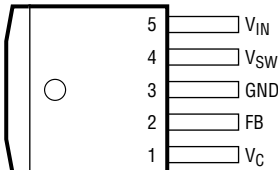
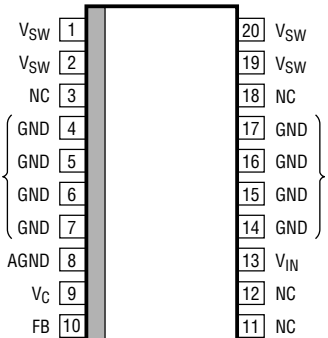
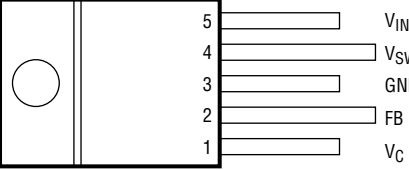


ABSOLUTE MAXIMUM RATINGS

| | | | |
|---|----------------|---|--------------|
| Supply Voltage | 30V | Operating Junction Temperature Range | |
| Switch Output Voltage | 60V | Operating | 0°C to 100°C |
| Feedback Pin Voltage (Transient, 1ms) | ±15V | Short Circuit | 0°C to 125°C |
| Storage Temperature Range | -65°C to 150°C | Lead Temperature (Soldering, 10 sec.) | 300°C |

PACKAGE/ORDER INFORMATION

| | | | |
|--|---|---|--|
| <p>FRONT VIEW</p>  <p>Q PACKAGE 5-LEAD PLASTIC DD $T_{J\text{ MAX}} = 100^{\circ}\text{C}$, $\theta_{\text{JC}} = 4^{\circ}\text{C/W}$, $\theta_{\text{JA}} = 30^{\circ}\text{C/W}^*$</p> | <p>ORDER PART NUMBER</p> <p>LT1271CQ LT1269CQ</p> | <p>TOP VIEW</p>  <p>SW PACKAGE 20-LEAD PLASTIC WIDE SO</p> <p>θ WILL VARY FROM APPROXIMATELY 40°C/W WITH 0.75 SQ. IN. OF 1 OZ. COPPER TO 46°C/W WITH 0.33 SQ. IN. OF 1 OZ. COPPER</p> | <p>ORDER PART NUMBER</p> <p>LT1269CS</p> |
| <p>FRONT VIEW</p>  <p>T PACKAGE 5-LEAD PLASTIC TO-220 $T_{J\text{ MAX}} = 100^{\circ}\text{C}$, $\theta_{\text{JC}} = 4^{\circ}\text{C/W}$, $\theta_{\text{JA}} = 50^{\circ}\text{C/W}^*$</p> | <p>ORDER PART NUMBER</p> <p>LT1271CT LT1269CT</p> | | |

*With device soldered to 1/2 square inch of 1oz copper over backside or internal layer ground plane. Consult factory for Industrial and Military grade parts.

ELECTRICAL CHARACTERISTICS $V_{\text{IN}} = 15\text{V}$, $V_{\text{C}} = 0.5\text{V}$, $V_{\text{FB}} = V_{\text{REF}}$, switch pin open, unless otherwise noted.

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS |
|------------------|--|---|-------|-------|-------|-----------------|
| V_{REF} | Reference Voltage | Measured at Feedback Pin | 1.224 | 1.244 | 1.264 | V |
| | | $V_{\text{C}} = 0.8\text{V}$ | 1.214 | 1.244 | 1.274 | V |
| I_{B} | Feedback Input Current | $V_{\text{FB}} = V_{\text{REF}}$ | | 350 | 750 | nA |
| | | | | | 1100 | nA |
| g_{m} | Error Amplifier Transconductance | $\Delta I_{\text{C}} = \pm 25\mu\text{A}$ | | 3000 | 4400 | μmho |
| | | | | 2400 | 7000 | μmho |
| | Error Amplifier Source or Sink Current | $V_{\text{C}} = 1.5\text{V}$ | | 150 | 200 | μA |
| | | | | 120 | 400 | μA |
| | Error Amplifier Clamp Voltage | Hi Clamp, $V_{\text{FB}} = 1\text{V}$ | 1.8 | | 2.3 | V |
| | | Lo Clamp, $V_{\text{FB}} = 1.5\text{V}$ | 0.25 | 0.38 | 0.52 | V |
| | Reference Voltage Line Regulation | $3\text{V} \leq V_{\text{IN}} \leq V_{\text{MAX}}$, $V_{\text{C}} = 0.8\text{V}$ | | | 0.03 | %/V |
| A_{V} | Error Amplifier Voltage Gain | $0.9\text{V} \leq V_{\text{C}} \leq 1.4\text{V}$ | 500 | 800 | | V/V |
| | Minimum Input Voltage (Note 3) | | | 2.8 | 3.0 | V |
| I_{Q} | Supply Current | $3\text{V} \leq V_{\text{IN}} \leq V_{\text{MAX}}$, $V_{\text{C}} = 0.6\text{V}$ | | 7 | 10 | mA |

ELECTRICAL CHARACTERISTICS $V_{IN} = 15V$, $V_C = 0.5V$, $V_{FB} = V_{REF}$, switch pin open, unless otherwise noted.

| SYMBOL | PARAMETER | CONDITIONS | | MIN | TYP | MAX | UNITS |
|---------------------------------------|--|---|--------|------------|-----------|--------------|--------------------|
| | Control Pin Threshold | Duty Cycle = 0 | ● | 0.7 0.5 | 0.9 | 1.08 1.25 | V V |
| | Normal/Flyback Threshold on Feedback Pin | | | 0.4 | 0.45 | 0.54 | V |
| V_{FB} | Flyback Reference Voltage | $I_{FB} = 50\mu A$ | ● | 15 14 | 16.3 | 17.6 18 | V V |
| V_{FB} | Change in Flyback Reference Voltage | $0.05 \leq I_{FB} \leq 1mA$ | | 4.5 | 6.8 | 8.5 | V |
| | Flyback Reference Voltage Line Regulation | $I_{FB} = 50\mu A$ $3V \leq V_{IN} \leq V_{MAX}$ | | | 0.01 | 0.03 | %/V |
| | Flyback Amplifier Transconductance (gm) | $\Delta I_C = \pm 10\mu A$ | | 150 | 300 | 650 | μmho |
| | Flyback Amplifier Source and Sink Current | $V_C = 0.6V$ Source $I_{FB} = 50\mu A$ Sink | ● ● | 15 25 | 32 40 | 70 70 | μA μA |
| BV | Output Switch Breakdown Voltage | $3V \leq V_{IN} \leq V_{MAX}$ $I_{SW} = 1.5mA$ | ● | 60 | 75 | | V |
| V_{SAT} | Output Switch (Note 1) "On" Resistance | | ● | | 0.2 | 0.33 | Ω |
| | Control Voltage to Switch Current Transconductance | | | | 6.4 | | A/V |
| I_{LIM} | Switch Current Limit (Note 2) | Duty Cycle = 50% Duty Cycle = 80% | ● ● | 4 3.2 | | 8 8 | A A |
| $\frac{\Delta I_{IN}}{\Delta I_{SW}}$ | Supply Current Increase During Switch On-Time | | | | 25 | 40 | mA/A |
| f | Switching Frequency | LT1271 LT1269 | ● ● | 50 85 | 60 100 | 70 115 | kHz kHz |
| DC (max) | Maximum Switch Duty Cycle | LT1271 LT1269 | | 85 80 | 92 90 | 95 95 | % % |
| | Flyback Sense Delay Time | | | | 1.5 | | μs |
| | Shutdown Mode Supply Current | $3V \leq V_{IN} \leq V_{MAX}$, $V_C = 0.05V$ | | | 100 | 400 | μA |
| | Shutdown Mode Threshold Voltage | $3V \leq V_{IN} \leq V_{MAX}$ | ● | 100 50 | 150 | 250 300 | mV mV |

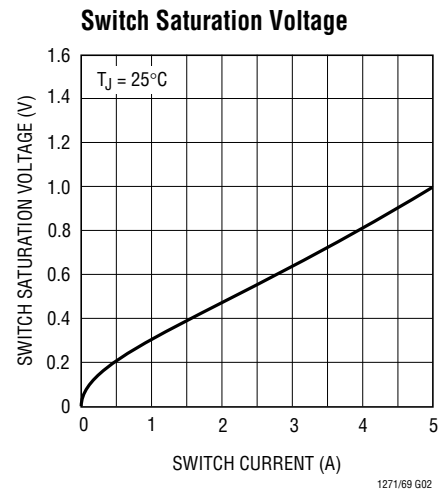
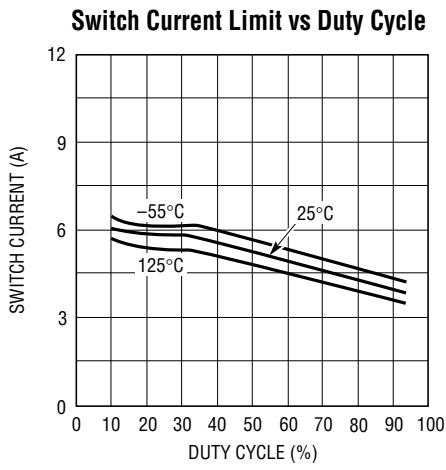
The ● denotes the specifications which apply over the full operating temperature range.

Note 1: Measured with V_C in hi clamp, $V_{FB} = 0.8V$.

Note 2: For duty cycles (DC) between 50% and 85%, minimum guaranteed switch current is given by $I_{LIM} = 2.67 (2 - DC)$.

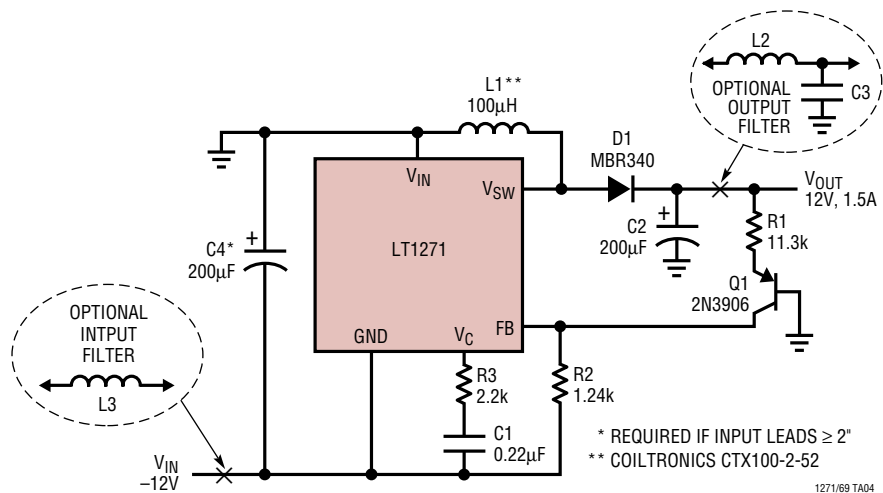
Note 3: Minimum input voltage.

TYPICAL PERFORMANCE CHARACTERISTICS



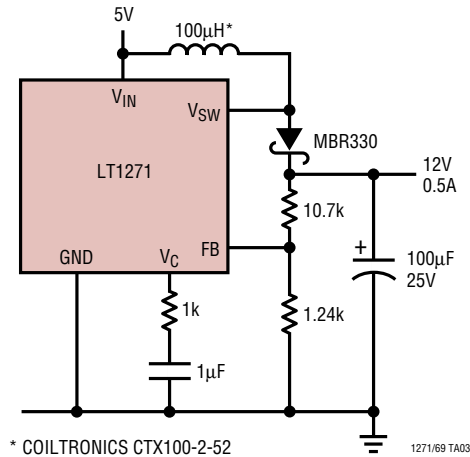
TYPICAL APPLICATIONS

Negative-to-Positive Buck-Boost Converter



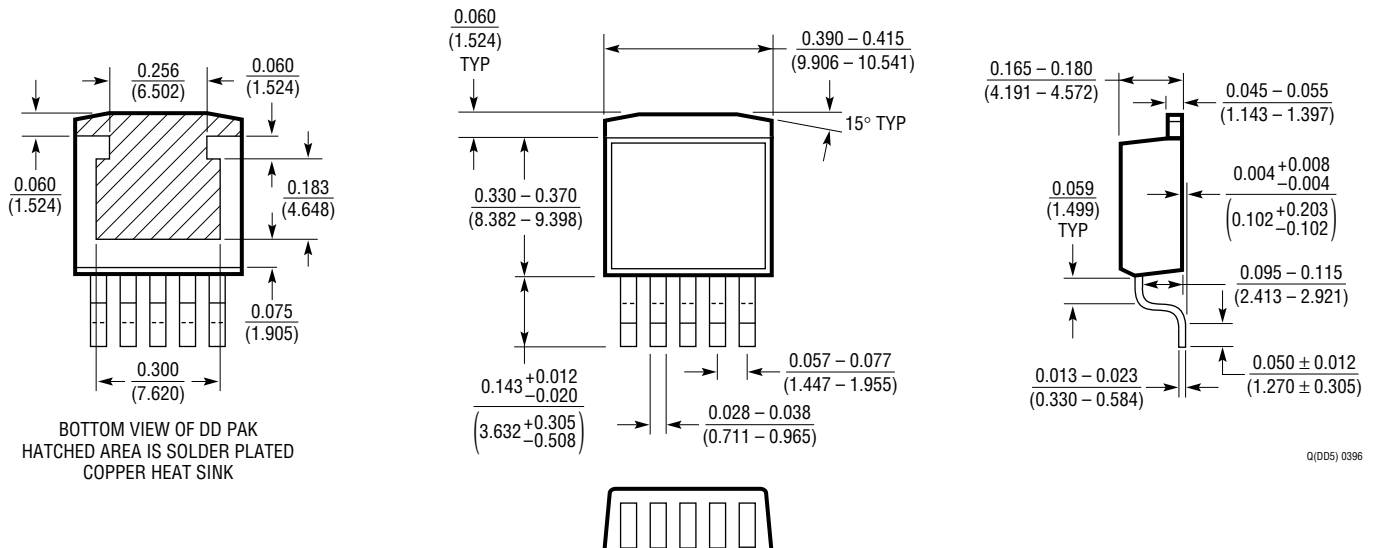
TYPICAL APPLICATIONS

Boost Converter (5V to 12V)



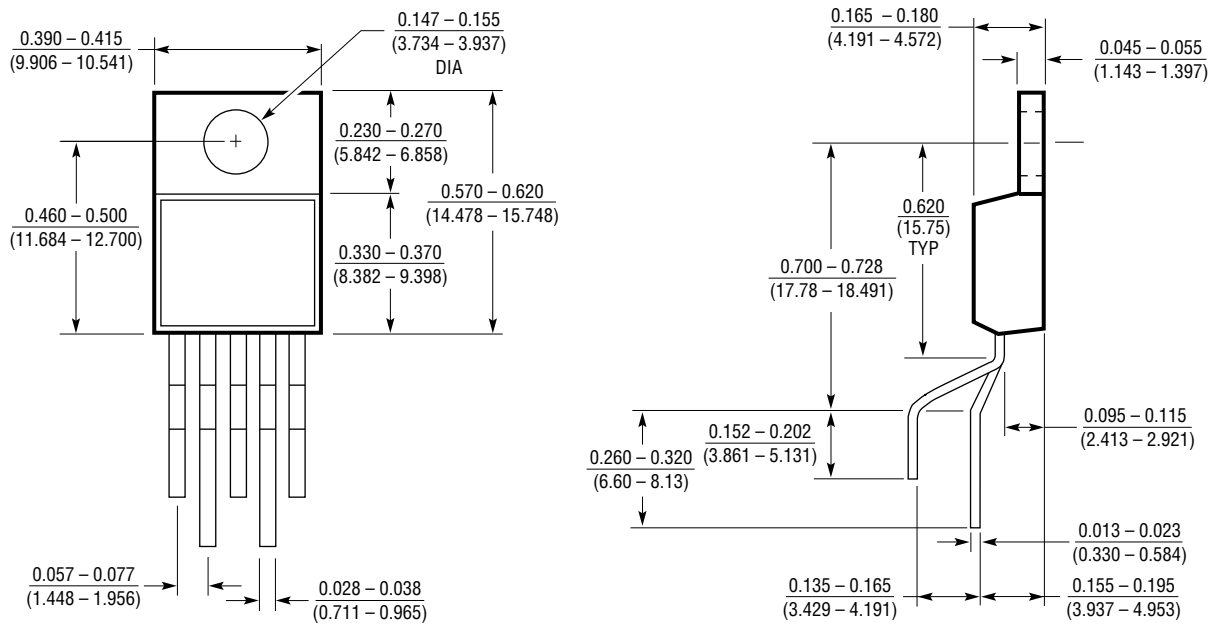
PACKAGE DESCRIPTION Dimensions in inches (millimeters) unless otherwise noted.

Q Package
5-Lead Plastic DD Pak
(LTC DWG # 05-08-1461)



PACKAGE DESCRIPTION Dimensions in inches (millimeters) unless otherwise noted.

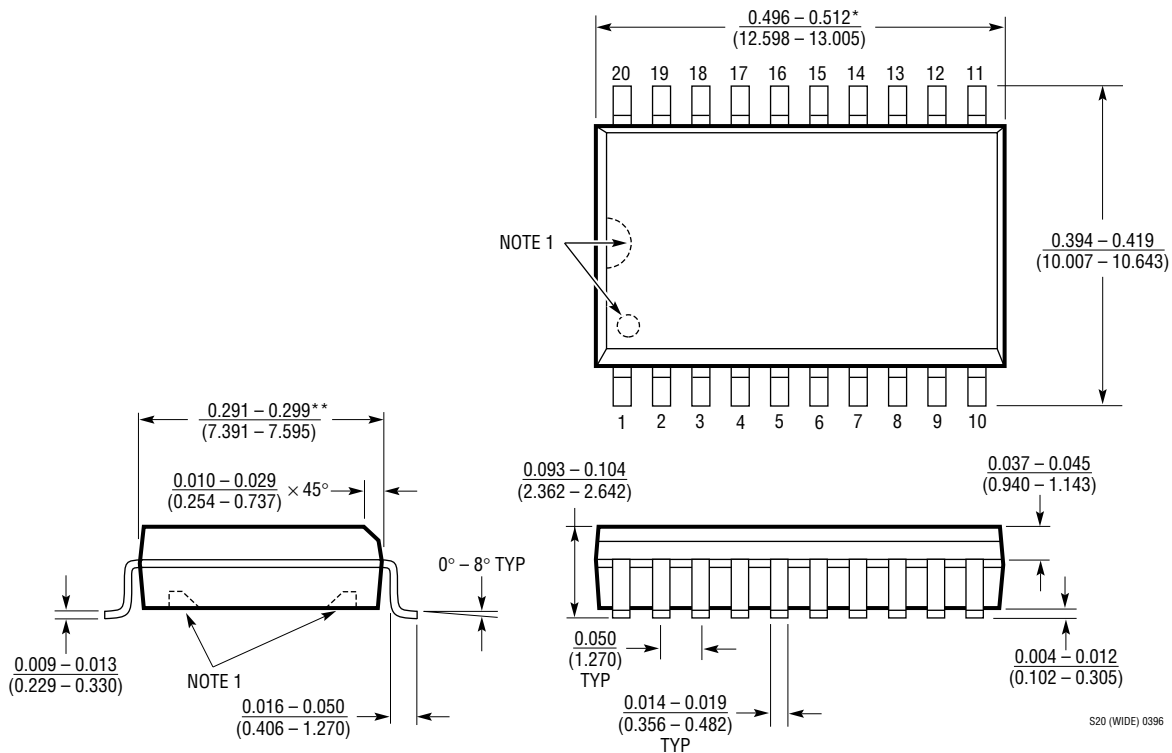
T Package
5-Lead Plastic TO-220 (Standard)
 (LTC DWG # 05-08-1421)



T5 (TO-220) 0398

PACKAGE DESCRIPTION Dimensions in inches (millimeters) unless otherwise noted.

SW Package
20-Lead Plastic Small Outline (Wide 0.300)
 (LTC DWG # 05-08-1620)



NOTE:

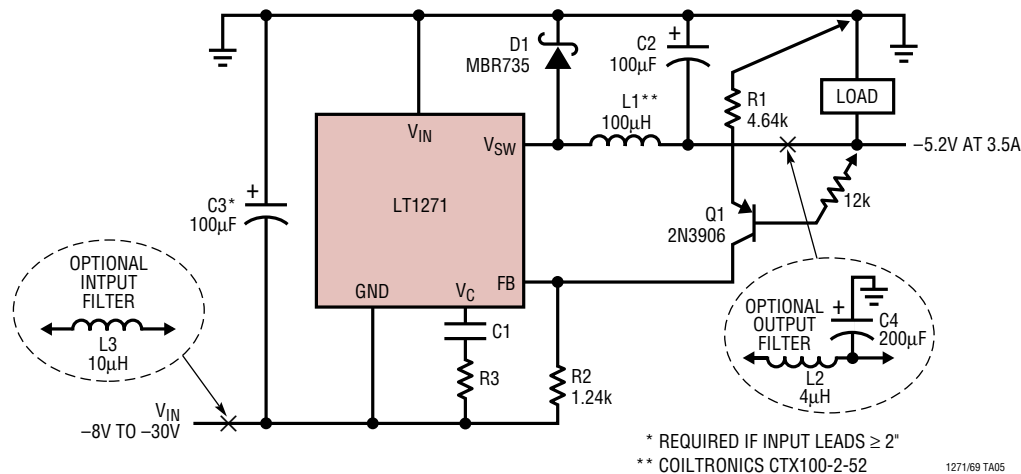
1. PIN 1 IDENT, NOTCH ON TOP AND CAVITIES ON THE BOTTOM OF PACKAGES ARE THE MANUFACTURING OPTIONS. THE PART MAY BE SUPPLIED WITH OR WITHOUT ANY OF THE OPTIONS

*DIMENSION DOES NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.006" (0.152mm) PER SIDE

**DIMENSION DOES NOT INCLUDE INTERLEAD FLASH. INTERLEAD FLASH SHALL NOT EXCEED 0.010" (0.254mm) PER SIDE

TYPICAL APPLICATION

Negative Buck Converter



RELATED PARTS

| PART NUMBER | DESCRIPTION | COMMENTS |
|-------------|--|---|
| LT1171 | 100kHz, 2.5A Boost Switching Regulator | Good for V_{IN} Up to 40V |
| LT1370 | 500kHz, 6A Boost Switching Regulator | 6A, 42V Internal Switch |
| LT1371 | 500kHz, 3A Boost Switching Regulator | 3A, 42V Internal Switch, 90% Efficiency |
| LT1372 | 500kHz, 1.5A Boost Switching Regulator | Also Regulates Negative Flyback Outputs |
| LT1374 | 500kHz, 4.5A Buck Switching Regulator | V_{IN} Up to 25V, SO-8 Package |
| LT1376 | 500kHz, 1.5A Buck Switching Regulator | V_{IN} Up to 25V, Uses 4.7µH Inductor |