

- 1/2 V<sub>I</sub> Virtual Ground for Analog Systems
- Self-Contained 3-terminal TO-226AA Package
- Micropower Operation . . . 170 μA Typ, V<sub>I</sub> = 5 V
- Wide V<sub>I</sub> Range . . . 4 V to 40 V
- High Output-Current Capability
  - Source . . . 20 mA Typ
  - Sink . . . 20 mA Typ

- Excellent Output Regulation
  - –45 μV Typ at I<sub>O</sub> = 0 to –10 mA
  - +15 μV Typ at I<sub>O</sub> = 0 to +10 mA
- Low-Impedance Output . . . 0.0075 Ω Typ
- Noise Reduction Pin (D, JG, and P Packages Only)

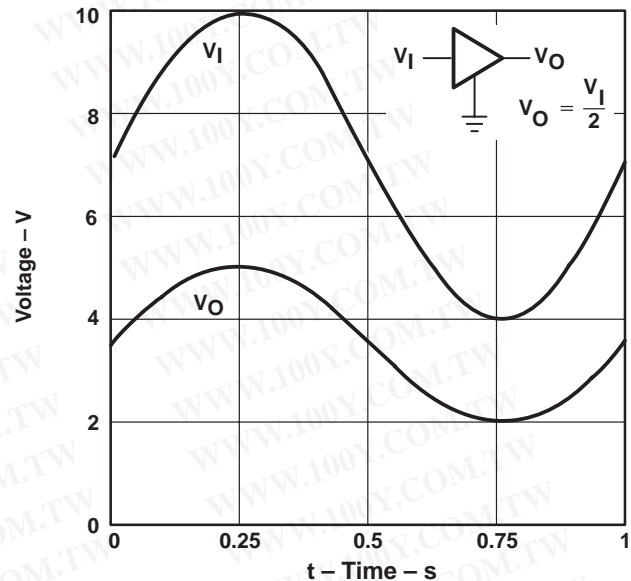
### description

In signal-conditioning applications utilizing a single power source, a reference voltage equal to one-half the supply voltage is required for termination of all analog signal grounds. Texas Instruments presents a precision virtual ground whose output voltage is always equal to one-half the input voltage, the TLE2426 "rail splitter."

The unique combination of a high-performance, micropower operational amplifier and a precision-trimmed divider on a single silicon chip results in a precise V<sub>O</sub>/V<sub>I</sub> ratio of 0.5 while sinking and sourcing current. The TLE2426 provides a low-impedance output with 20 mA of sink and source capability while drawing less than 280 μA of supply current over the full input range of 4 V to 40 V. A designer need not pay the price in terms of board space for a conventional signal ground consisting of resistors, capacitors, operational amplifiers, and voltage references. The performance and precision of the TLE2426 is available in an easy-to-use, space saving, 3-terminal LP package. For increased performance, the optional 8-pin packages provide a noise-reduction pin. With the addition of an external capacitor (C<sub>NR</sub>), peak-to-peak noise is reduced while line ripple rejection is improved.

Initial output tolerance for a single 5-V or 12-V system is better than 1% with 3.6% over the full 40-V input range. Ripple rejection exceeds 12 bits of accuracy. Whether the application is for a data acquisition front end, analog signal termination, or simply a precision voltage reference, the TLE2426 eliminates a major source of system error.

INPUT/OUTPUT TRANSFER CHARACTERISTICS



### AVAILABLE OPTIONS

PACKAGED DEVICES					CHIP FORM (Y)
T <sub>A</sub>	SMALL OUTLINE (D)	CERAMIC DIP (JG)	PLASTIC (LP)	PLASTIC DIP (P)	
0°C to 70°C	TLE2426CD	—	TLE2426CLP	TLE2426CP	TLE2426Y
–40°C to 85°C	TLE2426ID	—	TLE2426ILP	TLE2426IP	
–55°C to 125°C	TLE2426MD	TLE2426MJG	TLE2426MLP	TLE2426MP	

The D and LP packages are available taped and reeled in the commercial temperature range only. Add R suffix to the device type (e. g., TLC2426CDR). Chips are tested at 25°C.



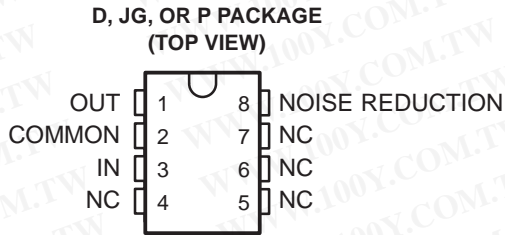
Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

# TLE2426, TLE2426Y THE "RAIL SPLITTER" PRECISION VIRTUAL GROUND

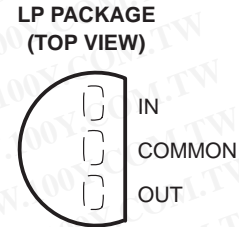
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## description (continued)

The C-suffix devices are characterized for operation from 0°C to 70°C. The I suffix devices are characterized for operation from -40°C to 85°C. The M suffix devices are characterized over the full military temperature range of -55°C to 125°C.

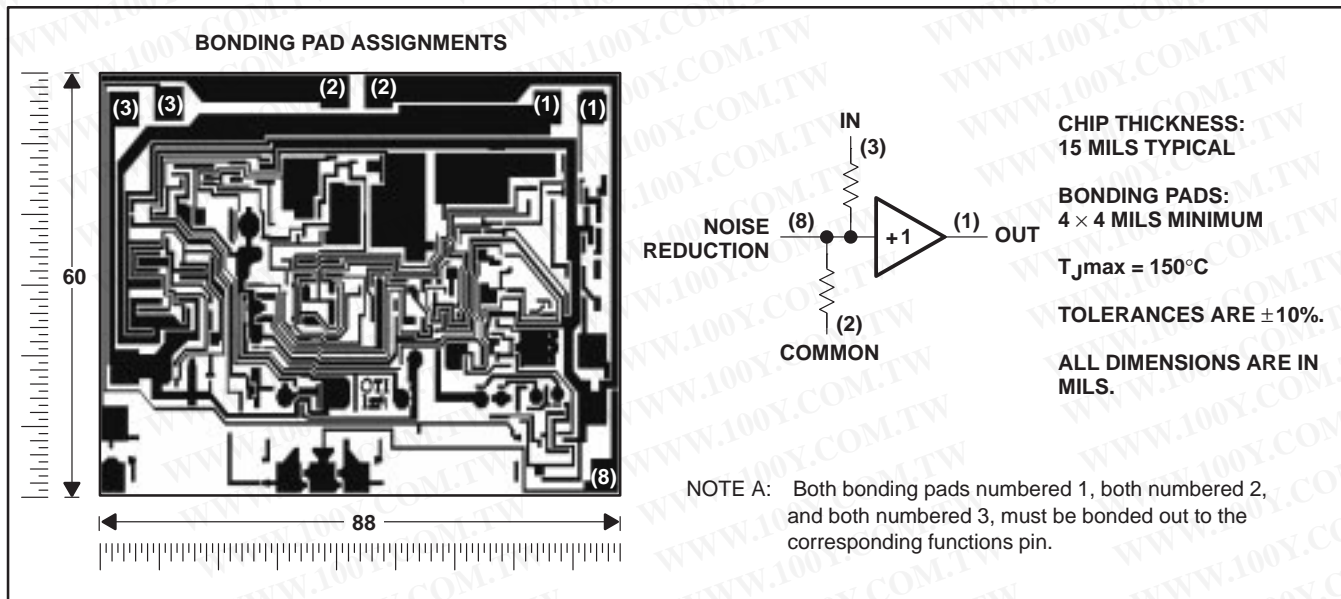


NC – No internal connection



## TLE2426Y chip information

This chip, properly assembled, displays characteristics similar to the TLE2426C. Thermal compression or ultrasonic bonding may be used on the doped aluminum bonding pads. The chips may be mounted with conductive epoxy or a gold-silicon preform.



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**TLE2426, TLE2426Y**  
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**electrical characteristics at specified free-air temperature,  $V_I = 5\text{ V}$ ,  $I_O = 0$  (unless otherwise noted)**

PARAMETER	TEST CONDITIONS		$T_A$ †	TLE2426C			UNIT
				MIN	TYP	MAX	
Output voltage	$V_I = 4\text{ V}$		25°C	1.98	2	2.02	V
	$V_I = 5\text{ V}$			2.48	2.5	2.52	
	$V_I = 40\text{ V}$			19.8	20	20.2	
	$V_I = 5\text{ V}$		Full range	2.475		2.525	
Temperature coefficient of output voltage			Full range	25		ppm/°C	
Supply current	No load	$V_I = 5\text{ V}$	25°C	170	300	µA	
		$V_I = 4\text{ to }40\text{ V}$	Full range	400			
Output voltage regulation (sourcing current)‡	$I_O = 0\text{ to }-10\text{ mA}$		25°C	-45	±160	µV	
			Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }-20\text{ mA}$		25°C	-150	±450	µV	
			Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }10\text{ mA}$		25°C	15	±160	µV	
			Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }20\text{ mA}$		25°C	65	±235	µV	
			Full range	±250			
Output impedance			25°C	7.5	22.5	mΩ	
Noise-reduction impedance			25°C	110		kΩ	
Short-circuit current	Sinking current,	$V_O = 5\text{ V}$	25°C	26		mA	
	Sourcing current,	$V_O = 0$		-47			
Output noise voltage, rms	$f = 10\text{ Hz to }10\text{ kHz}$	$CNR = 0$	25°C	120		µV	
		$CNR = 1\text{ µF}$		30			
Output voltage current step response	$V_O\text{ to }0.1\%, I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	290		µs	
		$C_L = 100\text{ pF}$		275			
	$V_O\text{ to }0.01\%, I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	400			
		$C_L = 100\text{ pF}$		390			
Step response	$V_I = 0\text{ to }5\text{ V}, V_O\text{ to }0.1\%$	$C_L = 100\text{ pF}$	25°C	20		µs	
	$V_I = 0\text{ to }5\text{ V}, V_O\text{ to }0.01\%$			160			

† Full range is 0°C to 70°C.

‡ The listed values are not production tested.

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**electrical characteristics at specified free-air temperature,  $V_I = 12\text{ V}$ ,  $I_O = 0$  (unless otherwise noted)**

PARAMETER	TEST CONDITIONS		$T_A$ †	TLE2426C			UNIT
				MIN	TYP	MAX	
Output voltage	$V_I = 4\text{ V}$		25°C	1.98	2	2.02	V
	$V_I = 12\text{ V}$			5.95	6	6.05	
	$V_I = 40\text{ V}$			19.8	20	20.2	
	$V_I = 12\text{ V}$		Full range	5.945		6.055	
Temperature coefficient of output voltage			Full range	35		ppm/°C	
Supply current	No load	$V_I = 12\text{ V}$	25°C	195	300	µA	
		$V_I = 4\text{ to }40\text{ V}$	Full range	400			
Output voltage regulation (sourcing current) ‡	$I_O = 0\text{ to }-10\text{ mA}$		25°C	-45	±160	µV	
			Full range	±250			
Output voltage regulation (sinking current) ‡	$I_O = 0\text{ to }-20\text{ mA}$		25°C	-150	±450	µV	
			Full range	±250			
Output voltage regulation (sinking current) ‡	$I_O = 0\text{ to }10\text{ mA}$		25°C	15	±160	µV	
			Full range	±250			
Output impedance			25°C	7.5	22.5	mΩ	
Noise-reduction impedance			25°C	110		kΩ	
Short-circuit current	Sinking current,	$V_O = 12\text{ V}$	25°C	31		mA	
	Sourcing current,	$V_O = 0$		-70			
Output noise voltage, rms	$f = 10\text{ Hz to }10\text{ kHz}$	$C_{NR} = 0$	25°C	120		µV	
		$C_{NR} = 1\text{ µF}$		30			
Output voltage current step response	$V_O\text{ to }0.1\%, I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	290		µs	
		$C_L = 100\text{ pF}$		275			
	$V_O\text{ to }0.01\%, I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	400			
		$C_L = 100\text{ pF}$		390			
Step response	$V_I = 0\text{ to }12\text{ V}, V_O\text{ to }0.1\%$	$C_L = 100\text{ pF}$	25°C	20		µs	
	$V_I = 0\text{ to }12\text{ V}, V_O\text{ to }0.01\%$			120			

† Full range is 0°C to 70°C.

‡ The listed values are not production tested.

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**TLE2426, TLE2426Y**  
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 SLOS098D – AUGUST 1991 – REVISED MAY 1998

**electrical characteristics at specified free-air temperature,  $V_I = 5\text{ V}$ ,  $I_O = 0$  (unless otherwise noted)**

PARAMETER	TEST CONDITIONS		$T_A$ †	TLE2426I			UNIT
				MIN	TYP	MAX	
Output voltage	$V_I = 4\text{ V}$		25°C	1.98	2	2.02	V
	$V_I = 5\text{ V}$			2.48	2.5	2.52	
	$V_I = 40\text{ V}$			19.8	20	20.2	
	$V_I = 5\text{ V}$		Full range	2.47		2.53	
Temperature coefficient of output voltage			Full range	25		ppm/°C	
Supply current	No load	$V_I = 5\text{ V}$	25°C	170	300	µA	
		$V_I = 4\text{ to }40\text{ V}$	Full range	400			
Output voltage regulation (sourcing current)‡	$I_O = 0\text{ to }-10\text{ mA}$		25°C	-45	±160	µV	
			Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }-20\text{ mA}$		25°C	-150	±450	µV	
			Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }10\text{ mA}$		25°C	15	±160	µV	
	$I_O = 0\text{ to }8\text{ mA}$		Full range	±250			
	$I_O = 0\text{ to }20\text{ mA}$		25°C	65	±235		
Output impedance			25°C	7.5	22.5	mΩ	
Noise-reduction impedance			25°C	110		kΩ	
Short-circuit current	Sinking current, $V_O = 5\text{ V}$		25°C	26		mA	
	Sourcing current, $V_O = 0$			-47			
Output noise voltage, rms	$f = 10\text{ Hz to }10\text{ kHz}$	$C_{NR} = 0$	25°C	120		µV	
		$C_{NR} = 1\text{ µF}$		30			
Output voltage current step response	$V_O\text{ to }0.1\%$ , $I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	290		µs	
		$C_L = 100\text{ pF}$		275			
	$V_O\text{ to }0.01\%$ , $I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	400			
		$C_L = 100\text{ pF}$		390			
Step response	$V_I = 0\text{ to }5\text{ V}$ , $V_O\text{ to }0.1\%$		25°C	20		µs	
	$V_I = 0\text{ to }5\text{ V}$ , $V_O\text{ to }0.01\%$			160			

† Full range is -40°C to 85°C.

‡ The listed values are not production tested.

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PARAMETER	TEST CONDITIONS		$T_A$ †	TLE2426I			UNIT
				MIN	TYP	MAX	
Output voltage	$V_I = 4\text{ V}$		25°C	1.98	2	2.02	V
	$V_I = 12\text{ V}$			5.95	6	6.05	
	$V_I = 40\text{ V}$			19.8	20	20.2	
	$V_I = 12\text{ V}$		Full range	5.935		6.065	
Temperature coefficient of output voltage			Full range	35		ppm/°C	
Supply current	No load	$V_I = 12\text{ V}$	25°C	195	300	µA	
		$V_I = 4\text{ to }40\text{ V}$	Full range	400			
Output voltage regulation (sourcing current)‡	$I_O = 0\text{ to }-10\text{ mA}$		25°C	-45	±160	µV	
			Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }-20\text{ mA}$		25°C	-150	±450	µV	
	$I_O = 0\text{ to }10\text{ mA}$		25°C	15	±160		
	$I_O = 0\text{ to }8\text{ mA}$		Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }20\text{ mA}$		25°C	65	±235	µV	
			Full range	±250			
Output impedance			25°C	7.5	22.5	mΩ	
Noise-reduction impedance			25°C	110		kΩ	
Short-circuit current	Sinking current, $V_O = 12\text{ V}$		25°C	31		mA	
	Sourcing current, $V_O = 0$			-70			
Output noise voltage, rms	$f = 10\text{ Hz to }10\text{ kHz}$	$C_{NR} = 0$	25°C	120		µV	
		$C_{NR} = 1\text{ µF}$		30			
Output voltage current step response	$V_O\text{ to }0.1\%$ , $I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	290		µs	
		$C_L = 100\text{ pF}$		275			
	$V_O\text{ to }0.01\%$ , $I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	400			
		$C_L = 100\text{ pF}$		390			
Step response	$V_I = 0\text{ to }12\text{ V}$ , $V_O\text{ to }0.1\%$		25°C	20		µs	
	$V_I = 0\text{ to }12\text{ V}$ , $V_O\text{ to }0.01\%$			120			

† Full range is -40°C to 85°C.

‡ The listed values are not production tested.

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**electrical characteristics at specified free-air temperature,  $V_I = 5\text{ V}$ ,  $I_O = 0$  (unless otherwise noted)**

PARAMETER	TEST CONDITIONS		$T_A$ †	TLE2426M			UNIT
				MIN	TYP	MAX	
Output voltage	$V_I = 4\text{ V}$		25°C	1.98	2	2.02	V
	$V_I = 5\text{ V}$			2.48	2.5	2.52	
	$V_I = 40\text{ V}$			19.8	20	20.2	
	$V_I = 5\text{ V}$		Full range	2.465		2.535	
Temperature coefficient of output voltage			Full range	25		ppm/°C	
Supply current	No load	$V_I = 5\text{ V}$	25°C	170	300	µA	
		$V_I = 4\text{ to }40\text{ V}$	Full range	400			
Output voltage regulation (sourcing current)‡	$I_O = 0\text{ to }-10\text{ mA}$		25°C	-45	±160	µV	
			Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }-20\text{ mA}$		25°C	-150	±450	µV	
			Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }10\text{ mA}$		25°C	15	±160	µV	
	$I_O = 0\text{ to }3\text{ mA}$		Full range	±250			
	$I_O = 0\text{ to }20\text{ mA}$		25°C	65	±235		
Output impedance			25°C	7.5	22.5	mΩ	
Noise-reduction impedance			25°C	110		kΩ	
Short-circuit current	Sinking current,	$V_O = 5\text{ V}$	25°C	26		mA	
	Sourcing current,	$V_O = 0$		-47			
Output noise voltage, rms	$f = 10\text{ Hz to }10\text{ kHz}$	$C_{NR} = 0$	25°C	120		µV	
		$C_{NR} = 1\text{ µF}$		30			
Output voltage current step response	$V_O\text{ to }0.1\%$ , $I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	290		µs	
		$C_L = 100\text{ pF}$		275			
	$V_O\text{ to }0.01\%$ , $I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	400			
		$C_L = 100\text{ pF}$		390			
Step response	$V_I = 0\text{ to }5\text{ V}$ , $V_O\text{ to }0.1\%$	$C_L = 100\text{ pF}$	25°C	20		µs	
	$V_I = 0\text{ to }5\text{ V}$ , $V_O\text{ to }0.01\%$			120			

† Full range is -55°C to 125°C.

‡ The listed values are not production tested.

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**electrical characteristics at specified free-air temperature,  $V_I = 12\text{ V}$ ,  $I_O = 0$  (unless otherwise noted)**

PARAMETER	TEST CONDITIONS		$T_A$ †	TLE2426M			UNIT
				MIN	TYP	MAX	
Output voltage	$V_I = 4\text{ V}$		25°C	1.98	2	2.02	V
	$V_I = 12\text{ V}$			5.95	6	6.05	
	$V_I = 40\text{ V}$			19.8	20	20.2	
	$V_I = 12\text{ V}$		Full range	5.925		6.075	
Temperature coefficient of output voltage			Full range	35		ppm/°C	
Supply current	No load	$V_I = 12\text{ V}$	25°C	195	250	µA	
		$V_I = 4\text{ to }40\text{ V}$	Full range	350			
Output voltage regulation (sourcing current)‡	$I_O = 0\text{ to }-10\text{ mA}$		25°C	-45	±160	µV	
			Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }-20\text{ mA}$		25°C	-150	±450	µV	
			Full range	±250			
Output voltage regulation (sinking current)‡	$I_O = 0\text{ to }10\text{ mA}$		25°C	15	±160	µV	
	$I_O = 0\text{ to }8\text{ mA}$		Full range	±250			
	$I_O = 0\text{ to }20\text{ mA}$		25°C	65	±235		
Output impedance			25°C	7.5	22.5	mΩ	
Noise-reduction impedance			25°C	110		kΩ	
Short-circuit current	Sinking current,	$V_O = 12\text{ V}$	25°C	31		mA	
	Sourcing current,	$V_O = 0$		-70			
Output noise voltage, rms	$f = 10\text{ Hz to }10\text{ kHz}$	$C_{NR} = 0$	25°C	120		µV	
		$C_{NR} = 1\text{ µF}$		30			
Output voltage current step response	$V_O\text{ to }0.1\%$ , $I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	290		µs	
		$C_L = 100\text{ pF}$		275			
	$V_O\text{ to }0.01\%$ , $I_O = \pm 10\text{ mA}$	$C_L = 0$	25°C	400			
		$C_L = 100\text{ pF}$		390			
Step response	$V_I = 0\text{ to }12\text{ V}$ , $V_O\text{ to }0.1\%$	$C_L = 100\text{ pF}$	25°C	12		µs	
	$V_I = 0\text{ to }12\text{ V}$ , $V_O\text{ to }0.01\%$			120			

† Full range is -55°C to 125°C.

‡ The listed values are not production tested.

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electrical characteristics at specified free-air temperature,  $V_I = 5\text{ V}$ ,  $I_O = 0$ ,  $T_A = 25^\circ\text{C}$  (unless otherwise noted)

PARAMETER	TEST CONDITIONS	TLE2426Y			UNIT
		MIN	TYP	MAX	
Output voltage	$V_I = 5\text{ V}$		2.5		V
Supply current	No load		170		$\mu\text{A}$
Output voltage regulation (sourcing current)†	$I_O = 0$ to $-10\text{ mA}$		-45		$\mu\text{V}$
	$I_O = 0$ to $-20\text{ mA}$		-150		
Output voltage regulation (sinking current)†	$I_O = 0$ to $10\text{ mA}$		15		$\mu\text{V}$
	$I_O = 0$ to $20\text{ mA}$		65		
Output impedance			7.5		$\text{m}\Omega$
Noise-reduction impedance			110		$\text{k}\Omega$
Short-circuit current	Sinking current, $V_O = 5\text{ V}$		26		mA
	Sourcing current, $V_O = 0$		-47		
Output noise voltage, rms	$f = 10\text{ Hz}$ to $10\text{ kHz}$	$C_{NR} = 0$	120		$\mu\text{V}$
		$C_{NR} = 1\ \mu\text{F}$	30		
Output voltage current step response	$V_O$ to 0.1%, $I_O = \pm 10\text{ mA}$	$C_L = 0$	290		$\mu\text{s}$
		$C_L = 100\text{ pF}$	275		
	$V_O$ to 0.01%, $I_O = \pm 10\text{ mA}$	$C_L = 0$	400		
		$C_L = 100\text{ pF}$	390		
Step response	$V_I = 0$ to $5\text{ V}$ , $V_O$ to 0.1%	$C_L = 100\text{ pF}$	20		$\mu\text{s}$
	$V_I = 0$ to $5\text{ V}$ , $V_O$ to 0.01%		160		

† The listed values are not production tested.

electrical characteristics at specified free-air temperature,  $V_I = 12\text{ V}$ ,  $I_O = 0$ ,  $T_A = 25^\circ\text{C}$  (unless otherwise noted)

PARAMETER	TEST CONDITIONS	TLE2426Y			UNIT
		MIN	TYP	MAX	
Output voltage	$V_I = 12\text{ V}$		6		V
Supply current	No load		195		$\mu\text{A}$
Output voltage regulation (sourcing current)†	$I_O = 0$ to $-10\text{ mA}$		-45		$\mu\text{V}$
	$I_O = 0$ to $-20\text{ mA}$		-150		
Output voltage regulation (sinking current)†	$I_O = 0$ to $3\text{ mA}$		15		$\mu\text{V}$
	$I_O = 0$ to $20\text{ mA}$		65		
Output impedance			7.5		$\text{m}\Omega$
Noise-reduction impedance			110		$\text{k}\Omega$
Short-circuit current	Sinking current, $V_O = 12\text{ V}$		31		mA
	Sourcing current, $V_O = 0$		-70		
Output noise voltage, rms	$f = 10\text{ Hz}$ to $10\text{ kHz}$	$C_{NR} = 0$	120		$\mu\text{V}$
		$C_{NR} = 1\ \mu\text{F}$	30		
Output voltage current, step response	$V_O$ to 0.1%, $I_O = \pm 10\text{ mA}$	$C_L = 0$	290		$\mu\text{s}$
		$C_L = 100\text{ pF}$	275		
	$V_O$ to 0.01%, $I_O = \pm 10\text{ mA}$	$C_L = 0$	400		
		$C_L = 100\text{ pF}$	390		
Step response	$V_I = 0$ to $12\text{ V}$ , $V_O$ to 0.1%	$C_L = 100\text{ pF}$	12		$\mu\text{s}$
	$V_I = 0$ to $12\text{ V}$ , $V_O$ to 0.01%		120		

† The listed values are not production tested.



## TYPICAL CHARACTERISTICS

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TYPICAL CHARACTERISTICS†

DISTRIBUTION OF OUTPUT VOLTAGE

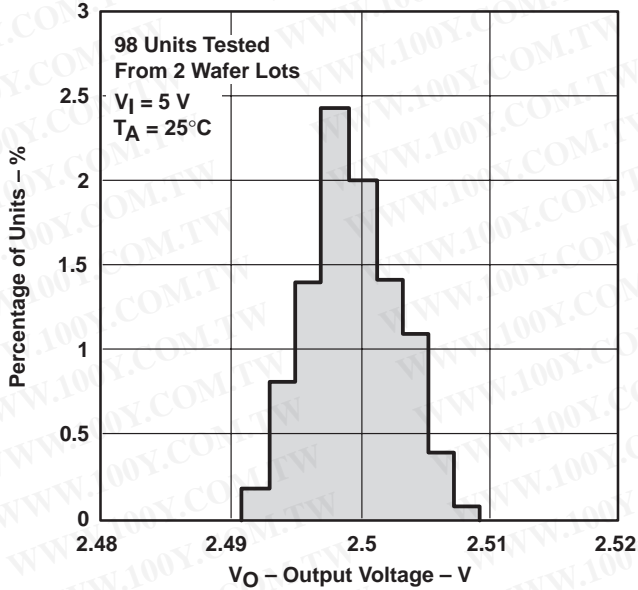


Figure 1

DISTRIBUTION OF OUTPUT VOLTAGE

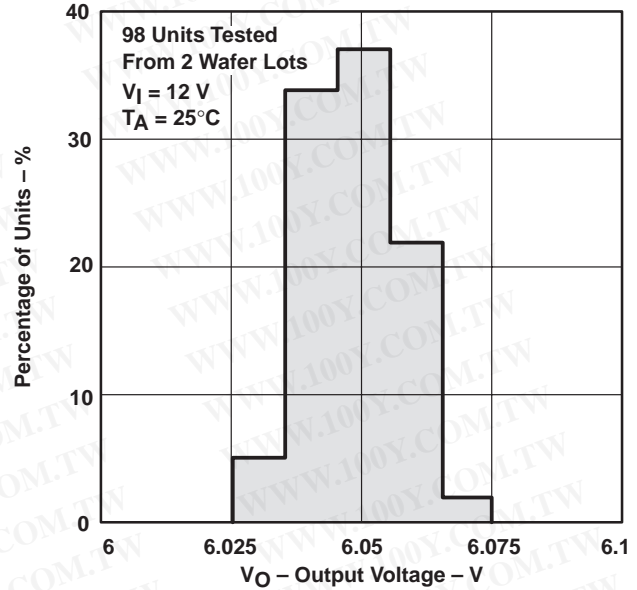


Figure 2

OUTPUT VOLTAGE CHANGE vs FREE-AIR TEMPERATURE

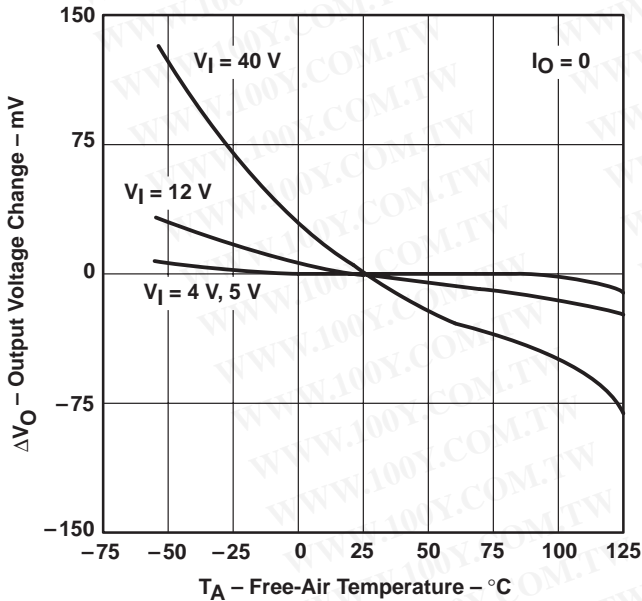


Figure 3

OUTPUT VOLTAGE ERROR vs INPUT VOLTAGE

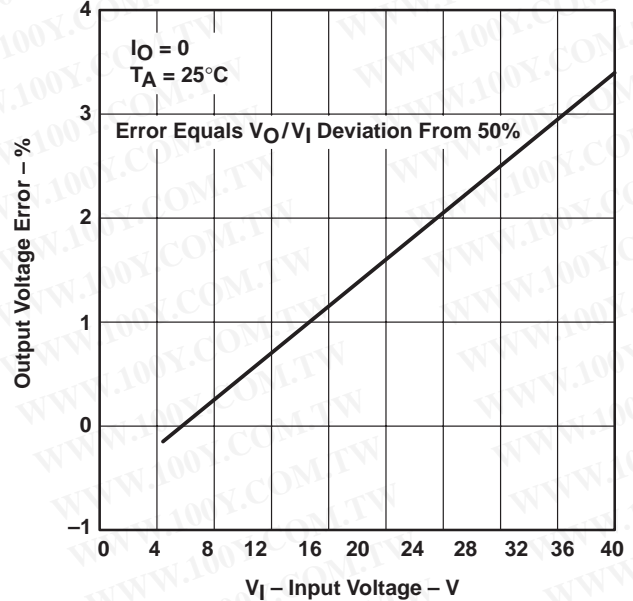


Figure 4

† Data at high and low temperatures are applicable within the rated operating free-air temperature ranges of the various devices.

TYPICAL CHARACTERISTICS†

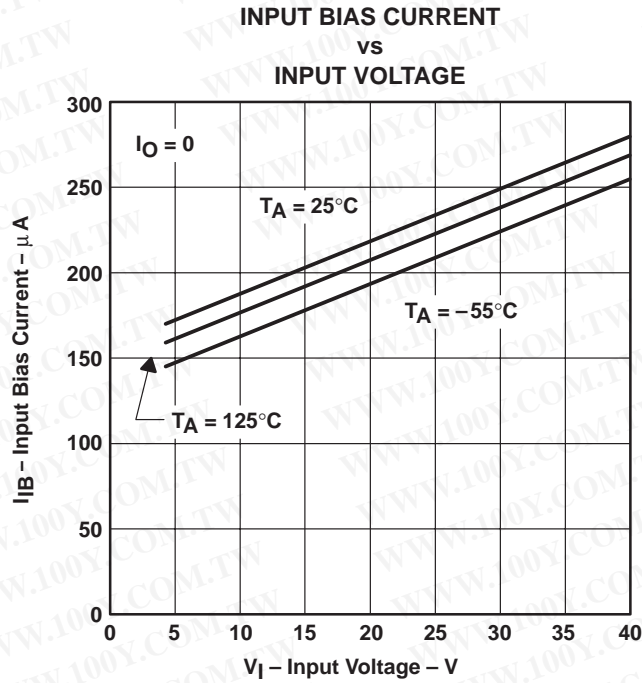


Figure 5

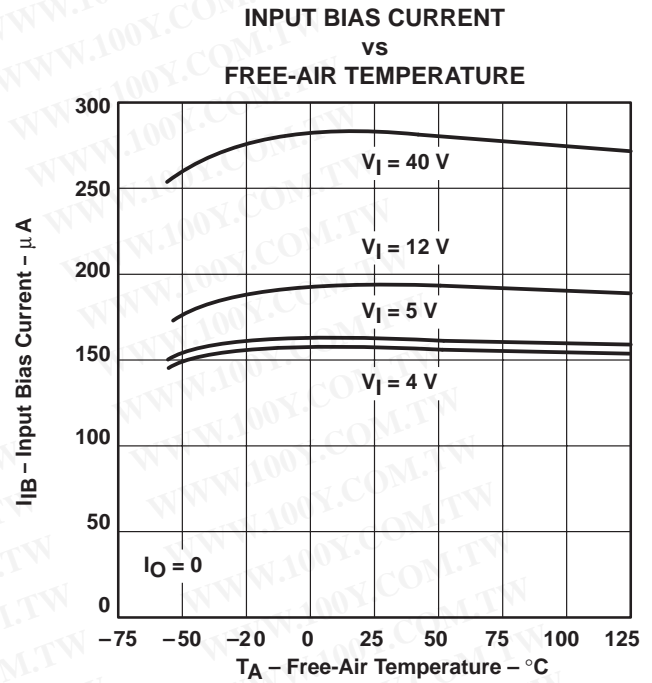


Figure 6

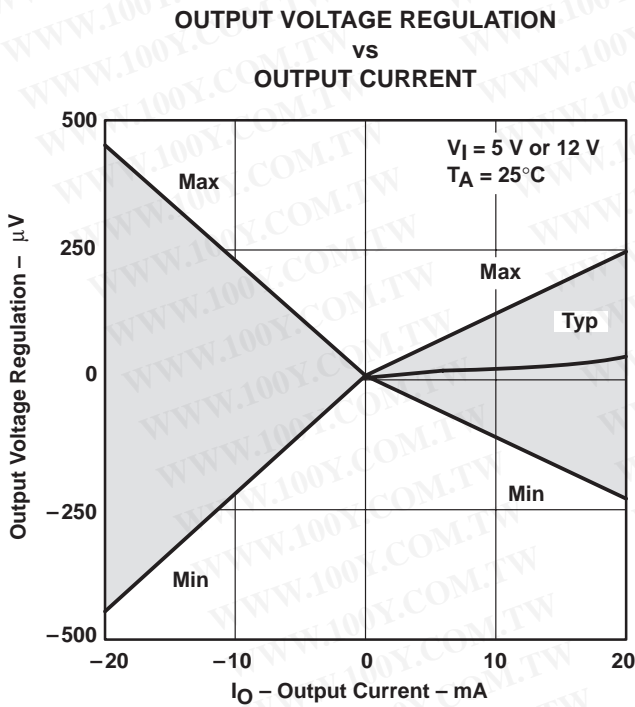


Figure 7

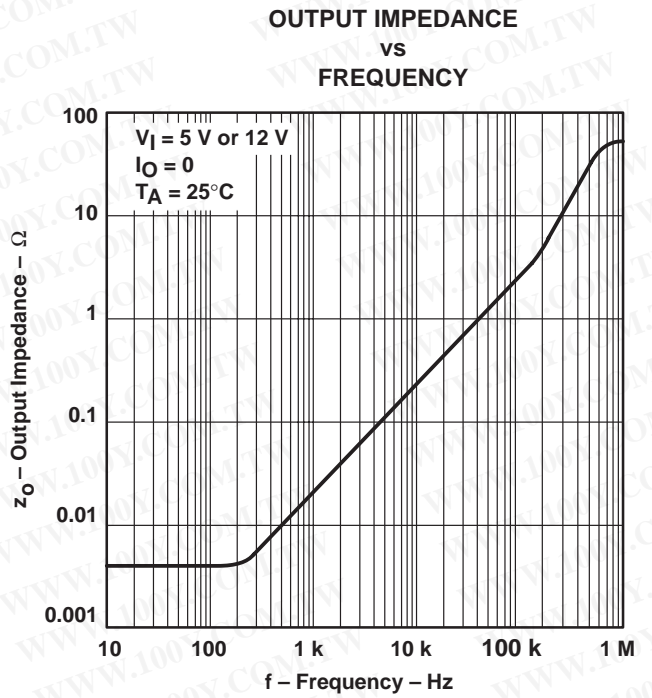


Figure 8

† Data at high and low temperatures are applicable within the rated operating free-air temperature ranges of the various devices.

TYPICAL CHARACTERISTICS†

SHORT-CIRCUIT OUTPUT CURRENT  
 vs  
 INPUT VOLTAGE

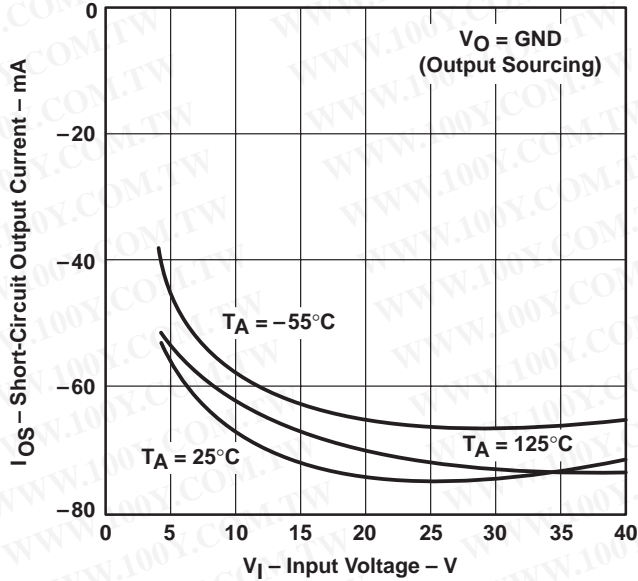


Figure 9

SHORT-CIRCUIT OUTPUT CURRENT  
 vs  
 INPUT VOLTAGE

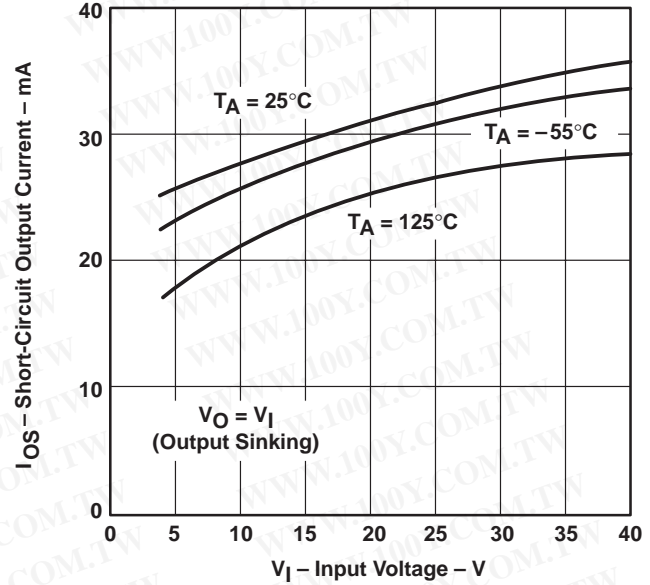


Figure 10

SHORT-CIRCUIT OUTPUT CURRENT  
 vs  
 FREE-AIR TEMPERATURE

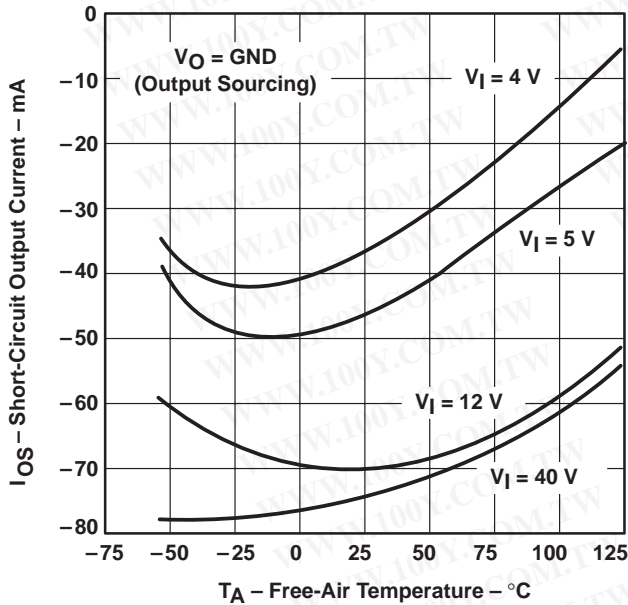


Figure 11

SHORT-CIRCUIT OUTPUT CURRENT  
 vs  
 FREE-AIR TEMPERATURE

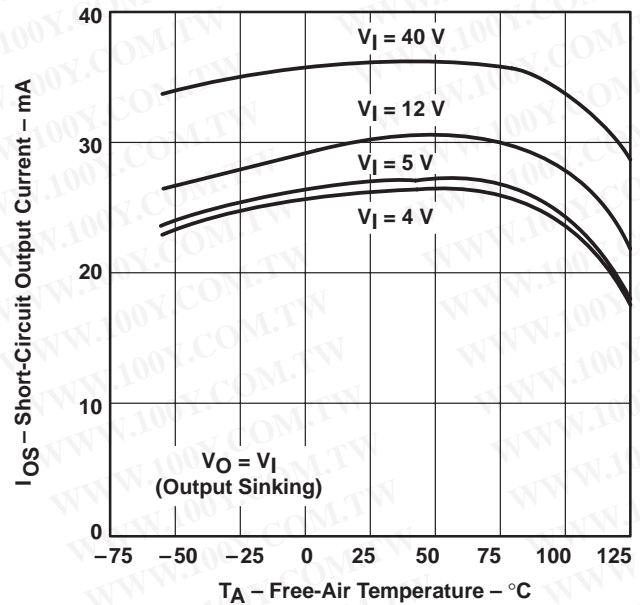


Figure 12

† Data at high and low temperatures are applicable within the rated operating free-air temperature ranges of the various devices.

TYPICAL CHARACTERISTICS

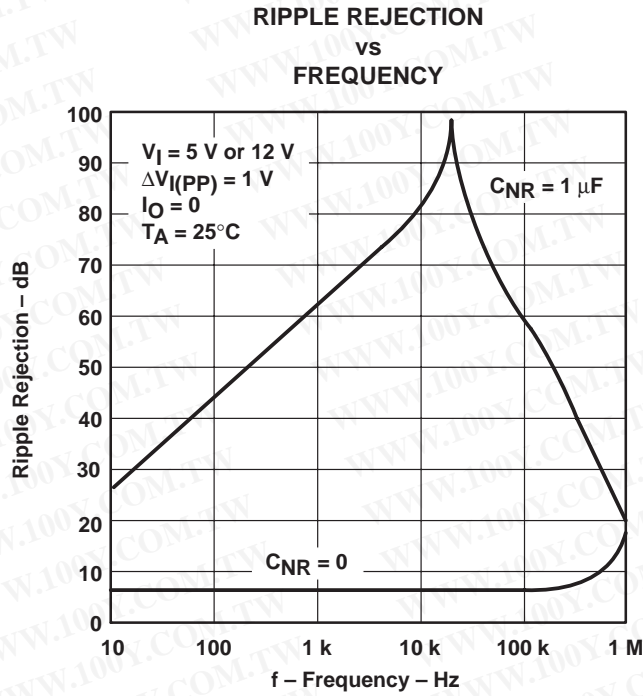


Figure 13

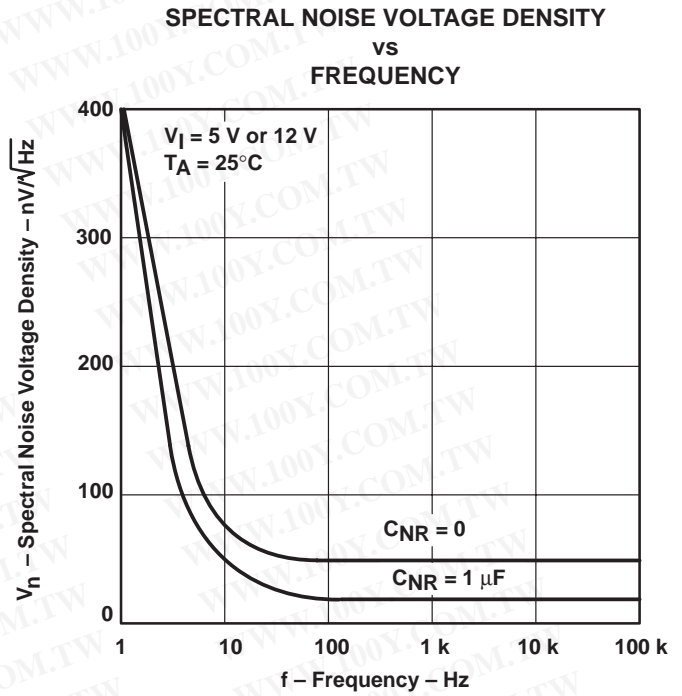


Figure 14

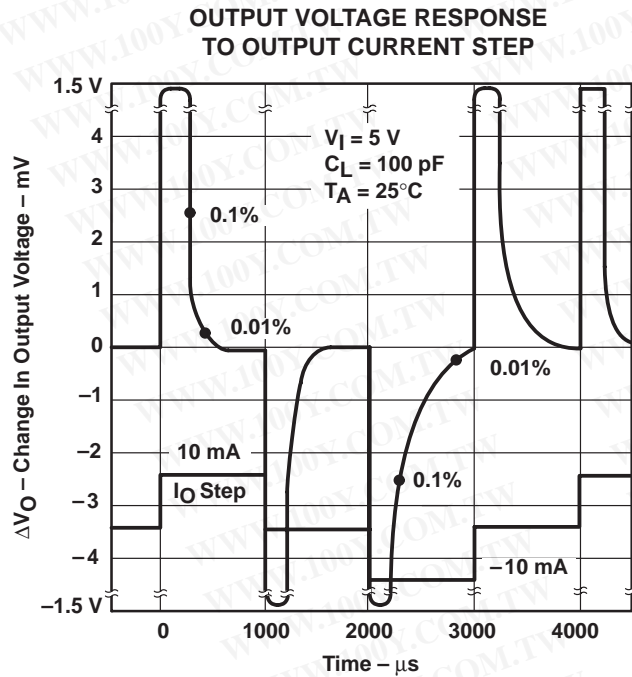


Figure 15

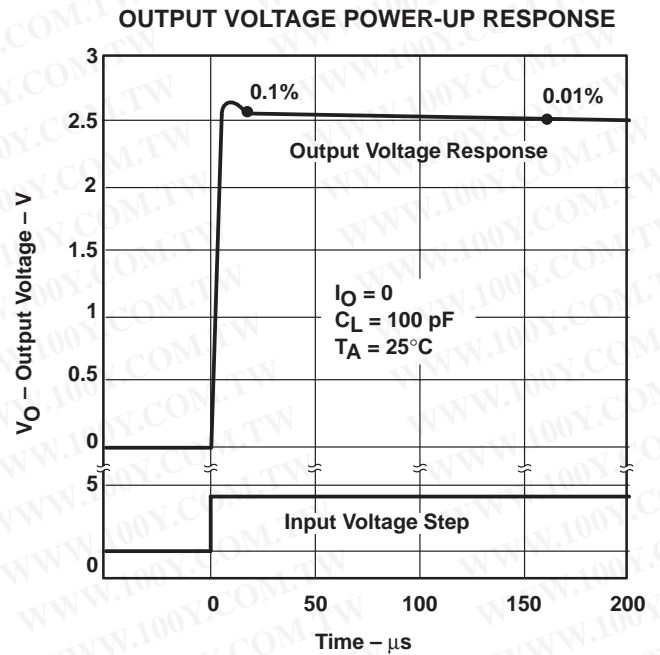


Figure 16

TYPICAL CHARACTERISTICS

STABILITY RANGE  
 OUTPUT CURRENT  
 vs  
 LOAD CAPACITANCE

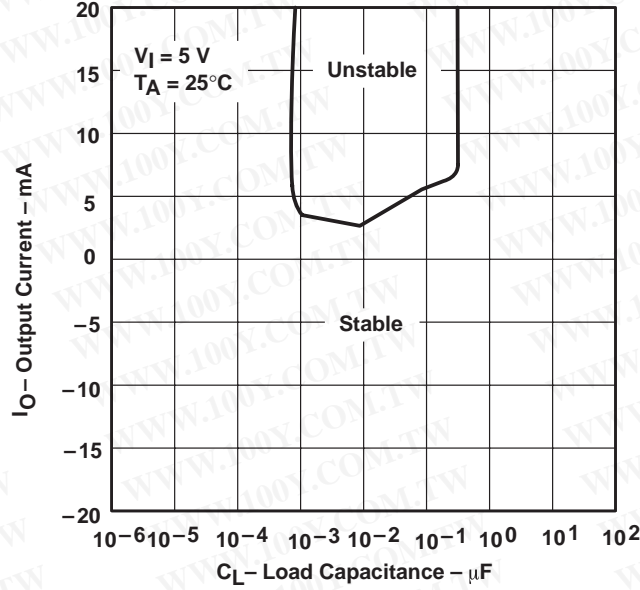


Figure 17

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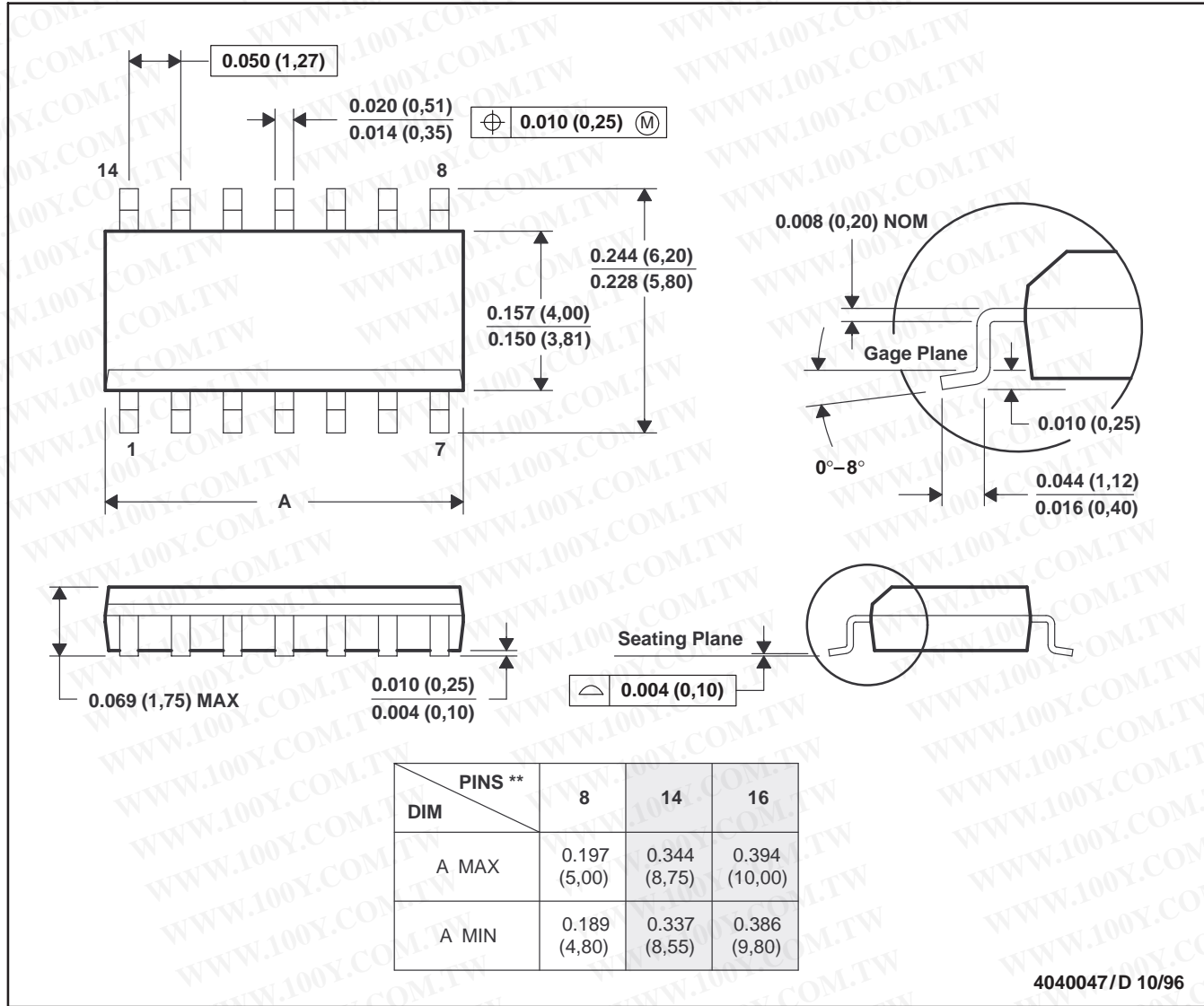


MECHANICAL INFORMATION

D (R-PDSO-G\*\*)

PLASTIC SMALL-OUTLINE PACKAGE

14 PIN SHOWN



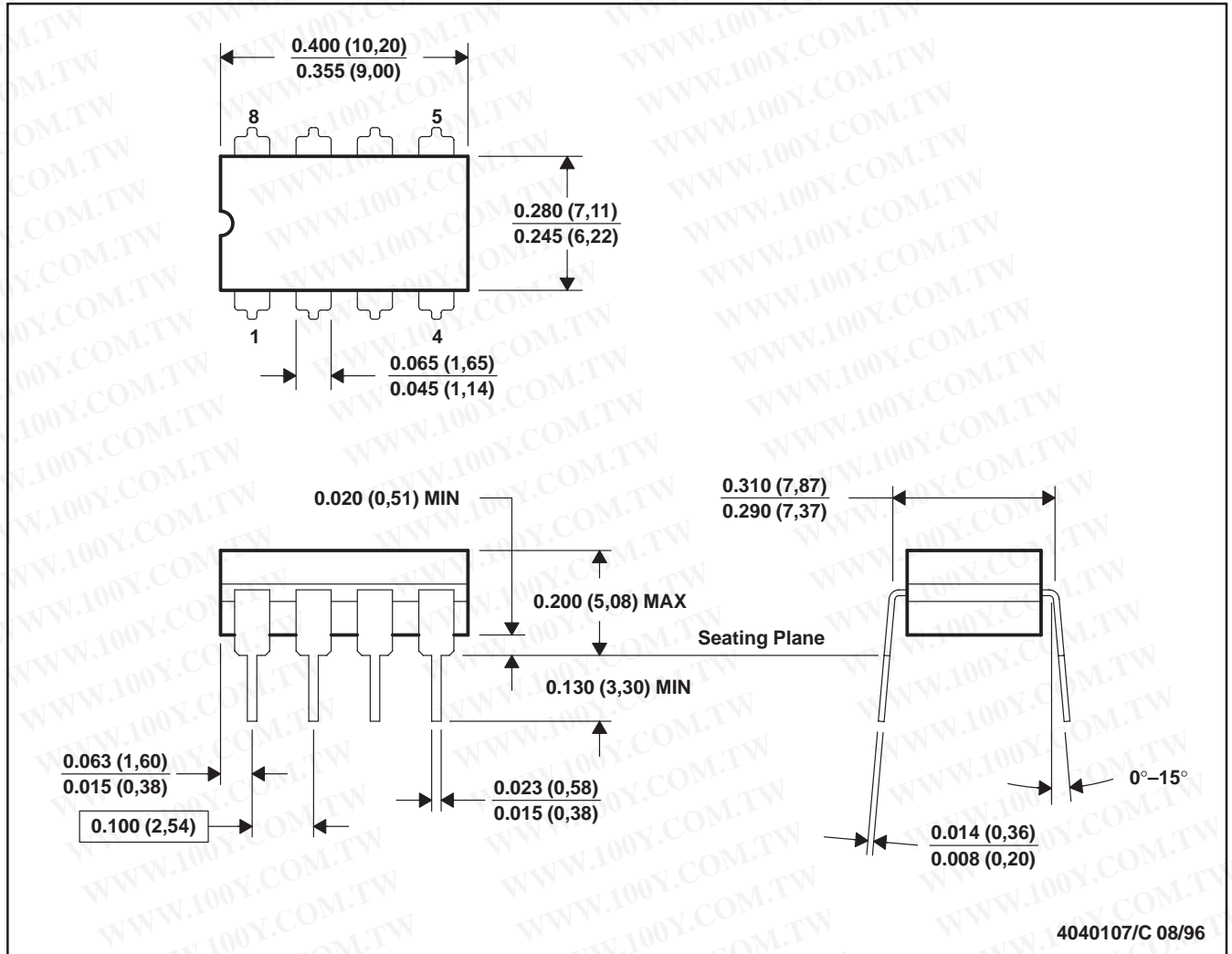
- NOTES: A. All linear dimensions are in inches (millimeters).  
 B. This drawing is subject to change without notice.  
 C. Body dimensions do not include mold flash or protrusion, not to exceed 0.006 (0,15).  
 D. Falls within JEDEC MS-012

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MECHANICAL INFORMATION

JG (R-GDIP-T8)

CERAMIC DUAL-IN-LINE PACKAGE



- NOTES: A. All linear dimensions are in inches (millimeters).  
 B. This drawing is subject to change without notice.  
 C. This package can be hermetically sealed with a ceramic lid using glass frit.  
 D. Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.  
 E. Falls within MIL-STD-1835 GDIP1-T8

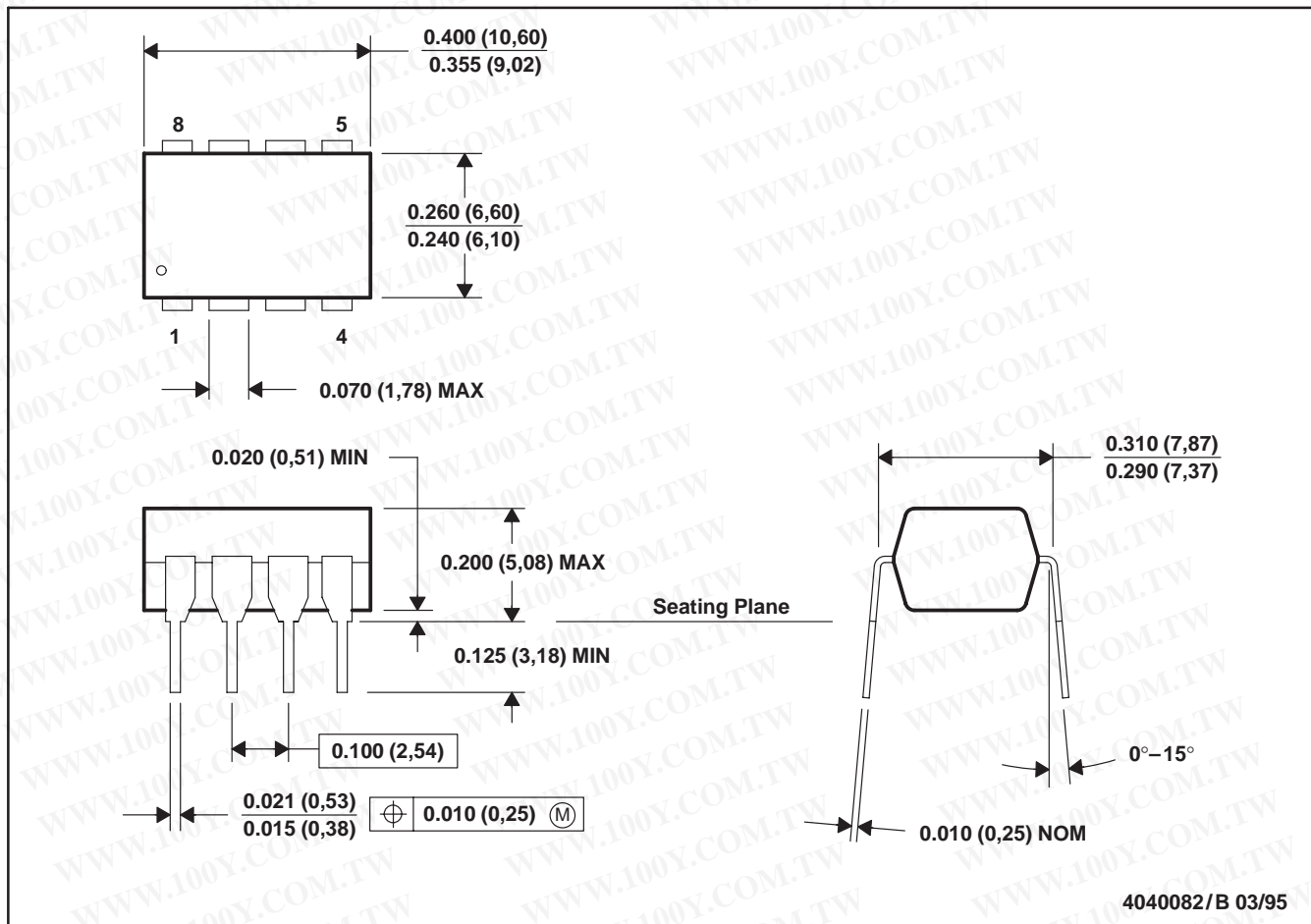
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MECHANICAL INFORMATION

P (R-PDIP-T8)

PLASTIC DUAL-IN-LINE PACKAGE



- NOTES: A. All linear dimensions are in inches (millimeters).  
 B. This drawing is subject to change without notice.  
 C. Falls within JEDEC MS-001

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