Description

The SE9135 is a low dropout current regulator rated for 350mA constant sink current. The constant sink current will ensure that the same amount of power is applied to the power LED and consequently maintain the uniform brightness throughout the possible voltage variations from the power source. The IC also features low quiescent current and is typically at 212uA. This will minimize the power consumption from the IC itself.

The IC has EN function built-in for applications where EN function or Dim function is needed. Please contact us directly if EN function is required.

SE9135 is presently available in low profile SOT-89-3L and TO-252 packages.

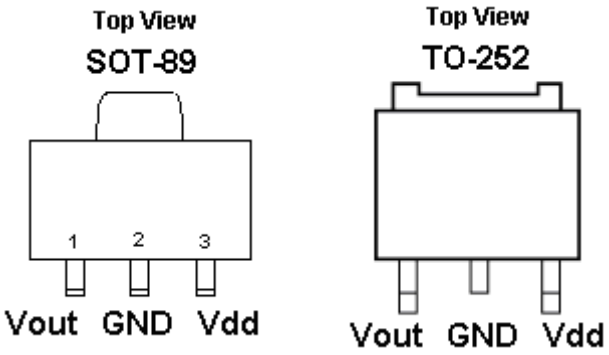
Features

- No external component required.
- Constant 350mA constant sink current.
- Output short / open circuit protection.
- Low dropout voltage.
- Low quiescent current at 212uA typical.
- Build-in thermal protection.
- Supply voltage range 2.7V ~ 6V.
- 2KV HBM ESD protection.
- Advanced CMOS process.
- SOT-89 and TO-252 package.
- EN function is available upon request.

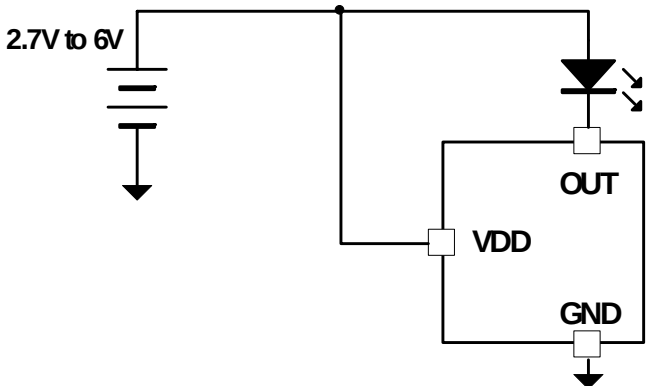
Application

- Power LED Driver.
- LED Flashlight Torch.
- LED Miner's Lamp.
- Lighting.

Pin Configuration



Application Diagram



Absolute Maximum Rating (1)

Parameter	Symbol	Value	Units
Input Voltage	V_{DD}	-0.3～7V	V
Output Voltage	V_{OUT}	-0.3 to 4.6	V
Output Sink Current	I_{OUT}	400	mA
Thermal Resistance, Junction-to-Ambient（SOT89）	Θ_{JA}	180	°C/W
Lead Temperature (Soldering, 5 sec.)		260	°C
Junction Temperature	T_J	0 to +150	°C
Storage Temperature	T_S	-40 to +150	°C

Electrical Characteristics

V_{DD} = 3.7V; No Load; T_J = 25°C; unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Output Sink Current	I_{SINK}	V_{OUT}=0.2V	315	350	390	mA
Load Regulation		V_{OUT}=0.2V to 3V		22		mA/V
Line Regulation		V_{DD}=3V to 6V ， V_{OUT}=0.2V		1.88		mA/V
Output Dropout Voltage (2)	V_{OUTL}			150		mV
Supply Current Consumption	I_{DD}			212		μA

Note 1: Exceeding the absolute maximum rating may damage the device.

Note 2: Output dropout voltage: 90% x I_{OUT} @ V_{OUT}=200mV

Thermal Considerations

It is important that the thermal limit of the package is not exceeded. The SE9135 has built-in thermal protection. When the thermal limit is exceeded, the IC will enter protection, and V_{OUT} will be pulled to ground. The power dissipation for a given application can be calculated as following:

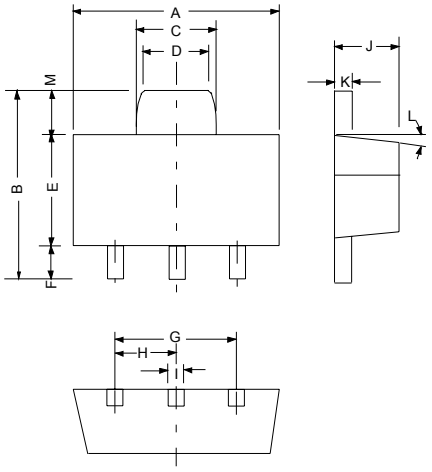
The power dissipation (P_D) is

$P_D = I_{OUT} * [V_{IN} – V_{OUT}]$

The thermal limit of the package is then limited to $P_{D(MAX)} = [T_J – T_A]/\Theta_{JA}$ where T_J is the junction temperature, TA is the ambient temperature, and Θ_{JA} is around 180°C/W for SE9135. SE9135 is designed to enter thermal protection at 150°C. For example, if T_A is 25°C then the maximum P_D is limited to about 0.7W. In other words, if $I_{OUT(MAX)}$ = 350mA, then $[V_{IN} – V_{OUT}]$ cannot exceed 2V.

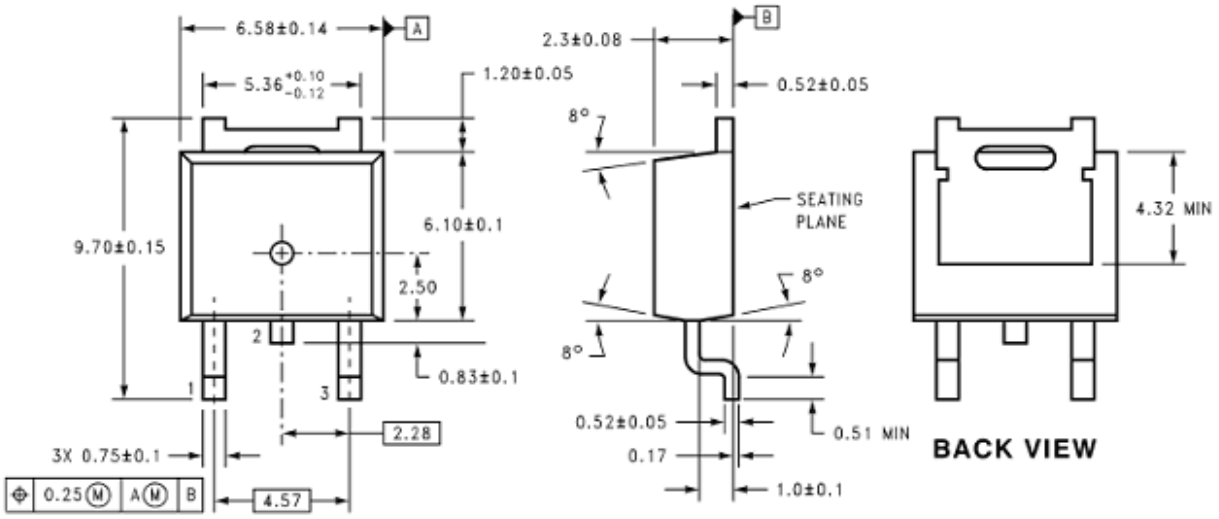
Outline Drawing for SOT-89-3L

SOT-89



DIMENSIONS				
DIM[N]	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.173	0.181	4.400	4.600
B	0.159	0.167	4.050	4.250
C	0.067	0.075	1.700	1.900
D	0.051	0.059	1.300	1.500
E	0.094	0.102	2.400	2.600
F	0.035	0.047	0.890	1.200
G	0.118REF		3.00REF	
H	0.059REF		1.50REF	
I	0.016	0.020	0.400	0.520
J	0.055	0.063	1.400	1.600
K	0.014	0.016	0.350	0.410
L	10°TYP		10°TYP	
M	0.028REF		0.70REF	

Outline Drawing for TO252



DIMENSIONS ARE IN MILLIMETERS

3-Lead TO-252 Package

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