

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

FRONT VIEW Q PACKAGE 5-LEAD PLASTIC DD $T_J \text{ MAX} = 100^{\circ}\text{C}$, $\theta_{JC} = 4^{\circ}\text{C/W}$, $\theta_{JA} = 30^{\circ}\text{C/W}^*$	ORDER PART NUMBER LT1271CQ LT1269CQ	TOP VIEW SW PACKAGE 20-LEAD PLASTIC WIDE SO 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	ORDER PART NUMBER LT1269CS
FRONT VIEW T PACKAGE 5-LEAD PLASTIC TO-220 $T_J \text{ MAX} = 100^{\circ}\text{C}$, $\theta_{JC} = 4^{\circ}\text{C/W}$, $\theta_{JA} = 50^{\circ}\text{C/W}^*$	ORDER PART NUMBER LT1271CT LT1269CT		

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{REF}	Reference Voltage	Measured at Feedback Pin $V_C = 0.8V$	1.224 1.214	1.244 1.244	1.264 1.274	V V
I_B	Feedback Input Current	$V_{FB} = V_{REF}$		350	750 1100	nA nA
g_m	Error Amplifier Transconductance	$\Delta I_C = \pm 25\mu A$	3000 2400	4400	6000 7000	μmho μmho
	Error Amplifier Source or Sink Current	$V_C = 1.5V$	150 120	200	350 400	μA μA
	Error Amplifier Clamp Voltage	Hi Clamp, $V_{FB} = 1V$ Lo Clamp, $V_{FB} = 1.5V$	1.8 0.25	0.38	2.3 0.52	V V
	Reference Voltage Line Regulation	$3V \leq V_{IN} \leq V_{MAX}$, $V_C = 0.8V$			0.03	%/V
A_V	Error Amplifier Voltage Gain	$0.9V \leq V_C \leq 1.4V$	500	800		V/V
	Minimum Input Voltage (Note 3)			2.8	3.0	V
I_Q	Supply Current	$3V \leq V_{IN} \leq V_{MAX}$, $V_C = 0.6V$		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

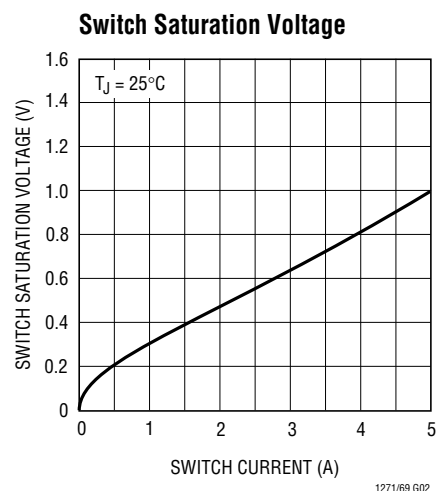
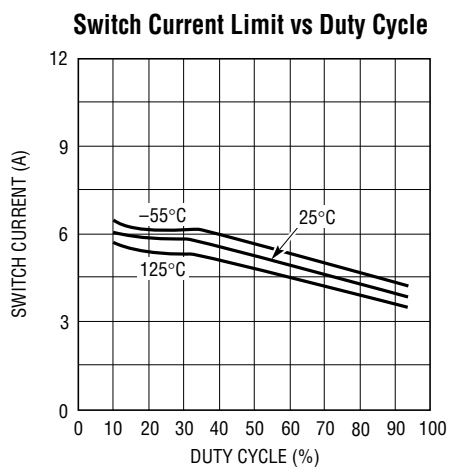
The ● denotes the specifications which apply over the full operating temperature range.

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 $I_{LIM} = 2.67 (2 - DC)$.

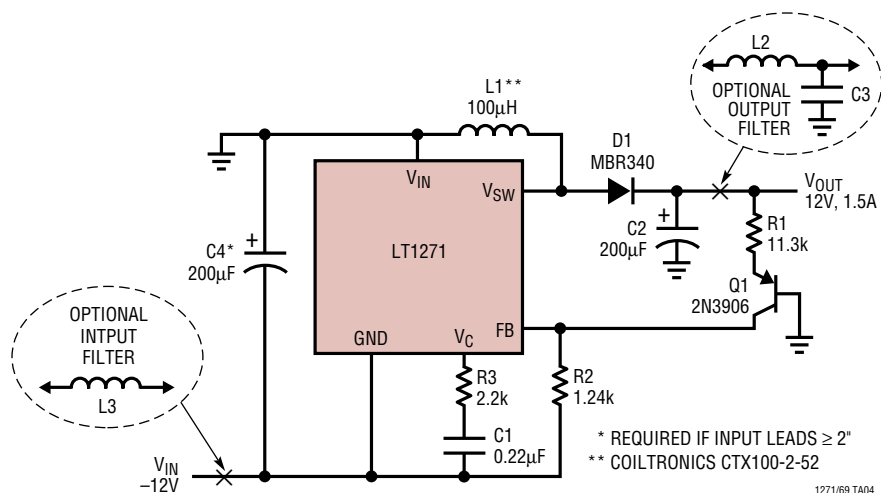
Note 3: Minimum input voltage.

TYPICAL PERFORMANCE CHARACTERISTICS



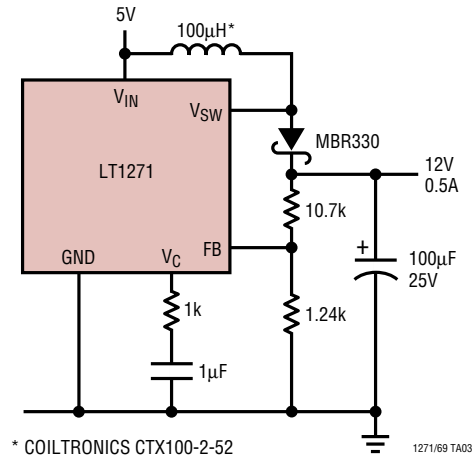
TYPICAL APPLICATIONS

Negative-to-Positive Buck-Boost Converter



TYPICAL APPLICATIONS

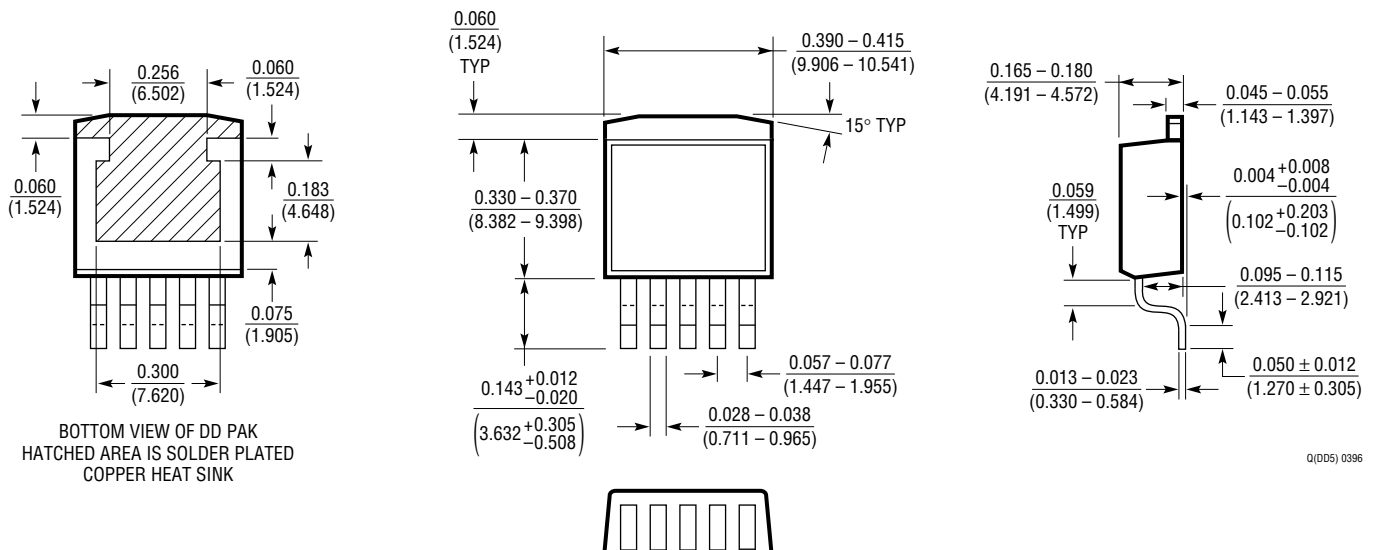
Boost Converter (5V to 12V)



PACKAGE DESCRIPTION

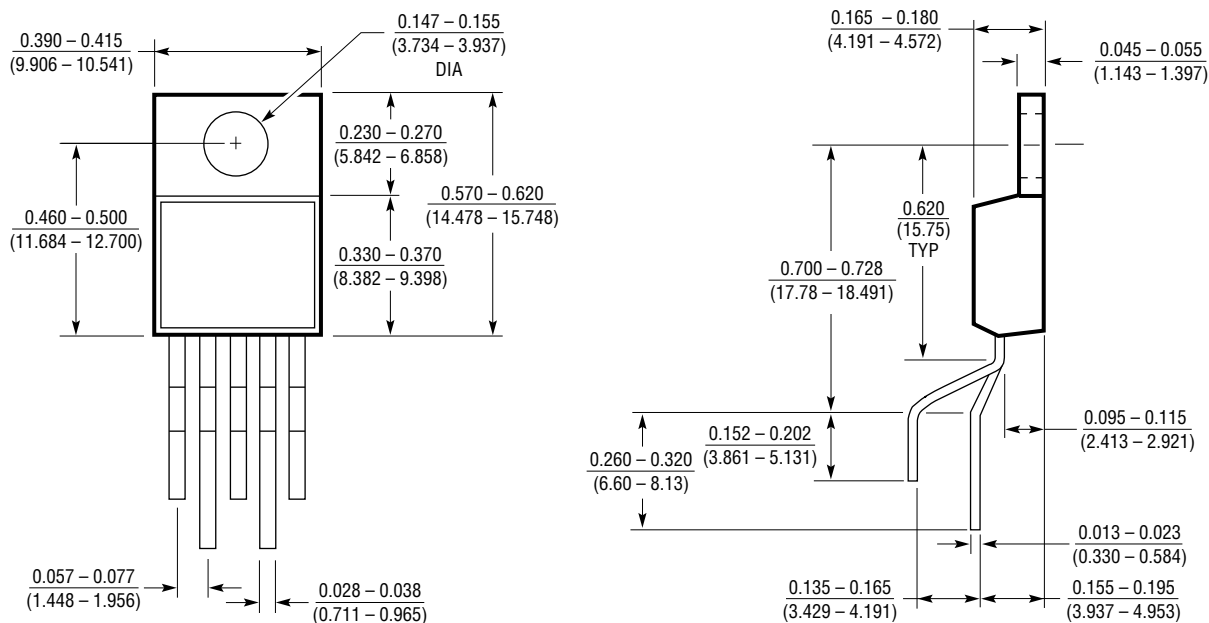
Dimensions in inches (millimeters) unless otherwise noted.

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



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

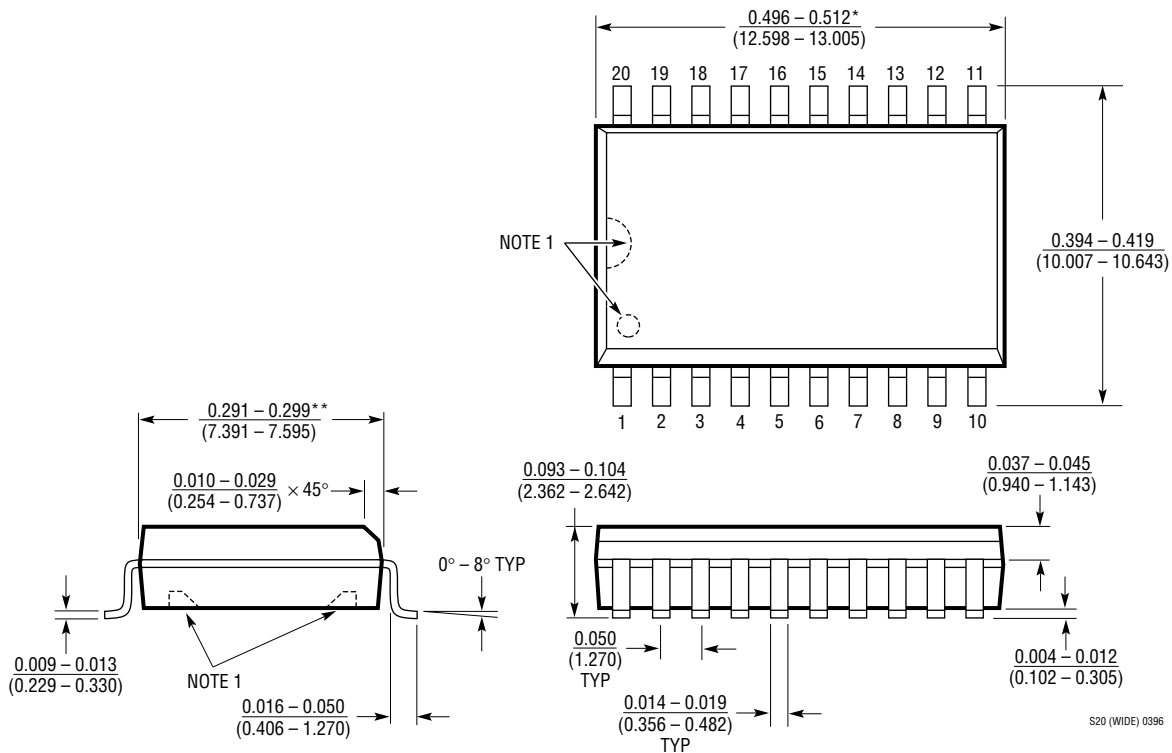
T Package **5-Lead Plastic TO-220 (Standard)** (LTC DWG # 05-08-1421)



T5 (TO-220) 0398

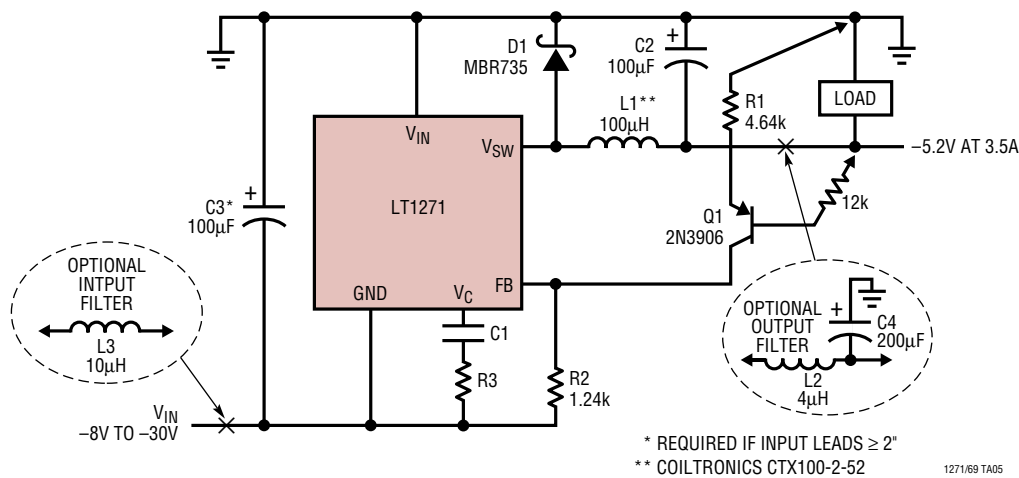
PACKAGE DESCRIPTION Dimensions in inches (millimeters) unless otherwise noted.

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



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