

RoHS Compliant Product

## Description

The SJ2138 series of positive, linear regulators feature low quiescent current (45µA typ.) with low dropout voltage, making them ideal for battery applications. These rugged devices have both Thermal Shutdown and Current Fold-back to prevent device failure under the "Worst" of operating conditions. The SJ 2138 is stable with an output capacitance of 4.7µF or greater.

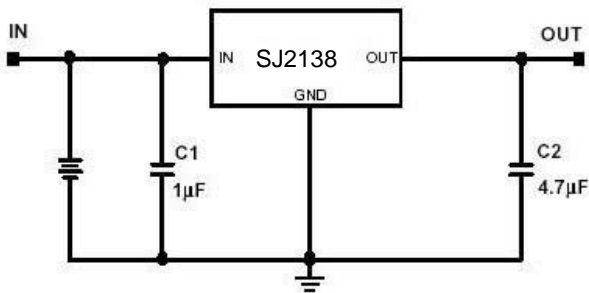
## Features

- \* Low Temperature Coefficient
- \* Over-Temperature Shutdown
- \* Very Low Dropout Voltage
- \* High Accurate ±1.5%
- \* Short Circuit Current Fold-back
- \* Guaranteed 1.5A output
- \* Current Limiting

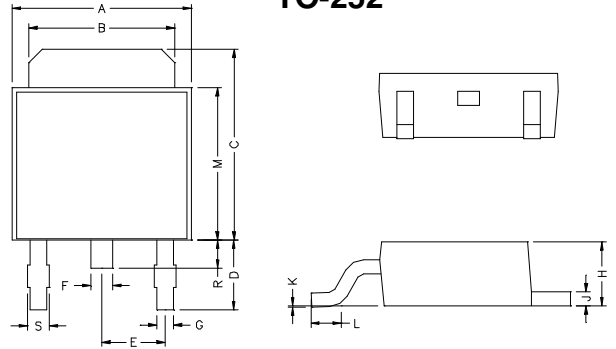
## Applications

- \* PC Peripherals
- \* Wireless Devices
- \* Portable Electronics
- \* Battery Powered Widgets
- \* Instrumentation

## Typical Circuit

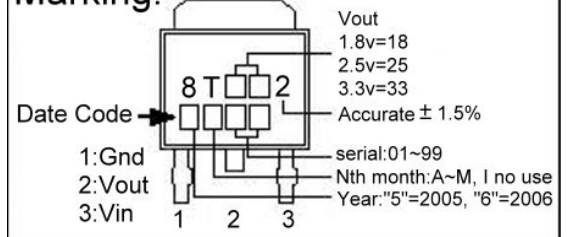


## TO-252

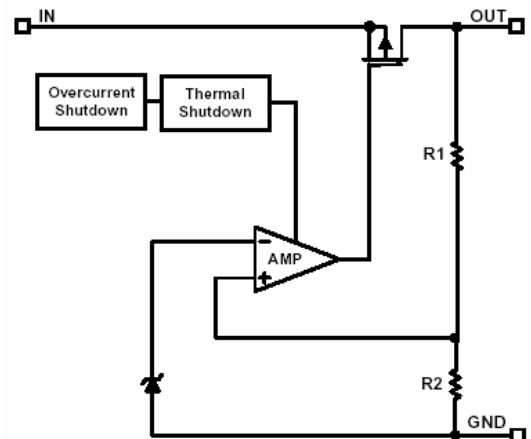


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.40	6.80	G	0.50	0.70
B	5.20	5.50	H	2.20	2.40
C	6.80	7.20	J	0.45	0.55
D	2.20	2.80	K	0	0.15
E	2.30 REF.		L	0.90	1.50
F	0.70	0.90	M	5.40	5.80
S	0.60	0.90	R	0.80	1.20

## Marking:



## Functional Block Diagram



### Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Input Max Voltage	V <sub>IN</sub>	8	V
Output Current	I <sub>OUT</sub>	PD/(V <sub>IN</sub> - V <sub>O</sub> )	A
Output Voltage	V <sub>OUT</sub>	1.5~5.0	V
Operating Ambient Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Junction Temperature	T <sub>j</sub>	-40 ~ +125	°C
Maximum Junction Temperature	T <sub>j Max</sub>	150	°C
Thermal Resistance	θ <sub>jc</sub>	Conductive	7
		Non-Conductive	30
	θ <sub>ja</sub>	90	°C/W
Power Dissipation(ΔT=100°C)	PD	1.2	W
EDS Classification		B	

### Electrical Characteristics Ta=25°C unless otherwise noted

Parameter	Symbol	Condition	Min	TYP	Max	Unit	
Output Voltage	V <sub>OUT(E)</sub> (Note1)	V <sub>IN</sub> =V <sub>OUT(T)</sub> +2V, I <sub>o</sub> =1mA	-1.5%	V <sub>OUT(T)</sub> (Note2)	1.5%	V	
Output Current	I <sub>o</sub>	V <sub>IN</sub> =V <sub>OUT(T)</sub> +2V, V <sub>OUT</sub> ≥V <sub>OUT(E)</sub> *0.96	1.5	-	-	A	
Current Limit	I <sub>LIM</sub>	V <sub>IN</sub> =V <sub>OUT(T)</sub> +2V, V <sub>O</sub> >1.2V	1.5	2.0	-	A	
Load Regulation	REG <sub>LOAD</sub>	V <sub>IN</sub> =V <sub>OUT(T)</sub> +2V, I <sub>o</sub> =1mA to 1.5A	-1	0.2	1	%	
Dropout Voltage	V <sub>DROPOUT</sub>	I <sub>o</sub> =1.5A V <sub>O</sub> =V <sub>OUT(E)</sub> -2%	1.4V<V <sub>OUT(T)</sub> ≤2.0V	-	-	1300	mV
			2.0V<V <sub>OUT(T)</sub> ≤2.8V	-	-	800	
			2.8V<V <sub>OUT(T)</sub>	-	-	600	
Quiescent Current	I <sub>Q</sub>	V <sub>IN</sub> =V <sub>OUT(T)</sub> +2V, I <sub>o</sub> =0mA	-	45	70	μA	
Ground Pin Current	I <sub>GNL</sub>	V <sub>IN</sub> =V <sub>OUT(T)</sub> +2V, I <sub>o</sub> =1mA~1.5A	-	45	-	μA	
Line Regulation	REG <sub>LINE</sub>	I <sub>o</sub> =1mA V <sub>IN</sub> =V <sub>OUT</sub> V <sub>OUT(T)</sub> +2	V <sub>OUT(T)</sub> ≤2.0V	-0.15	-	0.15	%
			2.0V<V <sub>OUT(T)</sub> <4.0V	-0.1	0.02	0.1	
			4.0V≤V <sub>OUT(T)</sub>	-0.4	-	0.4	
Input Voltage	V <sub>IN</sub>		Note3	-	7	V	
Over Temperature Shutdown	OTS		-	150	-	°C	
Over Temperature Hysteresis	OTH		-	30	-	°C	
Output Voltage Temperature Coefficient	TC		-	30	-	ppm/°C	
Short Circuit Current	I <sub>SC</sub>	V <sub>IN</sub> =V <sub>OUT(T)</sub> +1V, V <sub>OUT</sub> <0.4V	-	750	-	mA	
Power Supply Rejection	PSRR	I <sub>o</sub> =100mA C <sub>O</sub> =4.7μF	f=100Hz	-	70	-	dB
			f=1kHz	-	50	-	
			f=10kHz	-	20	-	
Output Voltage Noise	e <sub>N</sub>	f=10Hz~100kHz I <sub>o</sub> =10mA, C <sub>BYP</sub> =0μF				μVrms	

Note 1: V<sub>OUT(E)</sub> =Effective Output Voltage (i.e. the output voltage when "V<sub>OUT(T)</sub> + 2.0V" is provided at the V<sub>IN</sub> pin while maintaining a certain I<sub>OUT</sub> value).

2: V<sub>OUT(T)</sub> =Specified Output Voltage

3: V<sub>IN(MIN)</sub> =V<sub>OUT</sub>+V<sub>DROPOUT</sub>

## Ordering Information(contd.)

Part Number	Marking	Output Voltage	Part Number	Marking	Output Voltage
SJ2138-15	8T152 XXXX	1.5V	SJ2138-18	8T182 XXXX	1.8V
SJ2138-25	8T252 XXXX	2.5V	SJ2138-33	8T332 XXXX	3.3V
SJ2138-36	8T362 XXXX	3.6V	SJ2138-47	8T472 XXXX	4.75V
SJ2138-50	8T502 XXXX	5.0V			

## Characteristics Curve

