



Features

- Vin Range Up to 16V
- Output Range: 2.6V~5.0V
- Maximum Output Current: 500mA
- PSRR: 50dB@1kHz
- Dropout Voltage: 0.7V@I_{OUT}=300mA
- Ultra Low Quiescent Current: 1.5μA Typ.
- Output Voltage Tolerances of ±2% Over the Temperature Range
- Internal Thermal Overload Protection
- Built-in Foldback Current Limit

Applications

- E-meters, Water Meters and Gas Meters
- Cellphones, Radiophone, Digital Cameras
- Fire Alarm, Smoke Detector
- Appliances and White Goods

General Description

The TX76XX is ultra-low quiescent current regulator features and low dropout voltage. With 1.5μA quiescent current at no load. The TX76XX retains all of the features that are common to low dropout regulators including a low dropout PMOS pass device, foldback current limiter, and thermal shutdown.

The TX76XX has 16V maximum operating

voltage, excellent load transient response, and -40°C to 125°C operating temperature range, and ±2% output voltage tolerance over the entire output current, input voltage, and temperature range.

The TX76XX regulators are available in standard SOT23-3L, SOT23-5 and SOT89 packages.



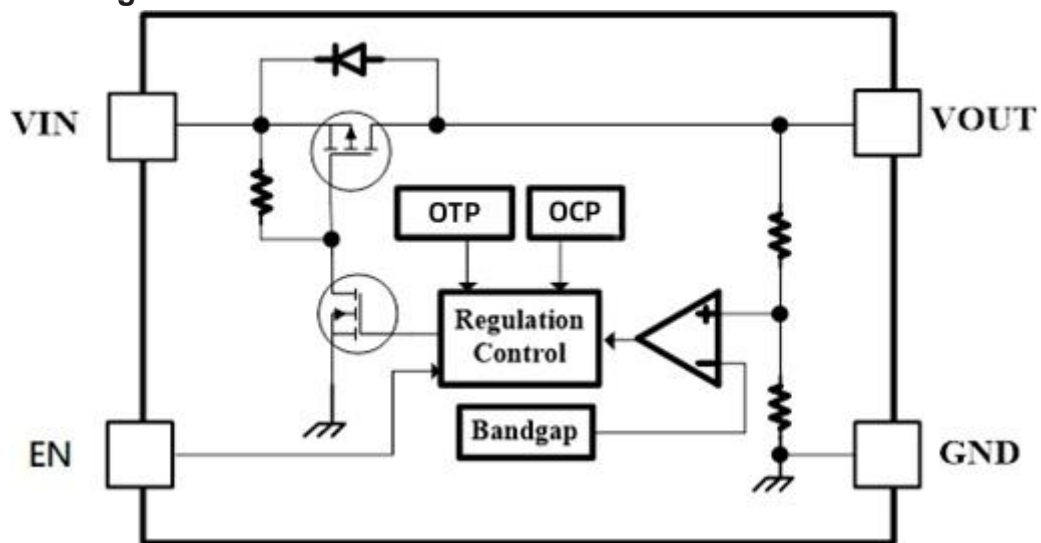
TX76XX series

Order Information

TX76①②③④⑤

Designator	Symbol	Description
①②	Integer	Output Voltage(2.6~5.0V)
③	M	Standard
④	M	Package: SOT23-3L
	M5	Package: SOT23-5
	P	Package: SOT89
⑤	R	Halogen Free

Block Diagram





TX76XX series

Pin Assignment

SOT23-3L (Top View)

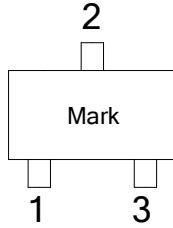


Table1: TX76XXMMR series (SOT23-3L PKG)

PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin

SOT89 (Top View)

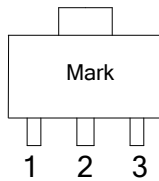


Table2: TX76XXMPR series (SOT89 PKG)

PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin

SOT23-5 (Top View)

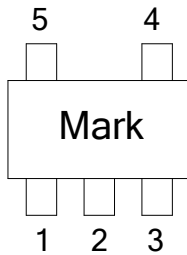


Table3: TX76XXMM5R series (SOT23-5 PKG)

PIN NO.	PIN NAME	FUNCTION
1	VIN	Input voltage pin
2	GND	GND pin
3	EN	Enable
4	NC	Not connected
5	VOUT	Output voltage pin



Absolute Maximum Ratings

Input Voltage.....	-0.3V to 18V	Storage Temperature	-55°C to 150°C
V _{EN}	-0.3V to V _{IN}	Lead Temperature(Soldering, 10 sec.)	260°C
V _{OUT}	-0.3V to 10V	Junction Temperature.....	-40°C to 125°C
ESD Rating.....	4.5kV		

Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Electrical Characteristics

The following specifications apply for V_{IN}=4.5V, I_{OUT}=1mA, C_{IN}=C_{OUT}=10uF, T_J=25°C, unless specified otherwise.

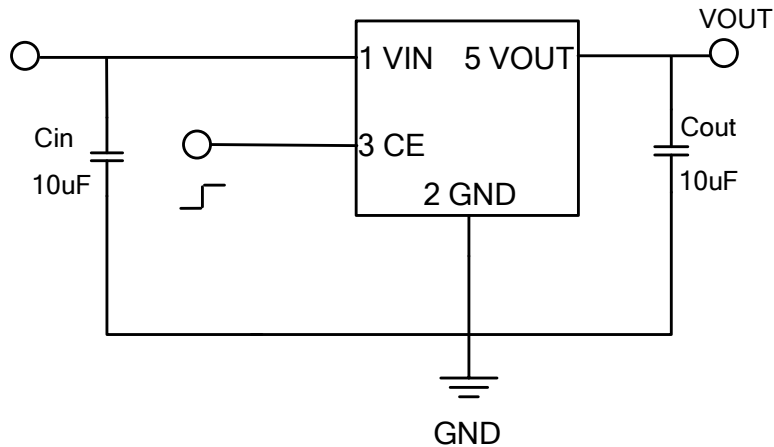
SYMBOL	ITEMS	CONDITIONS	MIN	TYP	MAX	UNIT
V _{IN}	Input Voltage		2.6		16	V
V _{OUT}	Output Range		2.6		5.0	V
ΔV _{OUT}	Output Voltage Accuracy		-2	V _{OUT}	2	%
I _Q	Quiescent Current	T _J = 25°C	1.2	1.5	2.5	μA
V _{DROP}	Dropout Voltage	I _{OUT} =200mA		0.5		V
		I _{OUT} =300mA		0.7		
ΔV _{LINE}	Line Regulation	V _{IN} = V _{OUT} + 1V to 16V, or V _{IN} = 5V to 16V, if V _{OUT} < 4V		5		mV
ΔV _{LOAD}	Load Regulation	I _{OUT} = 1mA to 100mA		24		mV
		I _{OUT} = 1mA to 250mA		44		
PSRR	Power Supply Rejection Rate (V _{in} =V _{out} +1V vpp=0.2mv I _{out} =100mA)	Freq.=1kHz		50		dB
V _{EN_H}	CE “HIGH” Voltage	V _{IN} =4V	1.3			V
V _{EN_L}	CE “Low” Voltage	V _{IN} =4V			0.4	V
I _{SHORT}	I _{OUT} @ V _{OUT} Short to Ground	V _{IN} =6V, V _{OUT} =0V		63		mA
T _{SD}	Thermal Shutdown			180		°C
T _{HY}	Thermal Shutdown Hysteresis			160		°C

Note1: The parameters of C_{in} and C_{out} must be greater than 10uF.



TX76XX series

Application Circuits

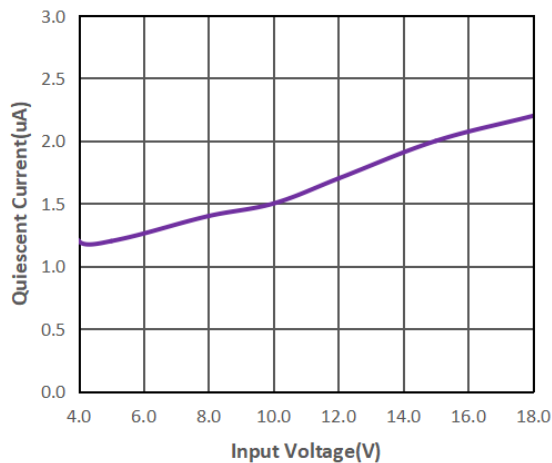


Note: The parameters of C_{in} and C_{out} must be greater than 10uF.

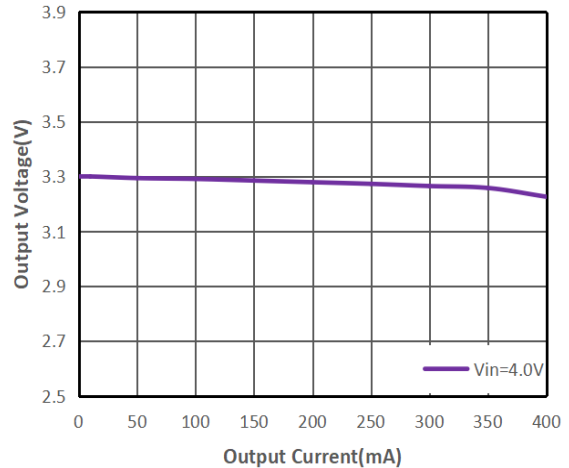
Typical Performance Characteristics

$C_{IN}=10\mu F$, $C_{OUT}=10\mu F$, $V_{IN}=4.0V$, $V_{OUT}=3.3V$ $T_J=25^\circ C$, unless specified otherwise

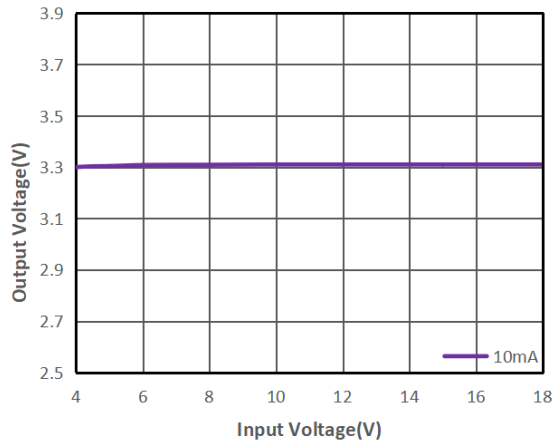
(1) Quiescent Current VS Input Voltage



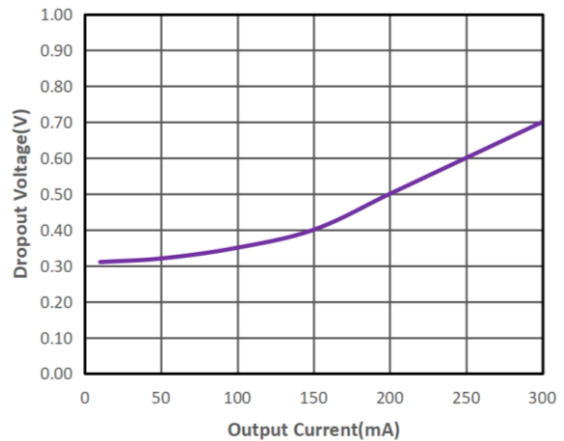
(2) Output Voltage VS Output Current



(3) Output Voltage VS Input Voltage



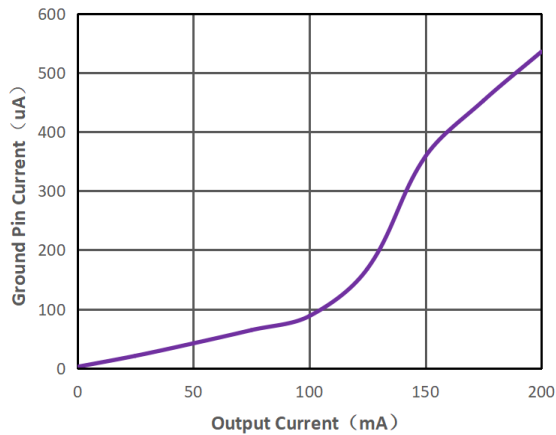
(4) Dropout Voltage VS Output Current



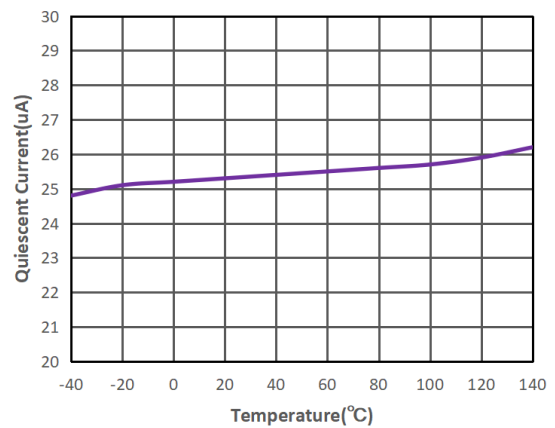


TX76XX series

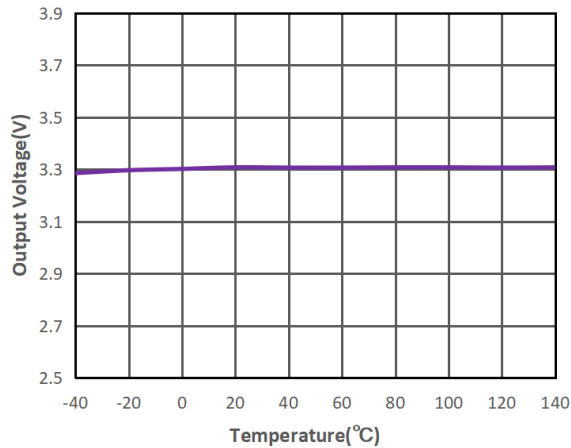
(5) Ground Pin Current VS Output Current



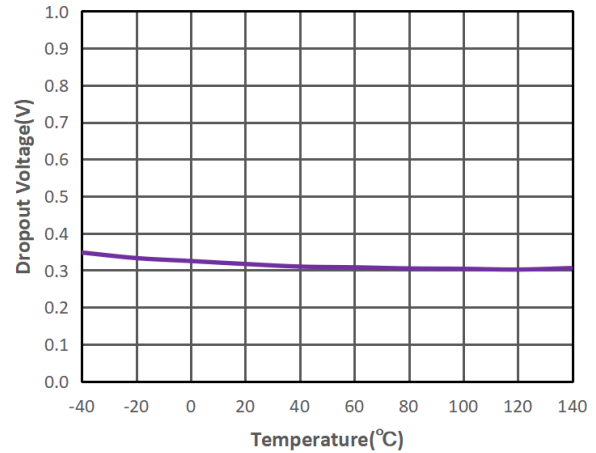
(6) Quiescent Current VS Temperature



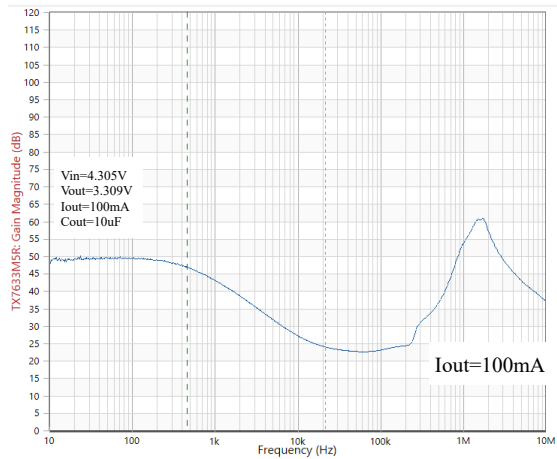
(7) Output Voltage VS Temperature



(8) Dropout Voltage VS Temperature

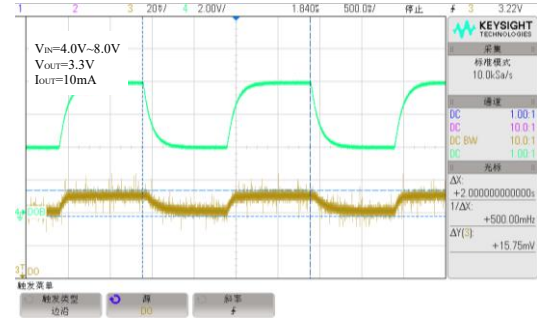
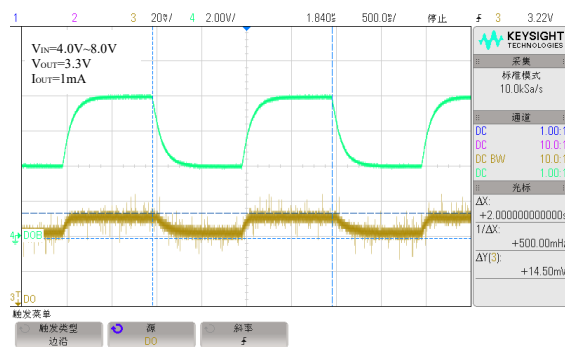


(9) PSRR VS Frequency

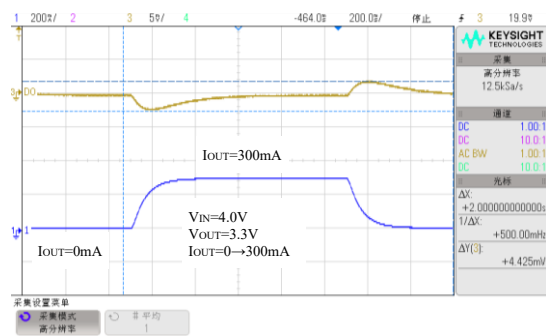
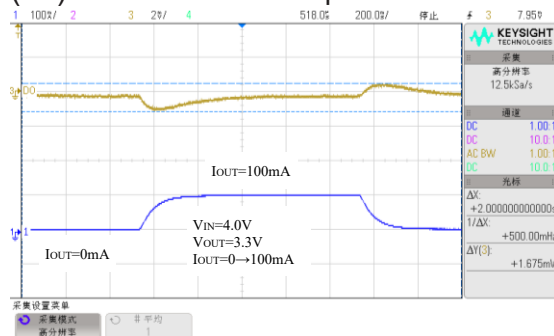




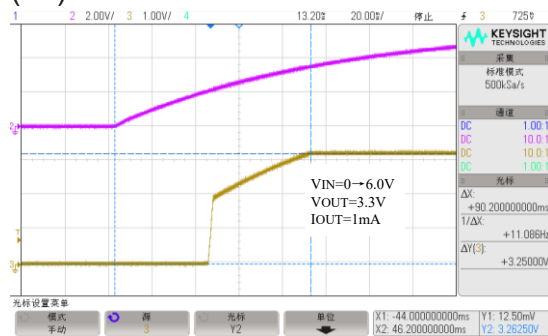
(10) Input Transient Response



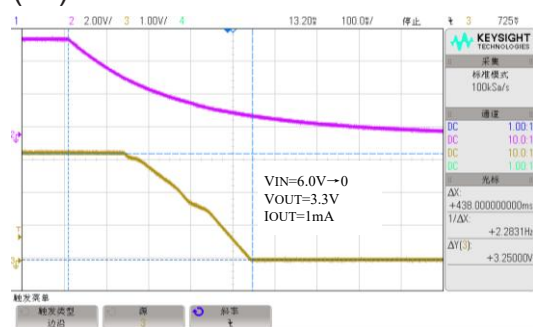
(11) Load Transient Response



(12) Power ON



(13) Power OFF

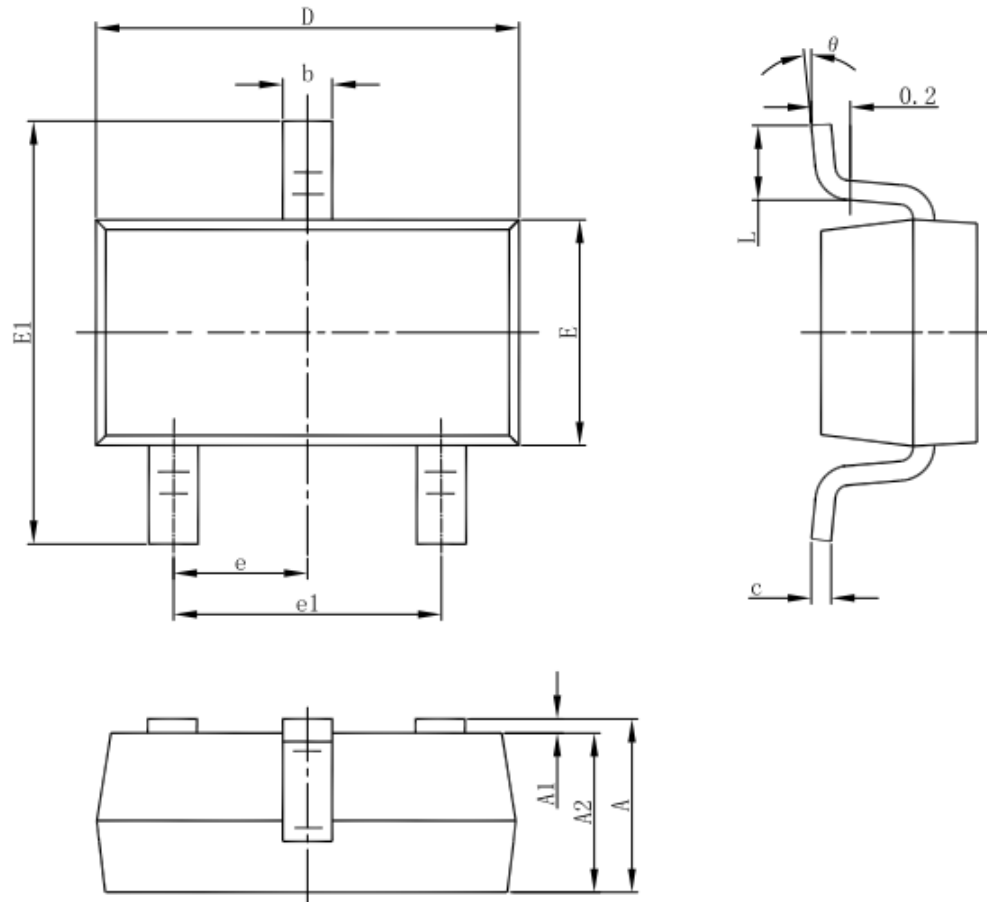




TX76XX series

Package Information

3-pin SOT23-3 Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

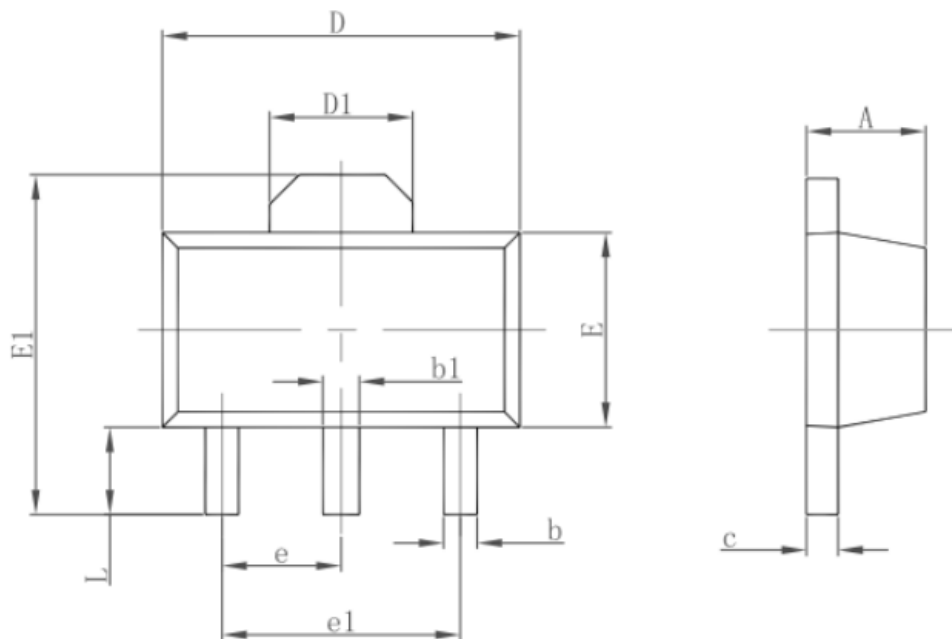


TX76XX series

<http://www.txsemi.com>

16V 500mA Ultra Low Current Consumption CMOS Voltage Regulator

SOT89-3L Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

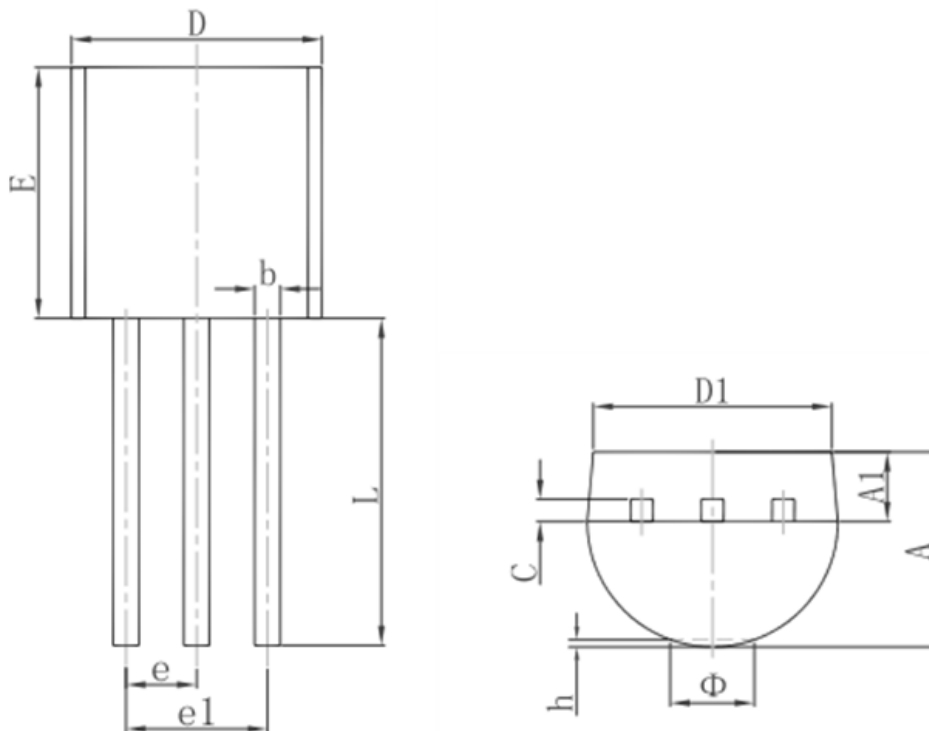


TX76XX series

<http://www.txsemi.com>

16V 500mA Ultra Low Current Consumption CMOS Voltage Regulator

3-pin TO92 Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP.		0.050 TYP.	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015



© Shanghai TX Semiconductor Sci.-Tech. Co., Ltd.

TX cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a TX product. No circuit patent license, copyrights or other intellectual property rights are implied. TX reserves the right to make changes to their products or specifications without notice. Customers are advised to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete.