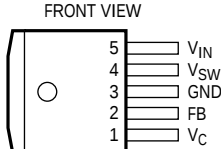
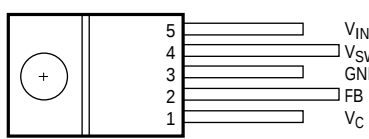


ABSOLUTE MAXIMUM RATINGS

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

PACKAGE/ORDER INFORMATION

 Q PACKAGE 5-LEAD DD $T_{JMAX} = 125^{\circ}\text{C}$, $\theta_{JC} = 2^{\circ}\text{C/W}$, $\theta_{JA} = \text{See Notes 5 and 6}$	ORDER PART NUMBER
	LT1268CQ LT1268BCQ
 T PACKAGE 5-LEAD TO-220 $T_{JMAX} = 125^{\circ}\text{C}$, $\theta_{JC} = 2^{\circ}\text{C/W}$, $\theta_{JA} = 50^{\circ}\text{C/W}$	ORDER PART NUMBER
	LT1268CT LT1268BCT

Consult factory for Industrial and Military parts

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{REF}	Reference Voltage Measured at Feedback Pin (Note 4)	LT1268B	1.235	1.244	1.253	V
			1.224	1.244	1.264	V
	Reference Voltage	LT1268	1.224	1.244	1.264	V
			1.214	1.244	1.274	V
I_B	Feedback Input Current	$V_{FB} = V_{REF}$		350	750	nA
					1100	nA
g_m	Error Amplifier Transconductance	$\Delta I_C = \pm 25\mu\text{A}$	3000	4400	6000	μmho
			2400		7000	μmho
	Error Amplifier Source or Sink Current	$V_C = 1.5\text{V}$	150	200	350	μA
			120		400	μA
	Error Amplifier Clamp Voltage	Hi Clamp, $V_{FB} = 1\text{V}$	1.80		2.30	V
		Lo Clamp, $V_{FB} = 1.5\text{V}$	0.25	0.38	0.52	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	0.7	0.9	1.08	V
			0.5		1.25	V
BV	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 1, 3)	$T_J \leq 100^{\circ}\text{C}$		0.12	0.18	Ω
		$T_J \leq 125^{\circ}\text{C}$			0.22	Ω
	Control Voltage to Switch Current Transconductance			12		A/V
I_{LIM}	Switch Current Limit (Note 3, 6)	Duty Cycle = 50%, $T_J \leq 100^{\circ}\text{C}$	7.50		15	A
		Duty Cycle = 65%, $T_J \leq 100^{\circ}\text{C}$	6.50		14	A

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
$\frac{\Delta I_{IN}}{\Delta I_{SW}}$	Supply Current Increase During Switch-ON Time			25	45	mA/A
f	Switching Frequency		120	150	180	kHz
		●	120	180	180	kHz
DC _{MAX}	Maximum Switch Duty Cycle		65	85	92	%
	Shutdown Mode Supply Current	$3V \leq V_{IN} \leq V_{MAX}$, $V_C = 0.05V$		100	500	μA
	Shutdown Mode Threshold Voltage	$3V \leq V_{IN} \leq V_{MAX}$	100	150	250	mV
		●	50	300	300	mV

The ● denotes 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 65%, minimum guaranteed switch current is given by $I_{LIM} = 6.25 (1.7 - DC)$.

Note 3: Minimum current limit is reduced by 0.5A at 125°C. 100°C test limits are guaranteed by correlation to 125°C tests.

Note 4: LT1268B reference voltage is specified at $\pm 9mV$ to guarantee $\pm 1\%$ output voltage accuracy when 0.1% external resistors are used to set output voltage. To maintain output accuracy under load, load current should be taken from the case and the ground pin should be connected separately to output ground. See AN19 for details.

Note 5: The Q package is intended for surface mount without a separate heat sink. See graph for thermal resistance as a function of the mounting area. This curve assumes no other heat dissipators adjacent to package.

Note 6: Maximum switch current may be limited by package power dissipation, especially for the surface mount (Q) package. This package

has a thermal resistance of 20°C/W to 50°C/W (see graph). The following formula will allow an estimate of maximum continuous switch current as a function of power loss and duty cycle. See AN19 for more details.

$$I_{MAX} = \sqrt{\frac{P}{R_{SW} \times DC}}$$

P = Power dissipation due to switch current

R_{SW} = Switch-ON resistance $\approx 0.15\Omega$

DC = Switch duty cycle

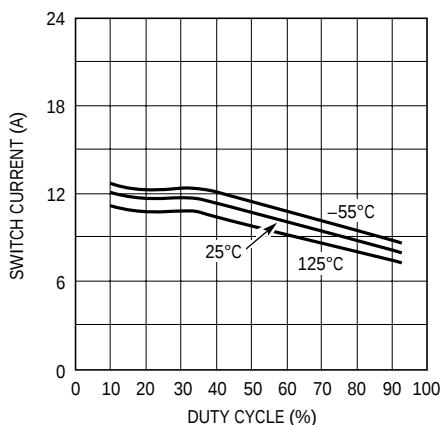
In a typical application where thermal resistance is 30°C/W, maximum power might be limited to 2W and power allocated to switch loss is 1.5W. For a duty cycle of 40%, this yields

$$I_{MAX} = \sqrt{\frac{1.5}{0.15 \times 0.4}} = 5A$$

Obviously, a combination of high thermal resistance and high duty cycle may restrict switch current to a value well below the 7.5A electrical limit.

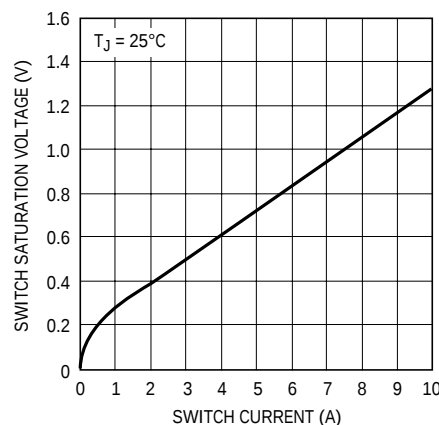
TYPICAL PERFORMANCE CHARACTERISTICS

Switch Current Limit vs Duty Cycle



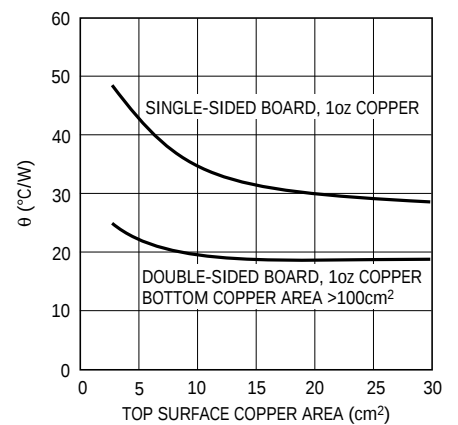
LT1268 • TPC01

Switch Saturation Voltage



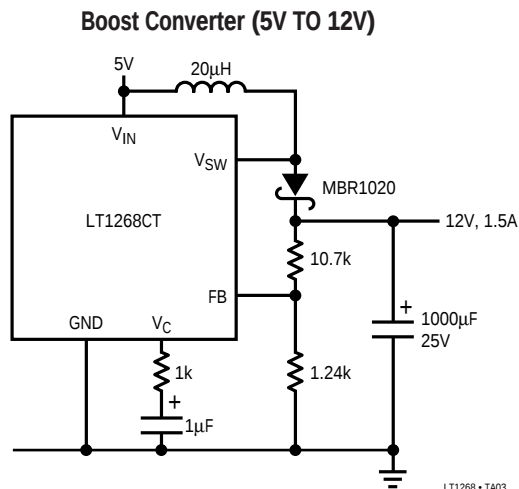
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Q Package Thermal Resistance



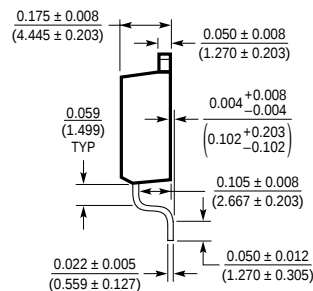
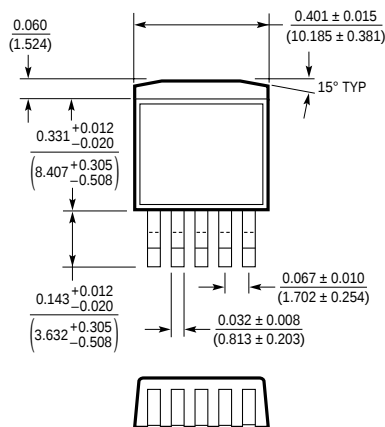
LT1268 • 603

TYPICAL APPLICATION



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

**Q Package
5-Lead DD**



**T Package
5-Lead TO-220**

