

产品特性

- 2uA 静态电流 (无负载)
- $\pm 2\%$ 输出电压精度
- 300mA 输出电流能力
- 100nA 关断电流 (可选版本)
- 宽范围输入电压: 1.2V 至 5.5V
- 低压差: 0.18V ($V_o=3.3V/I_o=300mA$ 条件下)
- 支持固定输出电压: 1.2V, 1.5V, 1.8V, 2.5V, 2.8V, 3.0V, 3.3V
- 支持陶瓷电容或者钽电容
- 限流保护
- 过温保护

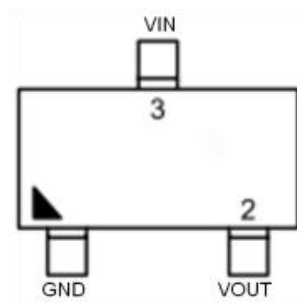
L-MCP1700T-1802E/TT

1802= 输出电压:1.8V
精准度 $\pm 2\%$

产品应用

- 手持式、电池供电设备
- 低功耗微处理器
- 笔记本电脑、掌上型电脑和 PDA
- 无线通讯设备
- 音频/视频设备
- 车载导航系统

Pin Configurations



引脚功能描述

脚位号	名称	功能描述
1	GND	接地
2	VOUT	电压输出端口
3	VIN	电源输入端口

($V_{IN} = 5V$, $V_{EN} = 5V$ $T_A = 25^\circ C$ 除另有说明外)

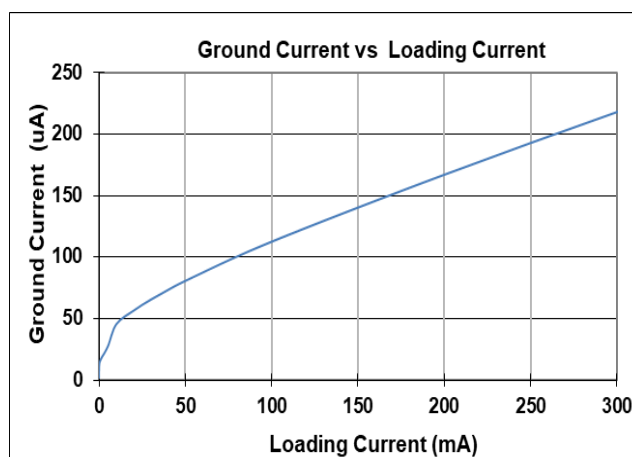
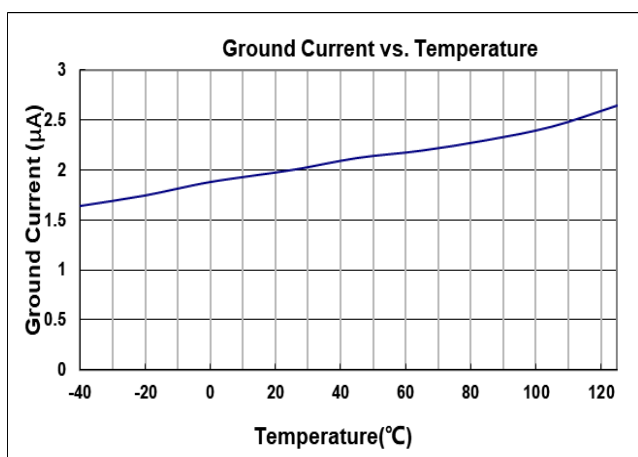
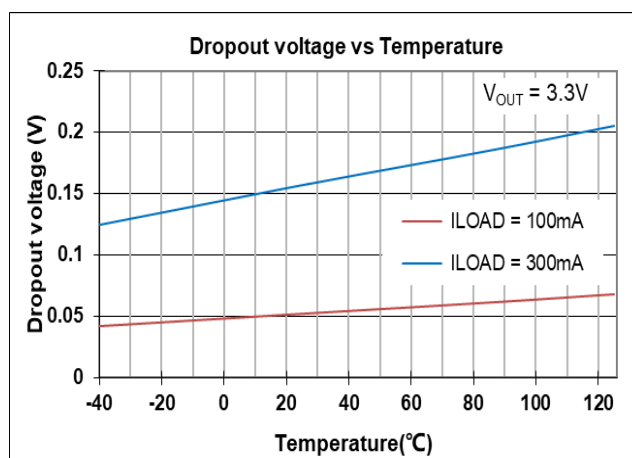
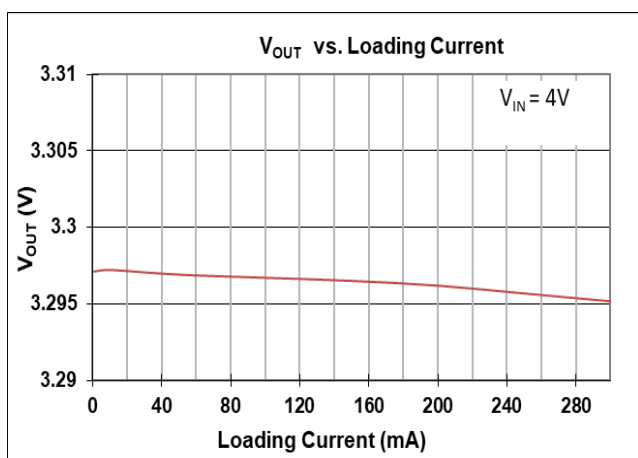
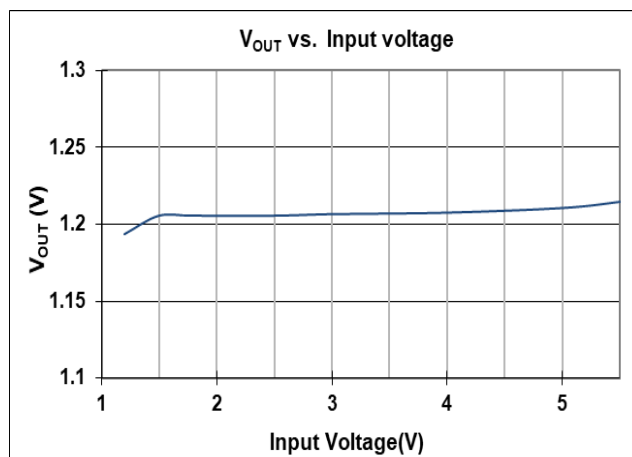
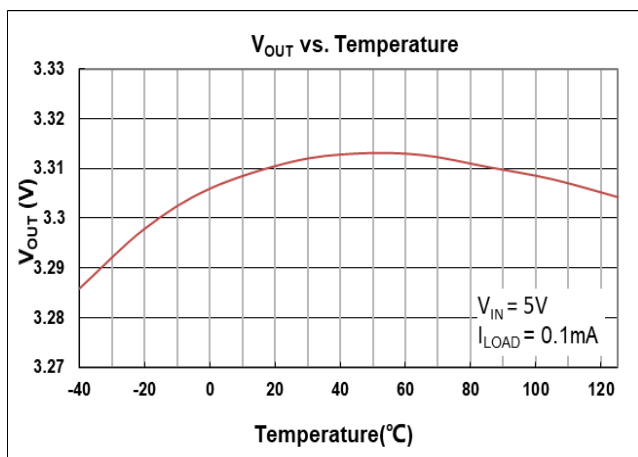
参数	符号	测试条件	最小值	典型值	最大值	单位
输入电压	V_{IN}		1.2	--	5.5	V
输出电压精度		$I_{LOAD} = 0.1mA$	-2		2	%
SNS 输入电流	I_{SNS}	$SNS = V_{OUT}$		0.5		μA
Dropout 电压 ($I_{LOAD} = 300mA$) (Note 3)	V_{DROP_3V}	$V_{OUT} \geq 3V$		0.18		V
	$V_{DROP_2.8V}$	$V_{OUT} = 2.8V$		0.23		
	$V_{DROP_2.5V}$	$V_{OUT} = 2.5V$		0.23		
	$V_{DROP_1.8V}$	$V_{OUT} = 1.8V$		0.28		
	$V_{DROP_1.5V}$	$V_{OUT} = 1.5V$		0.36		
	$V_{DROP_1.2V}$	$V_{OUT} = 1.2V$		0.45		
静态电流	I_Q	$I_{LOAD} = 0mA$		2		μA
关闭电流	I_{SD}	$V_{EN} = 0V$, $V_{OUT} = 0V$		0.1	0.5	μA
使能电压阈值	V_{IH}	EN Rising	1.0			V
	V_{IL}	EN Falling			0.4	
EN 输入电流	I_{EN}	$V_{EN} = 5V$		10	100	nA
输入电压调整率	$\Delta LINE$	$I_{LOAD} = 30mA$, $1.5V \leq V_{IN} \leq 5.5V$ or $(V_{OUT} + 0.2V) \leq V_{IN} \leq 5.5V$		0.2		%
负载电压调整率	$\Delta LOAD$	$10mA \leq I_{LOAD} \leq 0.3A$		0.2		%
输出电流限流值	I_{LIM}	$V_{OUT} = 0V$	301	600		mA
电源抑制比 ($I_{LOAD} = 5mA$)	PSRR	$V_{OUT} = 1.2V$, $V_{IN} = 2V$	$f = 100Hz$	--	80	dB
			$f = 1kHz$	--	75	
输出电流噪声 ($BW = 10Hz$ to $100kHz$, $C_{OUT} = 1\mu F$.)		$V_{IN} = 3.5V$ $I_{LOAD} = 0.1A$	$V_{OUT} = 1.2V$	--	80	μV_{RMS}
			$V_{OUT} = 2.8V$	--	120	
过温度关断温度	T_{SD}	$I_{LOAD} = 10mA$	--	155	--	$^\circ C$
过温度关断迟滞	ΔT_{SD}		--	15	--	$^\circ C$
放电电阻	R_{DC}	$EN = 0V$, $V_{OUT} = 0.1V$	--	30	--	Ω

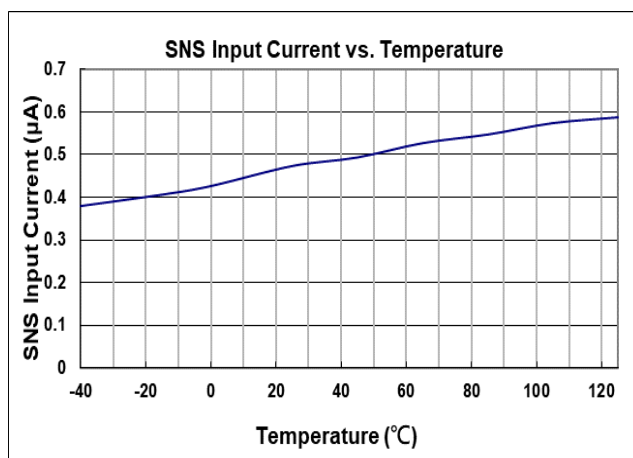
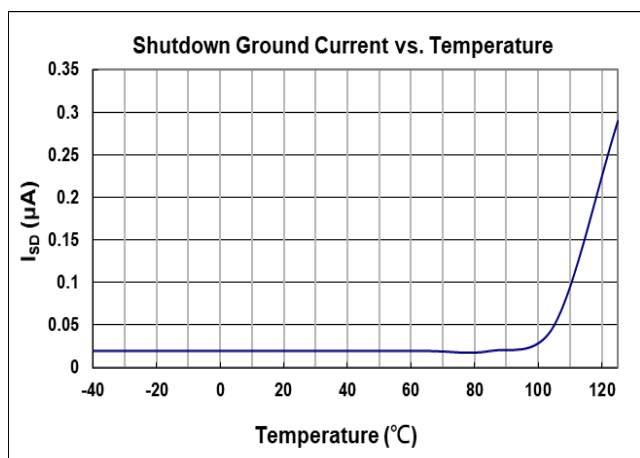
Note 1. 任何超过“最大耐压值”的应用可能会导致芯片遭受永久性损坏。这些是额定最大耐压值，仅表示在这个范围内芯片不会损伤，但不保证所有性能指标都正常，在任何超过“最大耐压值”的场合使用，都可能导致芯片永久性损坏。在接近或等于最大耐压值情况下使用，可能会影响产品可靠性。

Note 2. θ_{JA} 测量条件： $T_A = 25^\circ C$ ，使用 EVB 板。

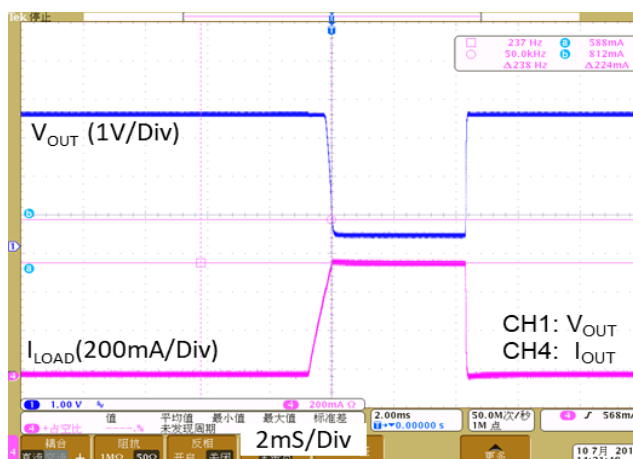
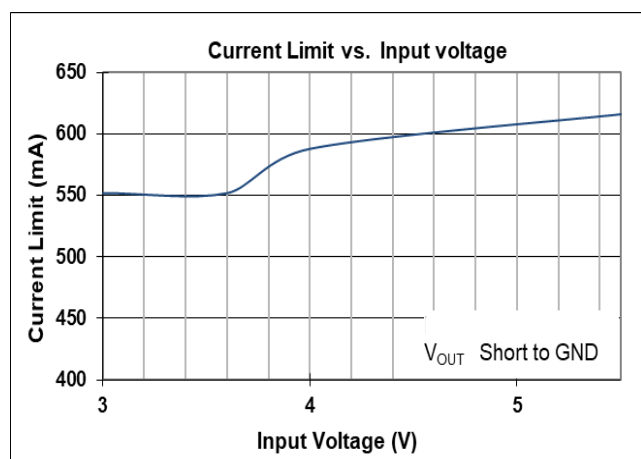
Note 3. $V_{DROP} = V_{IN} - V_{OUT}$ (V_{OUT} 达到 98%标准值)。

典型电气特性

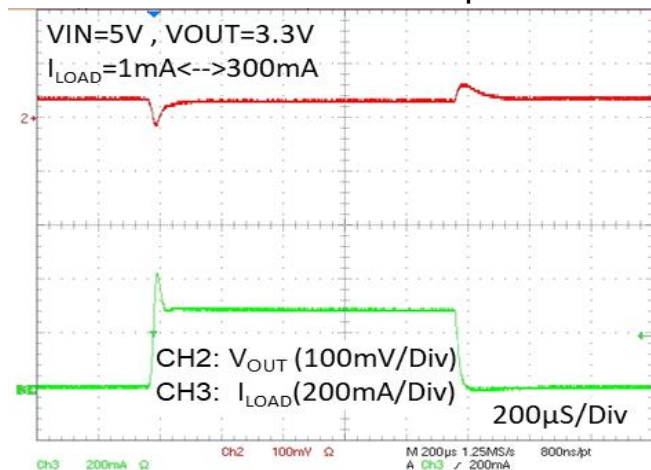




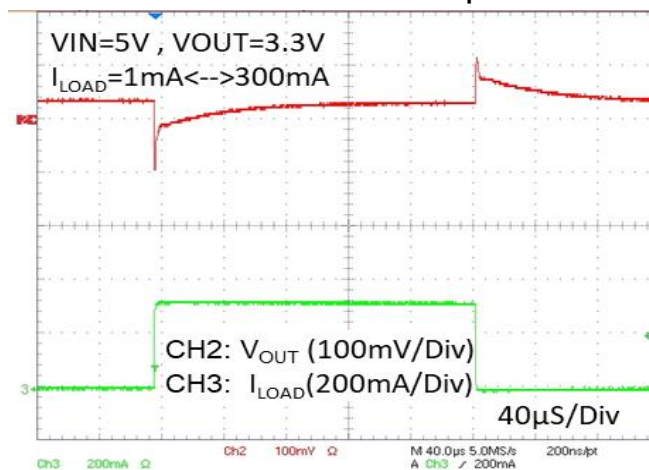
Current Limit Response



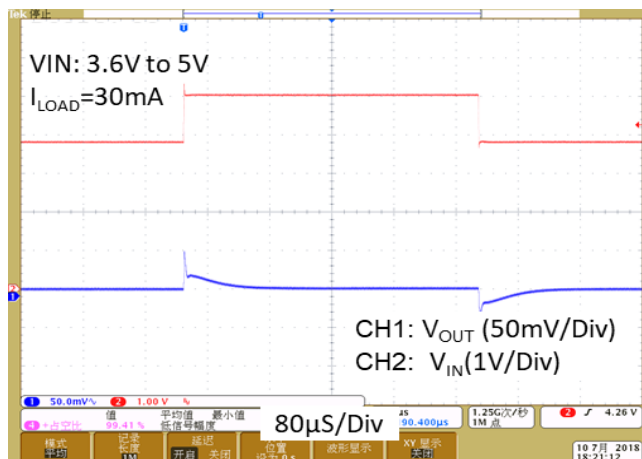
Load Transient Response I



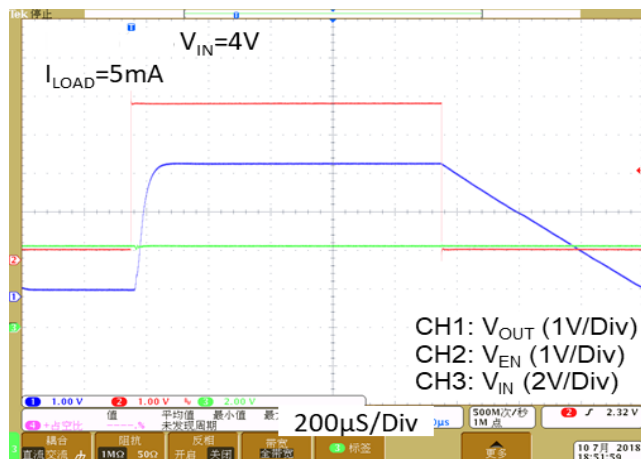
Load Transient Response II



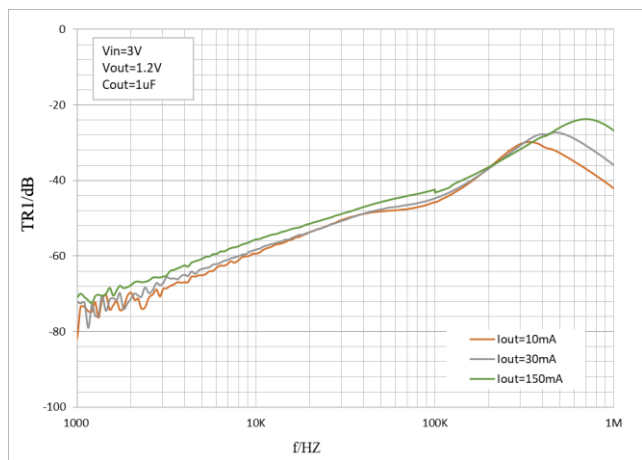
Line Transient Response



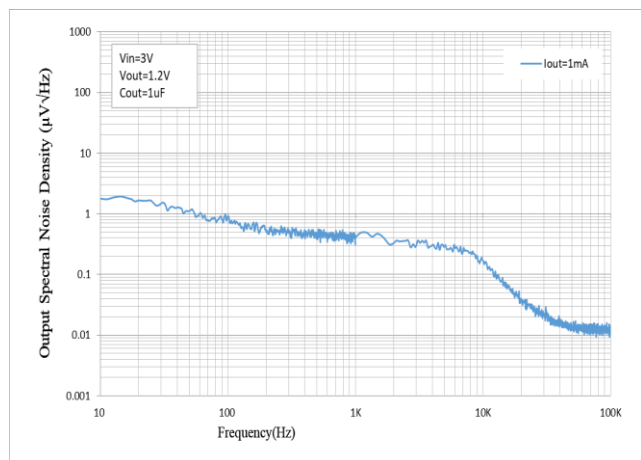
V_{OUT} Turn On/Off by EN



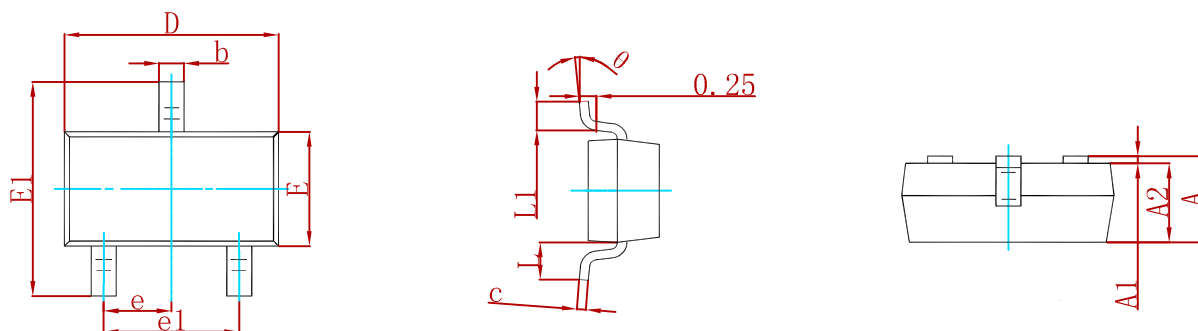
PSRR vs. Frequency



Noise Density Spectrum

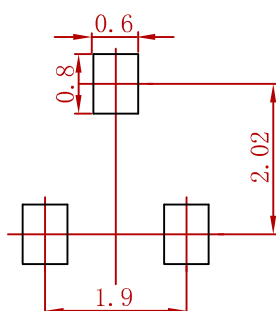


PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
 1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.