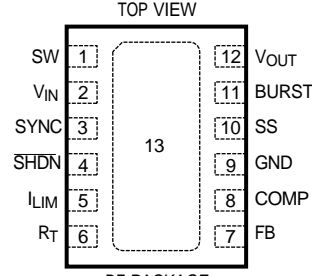


ABSOLUTE | AXI  **RATINGS**

(Note 1)

V_{IN} , SS, SYNC Voltages to 7V
 BURST, SHDN, V_{OUT} Voltages to 7V
 Operating Temperature Range
 (Notes 2, 3) 40°C to 85°C
 Storage Temperature Range 65°C to 125°C
 SW Voltage
 DC V to 7V
 Pulsed <100ns V to 8V

PACKAGE/ORDER INFORMATION

 <p>DE PACKAGE 12-LEAD (4mm × 3mm) PLASTIC DFN EXPOSED PAD IS PGND (PIN 13), MUST BE SOLDERED TO PCB $T_{JMAX} = 125^{\circ}\text{C}$, $\theta_{JA} = 45^{\circ}\text{C/W}$</p>	ORDER PART NUMBER
	LTC3458LEDE
	DE PART MARKING
	3458L

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

ELECTRICAL CHARACTERISTICS

The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at $T_A = 25^{\circ}\text{C}$. $V_{IN} = 3.3\text{V}$, $V_{OUT} = 5\text{V}$, $R_T = 200\text{k}$, unless otherwise noted.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	
Minimum V_{IN} Operating Voltage	$T_A = 0^{\circ}\text{C}$ to 85°C		1.4	1.5	V	
	$T_A = -40^{\circ}\text{C}$ to 0°C		1.4	1.7	V	
Output Voltage Adjust Range		● 2		6	V	
Feedback Voltage	0°C to 85°C , $V_{OUT} = 3.3\text{V}$	1.21	1.225	1.25	V	
	-40°C to 0°C	1.20		1.25	V	
Undervoltage (Exit Burst Mode Operation)	Below Feedback Voltage		-4		%	
Feedback Input Current	$V_{FB} = 1.23\text{V}$		1	50	nA	
Quiescent Current – Burst Mode Operation	V_{IN} Current at 3.3V		12	30	μA	
	V_{OUT} Current at 5V		5	10	μA	
Quiescent Current – Shutdown	V_{IN} Current at 3.3V		0.5	1	μA	
	V_{OUT} Current at 0V		1	3	μA	
Quiescent Current – Active	V_{IN} Current Switching		1	3	mA	
NMOS Switch Leakage		●	0.05	5	μA	
PMOS Switch Leakage		●	0.05	5	μA	
NMOS Switch On Resistance	$V_{OUT} = 5\text{V}$		0.2		Ω	
PMOS Switch On Resistance	$V_{OUT} = 5\text{V}$		0.3		Ω	
Fixed NMOS Current Limit	$R_{ILIM} = 84.5\text{k}$	●	1.7	2.1	A	
Maximum Duty Cycle	$V_{IN} = 3.3\text{V}$, $f_{OSC} = 1\text{MHz}$	●	80	90	%	
Minimum Duty Cycle		●		0	%	
Frequency Accuracy	$R_T = 200\text{k}$	●	0.85	1	1.15	MHz
Error Amplifier Transconductance			60		$\mu\text{A/V}$	
Error Amplifier Source Current			7		μA	
Error Amplifier Sink Current			7		μA	
SYNC Input High		●	1.5		V	
SYNC Input Low		●		0.35	V	

ELECTRICAL CHARACTERISTICS

The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at $T_A = 25^\circ\text{C}$. $V_{IN} = 3.3\text{V}$, $V_{OUT} = 5\text{V}$, $R_T = 200\text{k}$, unless otherwise noted.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
SHDN Input High		● 1.25			V
SHDN Input Low				● 0.3	V
BURST Mode Peak Current ($I_{BURSTPEAK}$)	$R_{LIM} = 84.5\text{k}$		0.55		A
BURST Threshold Voltage			1.10		V

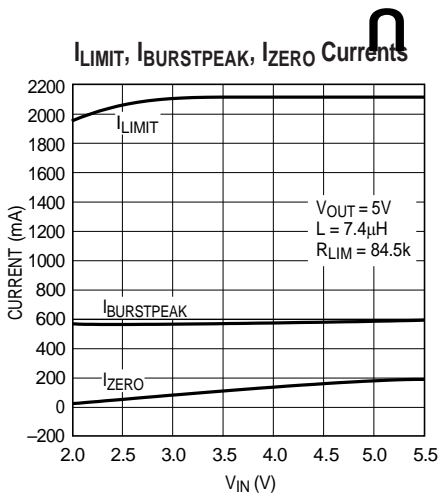
Note 1: Absolute Maximum Ratings are those values beyond which the life of a device may be impaired.

Note 2: This IC includes overtemperature protection that is intended to protect the device during momentary overload conditions. Junction temperature will exceed 125°C when overtemperature protection is active.

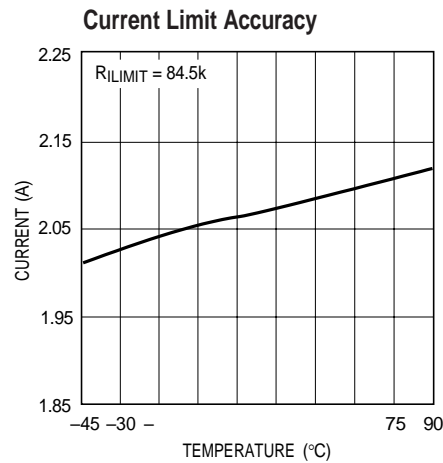
Continuous operation above the specified maximum operating junction temperature may impair device reliability.

Note 3: The LTC3458LE is guaranteed to meet performance specifications from 0°C to 70°C . Specifications over the -40°C to 85°C operating temperature range are assured by design, characterization and correlation with statistical process controls.

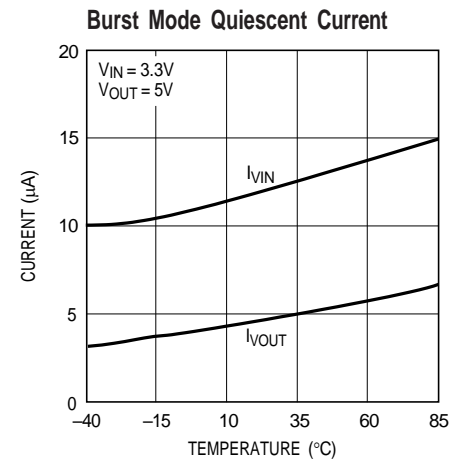
TYPICAL PERFORMANCE CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)



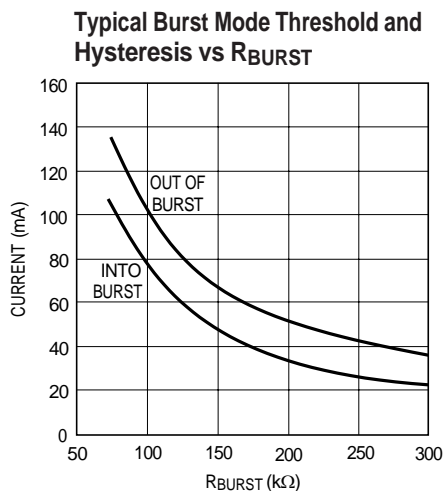
3458L G01



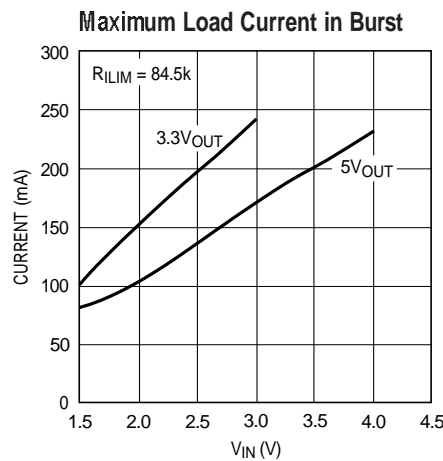
3458L G02



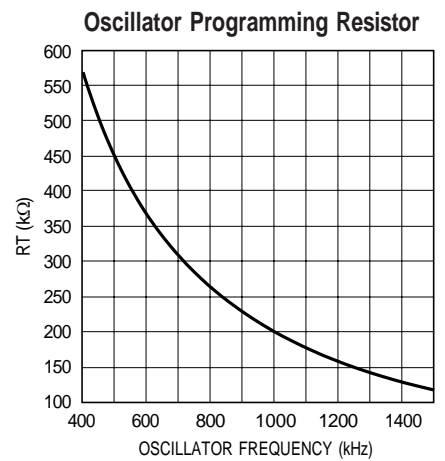
3458L G03



3458L G04



3458L G05

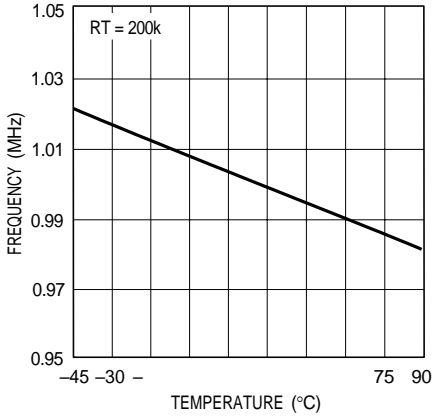


3458L G06

TYPICAL PERFORMANCE CHARACTERISTICS $(T_A = 25^\circ\text{C}$ unless otherwise specified)

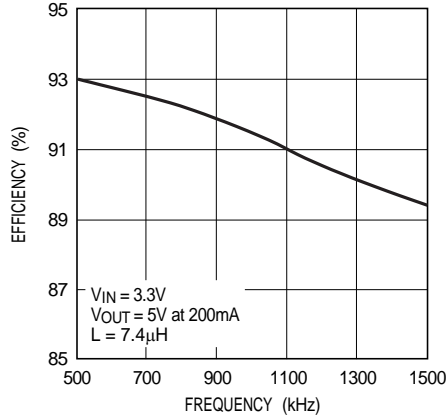


Frequency Accuracy



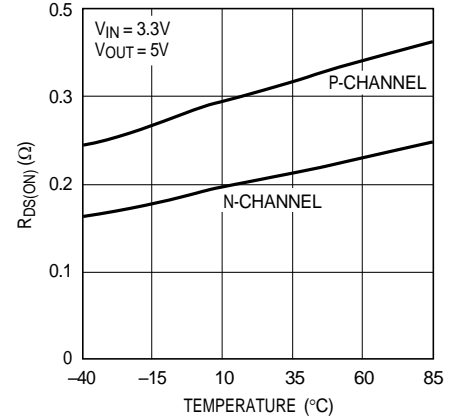
3458L G07

Efficiency vs Frequency



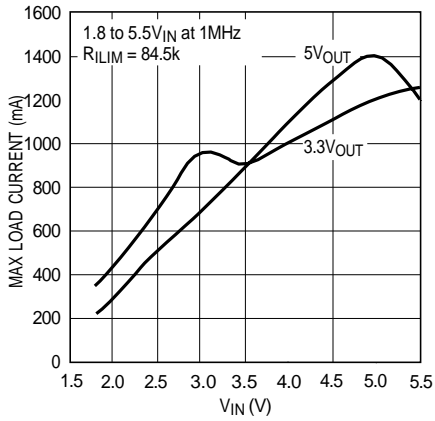
3458L G08

N-Channel and P-Channel $R_{DS(ON)}$



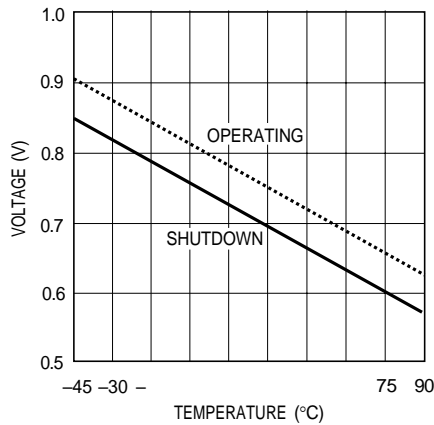
3458L G09

Maximum Load Current



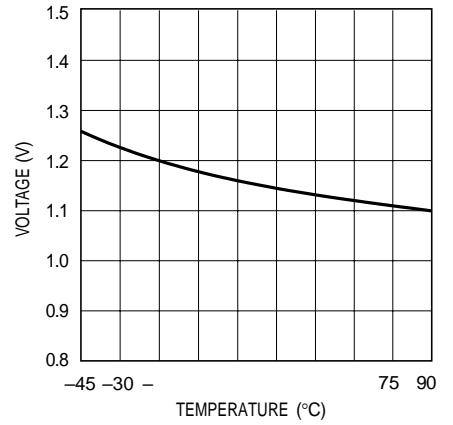
3458L G10

SHDN Pin Threshold and Hysteresis



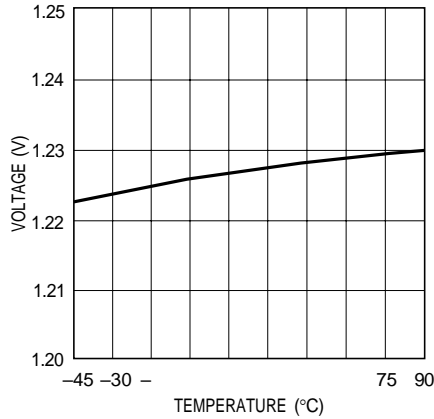
3458L G11

SYNC Pin Threshold



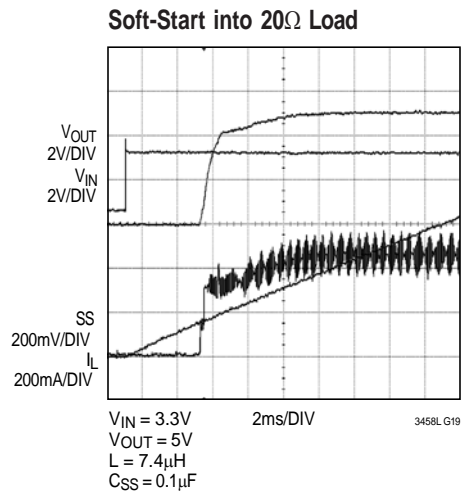
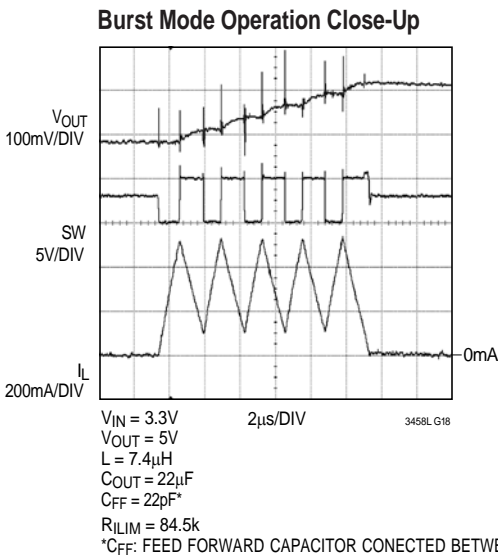
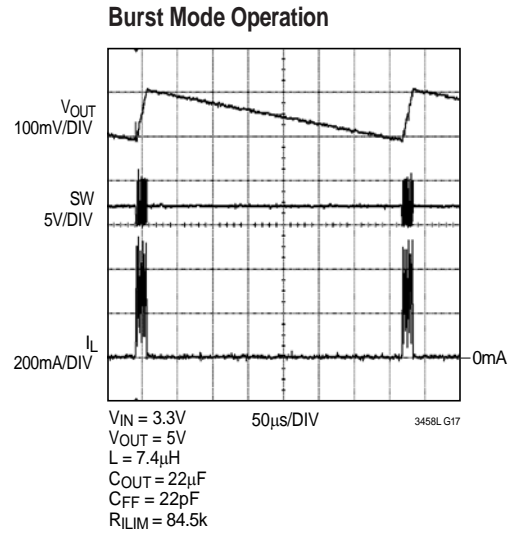
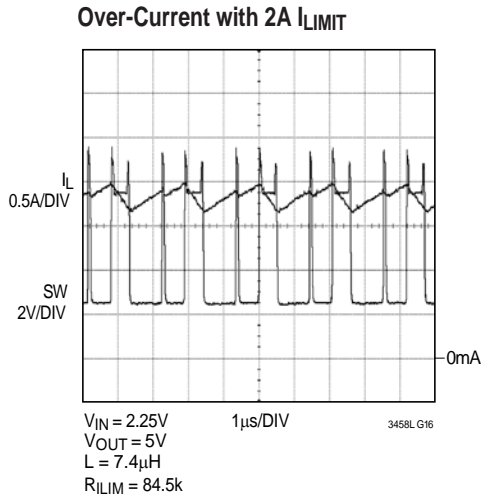
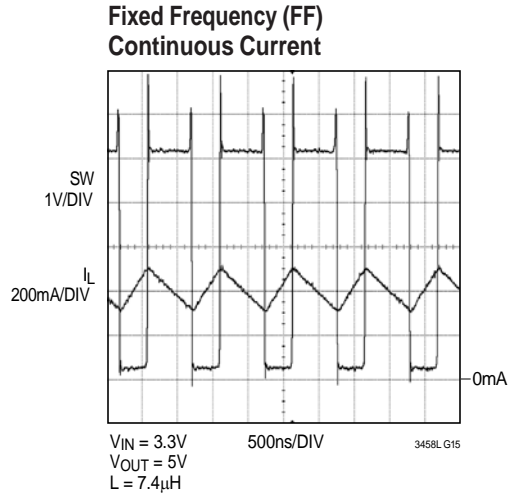
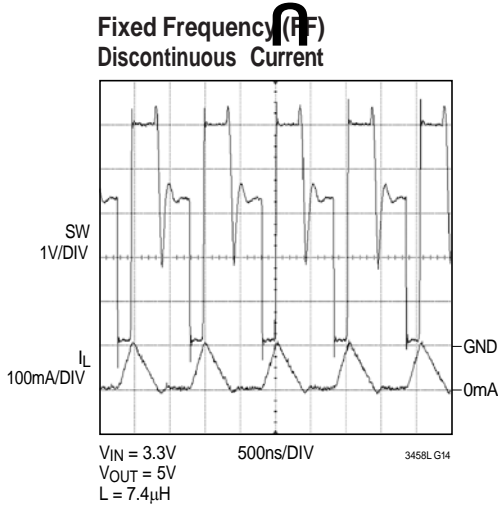
3458L G12

FB Voltage



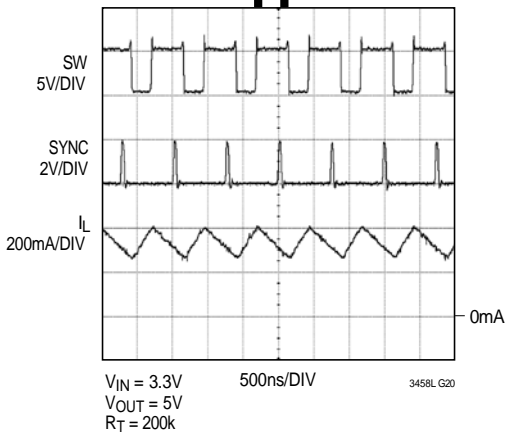
3458L G13

TYPICAL PERFORMANC CHARACTERISTICS (T_A = 25°C unless otherwise specified)

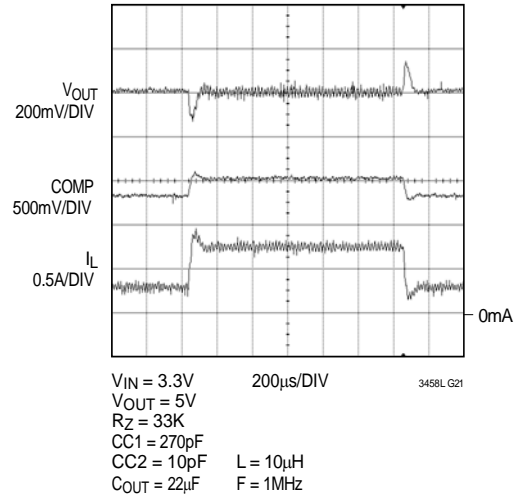


TYPICAL PERFORMACE CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

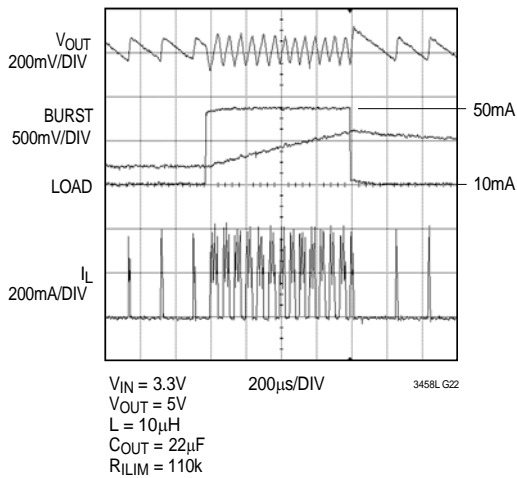
Sync Operation at 1.33MHz



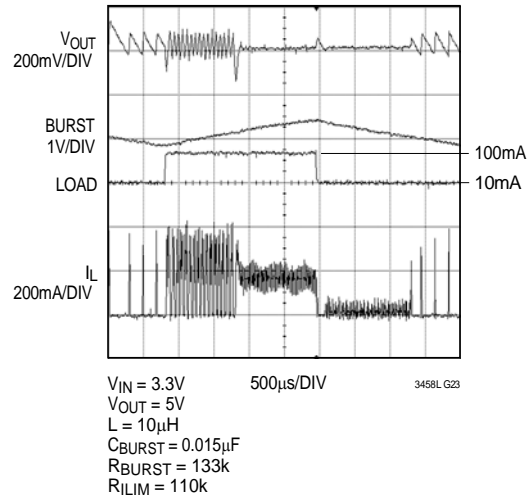
FF Mode 100-300mA Load Step



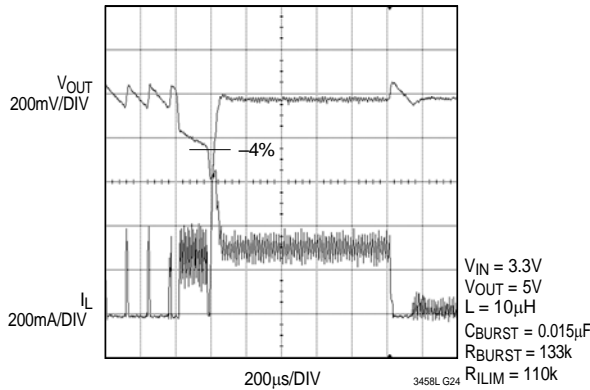
Burst Mode Operation 10mA to 50mA Load Step



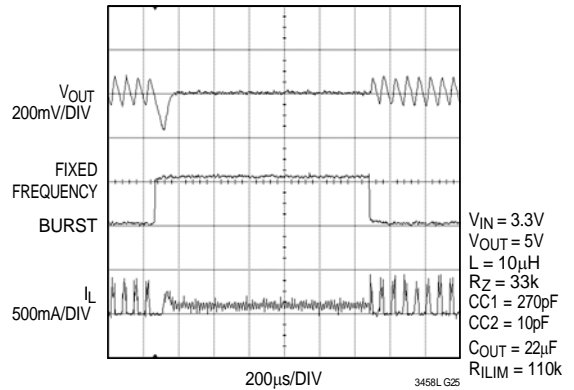
Auto Mode 10mA to 100mA Load Step



10mA to 200mA Load Step Showing UV Trip



Forced BURST to FF Mode Switch with 50mA Load



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