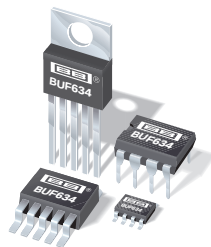




BUF634



250mA HIGH-SPEED BUFFER

FEATURES

- HIGH OUTPUT CURRENT: 250mA
- SLEW RATE: 2000V/ μ s
- PIN-SELECTED BANDWIDTH: 30MHz to 180MHz
- LOW QUIESCENT CURRENT: 1.5mA (30MHz BW)
- WIDE SUPPLY RANGE: ± 2.25 to ± 18 V
- INTERNAL CURRENT LIMIT
- THERMAL SHUTDOWN PROTECTION
- 8-PIN DIP, SO-8, 5-LEAD TO-220, 5-LEAD DDPAK SURFACE-MOUNT

APPLICATIONS

- VALVE DRIVER
- SOLENOID DRIVER
- OP AMP CURRENT BOOSTER
- LINE DRIVER
- HEADPHONE DRIVER
- VIDEO DRIVER
- MOTOR DRIVER
- TEST EQUIPMENT
- ATE PIN DRIVER

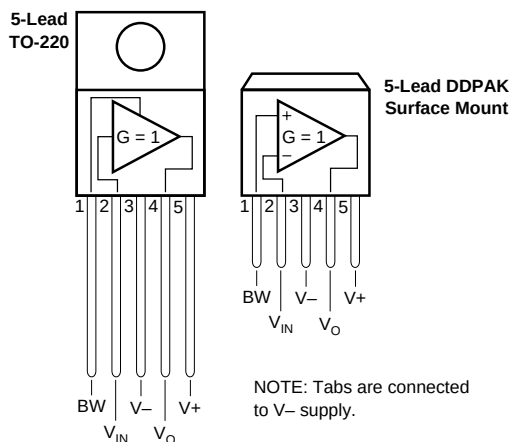
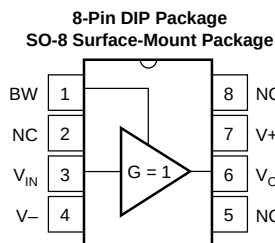
DESCRIPTION

The BUF634 is a high speed unity-gain open-loop buffer recommended for a wide range of applications. It can be used inside the feedback loop of op amps to increase output current, eliminate thermal feedback and improve capacitive load drive.

For low power applications, the BUF634 operates on 1.5mA quiescent current with 250mA output, 2000V/ μ s slew rate and 30MHz bandwidth. Bandwidth can be adjusted from 30MHz to 180MHz by connecting a resistor between V- and the BW Pin.

Output circuitry is fully protected by internal current limit and thermal shut-down making it rugged and easy to use.

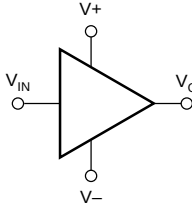
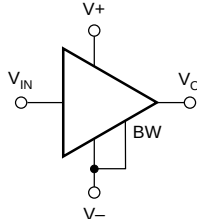
The BUF634 is available in a variety of packages to suit mechanical and power dissipation requirements. Types include 8-pin DIP, SO-8 surface-mount, 5-lead TO-220, and a 5-lead DDPAK surface-mount plastic power package.



SPECIFICATIONS

ELECTRICAL

At $T_A = +25^\circ\text{C}^{(1)}$, $V_S = \pm 15\text{V}$, unless otherwise noted.

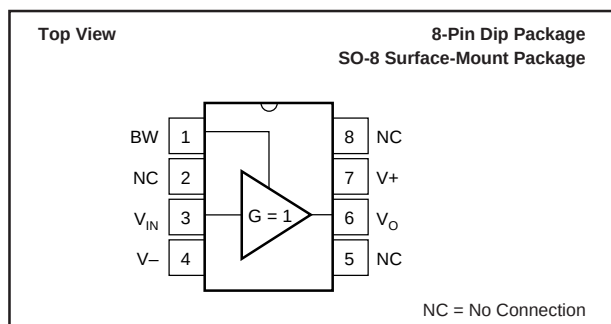
PARAMETER	CONDITION	BUF634P, U, T, F						UNITS
		LOW QUIESCENT CURRENT MODE			WIDE BANDWIDTH MODE			
		MIN	TYP	MAX	MIN	TYP	MAX	
INPUT								
Offset Voltage	Specified Temperature Range V _S = ±2.25V ⁽²⁾ to ±18V V _{IN} = 0V R _L = 100Ω f = 10kHz		±30	±100		*	*	mV
vs Temperature			±100			*	*	μV/°C
vs Power Supply			0.1	1		*	*	mV/V
Input Bias Current			±0.5	±2		±5	±20	μA
Input Impedance			80 8			8 8		MΩ pF
Noise Voltage			4			*		nV/√Hz
GAIN								
	R _L = 1kΩ, V _O = ±10V	0.95	0.99		*	*		V/V
	R _L = 100Ω, V _O = ±10V	0.85	0.93		*	*		V/V
	R _L = 67Ω, V _O = ±10V	0.8	0.9		*	*		V/V
OUTPUT								
Current Output, Continuous	I _O = 10mA I _O = -10mA I _O = 100mA I _O = -100mA I _O = 150mA I _O = -150mA		±250			*		mA
Voltage Output, Positive		(V+) -2.1	(V+) -1.7		*	*		V
Negative		(V-) +2.1	(V-) +1.8		*	*		V
Positive		(V+) -3	(V+) -2.4		*	*		V
Negative		(V-) +4	(V-) +3.5		*	*		V
Positive		(V+) -4	(V+) -2.8		*	*		V
Negative		(V-) +5	(V-) +4		*	*		V
Short-Circuit Current			±350	±550		±400	*	mA
DYNAMIC RESPONSE								
Bandwidth, -3dB	R _L = 1kΩ		30			180		MHz
	R _L = 100Ω		20			160		MHz
Slew Rate	20Vp-p, R _L = 100Ω		2000			*		V/μs
Settling Time, 0.1%	20V Step, R _L = 100Ω		200			*		ns
1%	20V Step, R _L = 100Ω		50			*		ns
Differential Gain	3.58MHz, V _O = 0.7V, R _L = 150Ω		4			0.4		%
Differential Phase	3.58MHz, V _O = 0.7V, R _L = 150Ω		2.5			0.1		°
POWER SUPPLY								
Specified Operating Voltage	I _O = 0	±2.25 ⁽²⁾	±15	±18	*	*	*	V
Operating Voltage Range			±1.5	±2		±15	±20	V
Quiescent Current, I _Q								mA
TEMPERATURE RANGE								
Specification	"P" Package ⁽³⁾ "U" Package ⁽³⁾ "T" Package ⁽³⁾ "T" Package "F" Package ⁽³⁾ "F" Package	-40		+85	*		*	°C
Operating		-40		+125	*		*	°C
Storage		-55		+125	*		*	°C
Thermal Shutdown								
Temperature, T _J				175			*	°C
Thermal Resistance, θ _{JA}				100			*	°C/W
θ _{JA}				150			*	°C/W
θ _{JA}				65			*	°C/W
θ _{JC}				6			*	°C/W
θ _{JA}				65			*	°C/W
θ _{JC}				6			*	°C/W
								

* Specifications the same as Low Quiescent Mode.

NOTES: (1) Tests are performed on high speed automatic test equipment, at approximately 25°C junction temperature. The power dissipation of this product will cause some parameters to shift when warmed up. See typical performance curves for over-temperature performance. (2) Limited output swing available at low supply voltage. See Output voltage specifications. (3) Typical when all leads are soldered to a circuit board. See text for recommendations.

The information provided herein is believed to be reliable; however, BURR-BROWN assumes no responsibility for inaccuracies or omissions. BURR-BROWN assumes no responsibility for the use of this information, and all use of such information shall be entirely at the user's own risk. Prices and specifications are subject to change without notice. No patent rights or licenses to any of the circuits described herein are implied or granted to any third party. BURR-BROWN does not authorize or warrant any BURR-BROWN product for use in life support devices and/or systems.

PIN CONFIGURATION



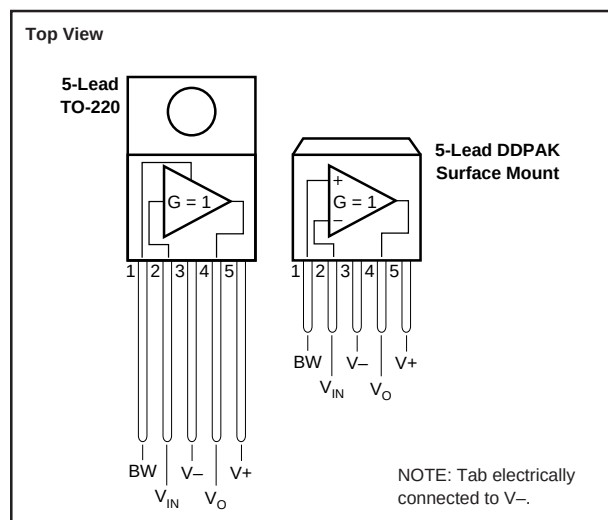
ABSOLUTE MAXIMUM RATINGS

Supply Voltage	±18V
Input Voltage Range	±V _S
Output Short-Circuit (to ground)	Continuous
Operating Temperature	–40°C to +125°C
Storage Temperature	–55°C to +125°C
Junction Temperature	+150°C
Lead Temperature (soldering,10s)	+300°C

PACKAGE/ORDERING INFORMATION

PRODUCT	PACKAGE	PACKAGE DRAWING NUMBER ⁽¹⁾	TEMPERATURE RANGE
BUF634P	8-Pin Plastic DIP	006	–40°C to +85°C
BUF634U	SO-8 Surface-Mount	182	–40°C to +85°C
BUF634T	5-Lead TO-220	315	–40°C to +85°C
BUF634F	5-Lead DPAK	325	–40°C to +85°C

NOTE: (1) For detailed drawing and dimension table, please see end of data sheet, or Appendix C of Burr-Brown IC Data Book.



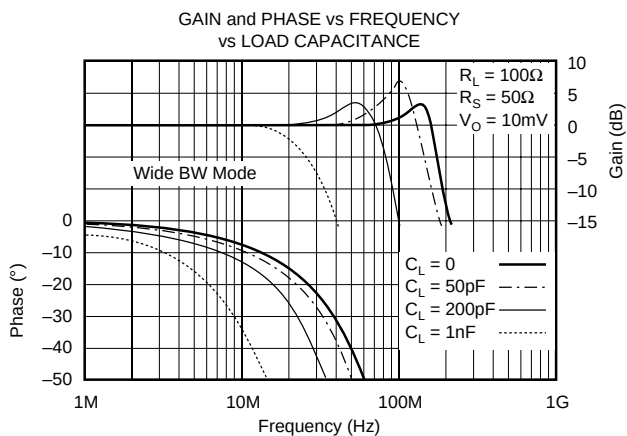
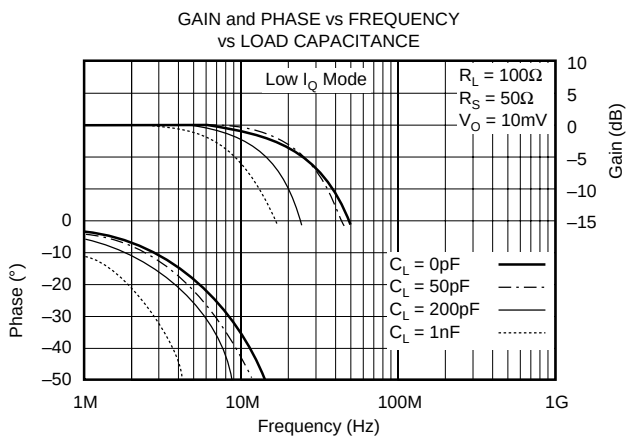
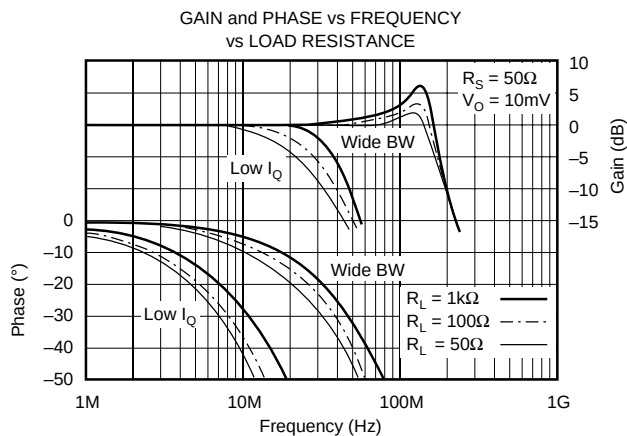
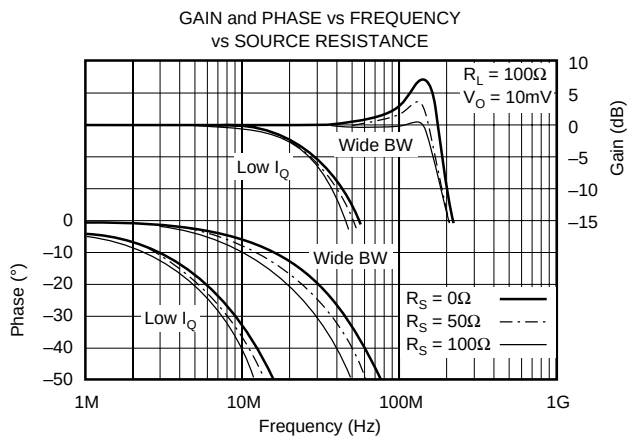
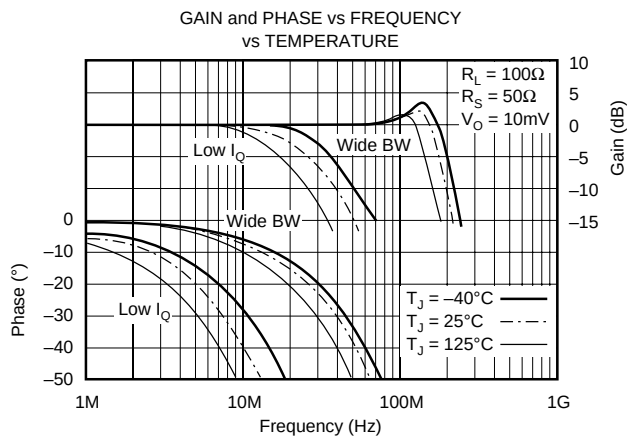
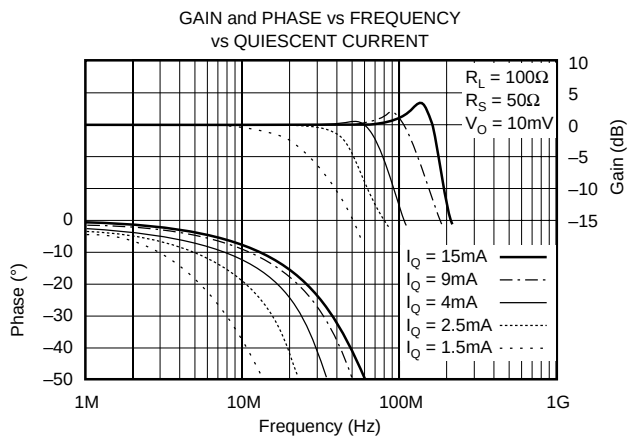
ELECTROSTATIC DISCHARGE SENSITIVITY

Any integrated circuit can be damaged by ESD. Burr-Brown recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet published specifications.

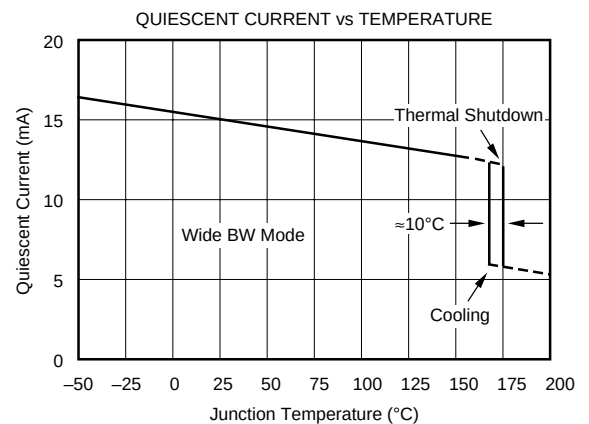
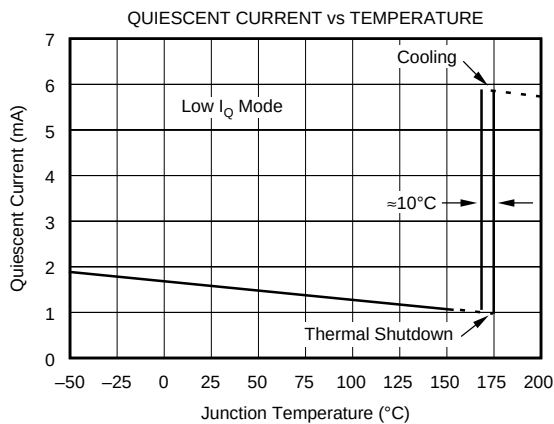
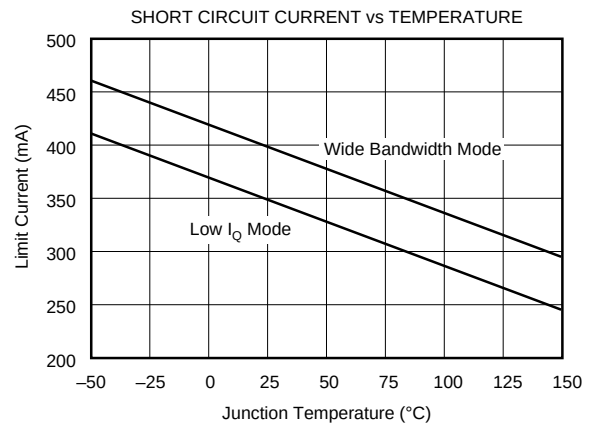
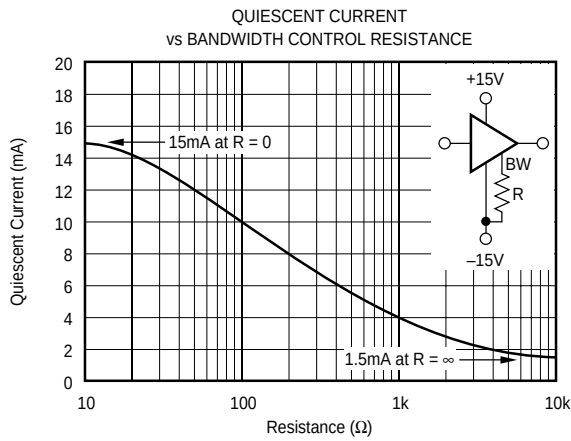
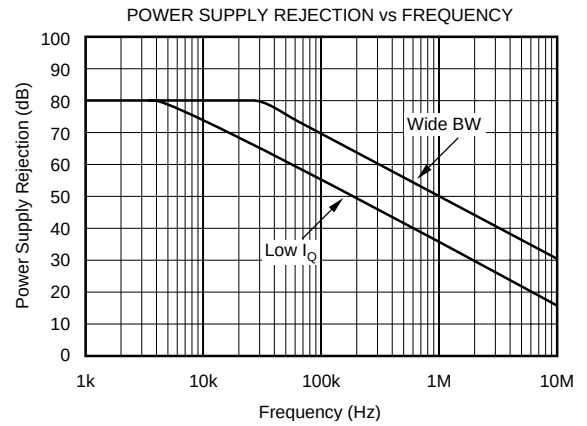
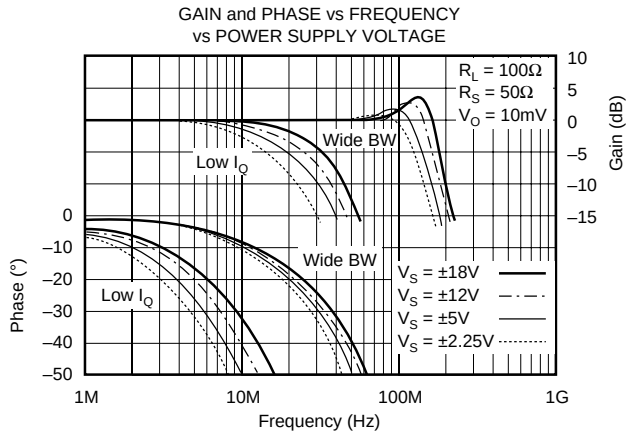
TYPICAL PERFORMANCE CURVES

At $T_A = +25^\circ\text{C}$, $V_S = \pm 15\text{V}$, unless otherwise noted.



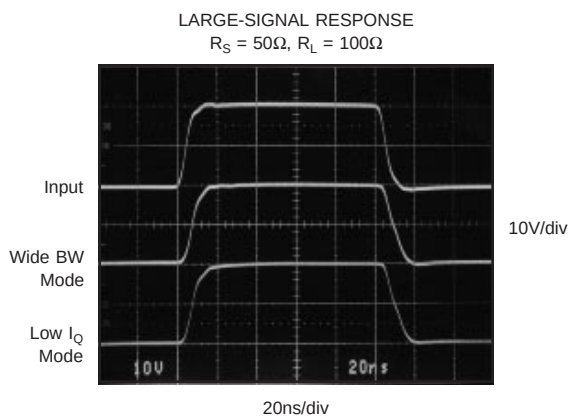
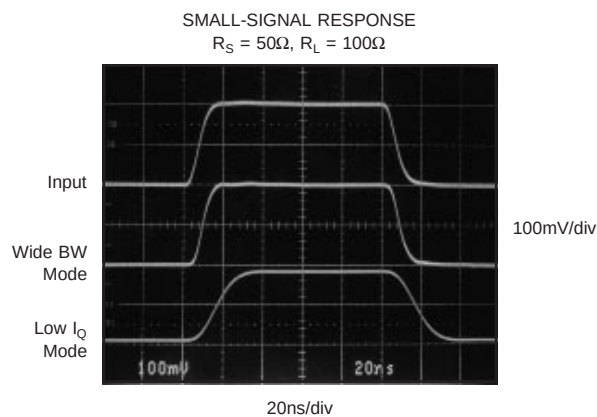
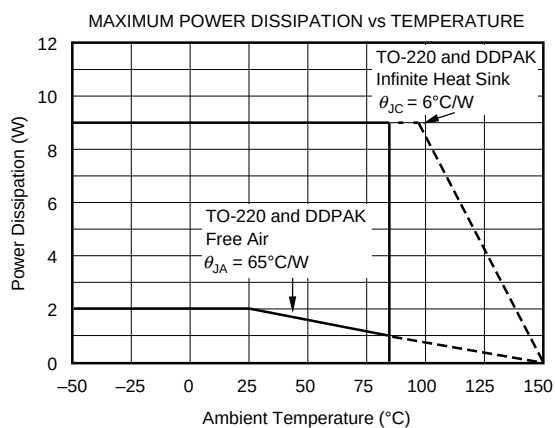
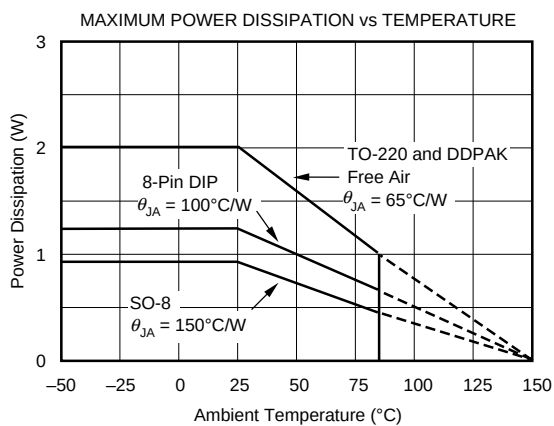
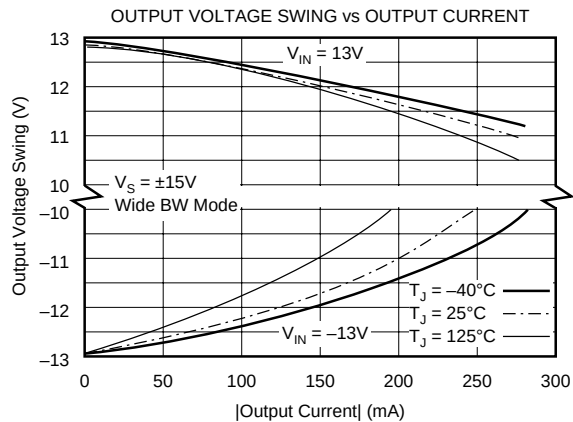
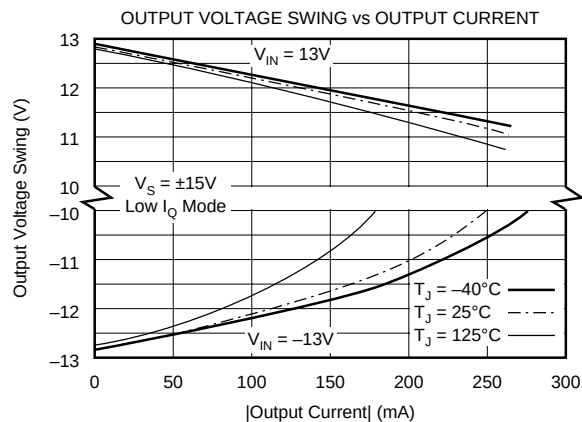
TYPICAL PERFORMANCE CURVES (CONT)

At $T_A = +25^\circ\text{C}$, $V_S = \pm 15\text{V}$, unless otherwise noted.



TYPICAL PERFORMANCE CURVES (CONT)

At $T_A = +25^\circ\text{C}$, $V_S = \pm 15\text{V}$, unless otherwise noted.



APPLICATION INFORMATION

Figure 1 is a simplified circuit diagram of the BUF634 showing its open-loop complementary follower design.

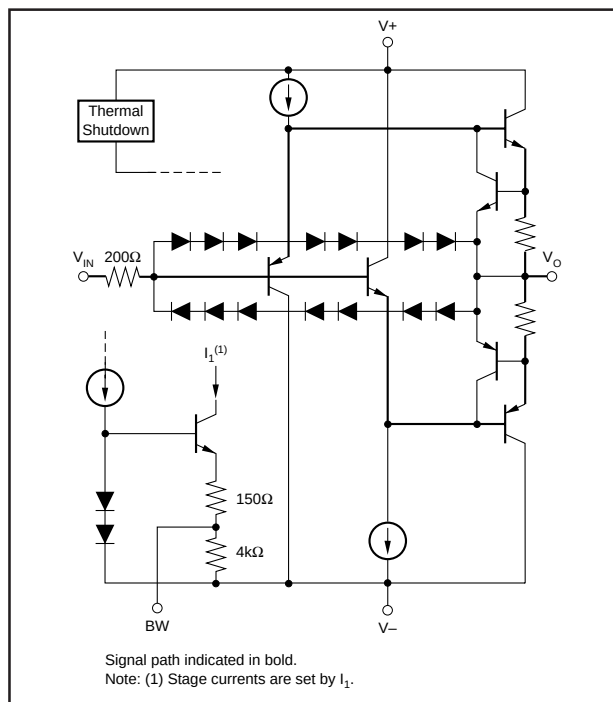


FIGURE 1. Simplified Circuit Diagram.

Figure 2 shows the BUF634 connected as an open-loop buffer. The source impedance and optional input resistor, R_S , influence frequency response—see typical curves. Power supplies should be bypassed with capacitors connected close to the device pins. Capacitor values as low as 0.1μF will assure stable operation in most applications, but high output current and fast output slewing can demand large current transients from the power supplies. Solid tantalum 10μF capacitors are recommended.

High frequency open-loop applications may benefit from special bypassing and layout considerations—see “High Frequency Applications” at end of applications discussion.

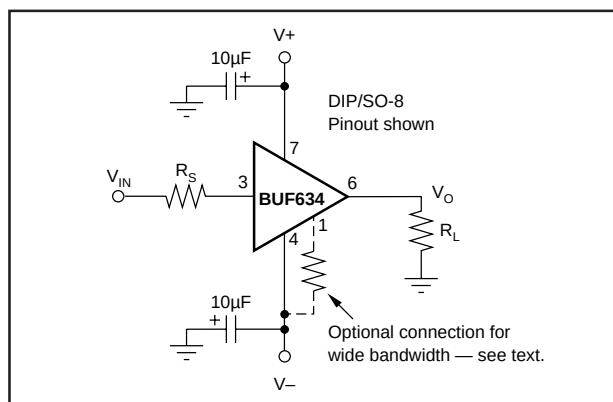


FIGURE 2. Buffer Connections.

OUTPUT CURRENT

The BUF634 can deliver up to ±250mA continuous output current. Internal circuitry limits output current to approximately ±350mA—see typical performance curve “Short Circuit Current vs Temperature”. For many applications, however, the continuous output current will be limited by thermal effects.

The output voltage swing capability varies with junction temperature and output current—see typical curves “Output Voltage Swing vs Output Current.” Although all four package types are tested for the same output performance using a high speed test, the higher junction temperatures with the DIP and SO-8 package types will often provide less output voltage swing. Junction temperature is reduced in the DDPAK surface-mount power package because it is soldered directly to the circuit board. The TO-220 package used with a good heat sink further reduces junction temperature, allowing maximum possible output swing.

THERMAL PROTECTION

Power dissipated in the BUF634 will cause the junction temperature to rise. A thermal protection circuit in the BUF634 will disable the output when the junction temperature reaches approximately 175°C. When the thermal protection is activated, the output stage is disabled, allowing the device to cool. Quiescent current is approximately 6mA during thermal shutdown. When the junction temperature cools to approximately 165°C the output circuitry is again enabled. This can cause the protection circuit to cycle on and off with a period ranging from a fraction of a second to several minutes or more, depending on package type, signal, load and thermal environment.

The thermal protection circuit is designed to prevent damage during abnormal conditions. Any tendency to activate the thermal protection circuit during normal operation is a sign of an inadequate heat sink or excessive power dissipation for the package type.

TO-220 package provides the best thermal performance. When the TO-220 is used with a properly sized heat sink, output is not limited by thermal performance. See Application Bulletin AB-037 for details on heat sink calculations. The DDPAK also has excellent thermal characteristics. Its mounting tab should be soldered to a circuit board copper area for good heat dissipation. Figure 3 shows typical thermal resistance from junction to ambient as a function of the copper area. The mounting tab of the TO-220 and DDPAK packages is electrically connected to the V- power supply.

The DIP and SO-8 surface-mount packages are excellent for applications requiring high output current with low average power dissipation. To achieve the best possible thermal performance with the DIP or SO-8 packages, solder the device directly to a circuit board. Since much of the heat is dissipated by conduction through the package pins, sockets will degrade thermal performance. Use wide circuit board traces on all the device pins, including pins that are not connected. With the DIP package, use traces on both sides of the printed circuit board if possible.

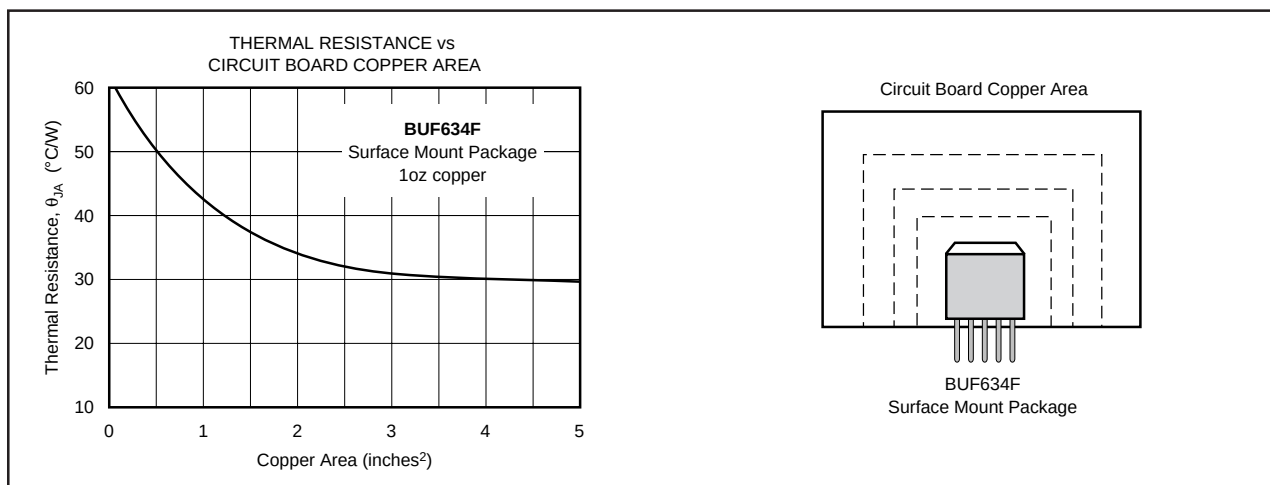


FIGURE 3. Thermal Resistance vs Circuit Board Copper Area.

POWER DISSIPATION

Power dissipation depends on power supply voltage, signal and load conditions. With DC signals, power dissipation is equal to the product of output current times the voltage across the conducting output transistor, $V_S - V_O$. Power dissipation can be minimized by using the lowest possible power supply voltage necessary to assure the required output voltage swing.

For resistive loads, the maximum power dissipation occurs at a DC output voltage of one-half the power supply voltage. Dissipation with AC signals is lower. Application Bulletin AB-039 explains how to calculate or measure power dissipation with unusual signals and loads.

Any tendency to activate the thermal protection circuit indicates excessive power dissipation or an inadequate heat sink. For reliable operation, junction temperature should be limited to 150°C, maximum. To estimate the margin of safety in a complete design, increase the ambient temperature until the thermal protection is triggered. The thermal protection should trigger more than 45°C above the maximum expected ambient condition of your application.

INPUT CHARACTERISTICS

Internal circuitry is protected with a diode clamp connected from the input to output of the BUF634—see Figure 1. If the output is unable to follow the input within approximately 3V (such as with an output short-circuit), the input will conduct increased current from the input source. This is limited by the internal 200Ω resistor. If the input source can be damaged by this increase in load current, an additional resistor can be connected in series with the input.

BANDWIDTH CONTROL PIN

The –3dB bandwidth of the BUF634 is approximately 30MHz in the low quiescent current mode (1.5mA typical). To select this mode, leave the bandwidth control pin open (no connection).

Bandwidth can be extended to approximately 180MHz by connecting the bandwidth control pin to V–. This increases

the quiescent current to approximately 15mA. Intermediate bandwidths can be set by connecting a resistor in series with the bandwidth control pin—see typical curve "Quiescent Current vs Resistance" for resistor selection. Characteristics of the bandwidth control pin can be seen in the simplified circuit diagram, Figure 1.

The rated output current and slew rate are not affected by the bandwidth control, but the current limit value changes slightly. Output voltage swing is somewhat improved in the wide bandwidth mode. The increased quiescent current when in wide bandwidth mode produces greater power dissipation during low output current conditions. This quiescent power is equal to the total supply voltage, $(V+) + |(V-)|$, times the quiescent current.

BOOSTING OP AMP OUTPUT CURRENT

The BUF634 can be connected inside the feedback loop of most op amps to increase output current—see Figure 4. When connected inside the feedback loop, the BUF634's offset voltage and other errors are corrected by the feedback of the op amp.

To assure that the op amp remains stable, the BUF634's phase shift must remain small throughout the loop gain of the circuit. For a $G=+1$ op amp circuit, the BUF634 must contribute little additional phase shift (approximately 20° or less) at the unity-gain frequency of the op amp. Phase shift is affected by various operating conditions that may affect stability of the op amp—see typical Gain and Phase curves.

Most general-purpose or precision op amps remain unity-gain stable with the BUF634 connected inside the feedback loop as shown. Large capacitive loads may require the BUF634 to be connected for wide bandwidth for stable operation. High speed or fast-settling op amps generally require the wide bandwidth mode to remain stable and to assure good dynamic performance. To check for stability with an op amp, look for oscillations or excessive ringing on signal pulses with the intended load and worst case conditions that affect phase response of the buffer.

HIGH FREQUENCY APPLICATIONS

The BUF634's excellent bandwidth and fast slew rate make it useful in a variety of high frequency open-loop applications. When operated open-loop, circuit board layout and bypassing technique can affect dynamic performance.

For best results, use a ground plane type circuit board layout and bypass the power supplies with 0.1 μ F ceramic chip

capacitors at the device pins in parallel with solid tantalum 10 μ F capacitors. Source resistance will affect high-frequency peaking and step response overshoot and ringing. Best response is usually achieved with a series input resistor of 25 Ω to 200 Ω , depending on the signal source. Response with some loads (especially capacitive) can be improved with a resistor of 10 Ω to 150 Ω in series with the output.

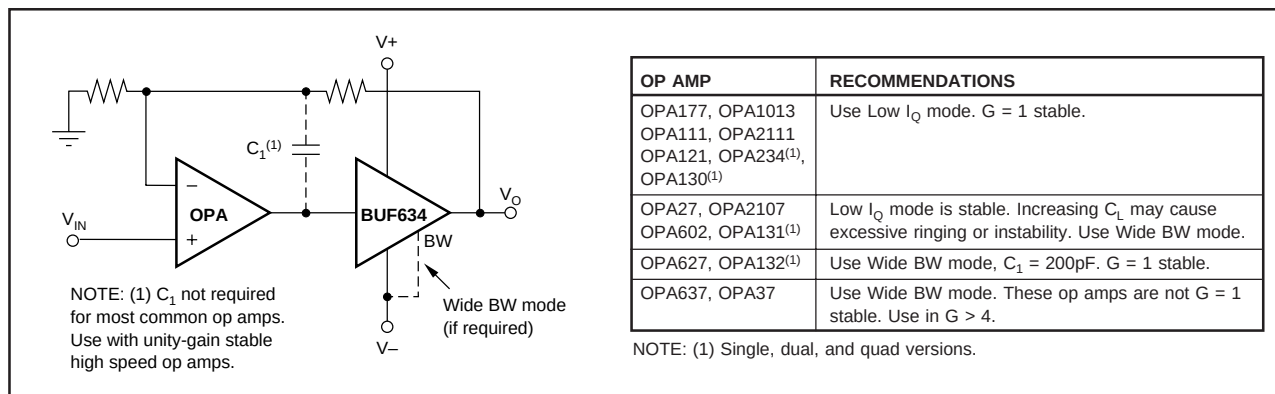


FIGURE 4. Boosting Op Amp Output Current.

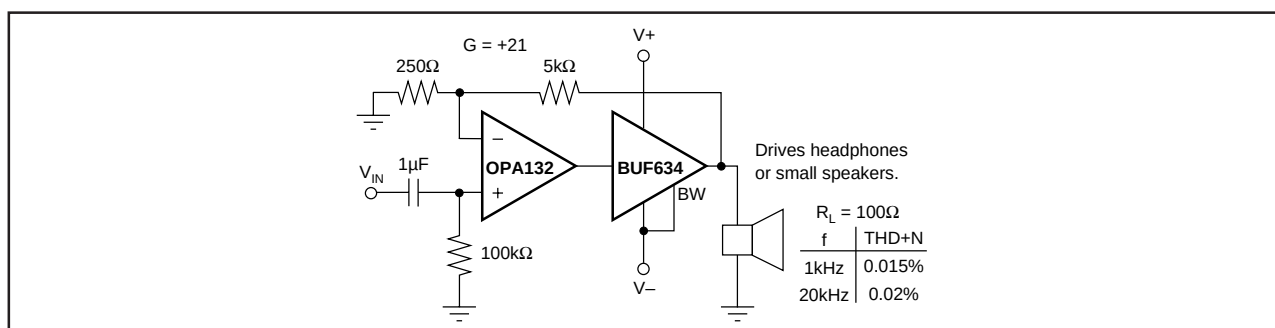


FIGURE 5. High Performance Headphone Driver.

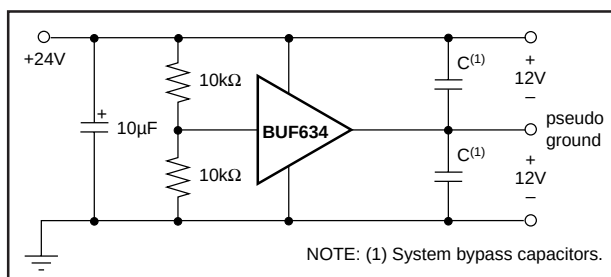


FIGURE 6. Pseudo-Ground Driver.

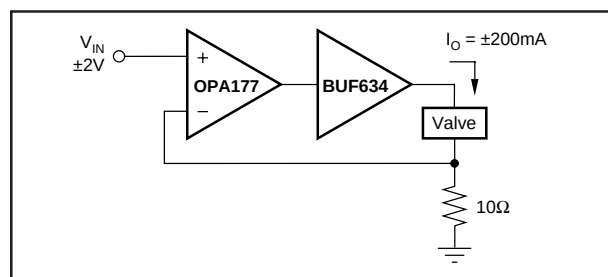


FIGURE 7. Current-Output Valve Driver.

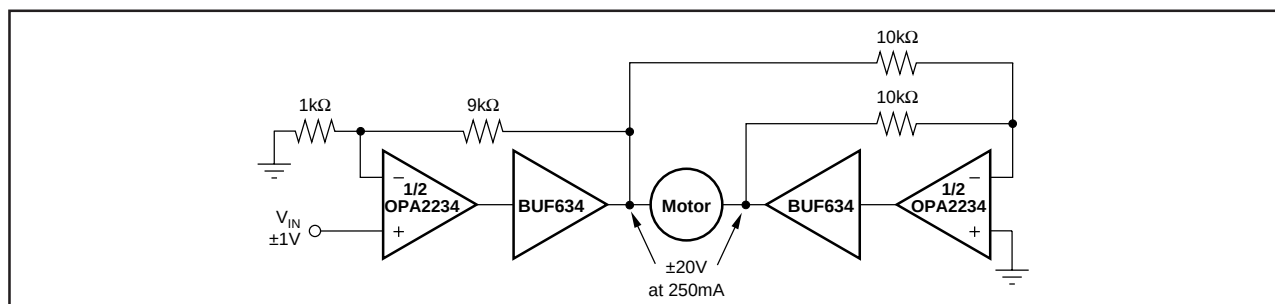


FIGURE 8. Bridge-Connected Motor Driver.

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)	Op Temp (°C)	Top-Side Markings (4)	Samples
BUF634F	OBSOLETE	DDPAK/ TO-263	KTT	5		TBD	Call TI	Call TI		BUF634F	
BUF634F/500	ACTIVE	DDPAK/ TO-263	KTT	5	500	Pb-Free (RoHS)	CU SN	Level-2-260C-1 YEAR		BUF634F	Samples
BUF634F/500E3	ACTIVE	DDPAK/ TO-263	KTT	5	500	Pb-Free (RoHS)	CU SN	Level-2-260C-1 YEAR		BUF634F	Samples
BUF634FKTTT	ACTIVE	DDPAK/ TO-263	KTT	5	50	TBD	Call TI	Call TI		BUF634F	Samples
BUF634FKTTTE3	ACTIVE	DDPAK/ TO-263	KTT	5	50	TBD	Call TI	Call TI		BUF634F	Samples
BUF634P	ACTIVE	PDIP	P	8	50	Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type		BUF634P	Samples
BUF634PG4	ACTIVE	PDIP	P	8	50	Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type		BUF634P	Samples
BUF634T	ACTIVE	TO-220	KC	5	49	TBD	Call TI	Call TI		BUF634T	Samples
BUF634TG3	ACTIVE	TO-220	KC	5	49	TBD	Call TI	Call TI		BUF634T	Samples
BUF634U	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-3-260C-168 HR		BUF 634U	Samples
BUF634U/2K5	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-3-260C-168 HR		BUF 634U	Samples
BUF634U/2K5E4	ACTIVE	SOIC	D	8	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-3-260C-168 HR		BUF 634U	Samples
BUF634UE4	ACTIVE	SOIC	D	8	75	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-3-260C-168 HR		BUF 634U	Samples

(1) The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

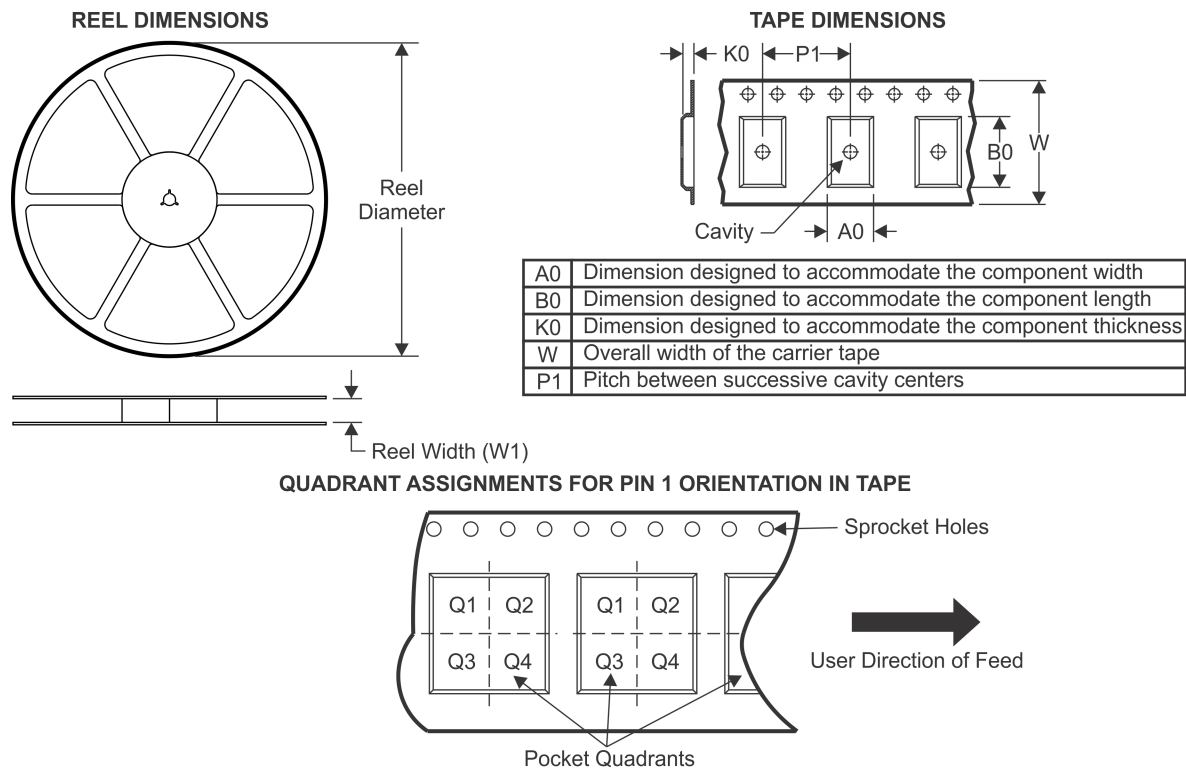
Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

⁽⁴⁾ Only one of markings shown within the brackets will appear on the physical device.

Important Information and Disclaimer: The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

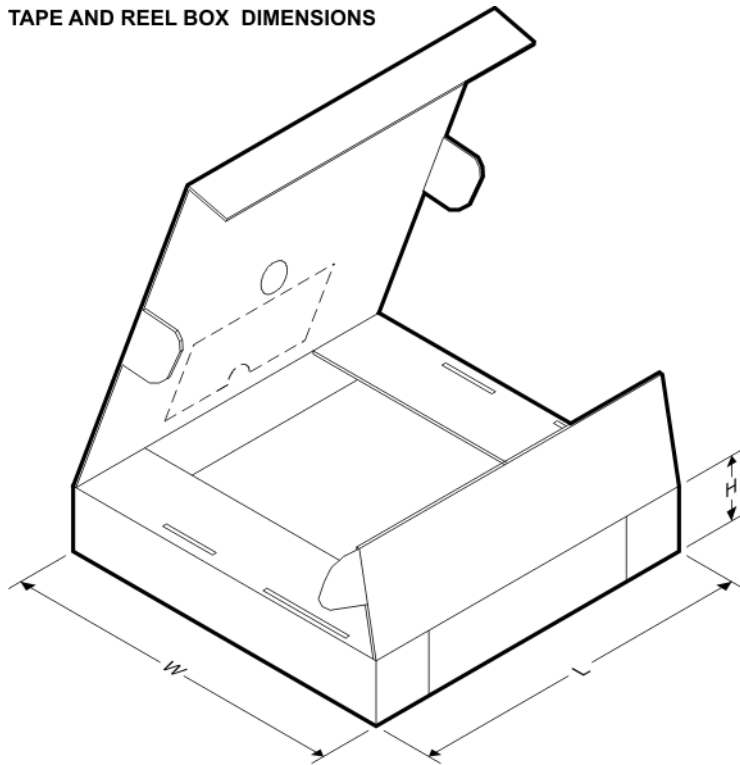
In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

TAPE AND REEL INFORMATION


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
BUF634U/2K5	SOIC	D	8	2500	330.0	12.4	6.4	5.2	2.1	8.0	12.0	Q1

TAPE AND REEL BOX DIMENSIONS

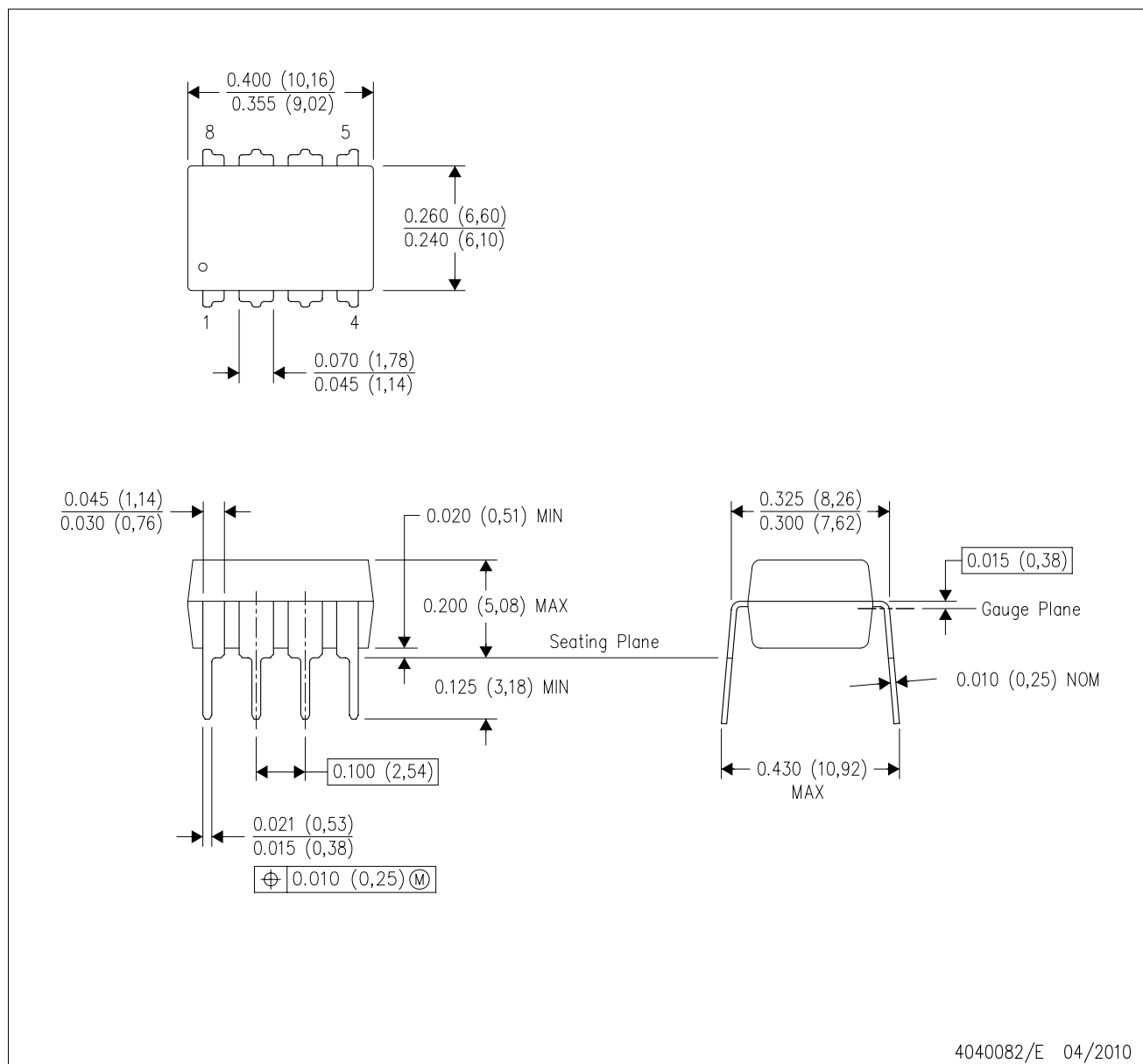


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
BUF634U/2K5	SOIC	D	8	2500	367.0	367.0	35.0

P (R-PDIP-T8)

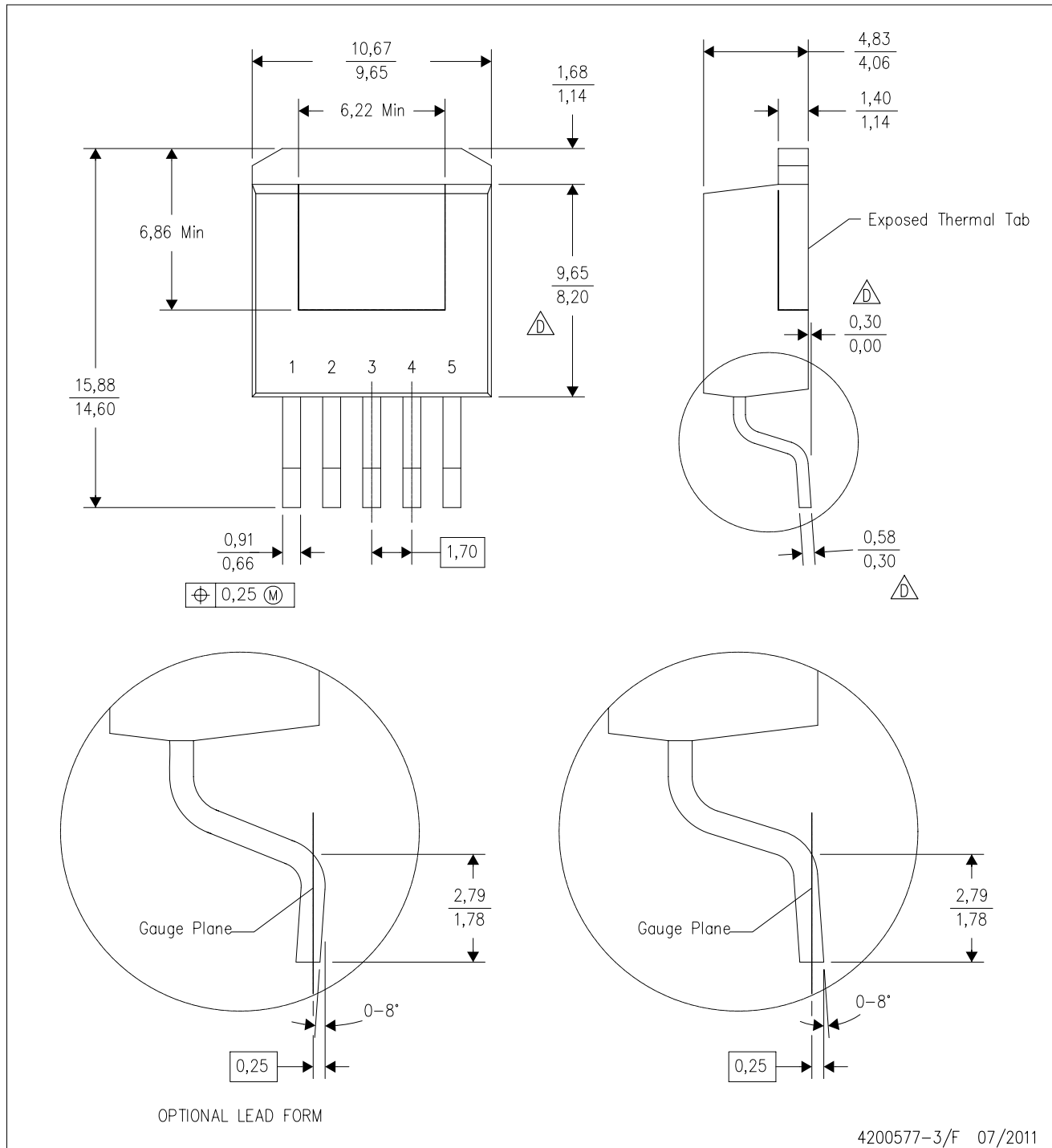
PLASTIC DUAL-IN-LINE PACKAGE



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

KTT (R-PSFM-G5)

PLASTIC FLANGE-MOUNT PACKAGE

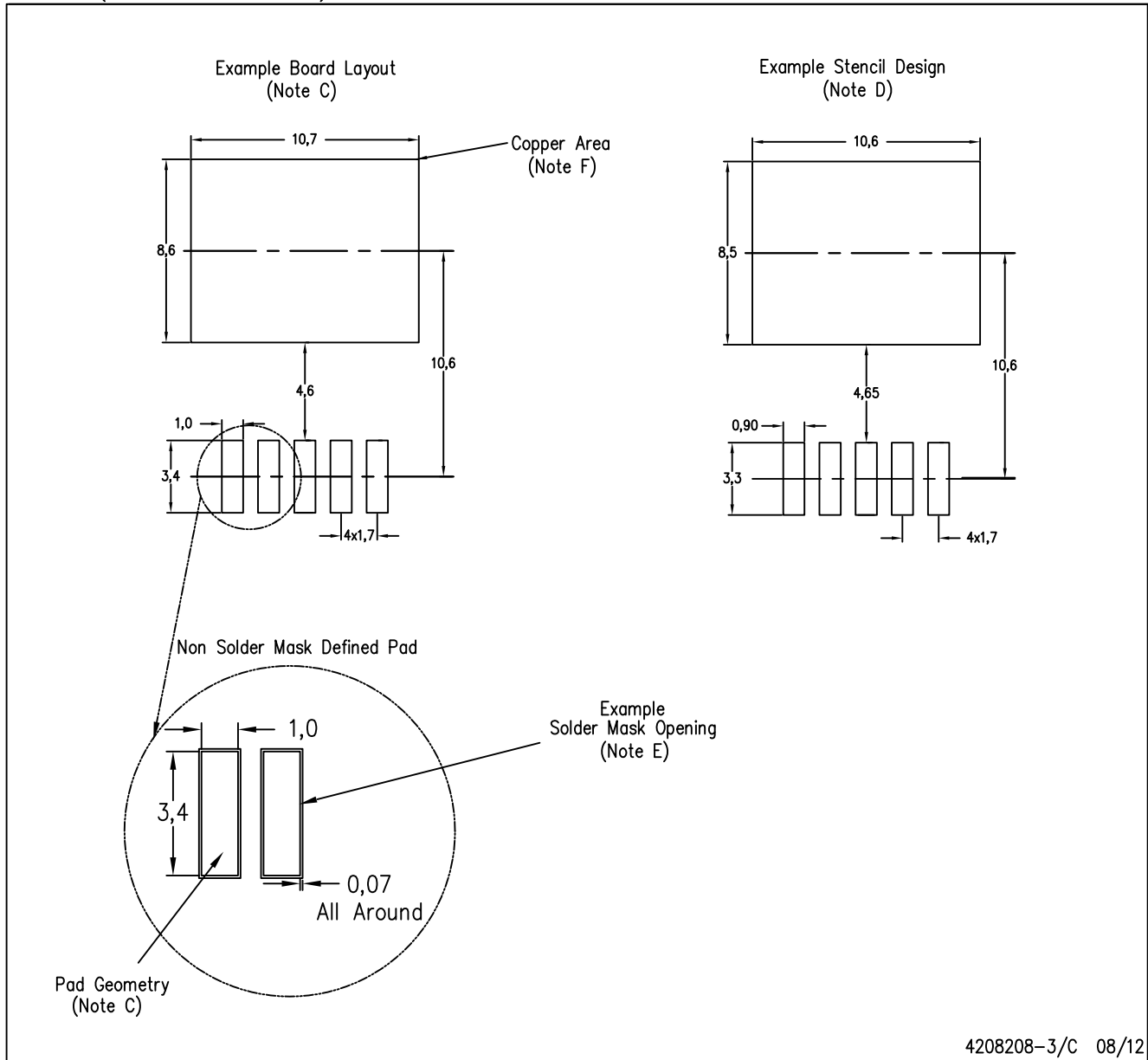


4200577-3/F 07/2011

- 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. Mold flash or protrusion not to exceed 0.005 (0,13) per side.
- Falls within JEDEC TO-263 variation BA, except minimum lead thickness, maximum seating height, and minimum body length.

KTT (R-PSFM-G5)

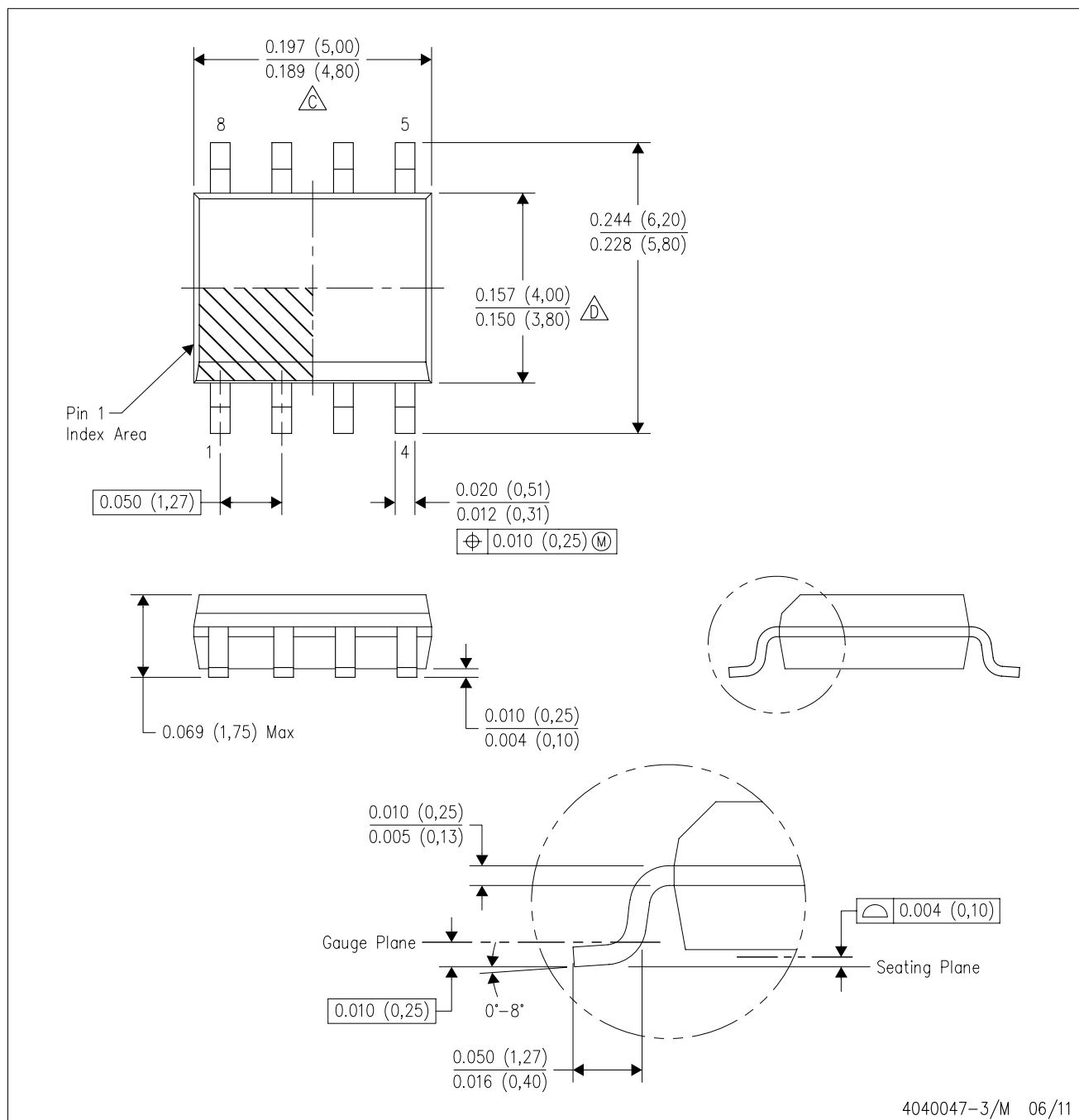
PLASTIC FLANGE-MOUNT PACKAGE



- NOTES:
- All linear dimensions are in millimeters.
 - This drawing is subject to change without notice.
 - Publication IPC-SM-782 is recommended for alternate designs.
 - Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525.
 - Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.
 - This package is designed to be soldered to a thermal pad on the board. Refer to the Product Datasheet for specific thermal information, via requirements, and recommended thermal pad size. For thermal pad sizes larger than shown a solder mask defined pad is recommended in order to maintain the solderable pad geometry while increasing copper area.

D (R-PDSO-G8)

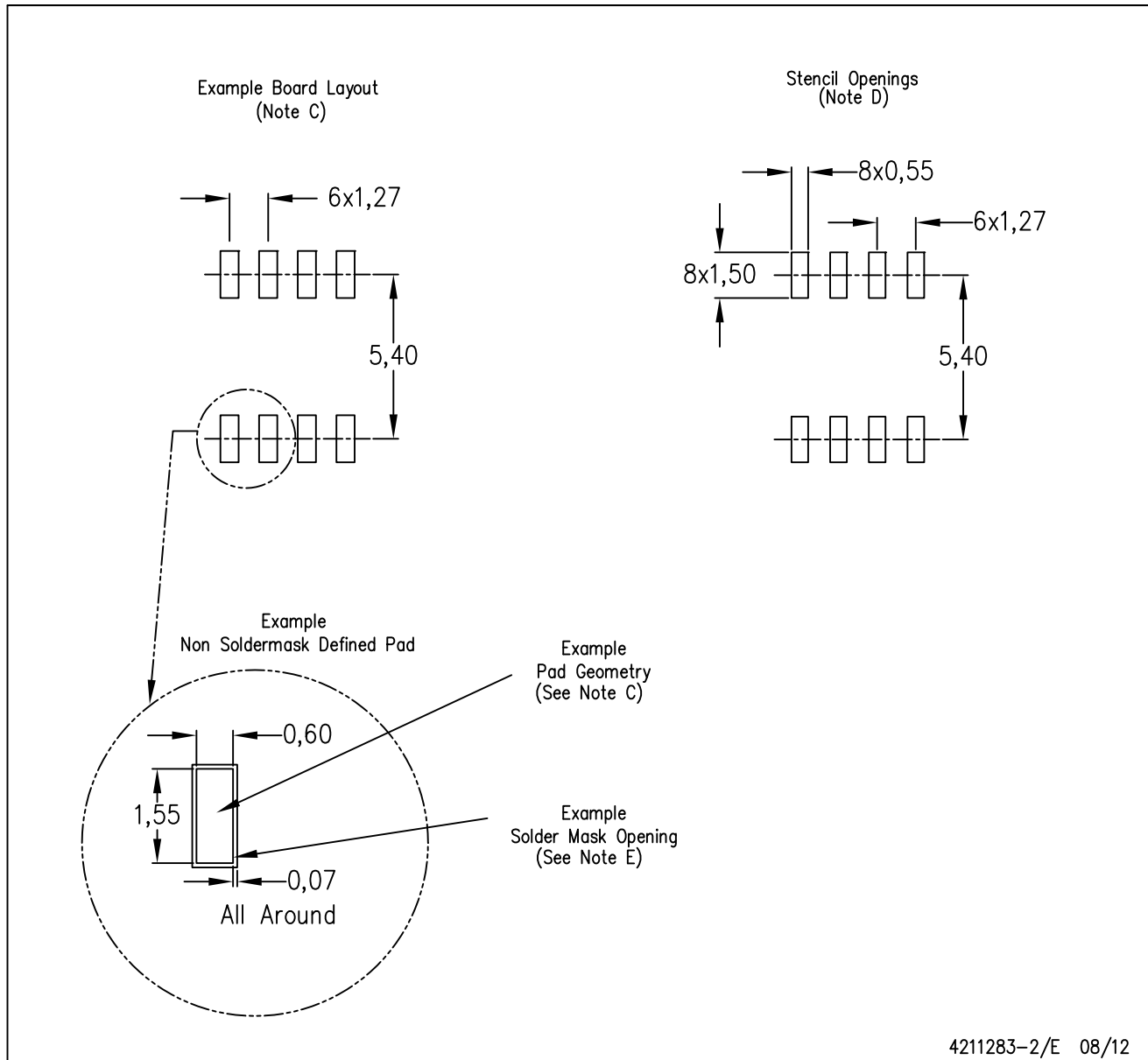
PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - $\triangle C$ Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.006 (0,15) each side.
 - $\triangle D$ Body width does not include interlead flash. Interlead flash shall not exceed 0.017 (0,43) each side.
 - E. Reference JEDEC MS-012 variation AA.

D (R-PDSO-G8)

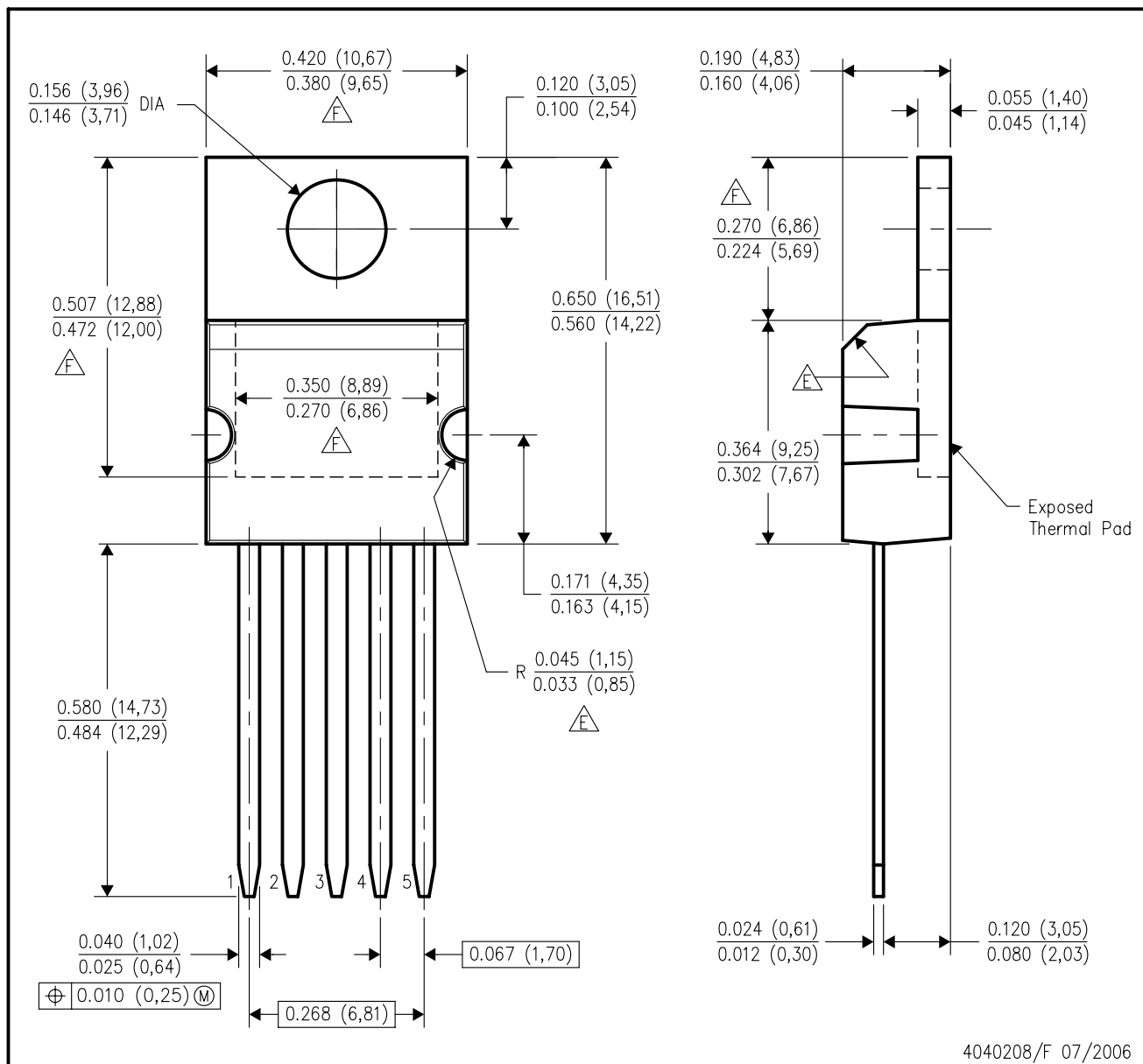
PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in millimeters.
 - B. This drawing is subject to change without notice.
 - C. Publication IPC-7351 is recommended for alternate designs.
 - D. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525 for other stencil recommendations.
 - E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.

KC (R-PSFM-T5)

PLASTIC FLANGE-MOUNT PACKAGE



- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. All lead dimensions apply before solder dip.
 - D. The center lead is in electrical contact with the mounting tab.
 - $\triangle F$ These features are optional.
 - $\triangle F$ Thermal pad contour optional within these dimensions.

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as "components") are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of significant portions of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI components or services with statements different from or beyond the parameters stated by TI for that component or service voids all express and any implied warranties for the associated TI component or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have **not** been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

Products

Audio	www.ti.com/audio
Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
OMAP Applications Processors	www.ti.com/omap
Wireless Connectivity	www.ti.com/wirelessconnectivity

Applications

Automotive and Transportation	www.ti.com/automotive
Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy and Lighting	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics and Defense	www.ti.com/space-avionics-defense
Video and Imaging	www.ti.com/video

TI E2E Community

e2e.ti.com



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.