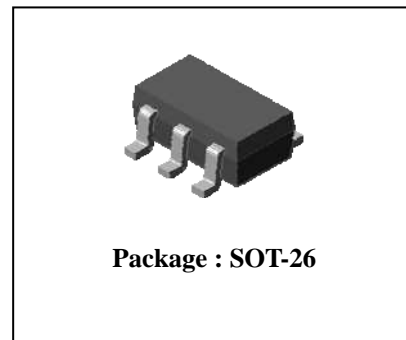


◆ Description

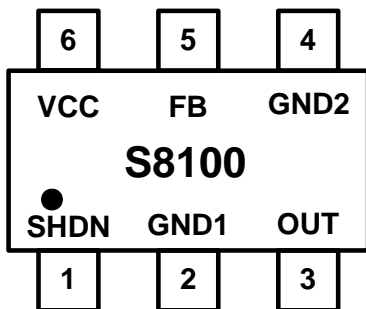
The S8100 is a PWM high-efficiency LED driver control IC. It allows efficient operation of High Brightness (HB) LEDs. The S8100 is capable to drive high current, high brightness LEDs up to 1.0 A by using additional external output stages as Power MOSFET. The S8100 provides a low-frequency PWM dimming input that can accept an external control signal with a duty ratio of 0-100% and a frequency of typical 100Hz. The output current can be programmed between a few milliamps and up to more than 1.0A. The device is a small surface mount package (SOT-26)

◆ Features

- Vcc : 2.5V~18V
- Low Quiescent Current : 0.8mA
- Output Source current : 0.15mA
- PWM Dimming with pull-up resistor control
- Stability compensation with 0.1μF ceramic capacitance
- Small Surface-Mount SOT-26 Package
- Halogen-Free Package is Available



◆ Pin Assignment & Description



[Pin Assignment]

Pin	Symbol	Description
1	SHDN	Disable On/Off
2	GND1	Ground
3	OUTPUT	Gate
4	GND2	Bandgap GND
5	FB	Feedback / 170mV Reference
6	VCC	Power Supply

◆ Ordering Information

Package Type	Device Name	Marking
SOT-26	S8100	810□ [※]

※ □ : Year&Week Code

◆ Absolute maximum ratings

[Ta=25°C]

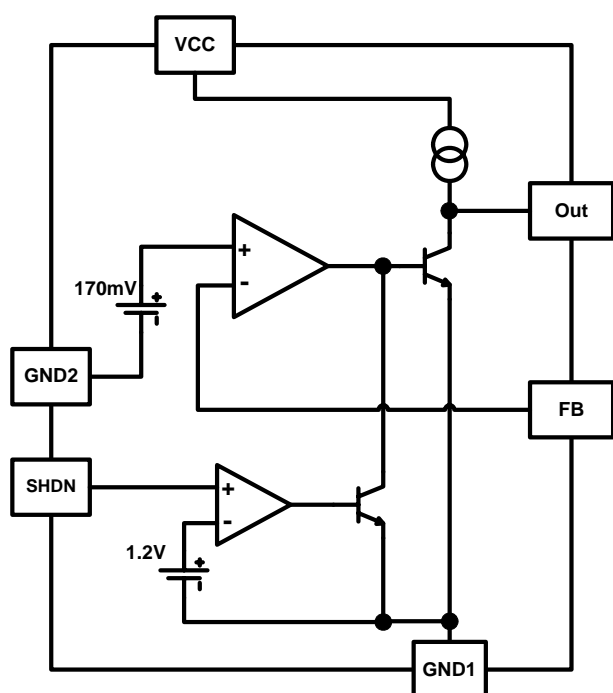
Characteristic	Symbol	Rating	Unit
Power Supply Voltage	$V_{CC(MAX)}$	18	V
Output Voltage	$V_{OUT(MAX)}$	16	V
Thermal Resistance Junction-Ambient	$R_{th(j-a)}$ *	250	°C/W
Power Dissipation	P_D *	0.5	W
Operating Temperature Range	T_{opr}	-40 ~ +85	°C
Storage Temperature Range	T_{stg}	-55 ~ +150	°C

* Mounted on a glass epoxy circuit board of 30x30mm Pad dimension of 50mm²

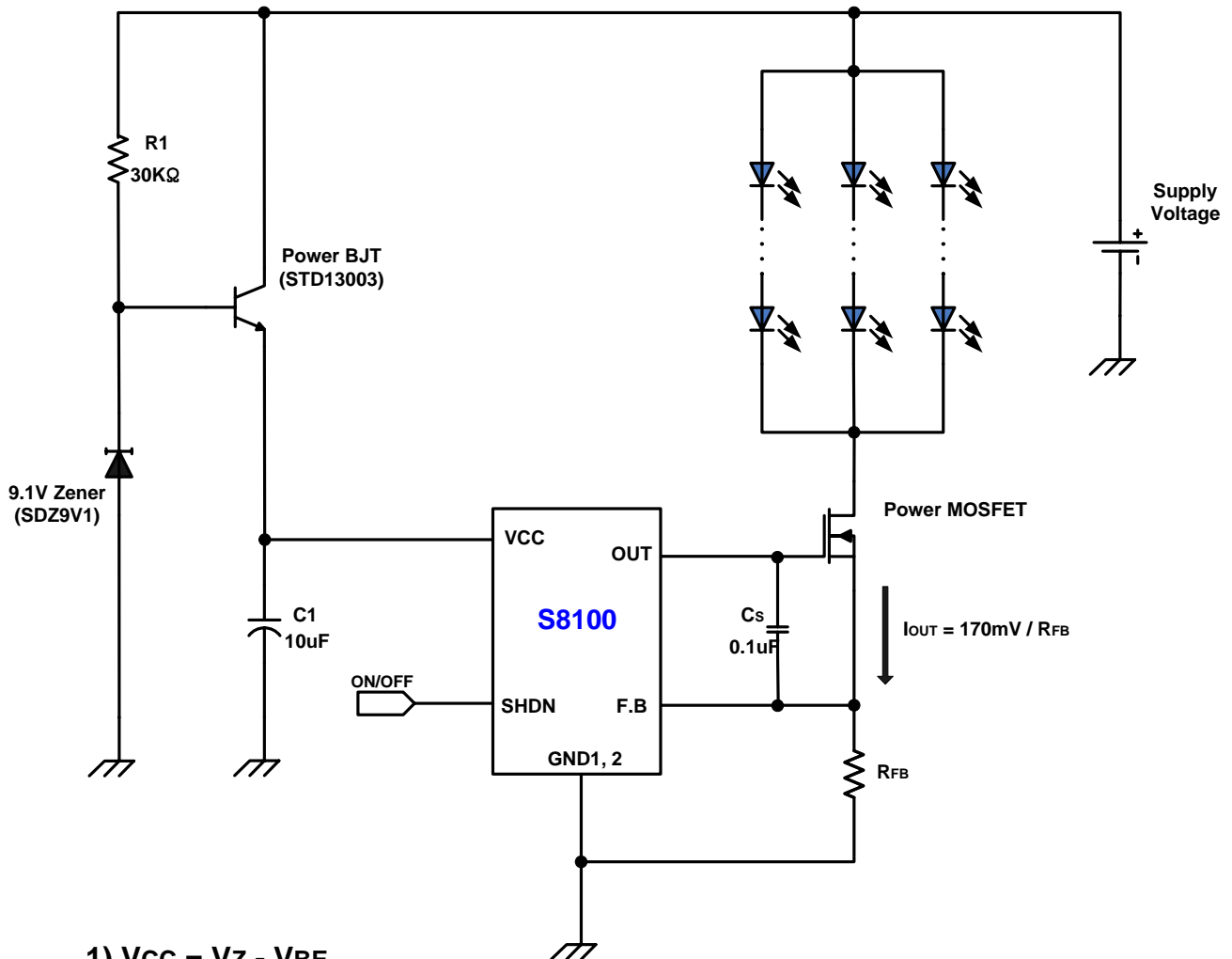
◆ Electrical Characteristics (Ta=25°C, unless otherwise noted.)

Characteristic	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply Current 1	I_{Q1}	$V_{CC}=5V, FB=V_{OUT}, SHDN=0V$	-	0.8	2	mA
Supply Current 2	I_{Q2}	$V_{CC}=14V, FB=V_{OUT}, SHDN=0V$	-	1.0	2.2	mA
Feedback Voltage 1	V_{FB1}	$V_{CC}=5V, FB=V_{OUT}, SHDN=0V$	162	170	178	mV
Feedback Voltage 2	V_{FB2}	$V_{CC}=14V, FB=V_{OUT}, SHDN=0V$	162	170	178	mV
SHDN Voltage	V_{SHDN}	$V_{CC}=5V$	1.15	1.21	1.27	V
Dimming Frequency (SHDN)	F_{DIM}	$R_p=Min500\Omega \sim Max1K\Omega$	-	100	-	Hz
Output Sink Current	I_{OS}	$V_{CC}=5V$	-	45	60	mA

◆ Functional block diagram



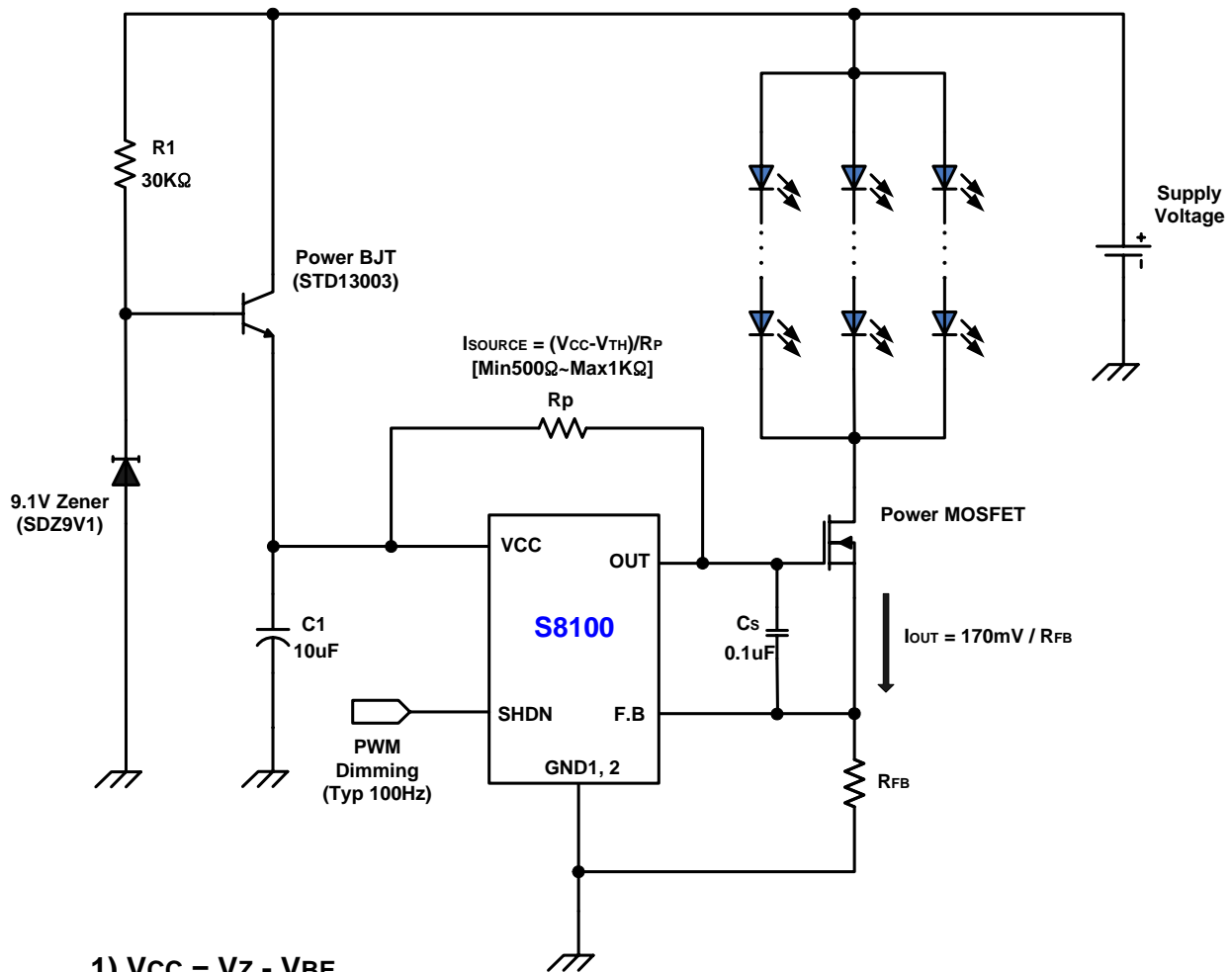
◆ Typical Applications



- 1) $V_{CC} = V_Z - V_{BE}$
- 2) R1 supplies the base current which is necessary to Power BJT base.
- 3) If does not use an SHDN function, connect SHDN Pin with the ground.
- 4) Must supply the above of the voltage FETs V_{TH} could operate enough to V_{cc} .

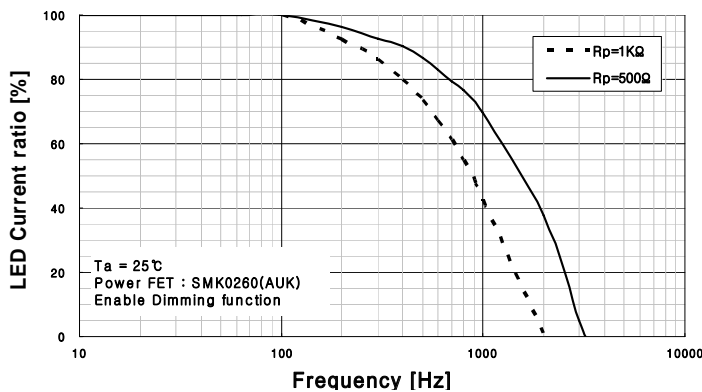
<Application 1. Constant Current LED Driver Circuit>

◆ Typical Applications



- 1) $V_{CC} = V_Z - V_{BE}$
- 2) R1 supplies the base current which is necessary to Power BJT base.
- 3) If does not use an SHDN function, connect SHDN Pin with the ground.
- 4) Must supply the above of the voltage FETs V_{TH} could operate enough to Vcc.

<Application 2. PWM Dimming LED Driver Circuit>



※ LED current ratio must pay attention according to Rp value and Power FET types.

◆ Electrical Characteristic Curves

Fig.1 Supply current vs Ambient Temperature

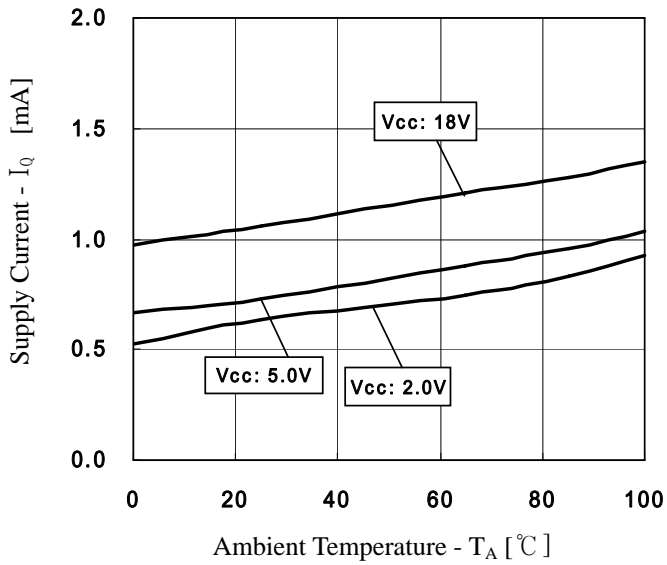


Fig.2 V_{SHDN} vs Ambient Temperature

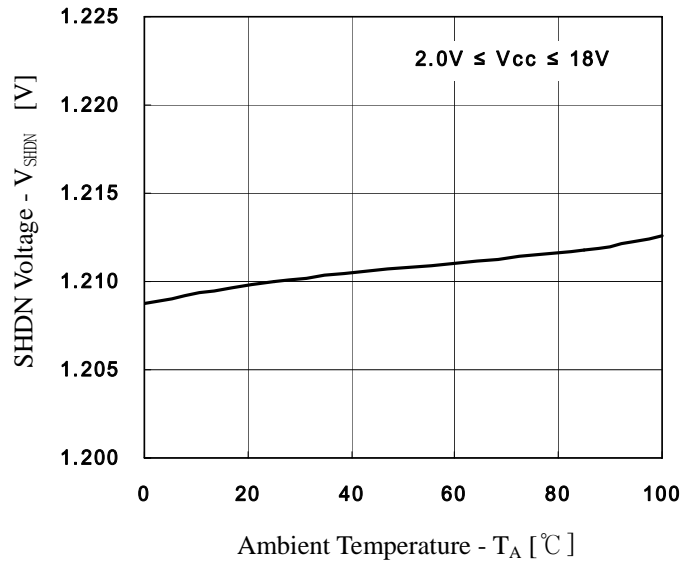


Fig.3 V_{FB} vs Ambient Temperature

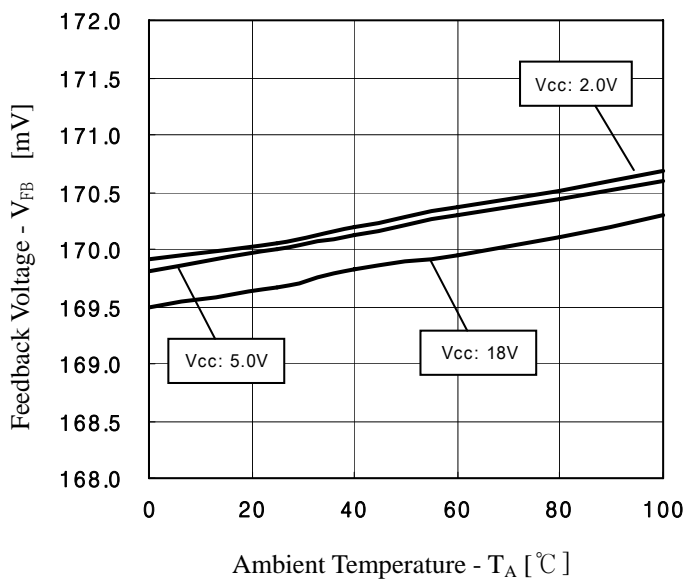
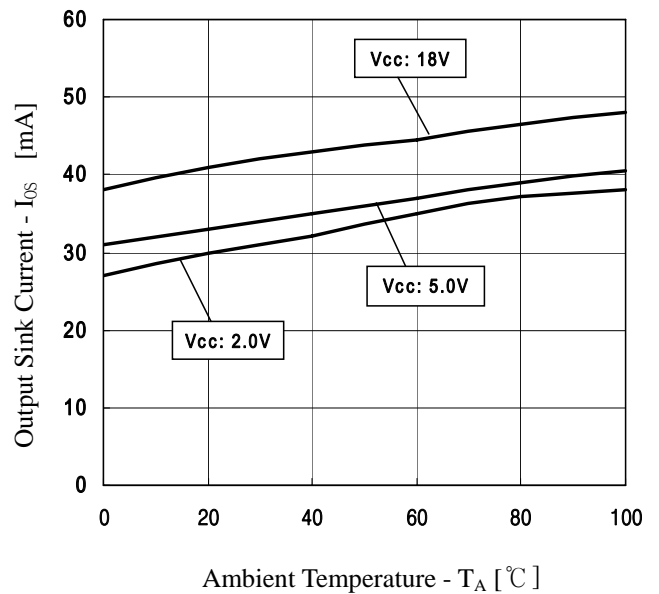
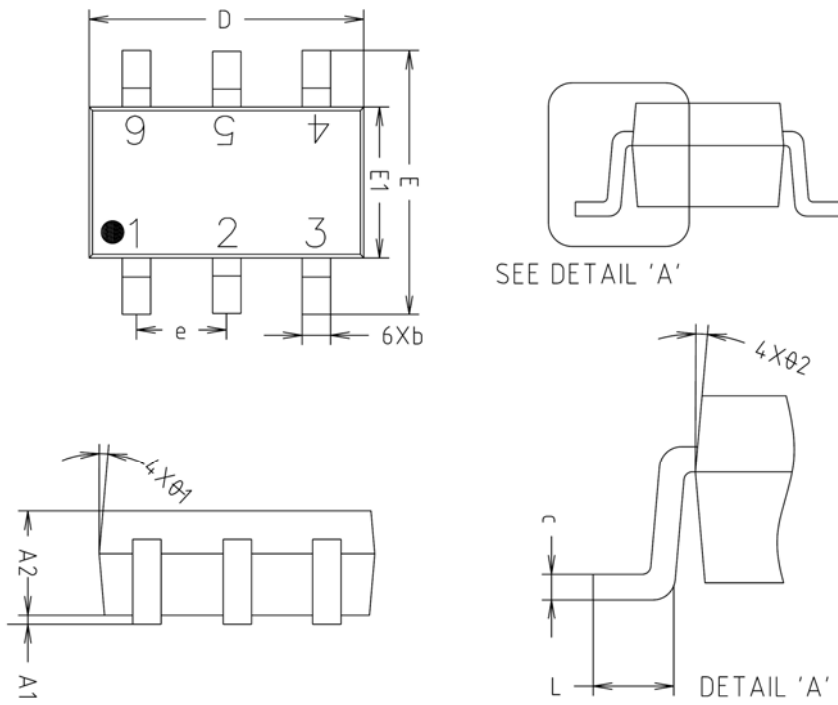


Fig.4 Output Sink Current vs Ambient Temperature

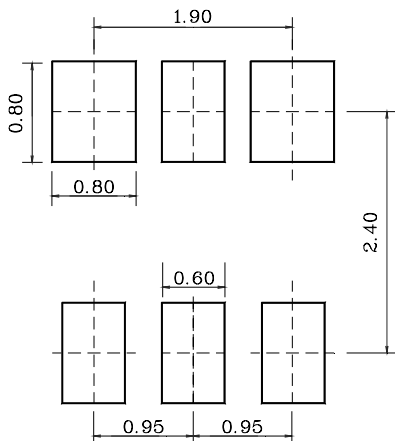


SOT-26 Outline Dimension(mm)



SYMBOL	MILLIMETERS(mm)			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A1	0.000	0.050	0.100	
A2	1.000	1.100	1.200	
b	-	0.400	0.450	
c	0.110	0.150	0.190	
D	2.800	2.900	3.000	
E	2.600	2.800	3.000	
E1	1.500	1.600	1.700	
e	0.930	0.950	0.970	
L	0.400	-	-	
$\theta1$	5° REF			
$\theta2$	5° REF			

※ Recommend PCB solder land [Unit: mm]



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