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TPRT9166 Series

300mA,20uA, CMOS LDO Regulator

www.sot23.com.tw

Features

- 20μA Ground Current at no Load
- ±2% Output Accuracy
- 300mA Output Current
- Wide Operating Input Voltage Range:1.2V to 5.5V
- SOT-23 SOT89-3 Package Available

Applications

- Portable, Battery Powered Equipment
- Low Power Microcontrollers
- Laptop, Palmtops and PDAs
- Wireless Communication Equipment

General Descrition

The TPRT9166 series set of low power high voltage regulators implemented in CMOS technology which can provide 300mA output current. The device allows input voltage as high as 5.5V. The TPRT9166 series is available in several fixed output voltages. CMOS technology ensures low dropout voltage and low quiescent current.

Although designed primarily as fixed voltage regulators, the device can be used with external components to obtain variable output voltages.

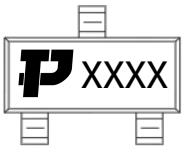
Ordering Information

TPRT9166-33GVL

GXL:SOT89-3Package
GVL:SOT23 Package

Output voltage: 12=1.2V
15=1.5V
18=1.8V
30=3.0V
33=3.3V
50=5.0V

Marking Information



: Logo
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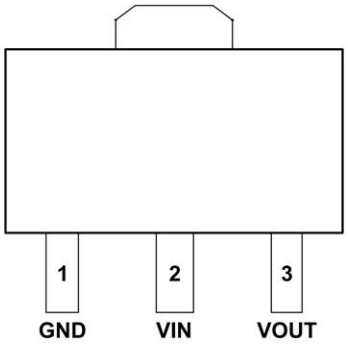
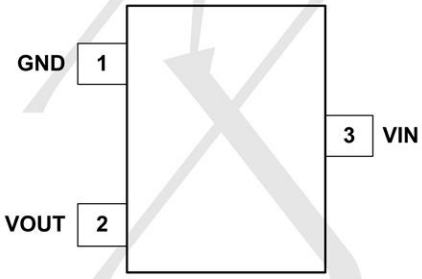
PIN CONFIGURATION



SOT89



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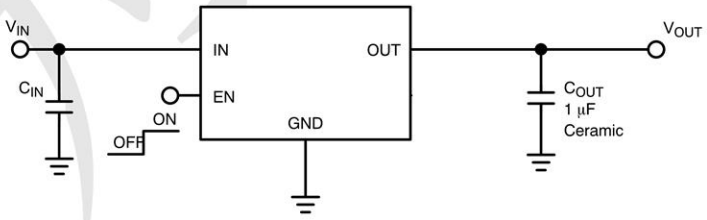
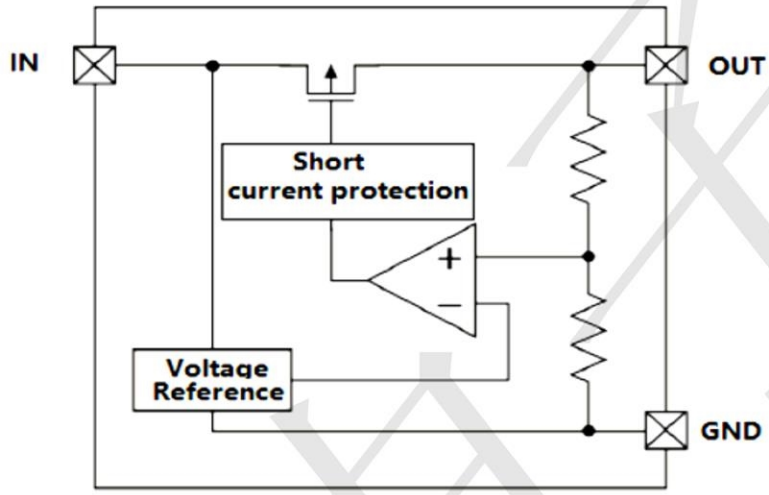
Pin Name	Pin Function
VIN	Power Input Voltage
GND	Ground
OUT	Output Voltage

Typical Application Circuit



BLOCK DIAGRAM



Absolute Maximum Ratings

Rating	Symbol	Value	Unit
Input Voltage (Note 1)	V_{IN}	−0.3 V to 6 V	V
Output Voltage	V_{OUT}	−0.3 V to V_{IN} + 0.3 V or 6 V	V
Enable Input	V_{EN}	−0.3 V to 6 V	V
Output Short Circuit Duration	t_{SC}	∞	s
Maximum Junction Temperature	$T_{J(MAX)}$	150	°C
Storage Temperature	T_{STG}	−55 to 150	°C
ESD Capability, Human Body Model (Note 2)	ESD_{HBM}	2000	V
ESD Capability, Machine Model (Note 2)	ESD_{MM}	200	V

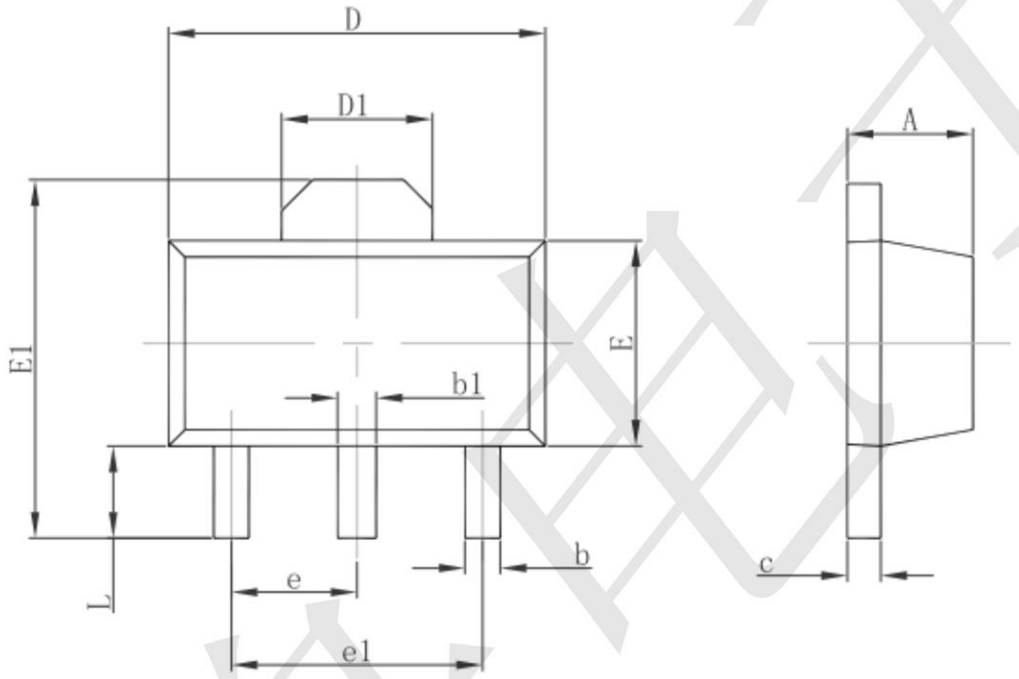
SOT-23-3 ..... 0.4W
Package Thermal Resistance
SOT-23-3, θ_{JA} ..... 250°C/W

Electrical Characteristics

Parameter	Test Conditions		Symbol	Min	Typ	Max	Unit
Operating Input Voltage			V_{IN}	1.2		5.5	V
Output Voltage Accuracy	−40°C ≤ T_J ≤ 85°C	V_{OUT} ≤ 2.0 V	V_{OUT}	−40		+40	mV
		V_{OUT} > 2.0 V		−2		+2	%
Dropout Voltage – TSOP package (Note 5)	I_{OUT} = 300 mA	V_{OUT} = 1.5 V	V_{DO}		380	485	mV
		V_{OUT} = 1.85 V			260	355	
		V_{OUT} = 2.8 V			170	255	
		V_{OUT} = 3.0 V			160	245	
		V_{OUT} = 3.1 V			155	235	
		V_{OUT} = 3.3 V			150	225	
Output Current Limit	V_{OUT} = 90% $V_{OUT(nom)}$		I_{CL}	300	600		mA
Ground Current	I_{OUT} = 0 mA		I_Q			20	μA
Shutdown Current	V_{EN} ≤ 0.4 V, V_{IN} = 5.5 V		I_{DIS}		0.01	1	μA
EN Pin Threshold Voltage High Threshold Low Threshold	 V_{EN} Voltage increasing V_{EN} Voltage decreasing		 V_{EN_HI} V_{EN_LO}	 0.6		2	V
Power Supply Rejection Ratio	V_{IN} = 3.6 V, V_{OUT} = 3.1 V I_{OUT} = 150 mA	f = 1 kHz	PSRR		75		dB
Output Noise Voltage	V_{IN} = 2.5 V, V_{OUT} = 1.8 V, I_{OUT} = 150 mA f = 10 Hz to 100 kHz		V_N		70		μV_{rms}
Thermal Shutdown Temperature	Temperature increasing from T_J = +25°C		T_{SD}		160		°C
Thermal Shutdown Hysteresis	Temperature falling from T_{SD}		T_{SDH}		10		°C
Active Output Discharge Resistance	V_{EN} < 0.4 V, Version A only		R_{DIS}		100		Ω

Package information

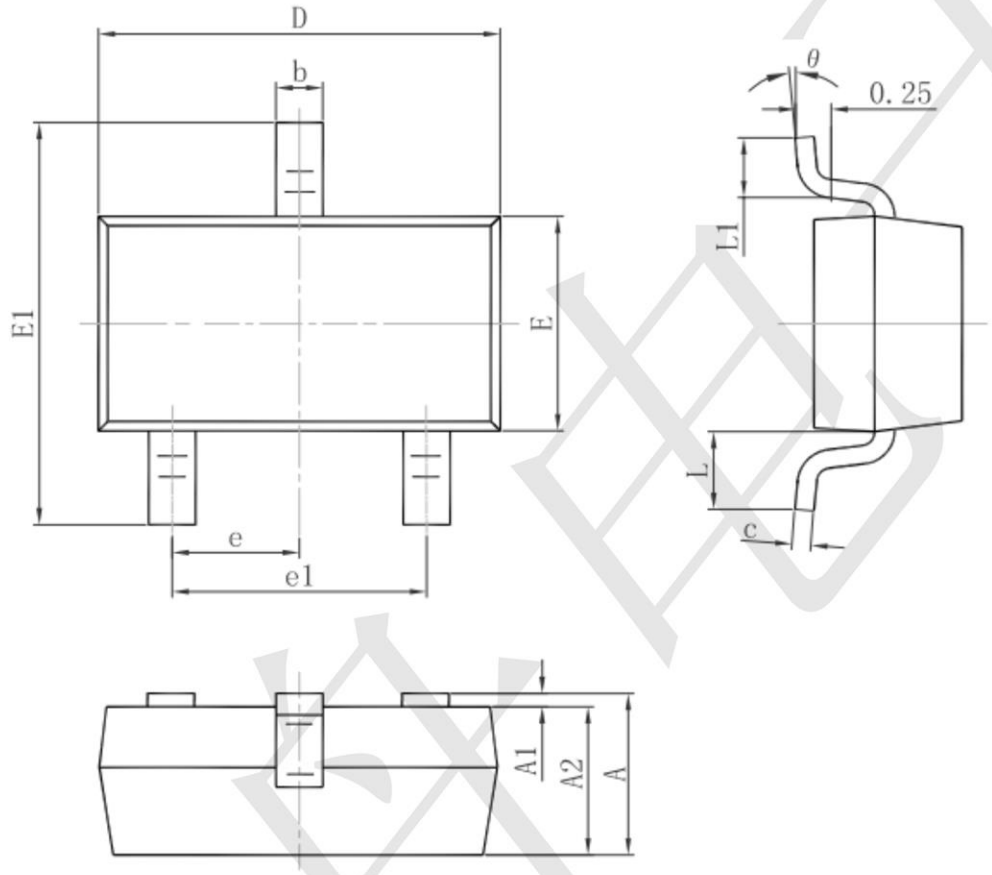
SOT89-3



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

Package informantion

SOT23-3L



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°

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