

Descriptions

The DW8500 is a low dropout current regulator rate for 150mA, 300mA constant sink current. The low dropout voltage are achieved by advanced BCD process. The DW8500 is available in SOT-89 package, which results in a significant reduction of both system cost and board space.

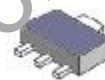
Ordering Information

Device	Marking	Package	Operating Temp
DW8500	DW8500 YWW	SOT-89	- 35°C ~+ 85°C

Features

- 5V to 40V supply voltage
- 150mA, 300mA fixed constant sink current
- Built-in thermal derating circuit
- SOT-89 Package

Package Information

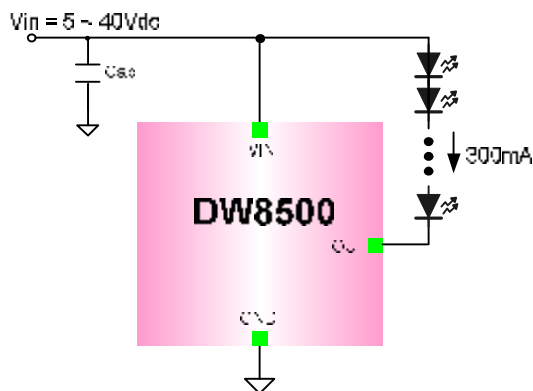


Package	Size
SOT-89	4.5x2.45x1.5(mm)

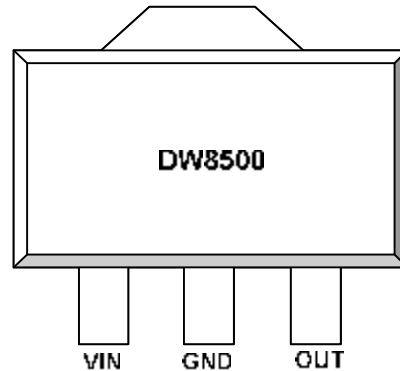
Applications

- LED light bulbs
- Signage and decorative LED lighting
- General lighting of flat panel displays
- RGB backlighting LED driver
- Automotive lighting
- General purpose constant current source

Typical Application Circuit



Pin Connection



Pin Description

Pin	Name	Description
1	VIN	Supply voltage input
2	GND	Ground
3	OUT	300mA fixed current output terminal

Absolute Maximum Ratings

Characteristics	Symbol	Value	Unit
Maximum Input Voltage	V_{IN}	41	V
Maximum Output voltage	OUT	23	V
Reference voltage	V_{RS}	5	V
Package Thermal Resistance	θ_{JA}	110	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Operating temperature	T_{OPR}	-35~+85	$^{\circ}C$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}C$

Note> 1. θ_{ja} is measured in the convection at $T_a=25^{\circ}C$ on a high effective thermal conductivity test board(4 Layers, 2S2P) of JEDEC 51-7 thermal measurement standard.

Recommended Operation Conditions

Characteristics	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V_{IN}	5	-	40	V
Output sink current	I_{OUT}	-	-	300	mA

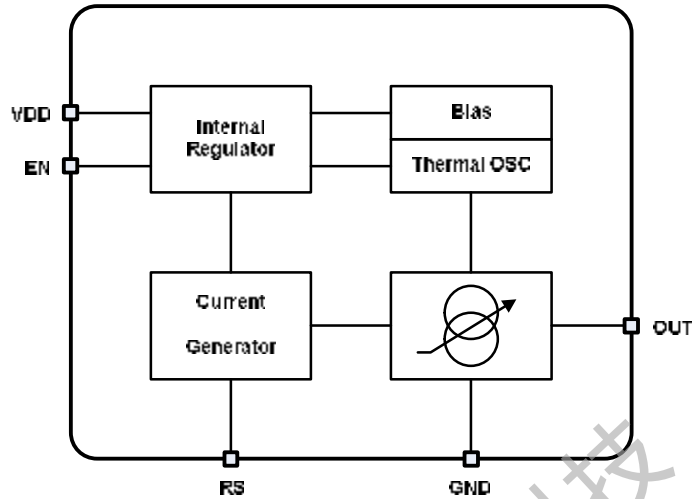
Electrical Characteristics

$V_{DD} = 24$, $T_a = -35^{\circ}\text{C} \sim +85^{\circ}\text{C}$, unless otherwise specified. Typical values are at $T_A = +25^{\circ}\text{C}$

Characteristics	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input supply voltage	V_{IN}		5	-	40	V
Output linearity voltage	V_{OUT_LINE}	$V_{DD}=24\text{V}$, $I_{SET}=300\text{mA}$,	-	-	3	V
Supply current	I_Q	$I_{OUT}=0\text{mA}$,	-	700	-	μA
Output current	I_{OUT}		-	300	-	mA
LED output drop-out voltage	V_{DROP}	$V_{IN}=24\text{V}$, $I_{SET}=300\text{mA}$	-	300	-	mV
Thermal derating	T_D		-	140	-	$^{\circ}\text{C}$
Thermal derating hysteresis	T_{D-HYS}		-	15	-	$^{\circ}\text{C}$

Note1 : Output dropout voltage : $90\% \times I_{OUT}$

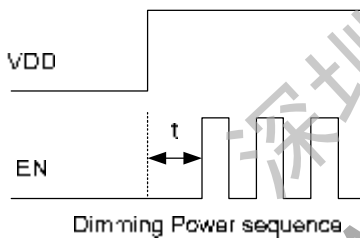
Block Diagram



Application notice

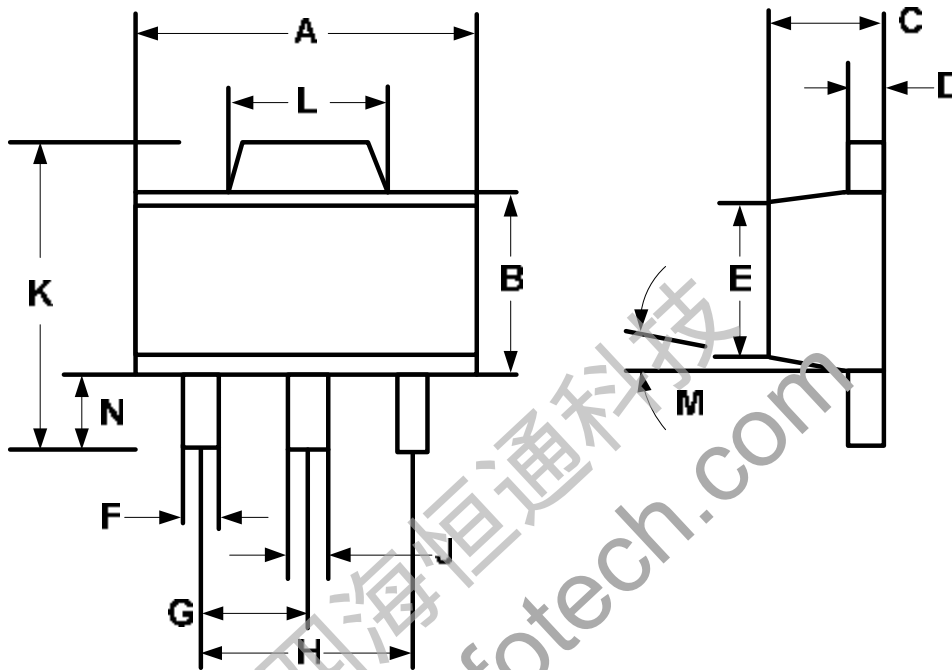
Power sequence

There is an electrostatic diode between VDD and EN.
When dimming control, It must input EN signal after inputs VDD. ($t \geq 1\text{ms}$)
If not use Dimming control, EN connect to VDD.



Package Dimension (SOT-89 4.5 x 2.45 x 1.5)

3-Pin Surface Mount SOT-89



	INCHES			MILLIMETERS		
	MIN	TYP	MAX	MIN	TYP	MAX
A	0.173	-	0.181	4.39	-	4.59
B	0.090	-	0.102	2.28	-	2.59
C	0.045	-	0.063	1.39	-	1.60
D	0.015	-	0.017	0.38	-	0.43
E	0.084	-	0.090	2.13	-	2.28
F	0.016	-	0.019	0.33	-	0.48
G	0.059 BSC			1.49 BSC		
H	0.118 BSC			2.99 BSC		
J	0.018	-	0.022	0.45	-	0.55
K	0.155	-	0.167	3.94	-	4.24
L	0.067	-	0.072	1.70	-	1.82
M	0°	-	8°	0°	-	8°
N	0.035	-	0.047	0.89	-	1.19