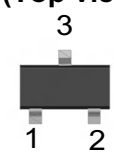


TM7550MI Series

0.1Amp Low Dropout Positive Voltage Regulator

General Description ● Excellent Line and Load Transient Response ● Over-Temperature Protection ● Stable with Ceramic or Tantalum Capacitor	General Features ● Low Quiescent Current: 2μA ● Operating Voltage Range: 24V ● Output Current: 100mA ● Output Voltage: 3.0~ 5.0V ● High Accuracy: ±2%
Applications ● DC-DC Systems ● Ultra Low Power Microcontrollers	100% UIS Tested 100% R _g Tested

(Top view)



Marking:75XX

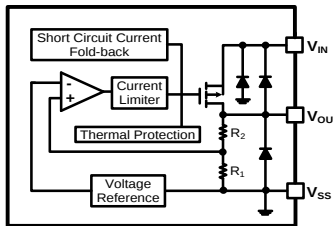
MI:SOT-23-3L

1 V_{SS} GND

2 V_{OUT} Output

3 V_{IN} Input

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS			
(Unless otherwise specified, T _A =25℃)			
PARAMETER	SYMBOL	RATINGS	UNITS
Input Voltage ⁽²⁾	V _{IN}	24	V
Output Voltage ⁽²⁾	V _{OUT}	3.0-5.0	V
Power Dissipation	P _D	0.4	W
Operating Ambient Temperature Range	T _A	-40~+85	℃
Operating Junction Temperature Range ⁽³⁾	T _j	-40~+125	℃
Storage Temperature	T _{stg}	-40~+125	℃
Lead Temperature(Soldering, 10 sec)	T _{solder}	260	℃

(1) Stresses beyond those listed under *absolute maximum ratings* may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under *recommended operating conditions* is not implied. Exposure to absolute-maximum-rated conditions for extended periods my affect device reliability.

(2) All voltages are with respect to network ground terminal.

(3) This IC includes over temperature protection that is intended to protect the device during momentary overload. Junction temperature will exceed 125℃ when over temperature protection is active. Continuous operation above the specified maximum operating junction temperature may impair device reliability.

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RECOMMENDED OPERATING CONDITIONS

PARAMETER	MIN.		MAX.	UNITS
Supply voltage at V_{IN}			24	V
Operating junction temperature range, T_j	-40		125	°C
Operating free air temperature range, T_A	-40		85	°C

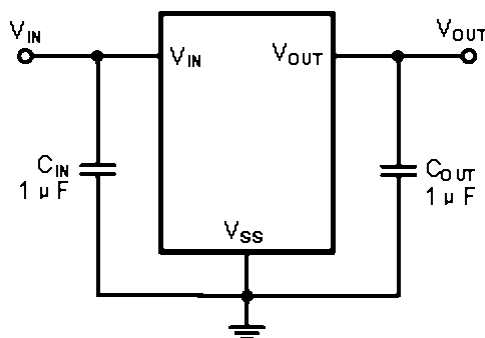
ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP. ⁽⁴⁾	MAX.	UNITS
Input Voltage	V_{IN}				24	V
Output Voltage Range	V_{OUT}		3.0	—	5.0	V
DC Output Accuracy		$I_{OUT}=10mA$	-2	—	2	%
			-1	—	1	%
Dropout Voltage	$V_{dif}^{(5)}$	$I_{OUT}=100mA, V_{OUT}=3.3V$	—	400	—	mV
Supply Current	I_{SS}	$I_{OUT}=0A$	—	2	4	μA
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$	$I_{OUT}=10mA$ $V_{OUT}+1V \leq V_{IN} \leq 36V$	—	0.01	0.3	%/V
Load Regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2V,$ $1mA \leq I_{OUT} \leq 100mA$	—	10	—	mV
Temperature Coefficient	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta T_A}$	$I_{OUT}=40mA,$ $-40^\circ C < T_A < 85^\circ C$	—	50	—	ppm
Output Current Limit	I_{LIM}	$V_{OUT}=0.5 \times V_{OUT(Normal)}$	—	100	—	mA
Short Current	I_{SHORT}	$V_{OUT}=V_{SS}$	—	25	—	mA
Power Supply Rejection Ratio	PSRR	$I_{OUT}=50mA$	100Hz	80	—	dB
			1kHz	70	—	
			10kHz	60	—	
			100kHz	50	—	
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP. ⁽⁴⁾	MAX.	UNITS
Output Noise Voltage	V_{ON}	BW=10Hz to 100kHz	—	$27 \times V_{OUT}$	—	μV _{RMS}
Thermal Shutdown Temperature	T_{SD}	$I_{LOAD}=30mA$	—	160	—	°C
Thermal Shutdown Hysteresis	ΔT_{SD}	—	—	20	—	°C

(4) Typical numbers are at 25°C and represent the most likely norm.

(5) V_{dif} : The Difference Of Output Voltage And Input Voltage When Input Voltage Is Decreased Gradually Till Output Voltage Equals To 98% Of V_{OUT} (E).

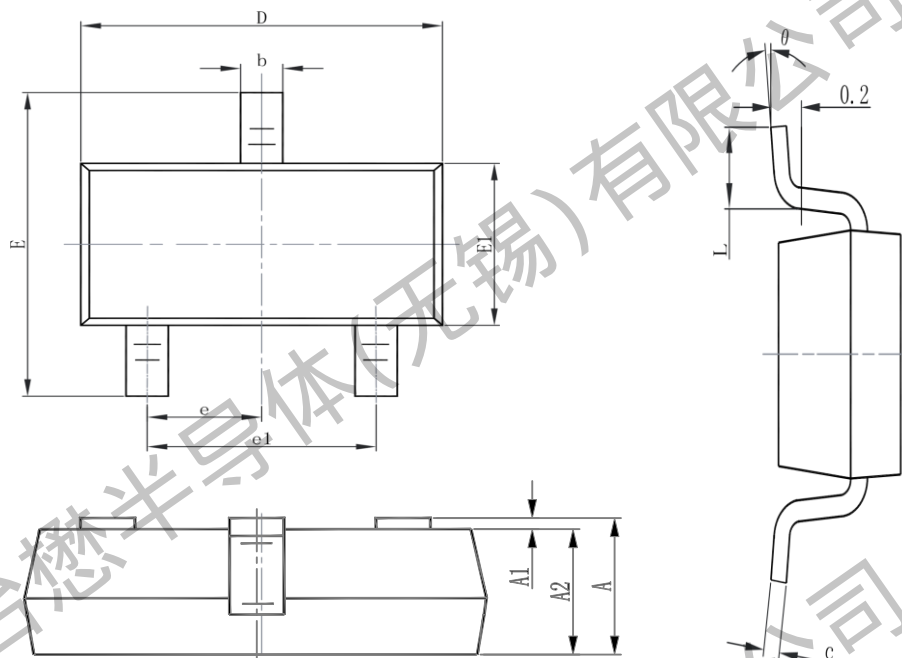
TYPICAL APPLICATION CIRCUIT



TM7550MI Series

0.1Amp Low Dropout Positive Voltage Regulator

Package Mechanical Data:SOT-23-3L



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
E1	1.500	1.700	0.059	0.067
E	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°

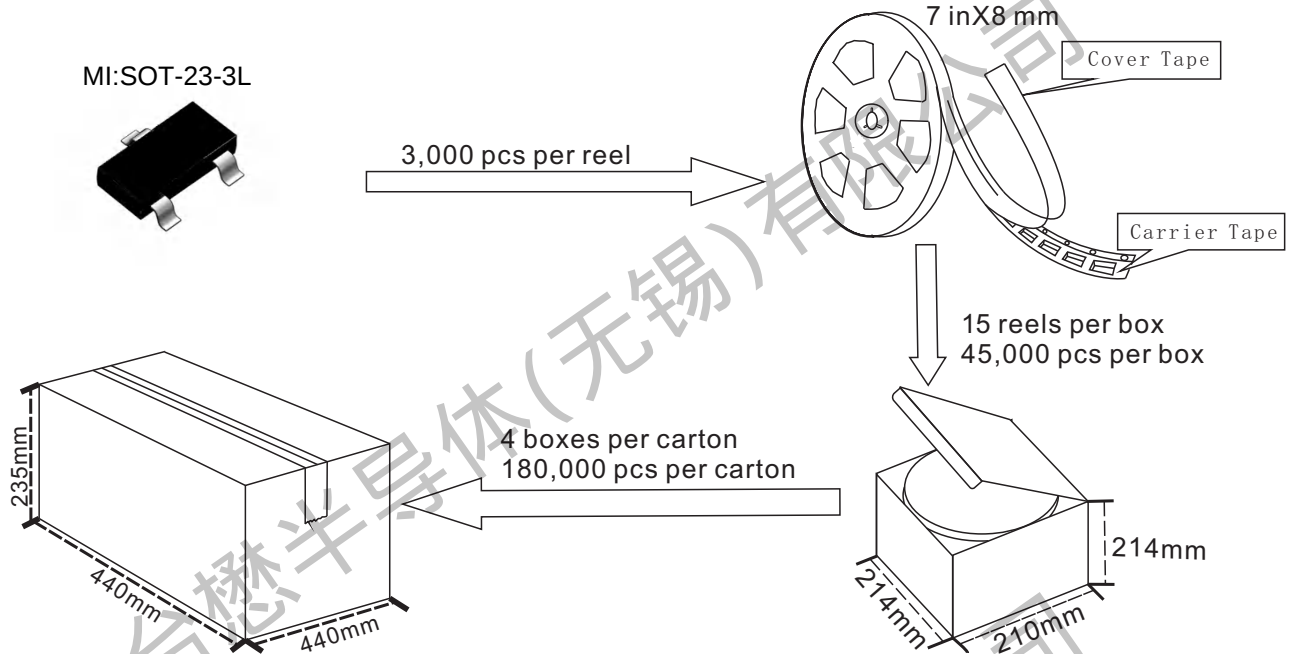


TM7550MI Series

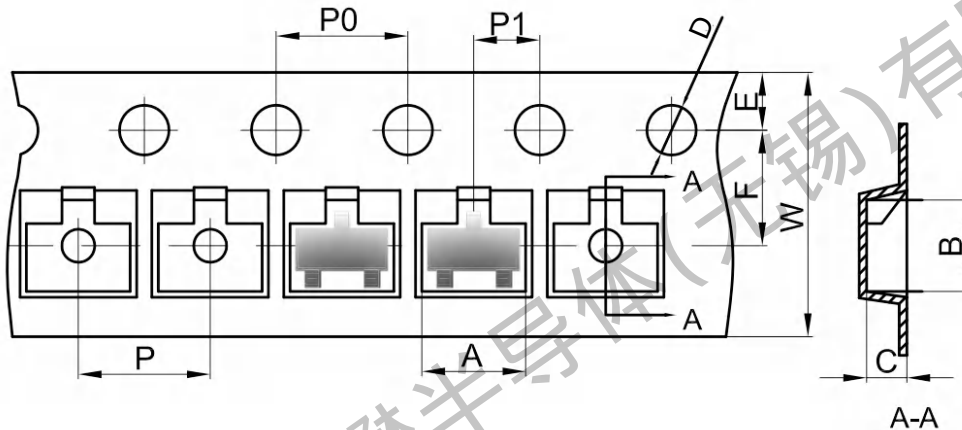
0.1Amp Low Dropout Positive Voltage Regulator

SOT-23-3L Packing

1. The method of packaging and dimension are shown as below figure. (Dimension in mm)

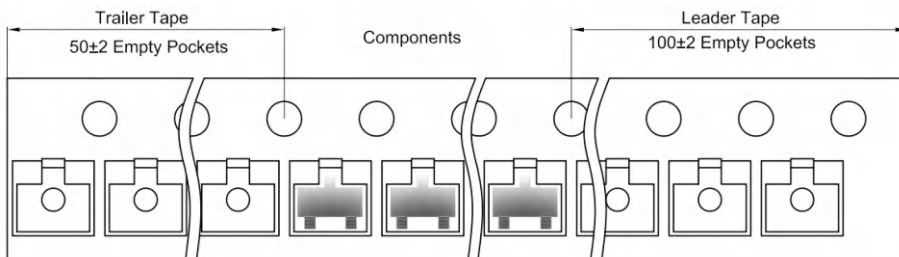


SOT-23-3L Embossed Carrier Tape



Dimensions are in millimeter										
Pkg type	A	B	C	D	E	F	P0	P	P1	W
SOT-23-3L	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23-3L Tape Leader and Trailer



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Revision history:

Date	Rev	Description	Page
2023.06.06	23.06	Original	