

### Features

- Input Voltage Range : 1.2V to 5.5V
- 20  $\mu$ A Ground Current (I<sub>Q</sub>) at no Load
- PSRR = 75dB at 1kHz
- 1.5% Output Accuracy
- Low (0.1  $\mu$ A) Shutdown Current
- Dropout Voltage : 0.17V at 300mA when V<sub>OUT</sub>  $\geq$  3V
- Support Fixed Output Voltage 0.8V, 1.0V, 1.05V, 1.1V, 1.2V, 1.25V, 1.3V, 1.5V, 1.8V, 1.85V, 2V, 2.5V, 2.8V, 2.85V, 3V, 3.1V, 3.3V, 3.45V
- Current Limit Protection
- Over Temperature Protection
- Output Active Discharge Function
- SOT353 Packages

### Applications

- CDM/GSM mobile phone
- PDAs /MP3
- Audio/Video equipment

### General Description

This production is a low-dropout (LDO) voltage regulator with enable function that operates from a 1.2V to 5.5V supply. It provides up to 300mA of output current in miniaturized packaging.

The feature of 20  $\mu$ A low quiescent current and 0.5  $\mu$ A shutdown current are ideal for the battery application with long service life. The other features include current limit function, over temperature protection and output discharge function.

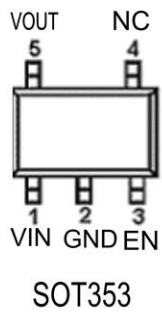
### Ordering Information

**TPMIC5365-3.3YC5**

**Package Type**  
YC5=SOT353

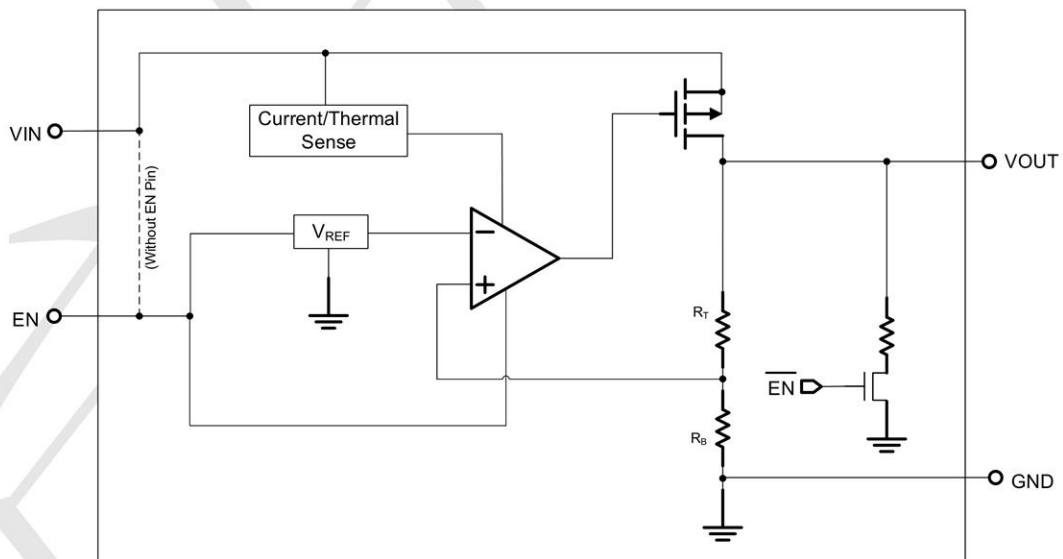
**Output Voltage:** 33=3.3V  
30=3.0V  
28=2.8V  
18=1.8V  
xx.xV

## Pin Configuration



Pin No	Pin Name	Pin Function
1	VIN	Input of Supply Voltage.
2	GND	Ground
3	EN	Enable Control Input.
4	NC	No Internal Connection.
5	VOUT	Output of the Regulator

## BLOCK DIAGRAM



## ABSOLUTE MAXIMUM RATINGS

VIN Pin to GND Pin Voltage .....	-0.3V to 6.5V
VOUT Pin and EN Pin to GND Pin Voltage .....	-0.3V to 6V
VOUT Pin to VIN Pin Voltage .....	-6V to 0.3V
Storage Temperature Range .....	-60°C~150°C
Lead Temperature (Soldering, 10 sec) .....	260°C
Junction Temperature .....	150°C
Operating Ambient Temperature Range T <sub>A</sub> .....	-40°C~85°C
Thermal Resistance Junction to Ambient, R <sub>θJA</sub> SOT353 .....	330 °C/W

## Electrical Characteristics (T = 25°C unless otherwise noted)

(V<sub>OUT</sub> + 1 < V<sub>IN</sub> < 5.5V, T<sub>A</sub> = 25°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Fixed Output Voltage Range	V <sub>OUT</sub>		0.8	--	3.45	V
DC Output Accuracy		I <sub>LOAD</sub> = 1mA	-2	--	2	%
Dropout Voltage (I <sub>LOAD</sub> = 300mA) (Note 5)	V <sub>DROP</sub>	0.8V ≤ V <sub>OUT</sub> < 1.05V	--	0.7	0.97	V
		1.05V ≤ V <sub>OUT</sub> < 1.2V	--	0.5	0.92	
		1.2V ≤ V <sub>OUT</sub> < 1.5V	--	0.4	0.57	
		1.5V ≤ V <sub>OUT</sub> < 1.8V	--	0.3	0.47	
		1.8V ≤ V <sub>OUT</sub> < 2.1V	--	0.24	0.33	
		2.1V ≤ V <sub>OUT</sub> < 2.5V	--	0.21	0.3	
		2.5V ≤ V <sub>OUT</sub> < 2.8V	--	0.18	0.25	
		2.8V ≤ V <sub>OUT</sub> < 3V	--	0.16	0.23	
Dropout Voltage (I <sub>LOAD</sub> = 200mA) (Note 6)	V <sub>DROP</sub>	1.8V ≤ V <sub>OUT</sub> < 2.1V	--	0.16	0.2	V
V <sub>CC</sub> Consumption Current	I <sub>Q</sub>	I <sub>LOAD</sub> = 0mA, V <sub>OUT</sub> ≤ 5.5V V <sub>IN</sub> ≥ V <sub>OUT</sub> + V <sub>DROP</sub>	--	20		μA

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Shutdown GND Current (Note 7)		V <sub>EN</sub> = 0V	--	0.1	0.5	μA	
Shutdown Leakage Current (Note 7)		V <sub>EN</sub> = 0V, V <sub>OUT</sub> = 0V	--	0.1	0.5	μA	
EN Input Current	I <sub>EN</sub>	V <sub>EN</sub> = 5.5V	--	--	0.1	μA	
Line Regulation	ΔLINE	I <sub>LOAD</sub> = 1mA	1.2V ≤ V <sub>IN</sub> < 1.5V	--	0.3	0.6	%
			1.5V ≤ V <sub>IN</sub> < 1.8V	--	0.15	0.3	
			1.8V ≤ V <sub>IN</sub> ≤ 5.5V	--	0.13	0.35	
Load Regulation	ΔLOAD	1mA < I <sub>LOAD</sub> < 300mA	--	0.5	1	%	
Power Supply Rejection Ratio	PSRR	V <sub>IN</sub> = 3V, I <sub>LOAD</sub> = 50mA, C <sub>OUT</sub> = 1μF, V <sub>OUT</sub> = 2.5V, f = 1kHz	--	75	--	dB	
Output Voltage Noise		C <sub>OUT</sub> = 1μF, I <sub>LOAD</sub> = 150mA, BW = 10Hz to 100kHz, V <sub>IN</sub> = V <sub>OUT</sub> + 1V	V <sub>OUT</sub> = 0.8V	--	38	--	μV <sub>RMS</sub>
			V <sub>OUT</sub> = 1.2V	--	46	--	
			V <sub>OUT</sub> = 1.8V	--	48	--	
			V <sub>OUT</sub> = 3.3V	--	51	--	
Output Current Limit	I <sub>LIM</sub>	V <sub>OUT</sub> = 90% of V <sub>OUT(NOM)</sub>	350	600	--	mA	
Enable Threshold Voltage	H-Level	V <sub>ENH</sub>	V <sub>IN</sub> = 5V	0.5	0.7	0.9	V
	L-Level	V <sub>ENL</sub>	V <sub>IN</sub> = 5V	0.4	0.65	0.85	
Thermal Shutdown Temperature	T <sub>SD</sub>	I <sub>LOAD</sub> = 30mA, V <sub>IN</sub> ≥ 1.5V	--	150	--	°C	
Thermal Shutdown Hysteresis	ΔT <sub>SD</sub>		--	20	--	°C	
Discharge Resistance		EN = 0V, V <sub>OUT</sub> = 0.1V	--	80	--	Ω	

## TYPICAL APPLICATION

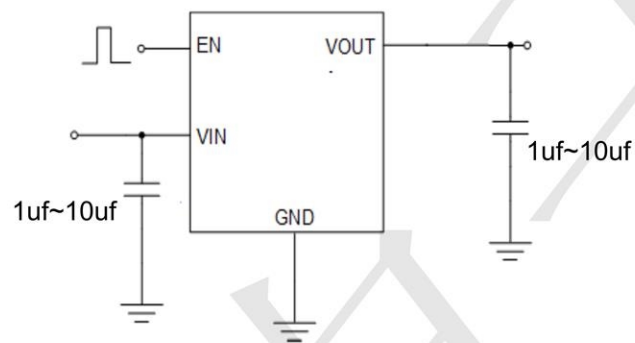
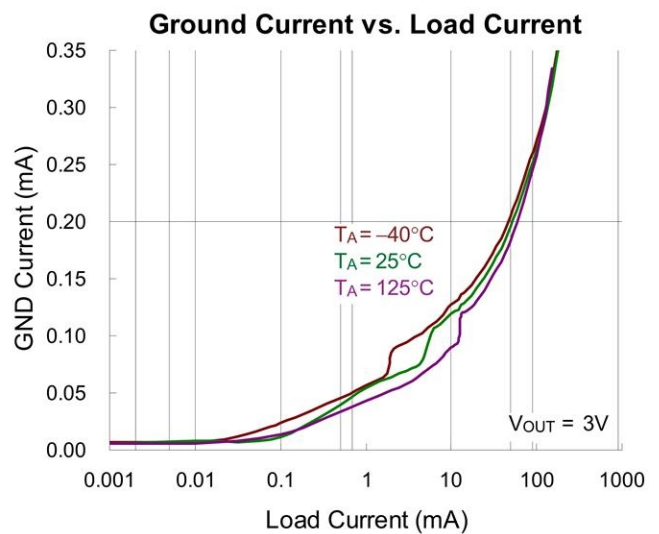
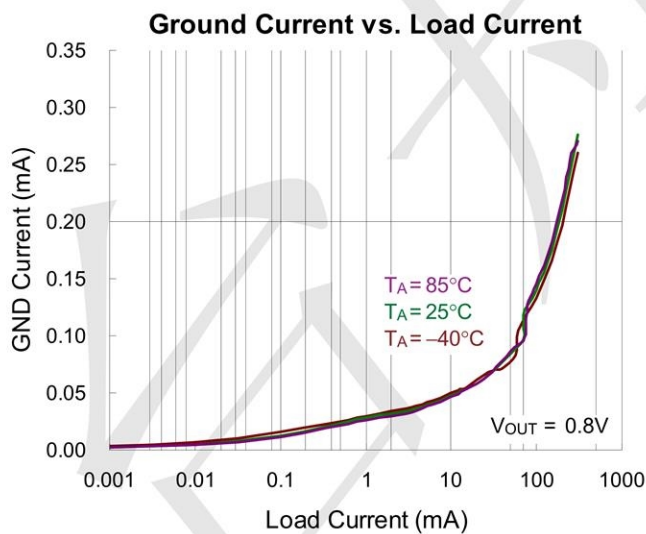
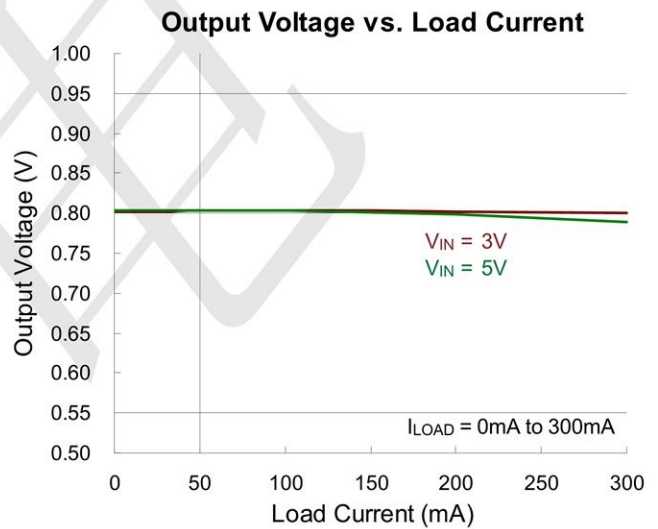
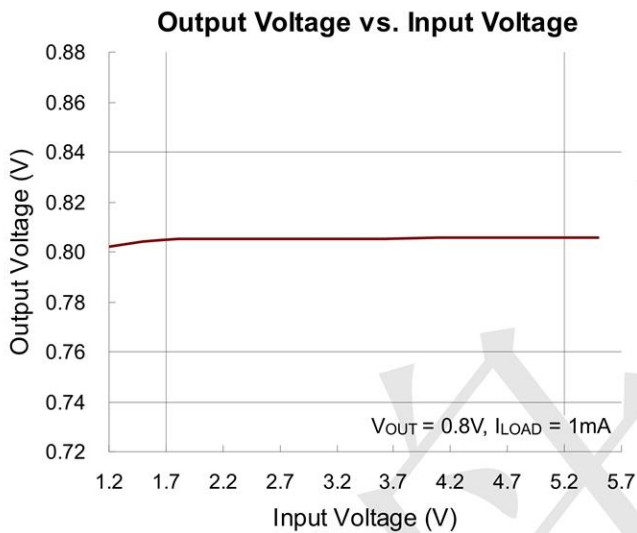
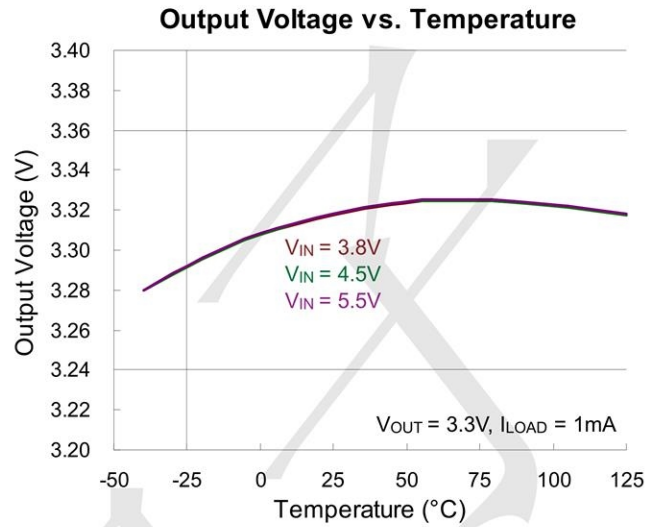
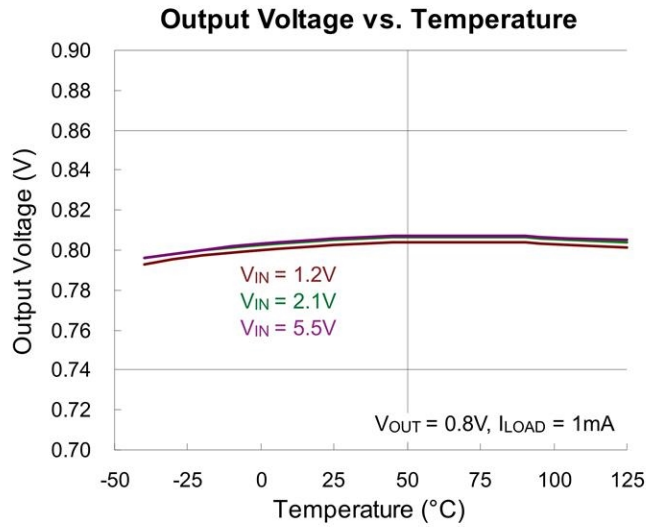
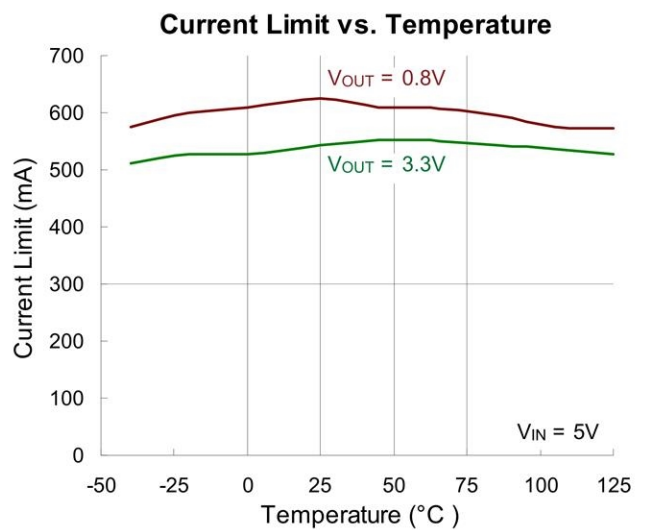
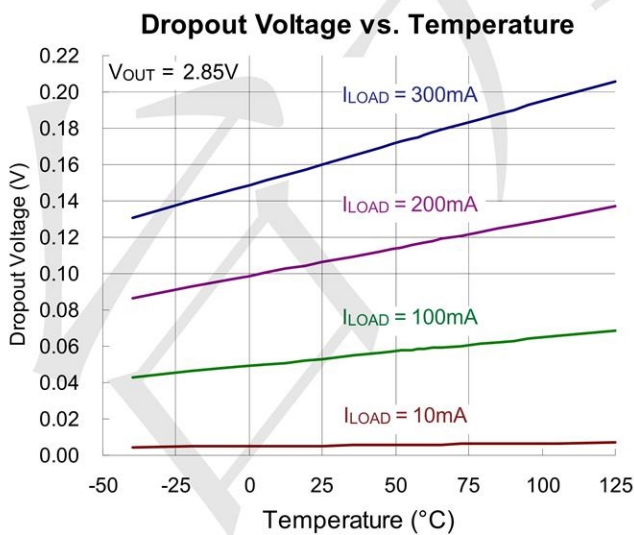
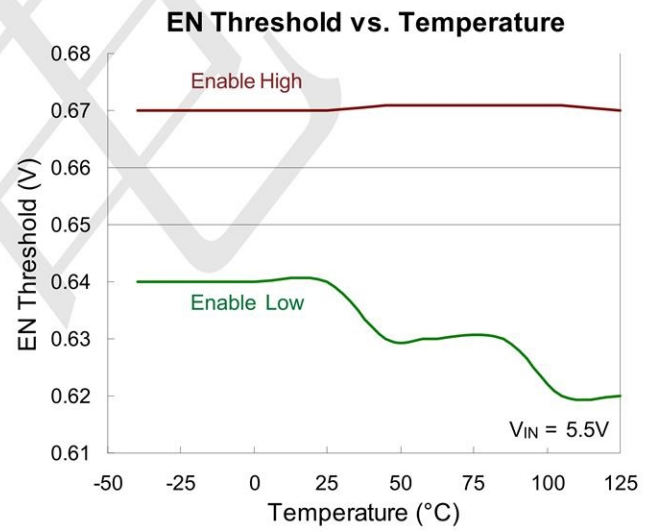
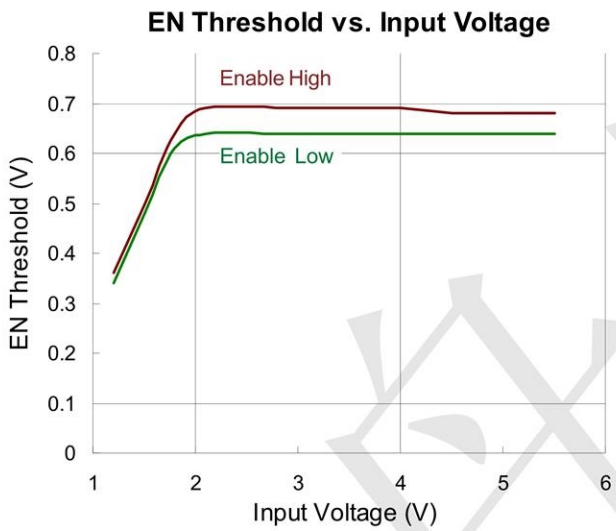
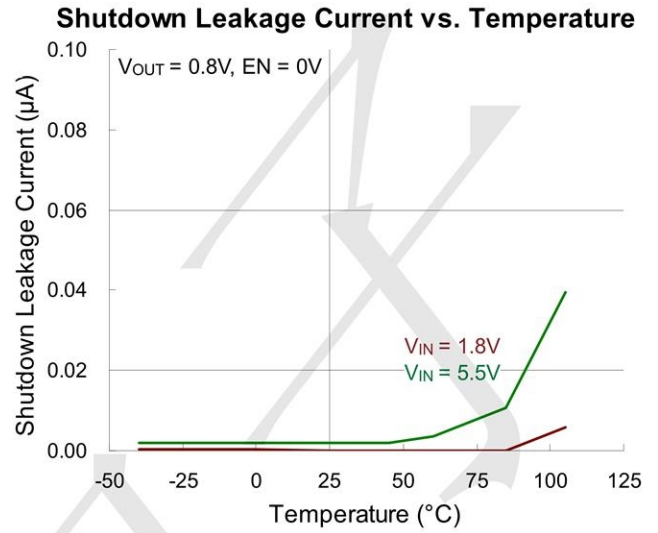
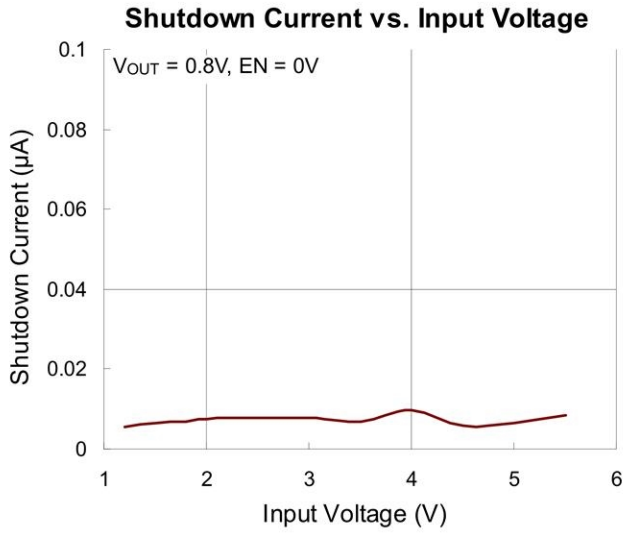


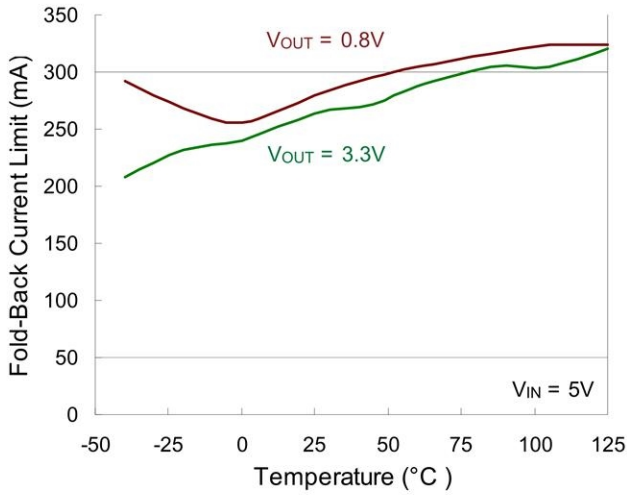
Figure 2: Application circuit of Fixed V<sub>OUT</sub> LDO with enable function

**Typical Operating Characteristics**

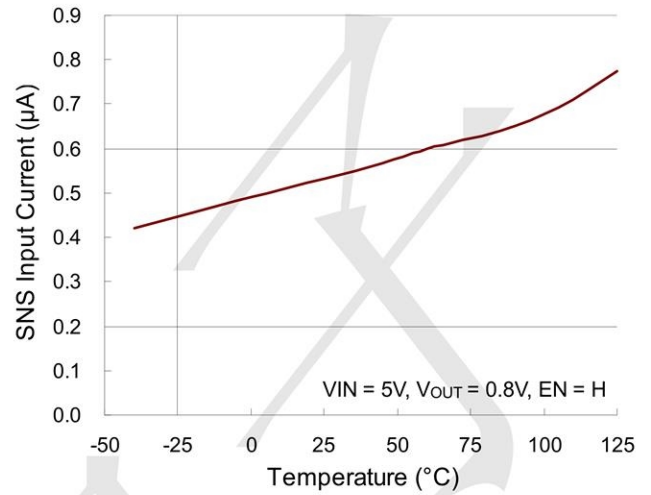




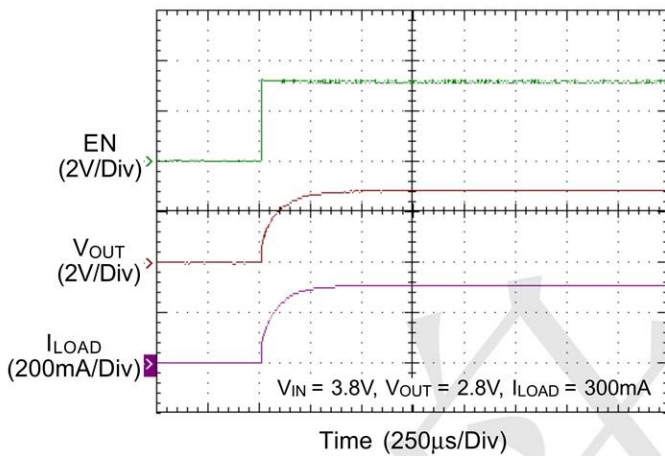
**Fold-Back Current Limit vs. Temperature**



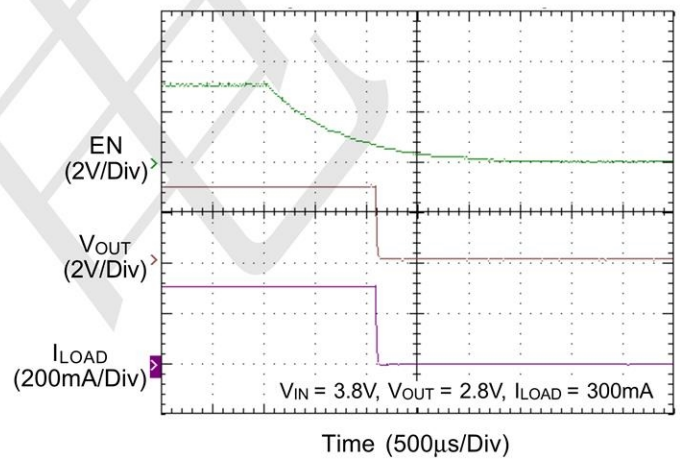
**SNS Input Current vs. Temperature**



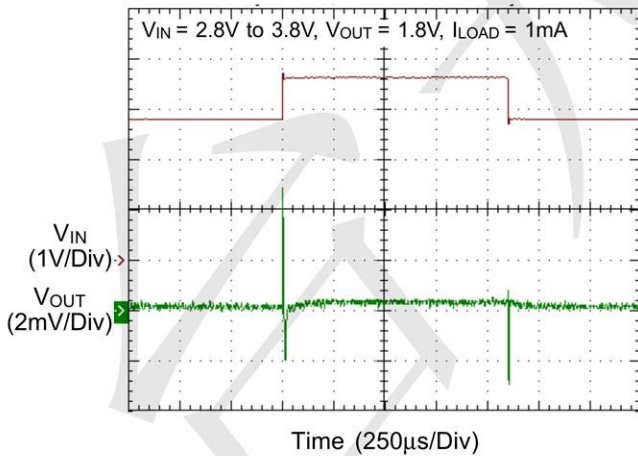
**Power On from EN**



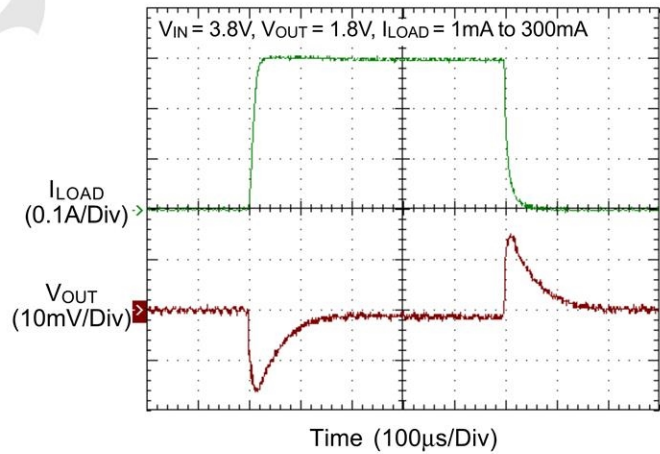
**Power Off from EN**



**Line Transient**

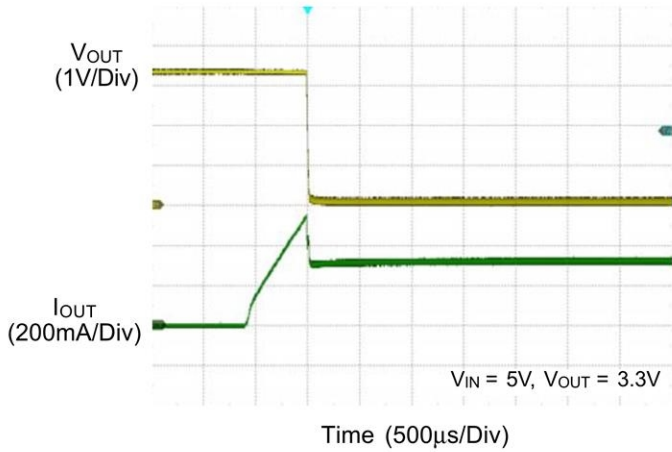


**Load Transient**

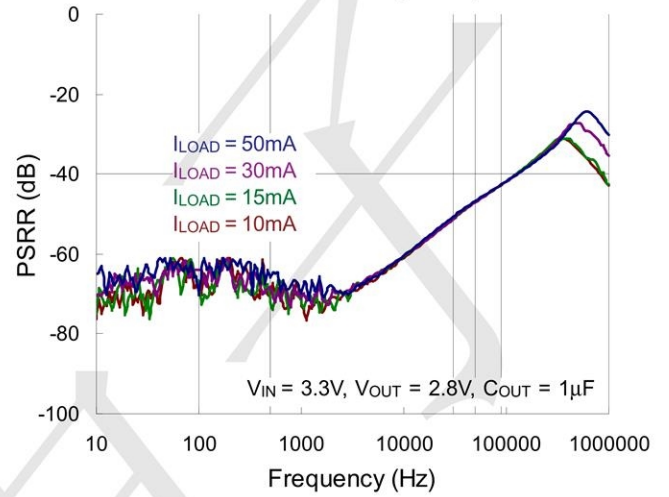




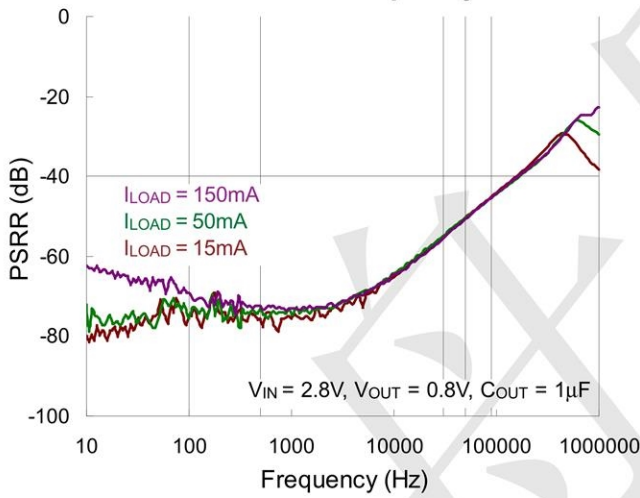
**Output Current Limit Protection**



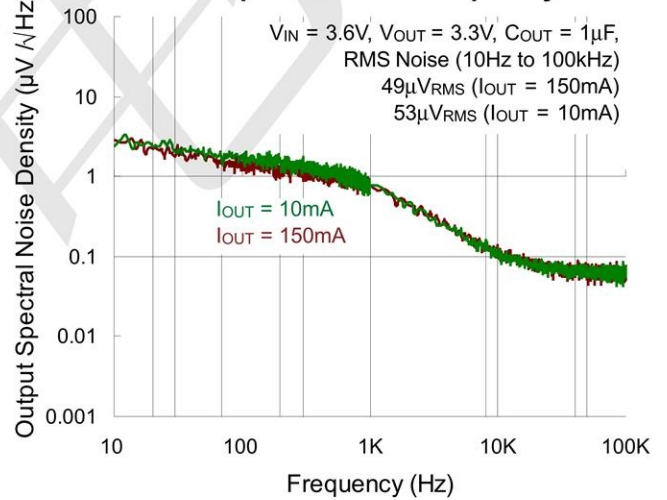
**PSRR vs. Frequency**



**PSRR vs. Frequency**

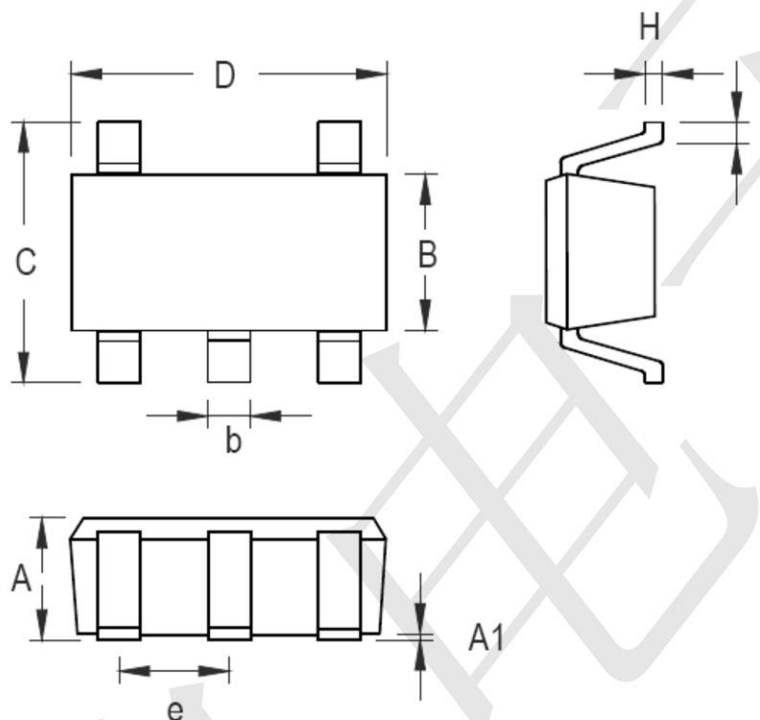


**Output Noise vs. Frequency**



**Package information**

**SOT353**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.031	0.044
A1	0.000	0.100	0.000	0.004
B	1.150	1.350	0.045	0.054
b	0.150	0.400	0.006	0.016
C	1.800	2.450	0.071	0.096
D	1.800	2.250	0.071	0.089
e	0.650		0.026	
H	0.080	0.260	0.003	0.010
L	0.210	0.460	0.008	0.018