 Ω to 1.25 V	High level	25°C	2.30	2.37		V
				−40°C to 85°C	2.20			
			Low level	25°C		0.13	0.20	
				−40°C to 85°C			0.30	
		V_{CC+} = 2.5 V, R_L = 2 kΩ to 1.25 V	High level	25°C	2.40	2.46		
				−40°C to 85°C	2.30			
			Low level	25°C		0.08	0.12	
				−40°C to 85°C			0.20	

2.5-V electrical characteristics, T_A = −40°C to 125°C, V_{CC+} = 2.5 V, V_{CC-} = 0 V, V_{IC} = 1 V, V_O = 1.25 V, and $R_L > 1$ MΩ (unless otherwise noted)

PARAMETER		TEST CONDITIONS		T_A	LMV8xxI			UNIT
					MIN	TYP	MAX	
V_{IO}	Input offset voltage			25°C		1	3.5	mV
				−40°C to 125°C			4	
V_O	Output swing	V_{CC+} = 2.5 V, R_L = 600 Ω to 1.25 V	High level	25°C	2.28	2.37		V
				−40°C to 125°C	2.18			
			Low level	25°C		0.13	0.22	
				−40°C to 125°C			0.32	
		V_{CC+} = 2.5 V, R_L = 2 kΩ to 1.25 V	High level	25°C	2.38	2.46		
				−40°C to 125°C	2.28			
			Low level	25°C		0.08	0.14	
				−40°C to 125°C			0.22	

2.7-V electrical characteristics, T_A = −40°C to 85°C, V_{CC+} = 2.7 V, V_{CC-} = 0 V, V_{IC} = 1 V, V_O = 1.35 V, and $R_L > 1$ MΩ (unless otherwise noted)

PARAMETER		TEST CONDITIONS		T_A	LMV8xx			UNIT
					MIN	TYP	MAX	
V_{IO}	Input offset voltage			25°C		1	3.5	mV
				−40°C to 85°C			4	
α_{VIO}	Average temperature coefficient of input offset voltage			25°C		1		µV/°C
I_{IB}	Input bias current			25°C		30	90	nA
				−40°C to 85°C			140	
I_{IO}	Input offset current			25°C		0.5	30	nA
				−40°C to 85°C			50	
CMRR	Common-mode rejection ratio	V_{IC} = 0 to 1.7 V		25°C	70	85		dB
				−40°C to 85°C	68			
$+k_{SVR}$	Positive supply-voltage rejection ratio	V_{CC+} = 1.7 V to 4 V, V_{CC-} = −1 V, V_O = 0, V_{IC} = 0		25°C	75	85		dB
				−40°C to 85°C	70			
$-k_{SVR}$	Negative supply-voltage rejection ratio	V_{CC+} = 1.7 V, V_{CC-} = −1 V to −3.3 V, V_O = 0, V_{IC} = 0		25°C	73	85		dB
				−40°C to 85°C	70			
V_{ICR}	Common-mode input voltage range	CMRR ≥ 50 dB		25°C	−0.2 to 1.9	−0.3 to 2		V
A_V	Large-signal voltage amplification	R_L = 600 Ω to 1.35 V, V_O = 1.35 V to 2.2 V	Sourcing	25°C	90	100		dB
				−40°C to 85°C	85			
		R_L = 600 Ω to 1.35 V, V_O = 1.35 V to 0.5 V	Sinking	25°C	85	90		
				−40°C to 85°C	80			
		R_L = 2 kΩ to 1.35 V, V_O = 1.35 V to 2.2 V	Sourcing	25°C	95	100		
				−40°C to 85°C	90			
		R_L = 2 kΩ to 1.35 V, V_O = 1.35 V to 0.5 V	Sinking	25°C	90	95		
				−40°C to 85°C	85			
V_O	Output swing	V_{CC+} = 2.7 V, R_L = 600 Ω to 1.35 V	High level	25°C	2.50	2.58		V
				−40°C to 85°C	2.40			
			Low level	25°C		0.13	0.20	
				−40°C to 85°C			0.30	
		V_{CC+} = 2.7 V, R_L = 2 kΩ to 1.35 V	High level	25°C	2.60	2.66		
				−40°C to 85°C	2.50			
			Low level	25°C		0.08	0.120	
				−40°C to 85°C			0.200	
I_O	Output current	V_O = 0 V	Sourcing	25°C	12	16		mA
		V_O = 2.7 V	Sinking	25°C	12	26		

2.7−V electrical characteristics, T_A = −40°C to 85°C, V_{CC+} = 2.7 V, V_{CC-} = 0 V, V_{IC} = 1 V, V_O = 1.35 V, and $R_L > 1$ MΩ (unless otherwise noted) (continued)

PARAMETER		TEST CONDITIONS	T_A	LMV8xx			UNIT
				MIN	TYP	MAX	
I_{CC}	Supply current	LMV821	25°C		0.22	0.3	mA
			−40°C to 85°C			0.5	
		LMV822 (both amplifiers)	25°C		0.45	0.6	
			−40°C to 85°C			0.8	
		LMV824 (all four amplifiers)	25°C		0.72	1.0	
			−40°C to 85°C			1.2	
SR	Slew rate†		25°C		1.7		V/μs
GBW	Gain−bandwidth product	See Note 6	25°C		5		MHz
ϕ_m	Phase margin	See Note 6	25°C		60		deg
	Gain margin	See Note 6	25°C		8.6		dB
	Amplifier-to-amplifier isolation	V_{CC+} = 5 V, R_L = 100 kΩ to 2.5 V‡	25°C		135		dB
V_n	Equivalent input noise voltage	f = 1 kHz, V_{IC} = 1 V	25°C		45		nV/√Hz
I_n	Equivalent input noise current	f = 1 kHz	25°C		0.18		pA/√Hz
THD	Total harmonic distortion	f = 1 kHz, A_V = −2, R_L = 10 kΩ, V_O = 4.1 V_{PP}	25°C		0.01		%

† Connected as voltage follower with 1-V step input. Value specified is the slower of the positive and negative slew rates.
‡ Each amplifier excited in turn with 1 kHz to produce V_O = 3 V_{PP}
NOTE 6: 40-dB closed-loop dc gain, C_L = 22 pF

2.7−V electrical characteristics, T_A = −40°C to 125°C, V_{CC+} = 2.7 V, V_{CC-} = 0 V, V_{IC} = 1 V, V_O = 1.35 V, and $R_L > 1$ MΩ (unless otherwise noted)

PARAMETER		TEST CONDITIONS		T_A	LMV8xxI			UNIT
					MIN	TYP	MAX	
V_{IO}	Input offset voltage			25°C		1	3.5	mV
				−40°C to 125°C			5.5	
α_{VIO}	Average temperature coefficient of input offset voltage			25°C		1		μV/°C
I_{IB}	Input bias current			25°C		30	90	nA
				−40°C to 125°C			140	
I_{IO}	Input offset current			25°C		0.5	30	nA
				−40°C to 125°C			50	
CMRR	Common-mode rejection ratio	V_{IC} = 0 to 1.7 V		25°C	70	85		dB
				−40°C to 125°C	68			
$+k_{SVR}$	Positive supply-voltage rejection ratio	V_{CC+} = 1.7 V to 4 V, V_{CC-} = −1 V, V_O = 0, V_{IC} = 0		25°C	75	85		dB
				−40°C to 125°C	70			
$-k_{SVR}$	Negative supply-voltage rejection ratio	V_{CC+} = 1.7 V, V_{CC-} = −1 V to −3.3 V, V_O = 0, V_{IC} = 0		25°C	73	85		dB
				−40°C to 125°C	70			
V_{ICR}	Common-mode input voltage range	CMRR ≥ 50 dB		25°C	−0.2 to 1.9	−0.3 to 2		V
A_V	Large-signal voltage amplification	R_L = 600 Ω to 1.35 V, V_O = 1.35 V to 2.2 V	Sourcing	25°C	90	100		dB
				−40°C to 125°C	85			
		R_L = 600 Ω to 1.35 V, V_O = 1.35 V to 0.5 V	Sinking	25°C	85	90		
				−40°C to 125°C	80			
		R_L = 2 kΩ to 1.35 V, V_O = 1.35 V to 2.2 V	Sourcing	25°C	95	100		
				−40°C to 125°C	90			
		R_L = 2 kΩ to 1.35 V, V_O = 1.35 V to 0.5 V	Sinking	25°C	90	95		
				−40°C to 125°C	85			
V_O	Output swing	V_{CC+} = 2.7 V, R_L = 600 Ω to 1.35 V	High level	25°C	2.50	2.58		V
				−40°C to 125°C	2.40			
			Low level	25°C		0.13	0.20	
				−40°C to 125°C			0.30	
		V_{CC+} = 2.7 V, R_L = 2 kΩ to 1.35 V	High level	25°C	2.60	2.66		
				−40°C to 125°C	2.50			
			Low level	25°C		0.08	0.120	
				−40°C to 125°C			0.200	
I_O	Output current	V_O = 0 V	Sourcing	25°C	12	16		mA
		V_O = 2.7 V	Sinking		12	26		

2.7-V electrical characteristics, T_A = −40°C to 125°C, V_{CC+} = 2.7 V, V_{CC-} = 0 V, V_{IC} = 1 V, V_O = 1.35 V, and $R_L > 1$ MΩ (unless otherwise noted) (continued)

PARAMETER		TEST CONDITIONS	T_A	LMV8xxI			UNIT
				MIN	TYP	MAX	
I_{CC}	Supply current	LMV821	25°C		0.22	0.3	mA
			−40°C to 125°C			0.5	
		LMV822 (both amplifiers)	25°C		0.45	0.6	
			−40°C to 125°C			0.8	
		LMV824 (all four amplifiers)	25°C		0.72	1.0	
			−40°C to 125°C			1.2	
SR	Slew rate†		25°C		1.7		V/μs
GBW	Gain−bandwidth product	See Note 6	25°C		5		MHz
ϕ_m	Phase margin	See Note 6	25°C		60		deg
	Gain margin	See Note 6	25°C		8.6		dB
	Amplifier-to-amplifier isolation	V_{CC+} = 5 V, R_L = 100 kΩ to 2.5 V‡	25°C		135		dB
V_n	Equivalent input noise voltage	f = 1 kHz, V_{IC} = 1 V	25°C		45		nV/√Hz
I_n	Equivalent input noise current	f = 1 kHz	25°C		0.18		pA/√Hz
THD	Total harmonic distortion	f = 1 kHz, A_V = −2, R_L = 10 kΩ, V_O = 4.1 V_{PP}	25°C		0.01		%

† Connected as voltage follower with 1-V step input. Value specified is the slower of the positive and negative slew rates.
‡ Each amplifier excited in turn with 1 kHz to produce V_O = 3 V_{PP}
NOTE 6: 40-dB closed-loop dc gain, C_L = 22 pF

5-V electrical characteristics, T_A = −40°C to 85°C, V_{CC+} = 5 V, V_{CC-} = 0 V, V_{IC} = 2 V, V_O = 2.5 V, and $R_L > 1$ MΩ (unless otherwise noted)

PARAMETER		TEST CONDITIONS		T_A	LMV8xx			UNIT
					MIN	TYP	MAX	
V_{IO}	Input offset voltage			25°C		1	3.5	mV
				−40°C to 85°C			4	
α_{VIO}	Average temperature coefficient of input offset voltage			25°C		1		µV/°C
I_{IB}	Input bias current			25°C		40	100	nA
				−40°C to 85°C			150	
I_{IO}	Input offset current			25°C		0.5	30	nA
				−40°C to 85°C			50	
CMRR	Common-mode rejection ratio	V_{IC} = 0 to 4 V		25°C	72	90		dB
				−40°C to 85°C	70			
$+k_{SVR}$	Positive supply-voltage rejection ratio	V_{CC+} = 1.7 V to 4 V, V_{CC-} = −1 V, V_O = 0, V_{IC} = 0		25°C	75	85		dB
				−40°C to 85°C	70			
$-k_{SVR}$	Negative supply-voltage rejection ratio	V_{CC+} = 1.7 V, V_{CC-} = −1 V to −3.3 V, V_O = 0, V_{IC} = 0		25°C	73	85		dB
				−40°C to 85°C	70			
V_{ICR}	Common-mode input voltage range	CMRR ≥ 50 dB		25°C	−0.2 to 4.2	−0.3 to 4.3		V
A_V	Large-signal voltage amplification	R_L = 600 Ω to 2.5 V, V_O = 2.5 V to 4.5 V	Sourcing	25°C	95	105		dB
				−40°C to 85°C	90			
		R_L = 600 Ω to 2.5 V, V_O = 2.5 V to 0.5 V	Sinking	25°C	95	105		
				−40°C to 85°C	90			
		R_L = 2 kΩ to 2.5 V, V_O = 2.5 V to 4.5 V	Sourcing	25°C	95	105		
				−40°C to 85°C	90			
		R_L = 2 kΩ to 2.5 V, V_O = 2.5 V to 0.5 V	Sinking	25°C	95	105		
				−40°C to 85°C	90			
V_O	Output swing	V_{CC+} = 5 V, R_L = 600 Ω to 2.5 V	High level	25°C	4.75	4.84		V
				−40°C to 85°C	4.70			
			Low level	25°C		0.17	0.250	
				−40°C to 85°C			0.30	
		V_{CC+} = 5 V, R_L = 2 kΩ to 2.5 V	High level	25°C	4.85	4.90		
				−40°C to 85°C	4.80			
			Low level	25°C		0.10	0.15	
				−40°C to 85°C			0.20	
I_O	Output current	V_O = 0 V	Sourcing	25°C	20	45		mA
				−40°C to 85°C	15			
		V_O = 5 V	Sinking	25°C	20	40		
				−40°C to 85°C	15			

5-V electrical characteristics, T_A = −40°C to 85°C, V_{CC+} = 5 V, V_{CC-} = 0 V, V_{IC} = 2 V, V_O = 2.5 V, and R_L > 1 MΩ (unless otherwise noted) (continued)

PARAMETER		TEST CONDITIONS	T_A	LMV8xx			UNIT
				MIN	TYP	MAX	
I_{CC}	Supply current	LMV821	25°C		0.30	0.4	mA
			−40°C to 85°C			0.6	
		LMV822 (both amplifiers)	25°C		0.5	0.7	
			−40°C to 85°C			0.9	
		LMV824 (all four amplifiers)	25°C		1.0	1.3	
			−40°C to 85°C			1.5	
SR	Slew rate†		25°C	1.4	1.9		V/μs
GBW	Gain−bandwidth product	See Note 6	25°C		5.5		MHz
ϕ_m	Phase margin	See Note 6	25°C		64.2		deg
	Gain margin	See Note 6	25°C		8.7		dB
	Amplifier-to-amplifier isolation	V_{CC+} = 5 V, R_L = 100 kΩ to 2.5 V‡	25°C		135		dB
V_n	Equivalent input noise voltage	f = 1 kHz, V_{IC} = 1 V	25°C		42		nV/√Hz
I_n	Equivalent input noise current	f = 1 kHz	25°C		0.20		pA/√Hz
THD	Total harmonic distortion	f = 1 kHz, A_V = −2, R_L = 10 kΩ, V_O = 4.1 V_{PP}	25°C		0.01		%

† Connected as voltage follower with 3-V step input. Value specified is the slower of the positive and negative slew rates.
‡ Each amplifier excited in turn with 1 kHz to produce V_O = 3 V_{PP}
NOTE 6: 40-dB closed-loop dc gain, C_L = 22 pF

5−V electrical characteristics, T_A = −40°C to 125°C, V_{CC+} = 5 V, V_{CC-} = 0 V, V_{IC} = 2 V, V_O = 2.5 V, and $R_L > 1$ MΩ (unless otherwise noted)

PARAMETER		TEST CONDITIONS		T_A	LMV8xxI			UNIT
					MIN	TYP	MAX	
V_{IO}	Input offset voltage			25°C		1	3.5	mV
				−40°C to 125°C			5.5	
α_{VIO}	Average temperature coefficient of input offset voltage			25°C		1		μV/°C
I_{IB}	Input bias current			25°C		40	100	nA
				−40°C to 125°C			150	
I_{IO}	Input offset current			25°C		0.5	30	nA
				−40°C to 125°C			50	
CMRR	Common-mode rejection ratio	V_{IC} = 0 to 4 V		25°C	72	90		dB
				−40°C to 125°C	70			
$+k_{SVR}$	Positive supply-voltage rejection ratio	V_{CC+} = 1.7 V to 4 V, V_{CC-} = −1 V, V_O = 0, V_{IC} = 0		25°C	75	85		dB
				−40°C to 125°C	70			
$-k_{SVR}$	Negative supply-voltage rejection ratio	V_{CC+} = 1.7 V, V_{CC-} = −1 V to −3.3 V, V_O = 0, V_{IC} = 0		25°C	73	85		dB
				−40°C to 125°C	70			
V_{ICR}	Common-mode input voltage range	CMRR ≥ 50 dB		25°C	−0.2 to 4.2	−0.3 to 4.3		V
A_V	Large-signal voltage amplification	R_L = 600 Ω to 2.5 V, V_O = 2.5 V to 4.5 V	Sourcing	25°C	95	105		dB
				−40°C to 125°C	90			
		R_L = 600 Ω to 2.5 V, V_O = 2.5 V to 0.5 V	Sinking	25°C	95	105		
				−40°C to 125°C	90			
		R_L = 2 kΩ to 2.5 V, V_O = 2.5 V to 4.5 V	Sourcing	25°C	95	105		
				−40°C to 125°C	90			
		R_L = 2 kΩ to 2.5 V, V_O = 2.5 V to 0.5 V	Sinking	25°C	95	105		
				−40°C to 125°C	90			
V_O	Output swing	V_{CC+} = 5 V, R_L = 600 Ω to 2.5 V	High level	25°C	4.75	4.84		V
				−40°C to 125°C	4.60			
			Low level	25°C		0.17	0.250	
				−40°C to 125°C			0.30	
		V_{CC+} = 5 V, R_L = 2 kΩ to 2.5 V	High level	25°C	4.85	4.90		
				−40°C to 125°C	4.80			
			Low level	25°C		0.10	0.15	
				−40°C to 125°C			0.20	
I_O	Output current	V_O = 0 V	Sourcing	25°C	20	45		mA
				−40°C to 125°C	15			
		V_O = 5 V	Sinking	25°C	20	40		
				−40°C to 125°C	15			

5−V electrical characteristics, T_A = −40°C to 125°C, V_{CC+} = 5 V, V_{CC-} = 0 V, V_{IC} = 2 V, V_O = 2.5 V, and R_L > 1 MΩ (unless otherwise noted) (continued)

PARAMETER		TEST CONDITIONS	T_A	LMV8xxI			UNIT
				MIN	TYP	MAX	
I_{CC}	Supply current	LMV821	25°C		0.3	0.4	mA
			−40°C to 125°C			0.6	
		LMV822 (both amplifiers)	25°C		0.5	0.7	
			−40°C to 125°C			0.9	
		LMV824 (all four amplifiers)	25°C		1	1.3	
			−40°C to 125°C			1.5	
SR	Slew rate	V_{CC+} = 5 V†	25°C	1.4	1.9		V/μs
GBW	Gain−bandwidth product	See Note 6	25°C		5.5		MHz
ϕ_m	Phase margin	See Note 6	25°C		64.2		deg
	Gain margin	See Note 6	25°C		8.7		dB
	Amp-to-amp isolation	V_{CC+} = 5 V, R_L = 100 kΩ to 2.5 V‡	25°C		135		dB
V_n	Equivalent input noise voltage	f = 1 kHz, V_{IC} = 1 V	25°C		42		nV/√Hz
I_n	Equivalent input noise current	f = 1 kHz	25°C		0.20		pA/√Hz
THD	Total harmonic distortion	f = 1 kHz, A_V = −2, R_L = 10 kΩ, V_O = 4.1 V_{PP}	25°C		0.01		%

† Connected as voltage follower with 3-V step input. Value specified is the slower of the positive and negative slew rates.
‡ Each amplifier excited in turn with 1 kHz to produce V_O = 3 V_{PP}
NOTE 6: 40-dB closed-loop dc gain, C_L = 22 pF

TYPICAL CHARACTERISTICS
(T_A = 25°C, V_{CC+} = 5 V Single Supply, Unless Otherwise Noted)

SUPPLY CURRENT vs SUPPLY VOLTAGE

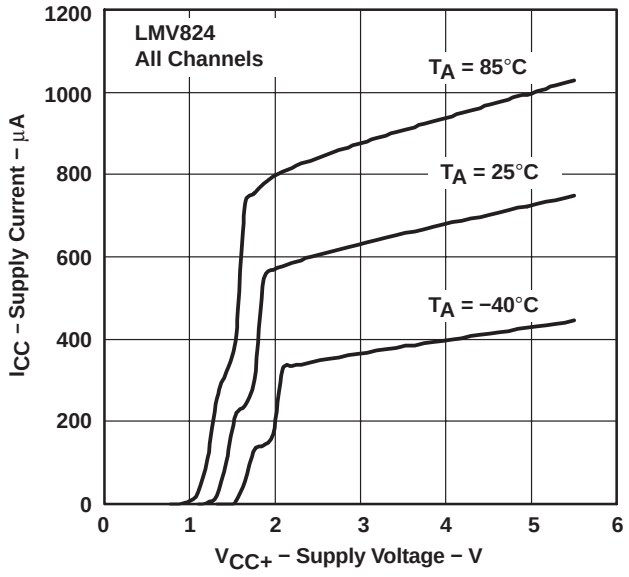


Figure 1

INPUT CURRENT vs TEMPERATURE

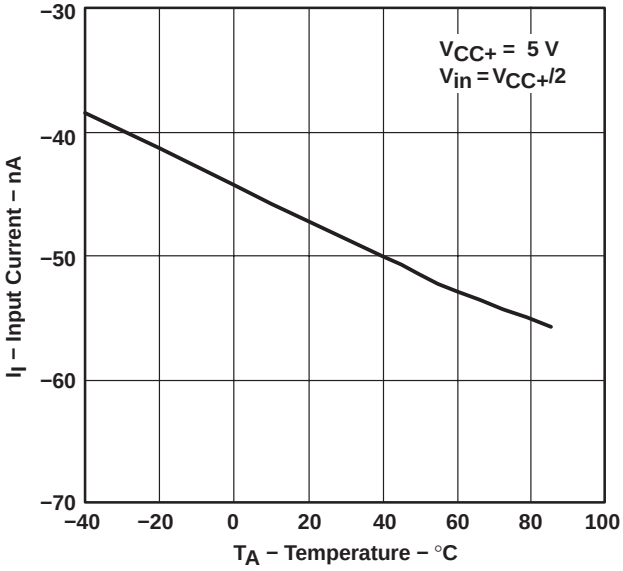


Figure 2

SOURCING CURRENT vs OUTPUT VOLTAGE

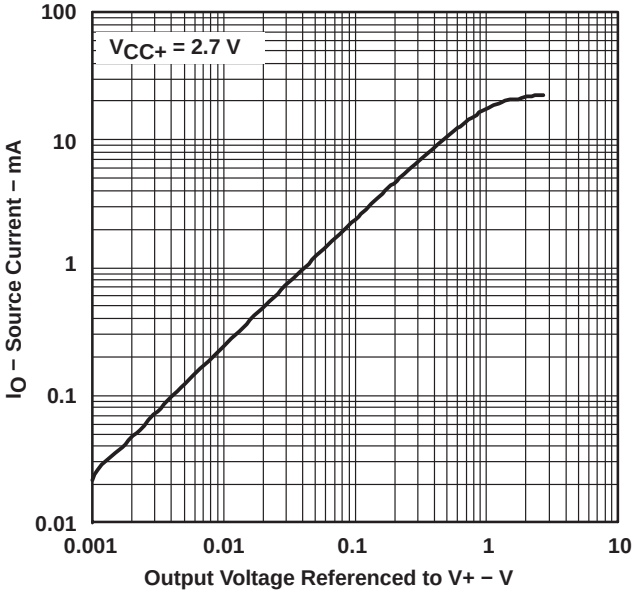


Figure 3

SOURCING CURRENT vs OUTPUT VOLTAGE

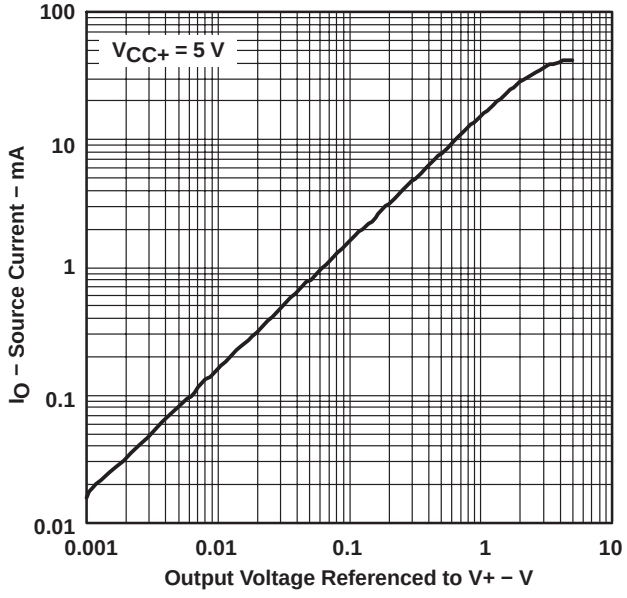


Figure 4

TYPICAL CHARACTERISTICS
(T_A = 25°C, V_{CC+} = 5 V Single Supply, Unless Otherwise Noted)

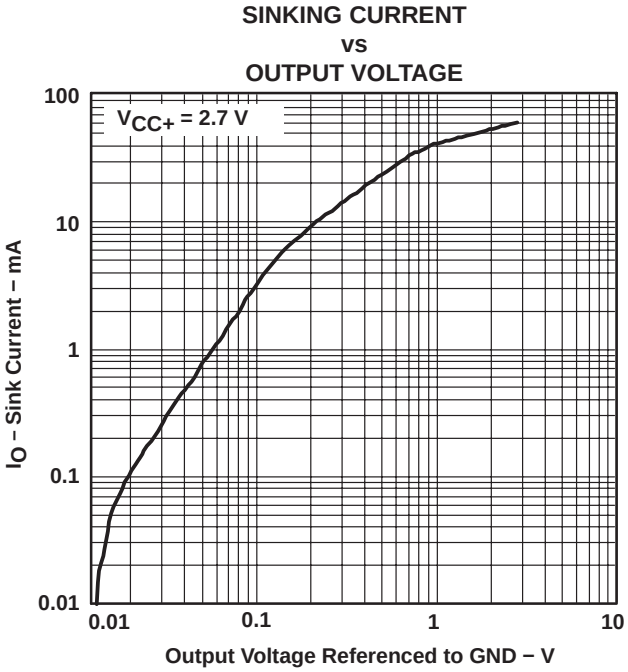


Figure 5

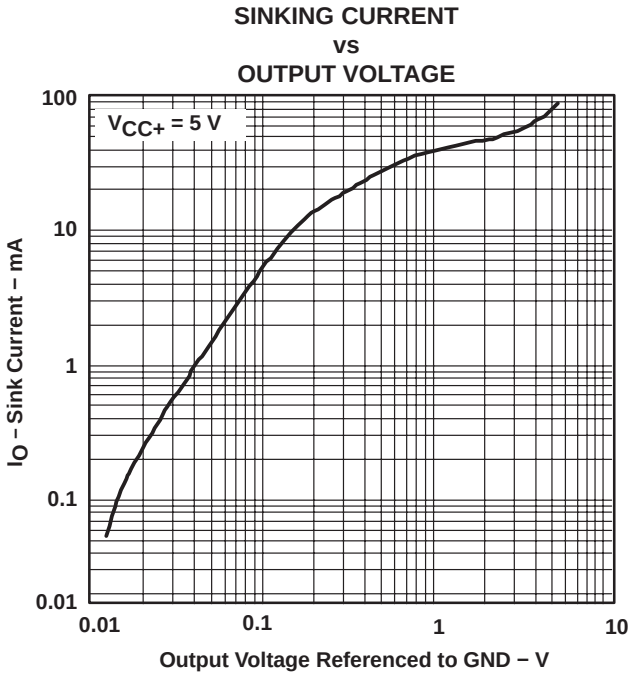


Figure 6

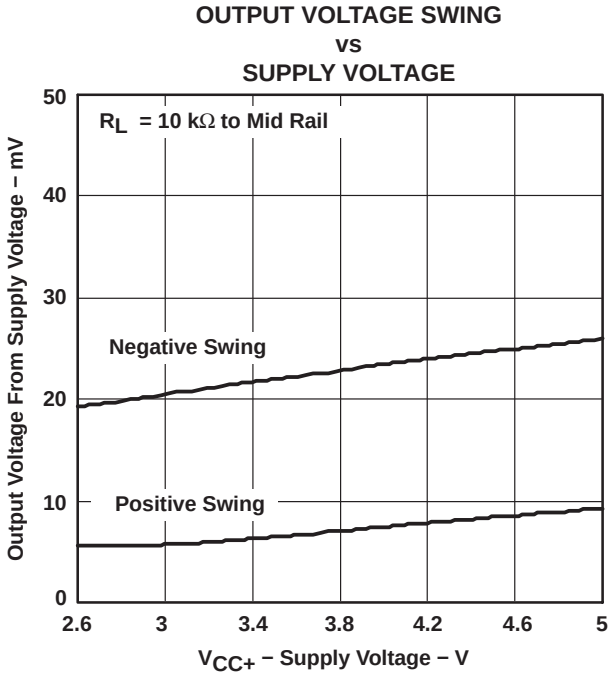


Figure 7

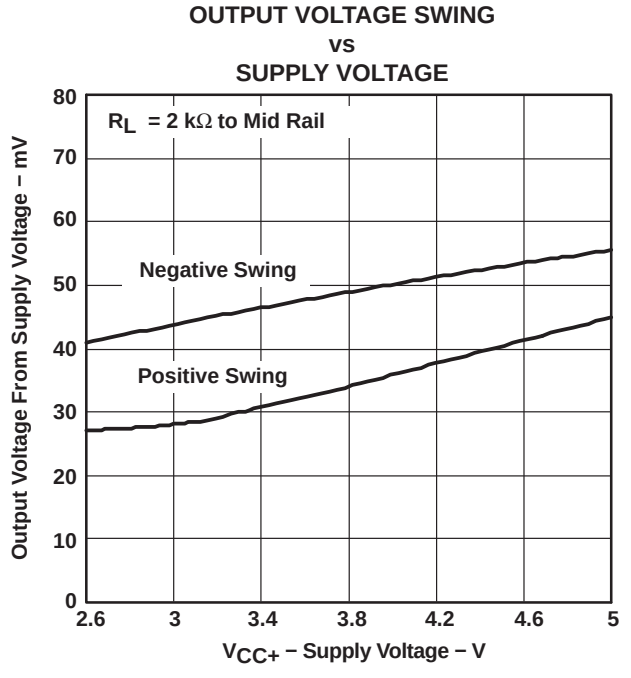


Figure 8

TYPICAL CHARACTERISTICS
(T_A = 25°C, V_{CC+} = 5 V Single Supply, Unless Otherwise Noted)

OUTPUT VOLTAGE SWING vs SUPPLY VOLTAGE

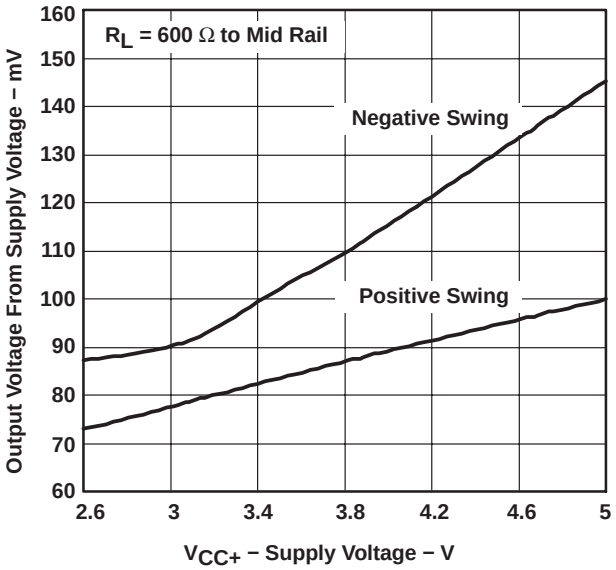


Figure 9

OUTPUT VOLTAGE SWING vs LOAD RESISTANCE

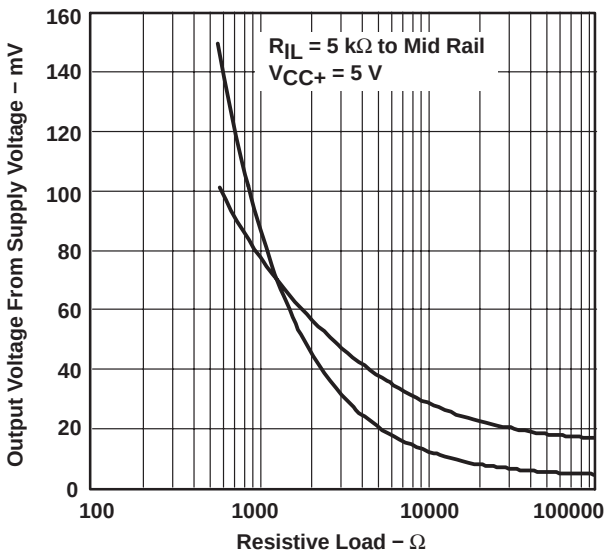


Figure 10

CROSSTALK REJECTION vs FREQUENCY

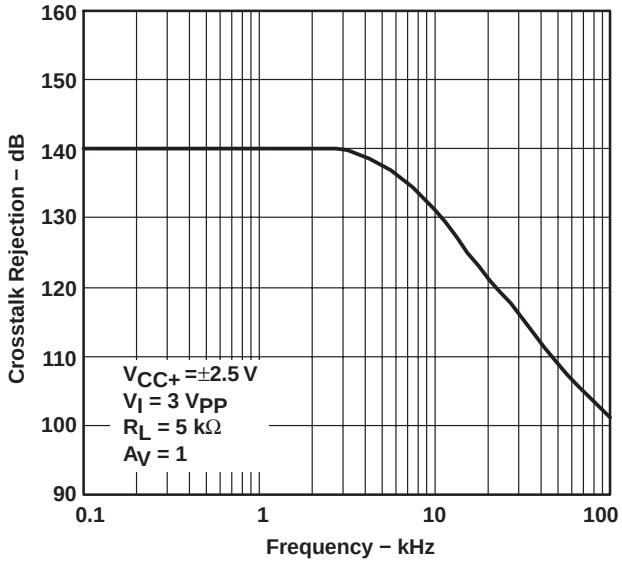


Figure 11

+PSRR vs FREQUENCY

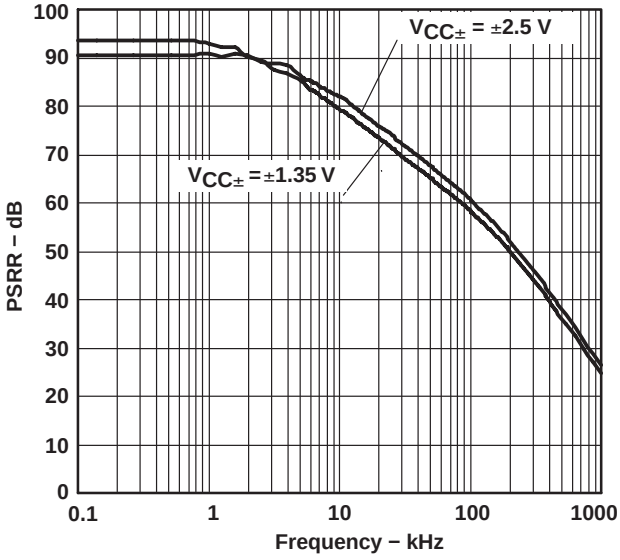


Figure 12

TYPICAL CHARACTERISTICS
(T_A = 25°C, V_{CC+} = 5 V Single Supply, Unless Otherwise Noted)

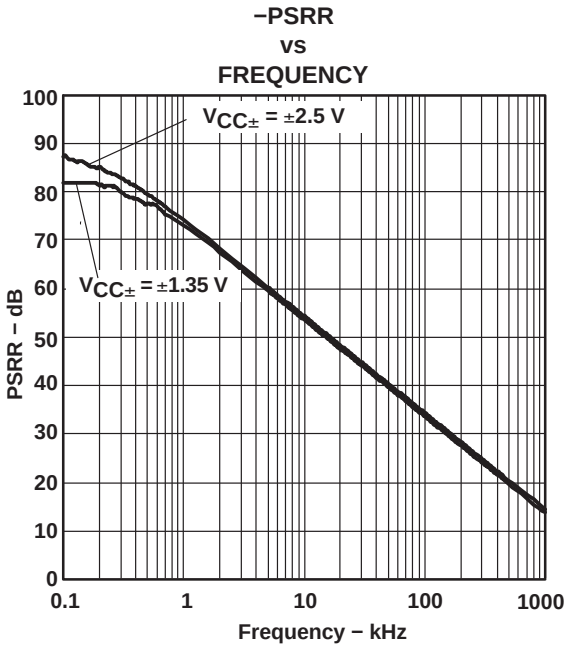


Figure 13

TYPICAL CHARACTERISTICS

FREQUENCY RESPONSE
vs
R_L

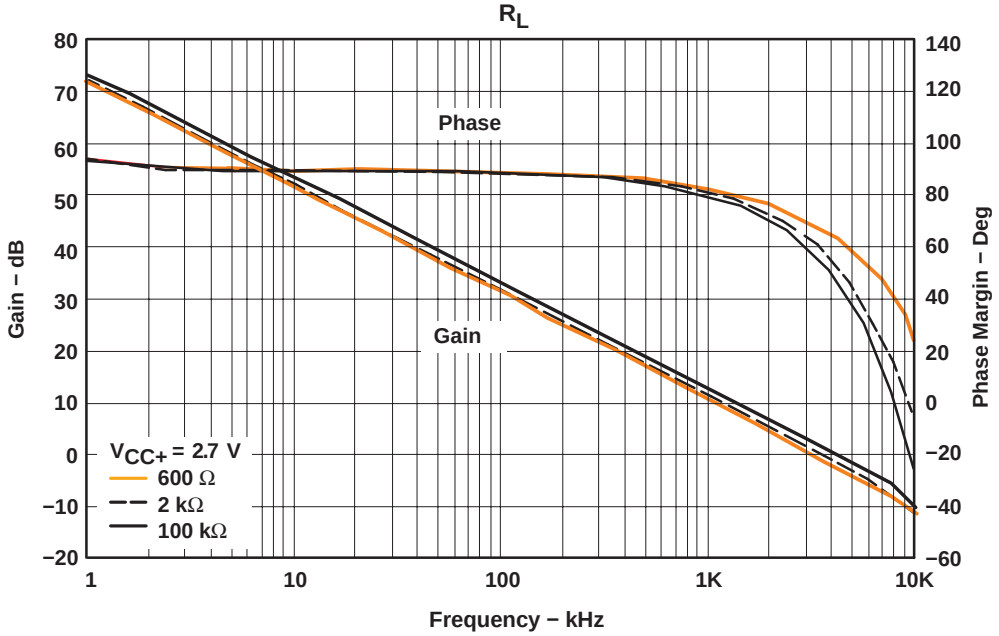


Figure 14

FREQUENCY RESPONSE
vs
R_L

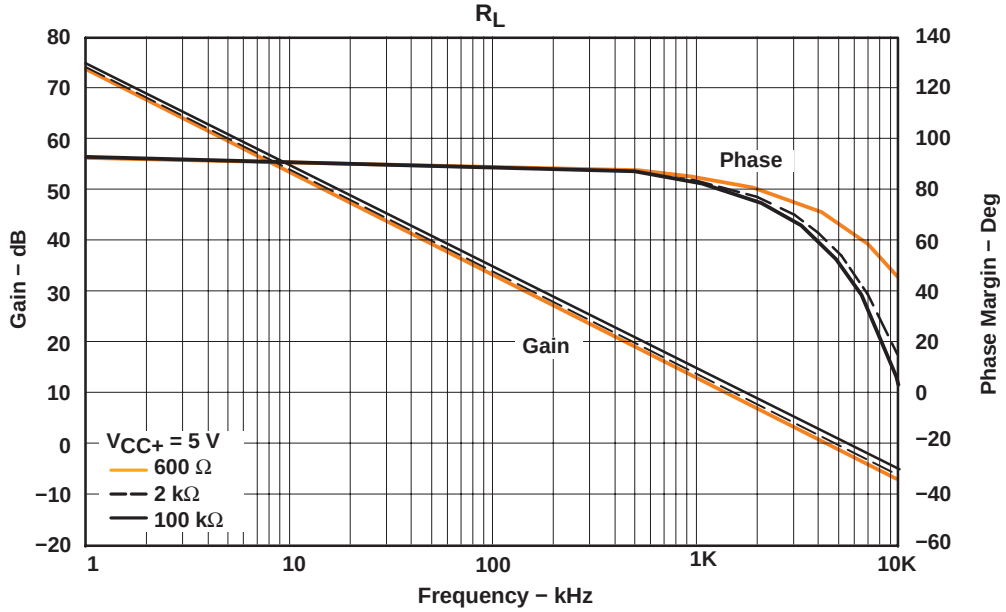


Figure 15

TYPICAL CHARACTERISTICS

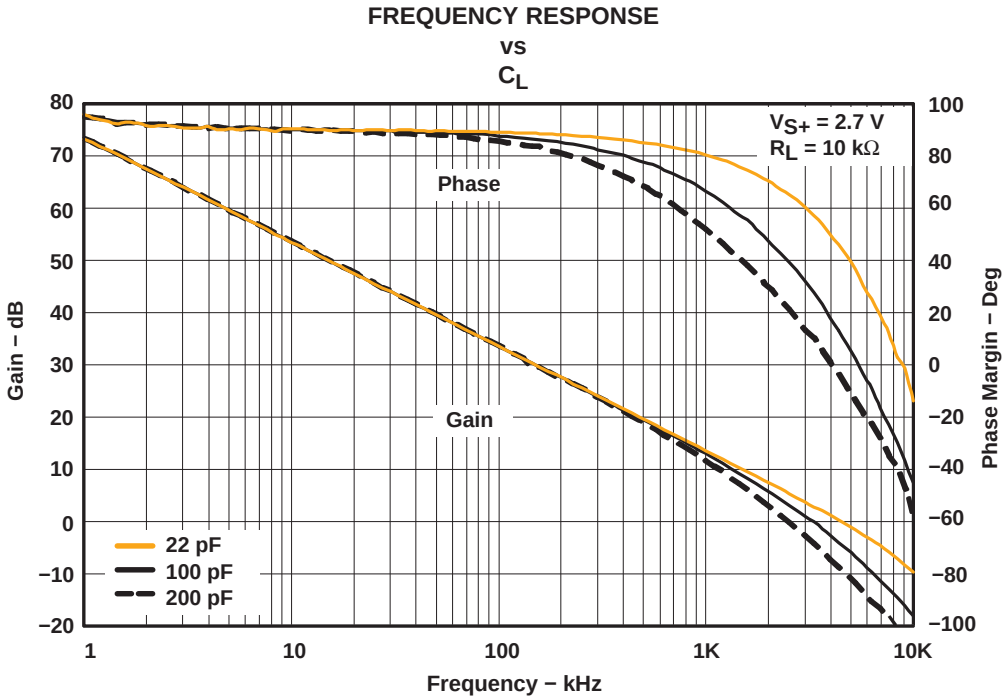


Figure 16

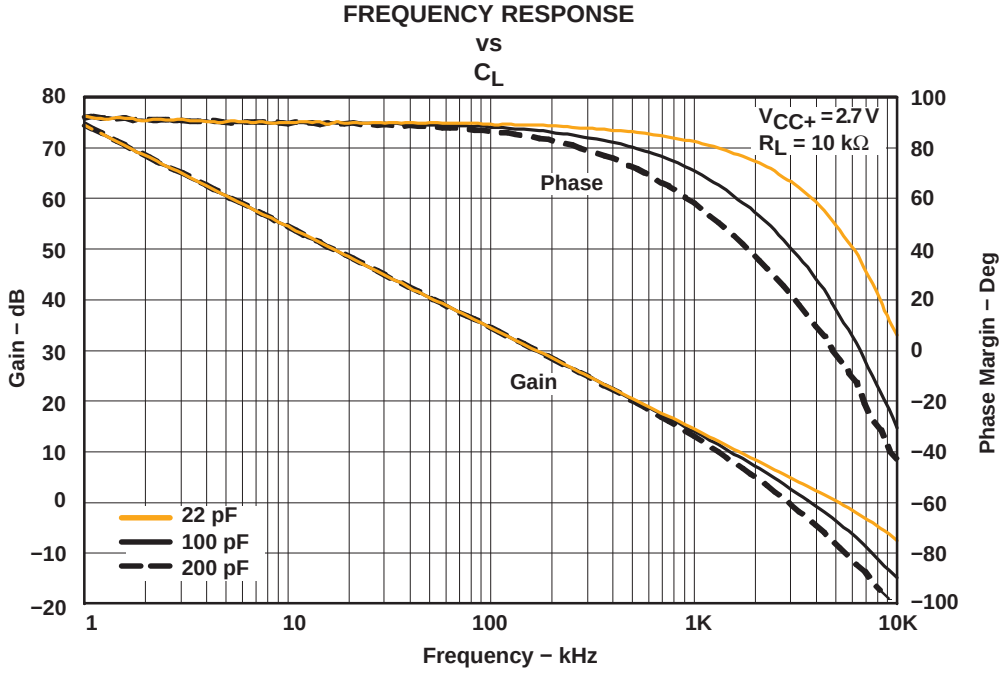


Figure 17

TYPICAL CHARACTERISTICS

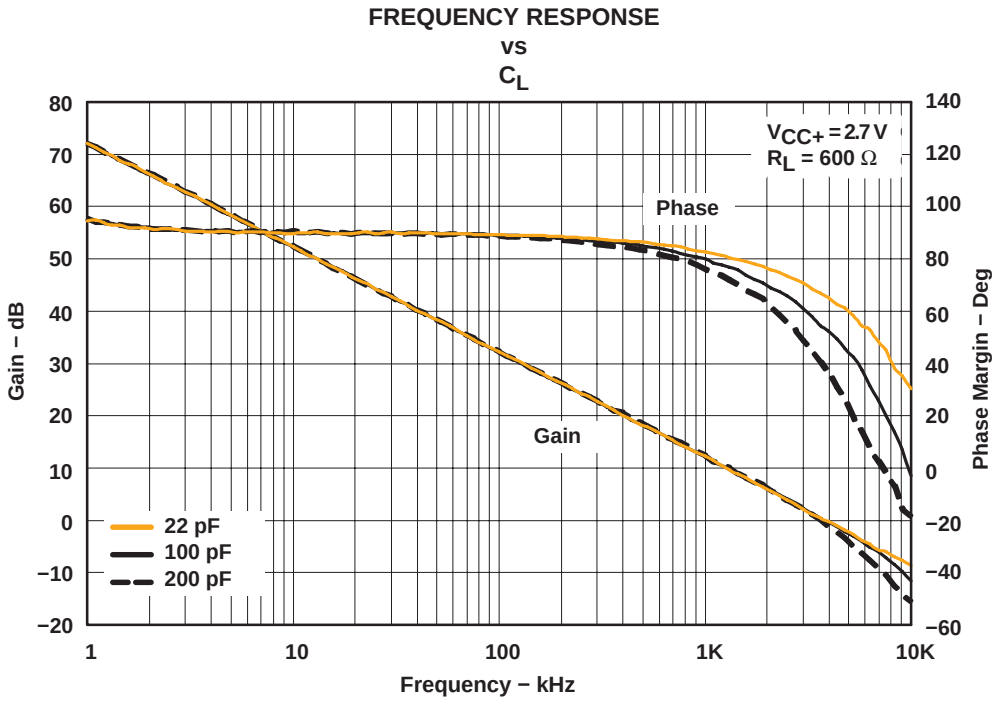


Figure 18

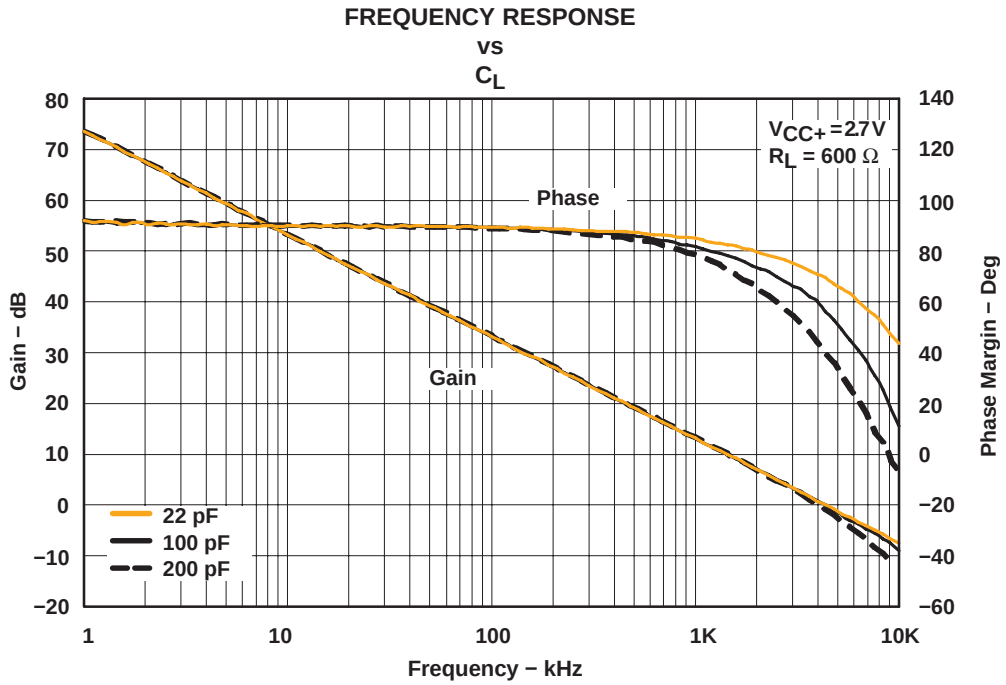
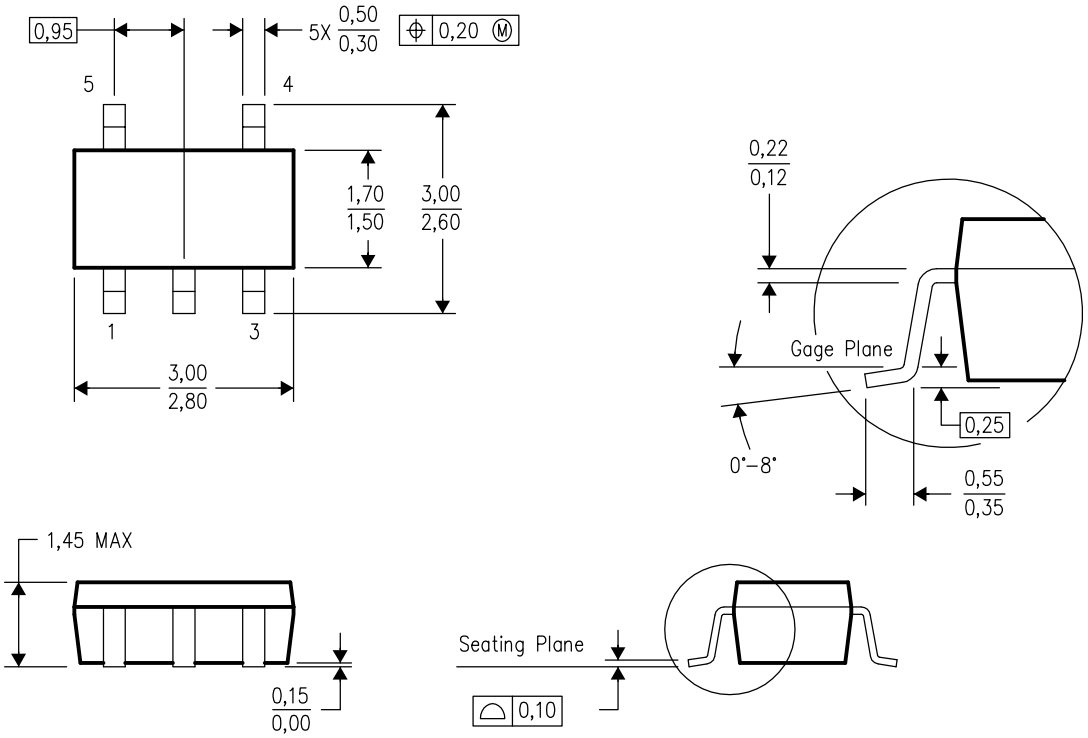


Figure 19

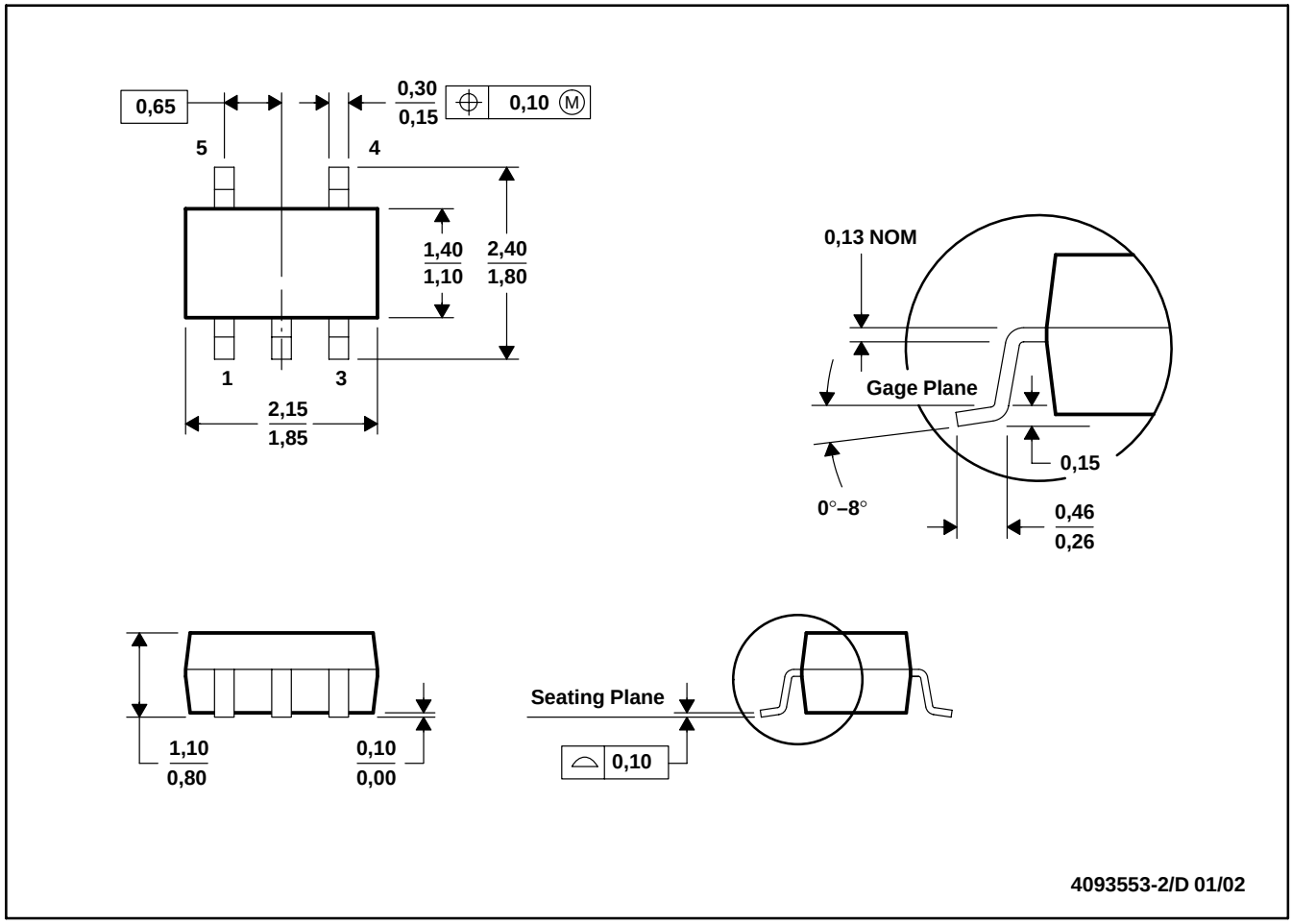
DBV (R–PDSO–G5) PLASTIC SMALL–OUTLINE PACKAGE



4073253–4/H 10/2003

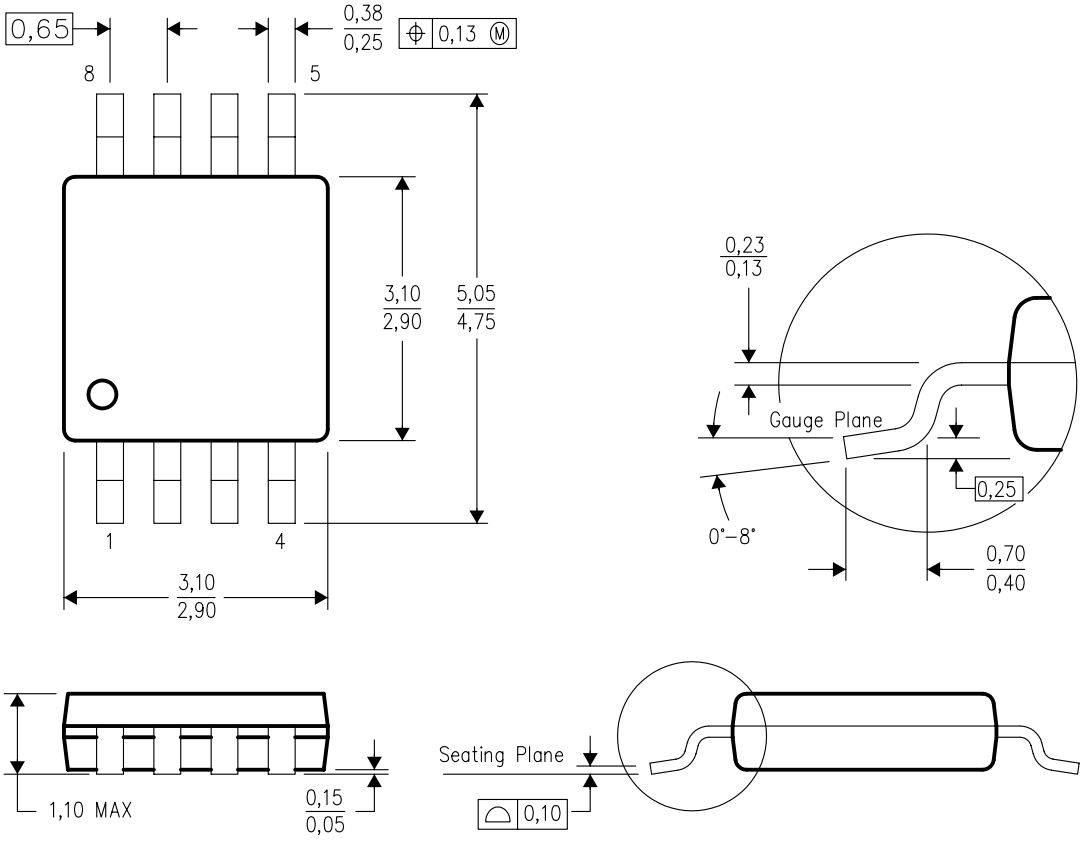
NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion.
D. Falls within JEDEC MO–178 Variation AA.

DCK (R-PDSO-G5) **PLASTIC SMALL-OUTLINE PACKAGE**



NOTES: A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion.
D. Falls within JEDEC MO-203

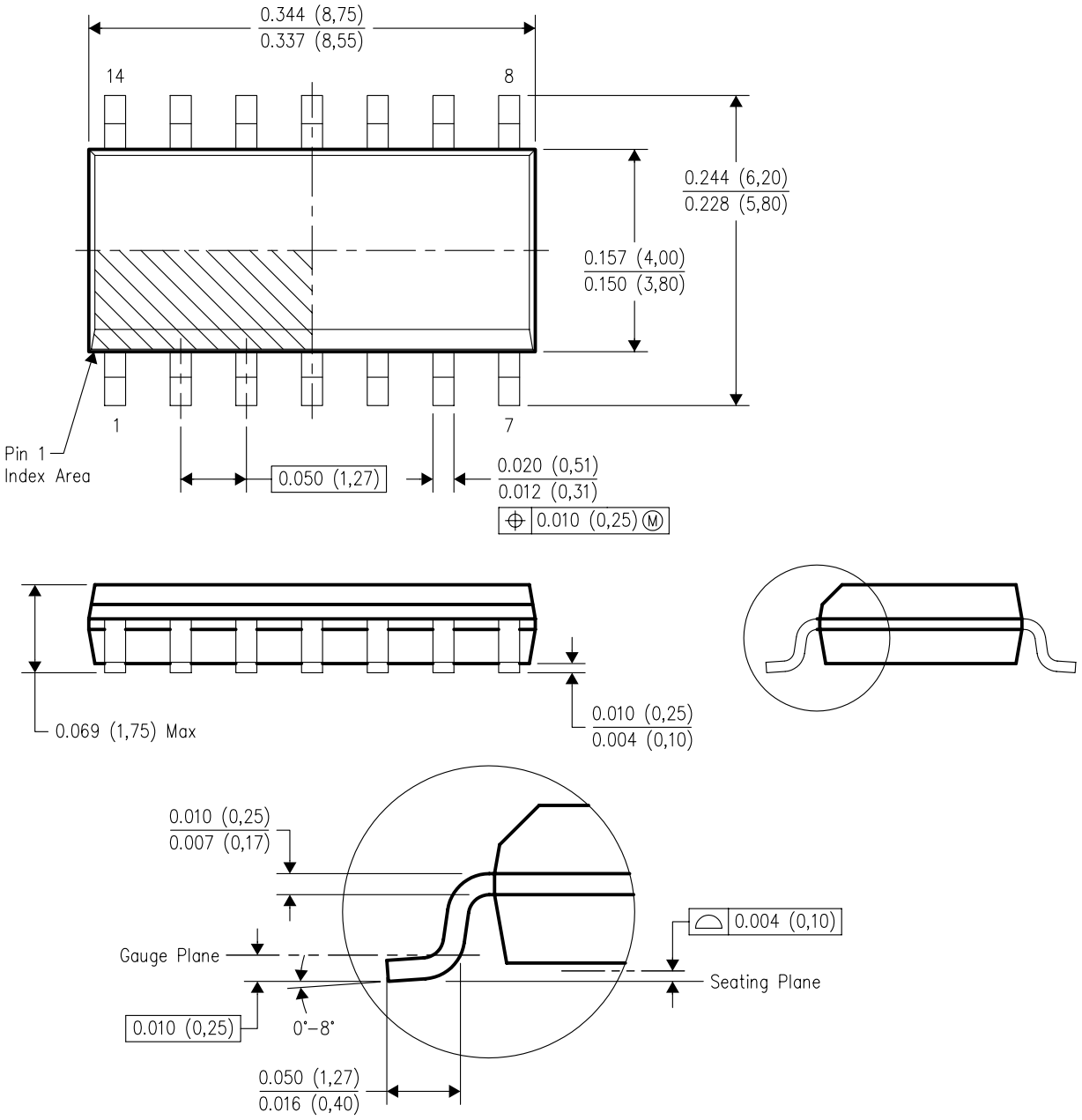
DGK (S–PDSO–G8) PLASTIC SMALL–OUTLINE PACKAGE



4073329/D 12/03

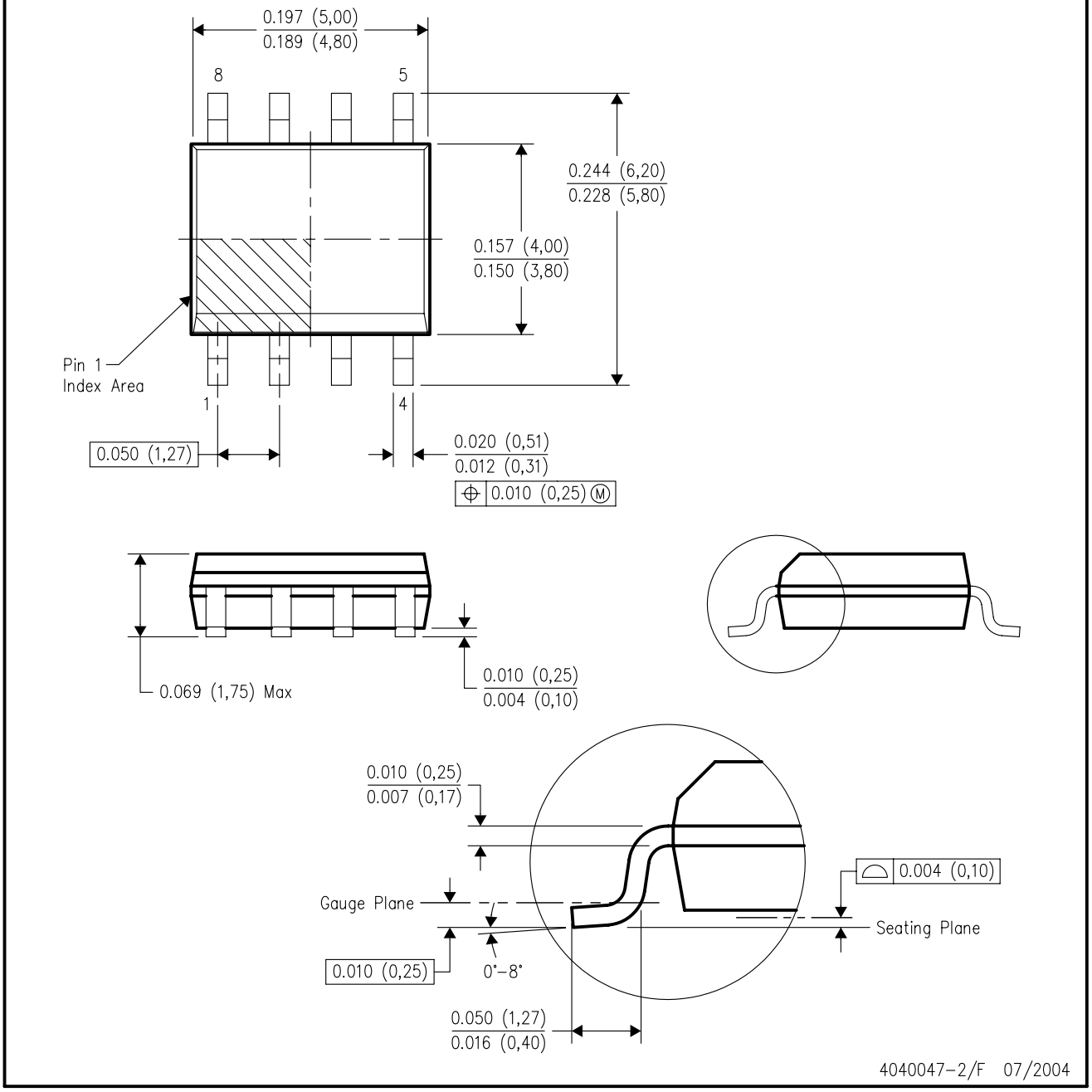
NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion.
D. Falls within JEDEC MO–187 variation AA.

D (R–PDSO–G14) PLASTIC SMALL–OUTLINE PACKAGE



NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).
D. Falls within JEDEC MS–012 variation AB.

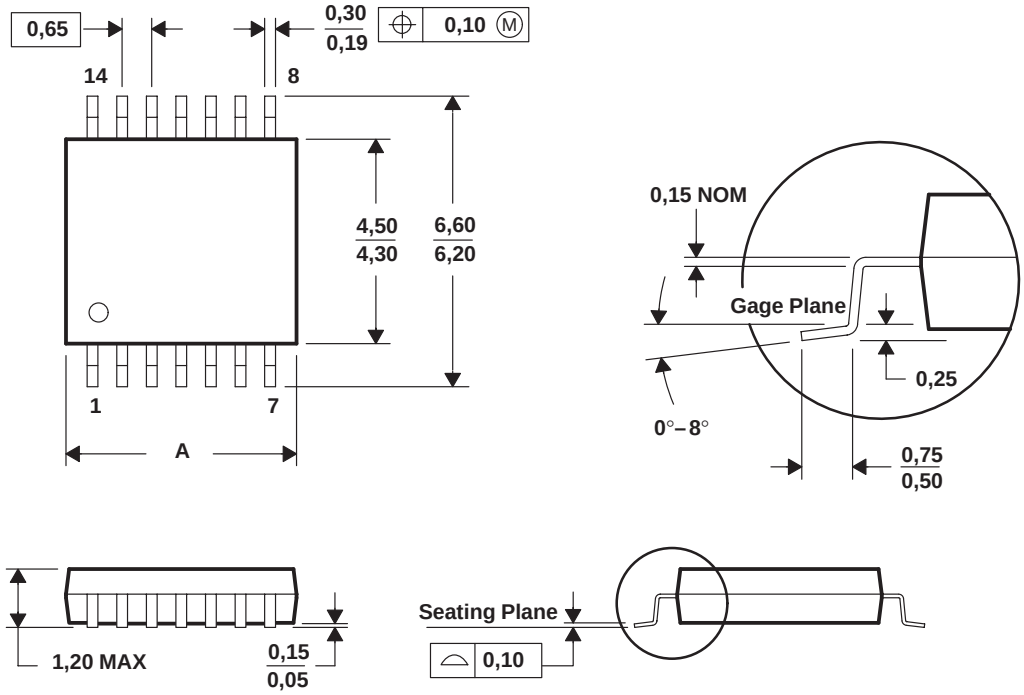
D (R–PDSO–G8) PLASTIC SMALL–OUTLINE PACKAGE



NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).
D. Falls within JEDEC MS–012 variation AA.

PW (R-PDSO-G)** **PLASTIC SMALL-OUTLINE PACKAGE**

14 PINS SHOWN



DIM \ PINS **	8	14	16	20	24	28
A MAX	3,10	5,10	5,10	6,60	7,90	9,80
A MIN	2,90	4,90	4,90	6,40	7,70	9,60

4040064/F 01/97

NOTES: A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
D. Falls within JEDEC MO-153

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