



Features

- Vin Range Up to 40V
- Output Range: 2.6V~5.0V
- Maximum Output Current: 150mA
- PSRR: 65dB@1KHz
- Dropout Voltage: 500mV@I_{OUT}=100mA
- Ultra Low Quiescent Current: 2μA 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 TX84151 is ultra-low quiescent current regulator features and low dropout voltage. With 2μA quiescent current at no load. TX84151 retains all the features that are common to low dropout regulators including a low dropout PMOS pass device, foldback current limiter, and thermal shutdown.

TX84151 has 40V 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. TX84151 regulators are available in standard SOT23-3L, SOT89-3 and TO92 packages.

Order Information

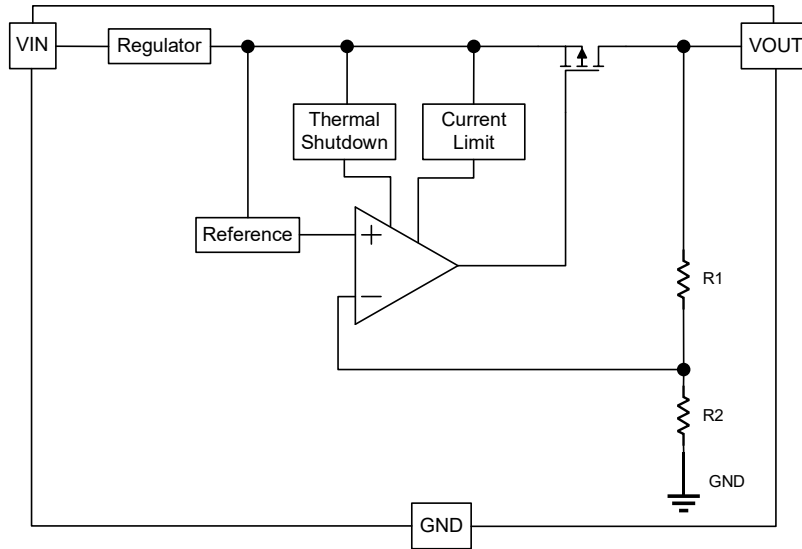
TX84151-①②③④

Designator	Symbol	Description
①②	Integer	Output Voltage(2.6~5.0V)
③	MA	Package: SOT23-3AL
	MB	Package: SOT23-3BL
	P	Package: SOT89-3
	T	Package: TO92
④	R	Halogen Free



TX84151 series

Block Diagram



Pin Assignment

SOT23-3 (Top View)

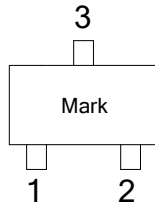


Table1: TX84151-XXMR series (SOT23-3L PKG)

PIN NO. (SOT23-3AL)	PIN NO. (SOT23-3BL)	PIN NAME	FUNCTION
1	1	GND	GND pin
2	3	VOUT	Output voltage pin
3	2	VIN	Input voltage pin

SOT89 (Top View)

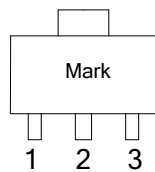


Table2: TX84151-XXPR series (SOT89-3 PKG)

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

TO92 (Top View)

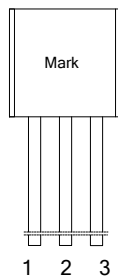


Table3: TX84151-XXTR series (TO92 PKG)

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



Absolute Maximum Ratings

Input Voltage.....	-0.3V to 45V
V _{OUT}	-0.3V to 12V
ESD Rating.....	5.5kV
Storage Temperature	-55°C to 150°C
Lead Temperature (Soldering, 10 sec.).....	260°C
Operating Temperature.....	-40°C to 125°C

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}=12V, 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		2.7		40	V
V _{OUT}	Output Range		2.6		5.0	V
ΔV _{OUT}	Output Voltage Accuracy		-2	V _{OUT}	2	%
I _Q	Quiescent Current	V _{IN} = V _{OUT} + 1V	--	2	--	μA
V _{DROP}	Dropout Voltage	I _{OUT} =100mA	--	0.5	--	V
		I _{OUT} =150mA	--	1.0	--	
ΔV _{LINE}	Line Regulation	V _{IN} = V _{OUT} + 1V to 40V, or V _{IN} = 5V to 40V, if V _{OUT} < 4V	--	30	--	mV
ΔV _{LOAD}	Load Regulation	I _{OUT} = 1mA to 100mA	--	90	--	mV
PSRR	Power Supply Rejection Rate	V _{IN} =V _{OUT} +1V, V _{p-p} =0.2V I _{OUT} =10mA, Freq.=1kHz	--	65	--	dB
I _{SHORT}	I _{OUT} @ V _{OUT} Short to Ground	V _{IN} =6V, V _{OUT} =0V	--	50	--	mA

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



Application Circuits

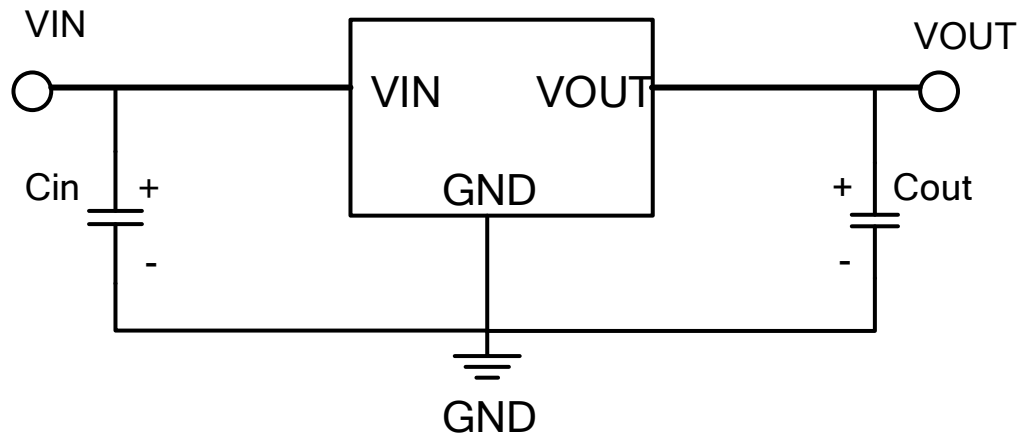


Figure1

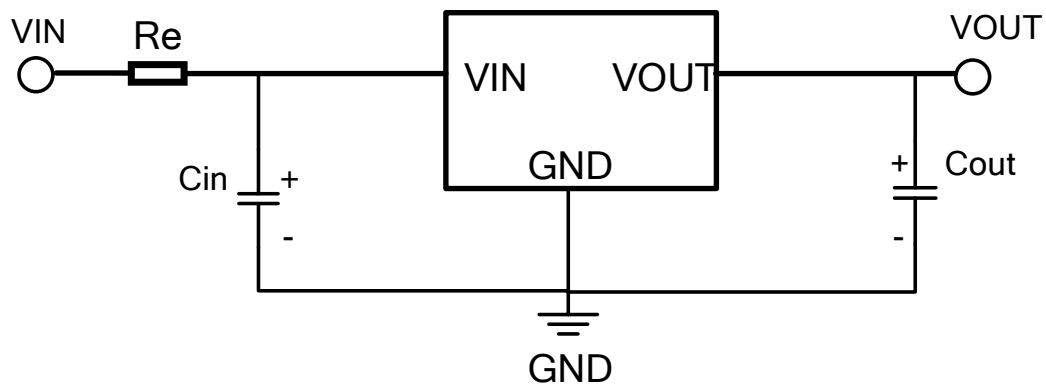


Figure2

Note1: The parameters of Cin and Cout must be greater than 1uF.

Note2: If $V_{IN} > 18V$, you'd better add a resistor to the input. The resistance value of R1 should be set to 0.25Ω.

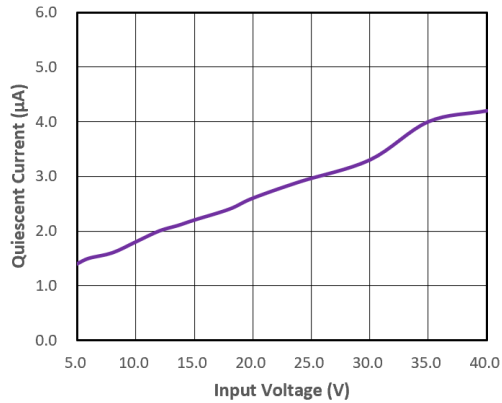


TX84151 series

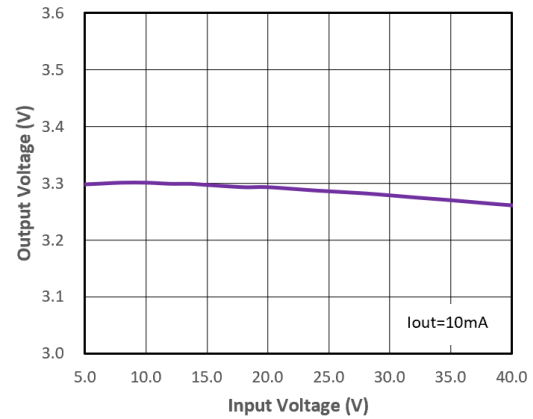
Typical Performance Characteristics

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

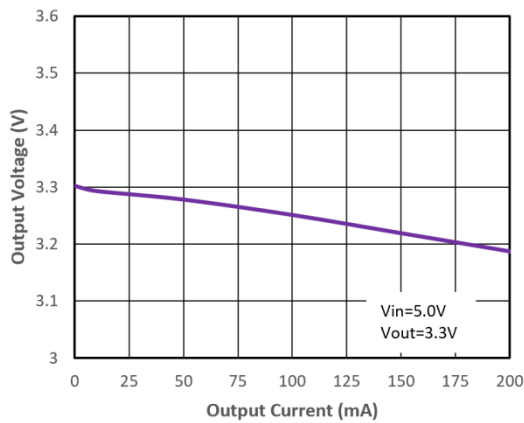
(1) Quiescent Current vs Input Voltage



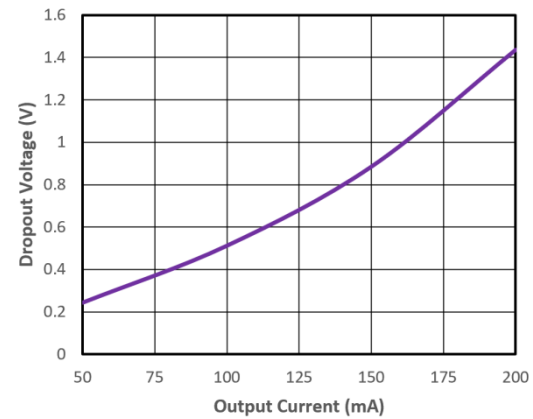
(2) Output Voltage vs Input Voltage



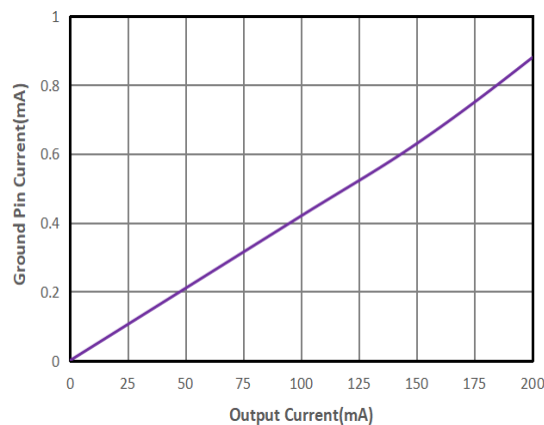
(3) Output Voltage vs Output Current



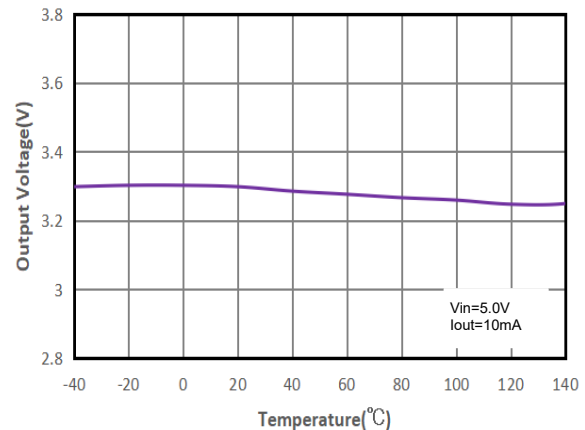
(4) Dropout Voltage vs Output Current



(5) Ground Pin Current vs Output Current



(6) Output Voltage vs Temperature





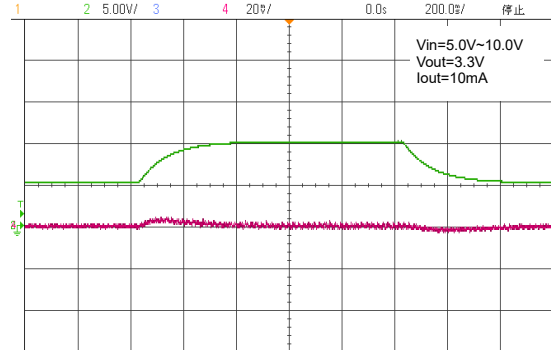
TX84151 series

<http://www.txsemi.com>

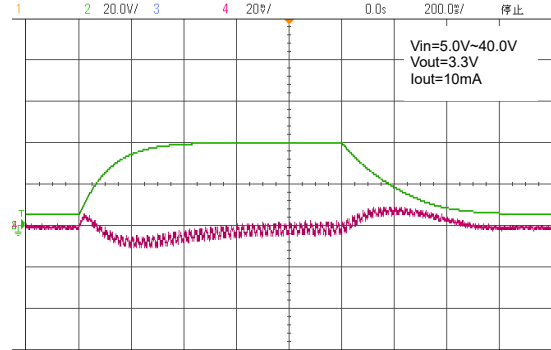
40V 150mA Ultra Low Current Consumption CMOS Voltage Regulator

(7) Input Transient Response

DSO-X 2024A, MY52160779, Fri Jul 17 10:23:57 2026

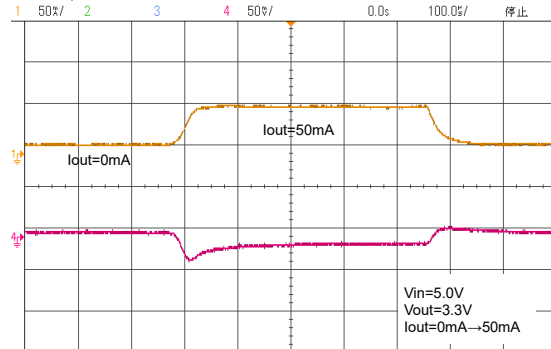


DSO-X 2024A, MY52160779, Fri Jul 17 10:27:04 2026

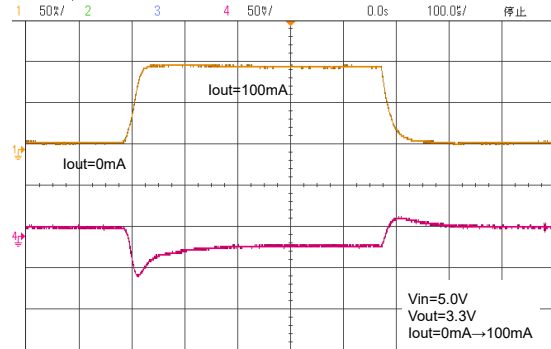


(8) Load Transient Response

DSO-X 2024A, MY52160779, Fri Jul 17 10:51:26 2026

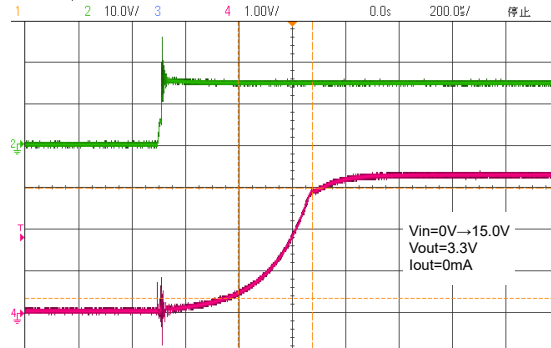


DSO-X 2024A, MY52160779, Fri Jul 17 10:53:46 2026



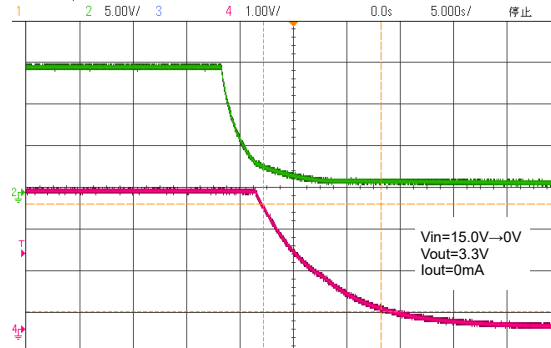
(9) Power ON

DSO-X 2024A, MY52160779, Tue Jul 14 10:27:17 2026



(10) Power OFF

DSO-X 2024A, MY52160779, Tue Jul 14 10:23:47 2026

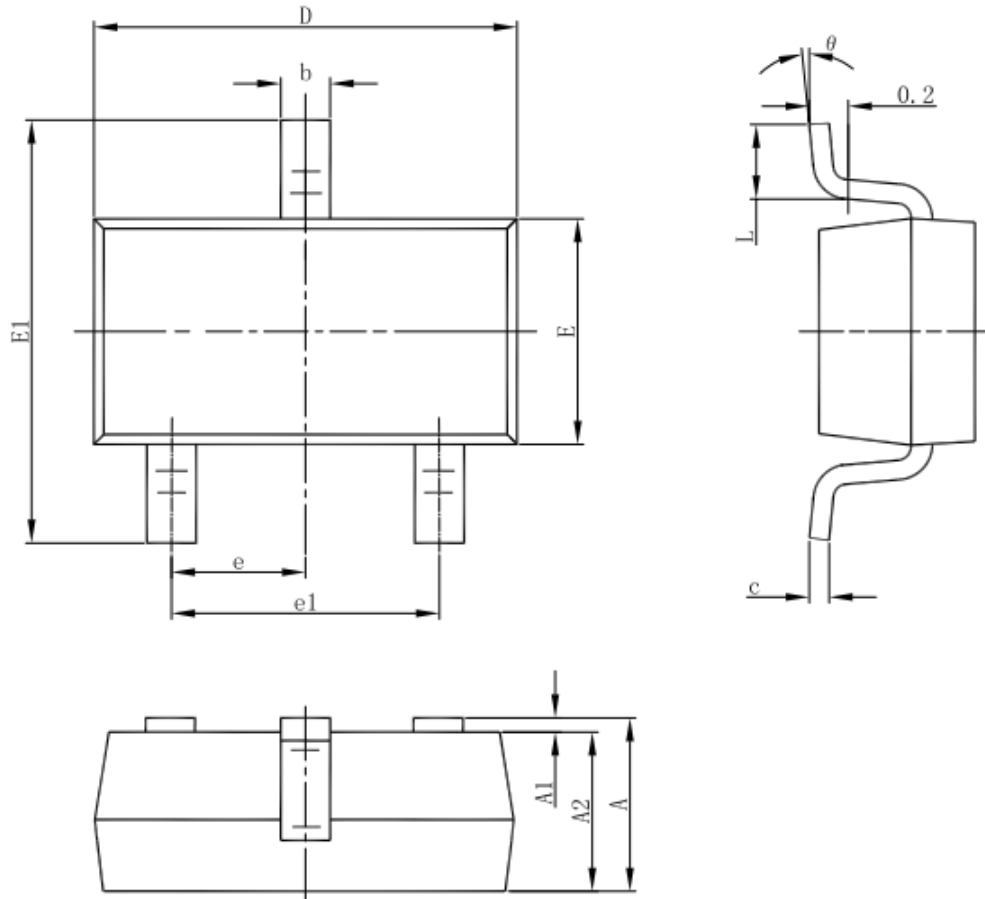




TX84151 series

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°

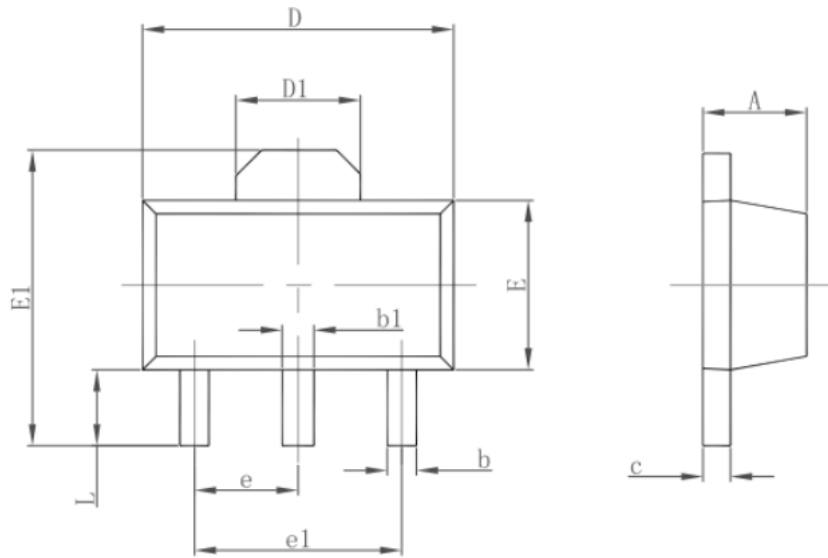


TX84151 series

<http://www.txsemi.com>

40V 150mA Ultra Low Current Consumption CMOS Voltage Regulator

SOT89-3L Outline Dimensions

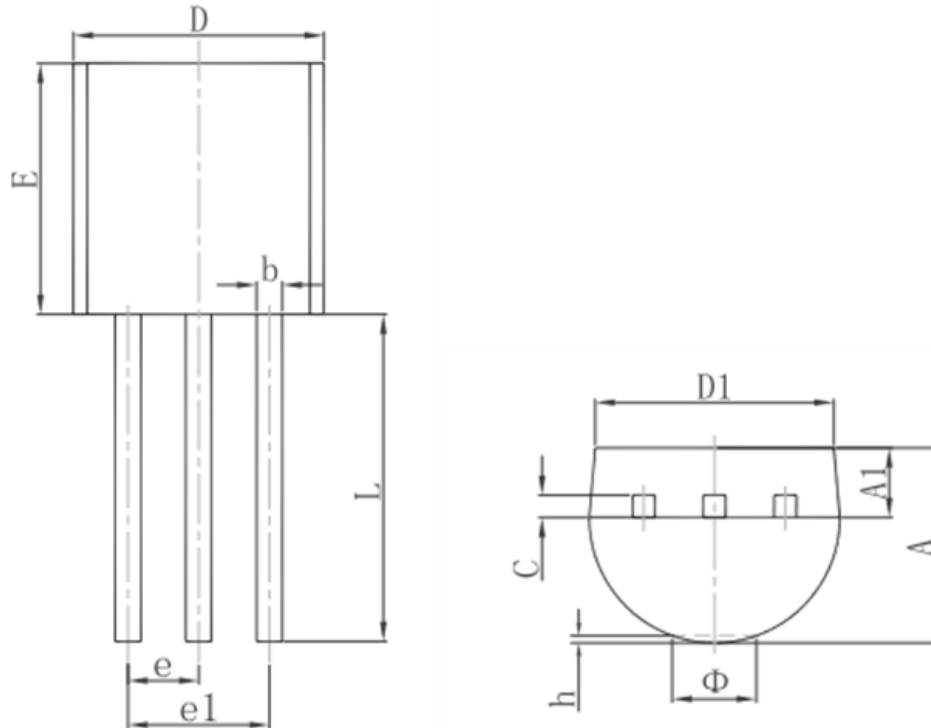


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.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



TX84151 series

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



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