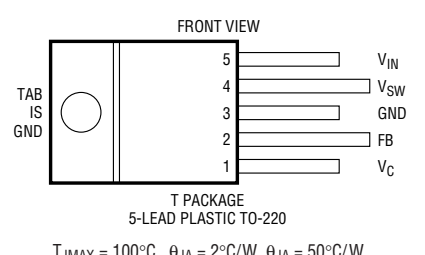


ABSOLUTE MAXIMUM RATINGS

(Note 1)

Supply Voltage	30V
Switch Output Voltage	60V
Feedback Pin Voltage (Transient, 1ms)	±15V
Operating Junction Temperature Range	
LT1270AC/LT1270C (Oper.)	0°C to 125°C
LT1270AC/LT1270C (Short-Ckt)	0°C to 140°C
Storage Temperature Range	–65°C to 150°C
Lead Temperature (Soldering, 10 sec)	300°C

PACKAGE/ORDER INFORMATION

	ORDER PART NUMBER
	LT1270CT LT1270ACT

Consult LTC Marketing for parts specified with wider operating temperature ranges.

ELECTRICAL CHARACTERISTICS

The ● denotes specifications which apply over the full operating temperature range, otherwise specifications are at $T_A = 25^\circ\text{C}$. $V_{IN} = 15\text{V}$, $V_C = 0.5\text{V}$, $V_{FB} = V_{REF}$, switch pin open, unless otherwise noted.

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{REF}	Reference Voltage	Measured at Feedback Pin $V_C = 0.8\text{V}$	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	$\Delta I_C = \pm 25\mu\text{A}$	3000 2400	4400	6000 7000	μmho μmho
	Error Amplifier Source of Sink Current	$V_C = 1.5\text{V}$	150 120	200	350 400	μA μA
	Error Amplifier Clamp Voltage	Hi Clamp, $V_{FB} = 1\text{V}$ Lo Clamp, $V_{FB} = 1.5\text{V}$	1.80 0.25	0.38	2.30 0.52	V V
	Reference Voltage Line Regulation	$3\text{V} \leq V_{IN} \leq V_{MAX}$, $V_C = 0.8\text{V}$			0.03	%/V
A_V	Error Amplifier Voltage Gain	$0.9\text{V} \leq V_C \leq 1.4\text{V}$	500	800		V/V
	Minimum Input Voltage			2.8	3.0	V
I_Q	Supply Current	$3\text{V} \leq V_{IN} \leq V_{MAX}$, $V_C = 0.6\text{V}$		7	10	mA
	Control Pin Threshold	Duty Cycle = 0	0.70 0.50	0.90	1.08 1.25	V V
	Normal/Flyback Threshold on Feedback Pin		0.40	0.45	0.54	V
V_{FB}	Flyback Reference Voltage	$I_{FB} = 50\mu\text{A}$	15.0 14.0	16.3	17.6 18.0	V V
V_{FB}	Change in Flyback Reference Voltage	$0.05 \leq I_{FB} \leq 1\text{mA}$	4.5	6.8	8.5	V
	Flyback Reference Voltage Line Regulation	$I_{FB} = 50\mu\text{A}$ $3\text{V} \leq V_{IN} \leq V_{MAX}$		0.01	0.03	%/V
	Flyback Amplifier Transconductance (g_m)	$\Delta I_C = \pm 10\mu\text{A}$	150	300	650	μmho
	Flyback Amplifier Source and Sink Current	$V_C = 0.6\text{V}$ Source $I_{FB} = 50\mu\text{A}$ Sink	15 25	32 40	70 70	μA μA
B_V	Output Switch Breakdown Voltage	$3\text{V} \leq V_{IN} \leq V_{MAX}$ $I_{SW} = 1.5\text{mA}$	60	75		V
V_{SAT}	Output Switch ON Resistance (Note 2, 4)	$T_J \leq 100^\circ\text{C}$ $T_J \leq 125^\circ\text{C}$		0.12	0.18 0.22	Ω Ω
	Control Voltage to Switch Current Transconductance			12		A/V
LIM	Switch Current Limit (LT1270) (Note 4)	Duty Cycle = 50%, $T_J \leq 100^\circ\text{C}$ Duty Cycle = 80%, $T_J \leq 100^\circ\text{C}$	8 6		16 14	A A

1270afc

ELECTRICAL CHARACTERISTICS The ● denotes specifications which apply over the full operating temperature range, otherwise specifications are at $T_A = 25^{\circ}\text{C}$. $V_{IN} = 15\text{V}$, $V_C = 0.5\text{V}$, $V_{FB} = V_{REF}$, switch pin open, unless otherwise noted.

SYMBOL	PARAMETER	CONDITIONS		MIN	TYP	MAX	UNITS
I_{LIM}	Switch Current Limit (LT1270A) (Note 4)	Duty Cycle = 50%, $T_J \leq 100^{\circ}\text{C}$	●	10.0		16.0	A
		Duty Cycle = 80%, $T_J \leq 100^{\circ}\text{C}$	●	7.5		14.0	A
$\frac{\Delta I_{IN}}{\Delta I_{SW}}$	Supply Current Increase During Switch-ON Time				25	40	mA/A
f	Switching Frequency			50	60	70	kHz
			●	50		70	kHz
DC _{MAX}	Maximum Switch Duty Cycle			80	92	95	%
	Flyback Sense Delay Time				1.5		μs
	Shutdown Mode Supply Current	$3\text{V} \leq V_{IN} \leq V_{MAX}$, $V_C = 0.05\text{V}$			100	400	μA
	Shutdown Mode Threshold Voltage	$3\text{V} \leq V_{IN} \leq V_{MAX}$	●	100	150	250	mV
				50		300	mV

Note 1: Absolute Maximum Ratings are those values beyond which the life of a device may be impaired.

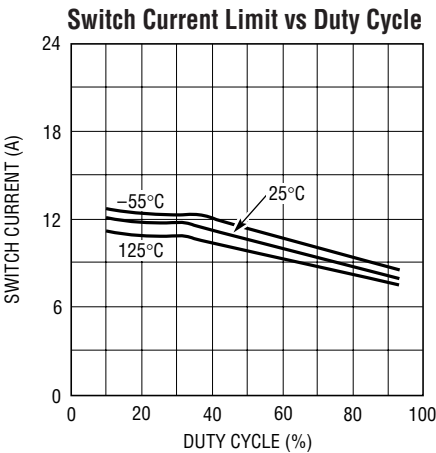
Note 2: Measured with V_C in Hi Clamp, $V_{FB} = 0.8\text{V}$.

Note 3: For duty cycles (DC) between 50% and 80%, minimum guaranteed

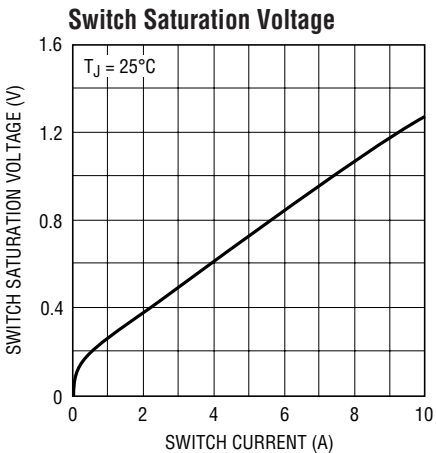
switch current is given by $I_{LIM} = 6.67 (1.7 - \text{DC})$ for the LT1270 and $I_{LIM} = 8.33 (1.7 - \text{DC})$ for the LT1270A.

Note 4: Minimum current limit is reduced by 0.5A at 125°C . 100°C test limits are guaranteed by correlation to 125°C tests.

TYPICAL PERFORMANCE CHARACTERISTICS



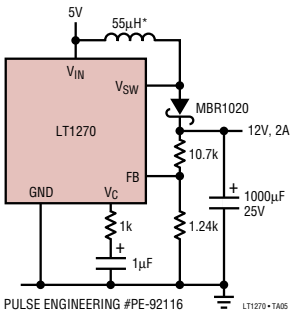
LT1270 • TA03



LT1270 • TA04

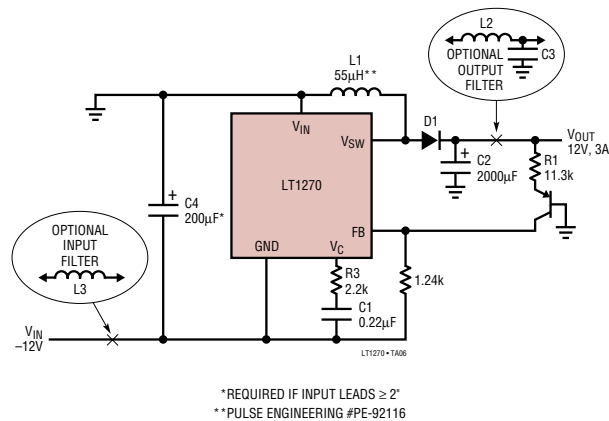
TYPICAL APPLICATIONS

Boost Converter (5V to 12V)

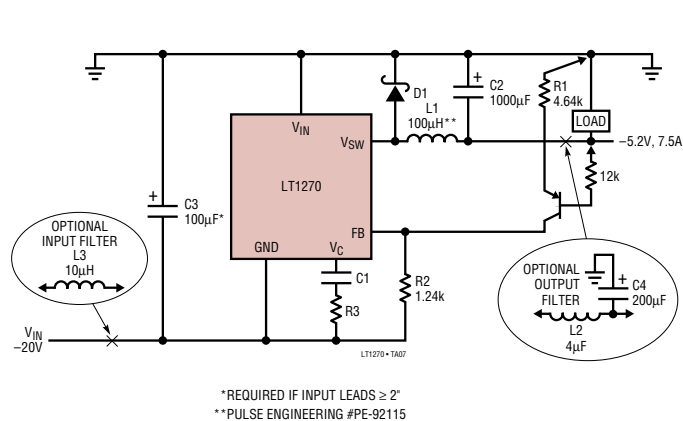


TYPICAL APPLICATIONS

Negative-to-Positive Buck-Boost Converter

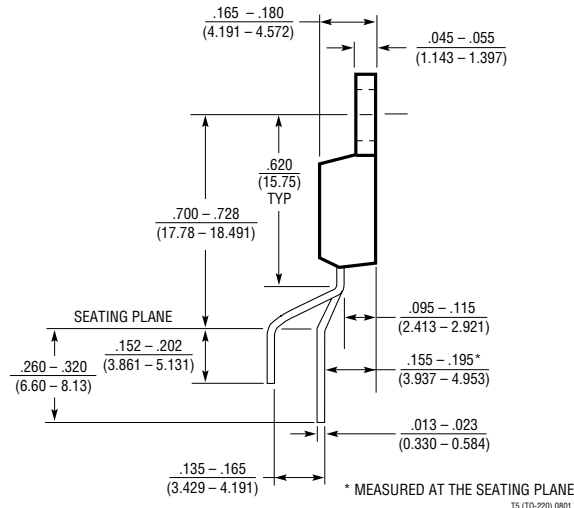
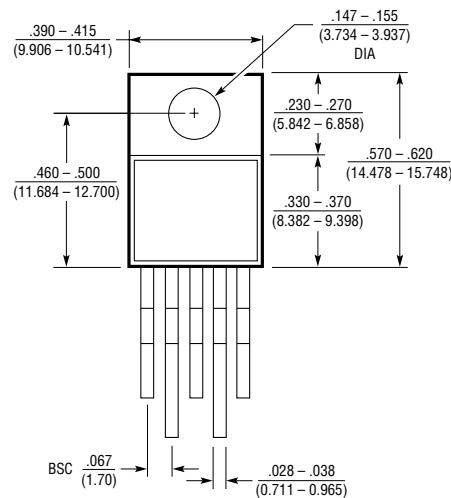


Negative Buck Converter



PACKAGE DESCRIPTION

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



RELATED PARTS

PART NUMBER	DESCRIPTION	COMMENTS
LT1074/HV	4.4A (I _{OUT}), 100kHz, High Efficiency Step-Down DC/DC Converter	V _{IN} : 7.3V to 45/64V, V _{OUT} (min) = 2.21V, I _Q = 8.5mA, I _{SD} = 10µA, DD-5/7, TO220-5/7
LTC3414	4A (I _{OUT}), 4MHz, Synchronous Step-Down DC/DC Converter	V _{IN} : 2.3V to 5.5V, V _{OUT} (min) = 0.8V, I _Q = 64µA, I _{SD} < 1µA, TSSOP20E
LT3430/LT3431	60V, 2.75A (I _{OUT}), 200/500kHz, High Efficiency Step-Down DC/DC Converter	V _{IN} : 5.5V to 60V, V _{OUT} (min) = 1.2V, I _Q = 2.5mA, I _{SD} = 30µA, TSSOP16E