



SP2260

60V Buck LED Driver

DESCRIPTION

SP2260 is the monolithic IC designed for a step-down LED driver capable of driving 1.5A/3A load without an additional transistor. The input voltage range is up to 60V. Its feedback voltage, VFB, is 200mV. The SP2260 operates at a switching frequency of 52kHz. The external shutdown function is controlled by a logic level on the ON/OFF pin and then the circuit comes into the standby mode with I_{STBY}~50µA (typ.). The ON/OFF pin may be used for the analog dimming. As the voltage on the ON/OFF pin is increased from 0.07V to 0.67V, the voltage on the FB pin falls from 200mV to 0. The self-protection features include a cycle-by-cycle current limit and a thermal protection. SP2260 is available in standard TO-263 and SOP-8 with power pad. package.

APPLICATIONS

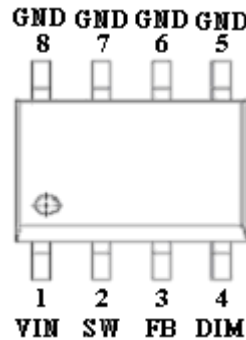
- DC/DC LED driver applications
- Backlighting for flat panel displays
- General purpose constant current source
- Automotive
- Chargers

FEATURES

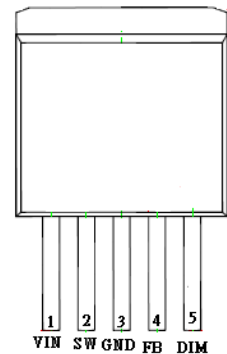
- VIN Max = 60V
- VFB = 200mV
- Frequency 52kHz
- I_{LED} Max 1.5A with PSOP-8L
- I_{LED} Max 3.0A with TO-263-5L
- On/Off input may be used for the Analog Dimming
- Thermal protection
- Cycle-by-cycle current limit

PIN CONFIGURATION

PSOP-8L



TO-263-5L



PART MARKING

PSOP-8L



A : Lot Code
B : Date Code

TO-263-5L



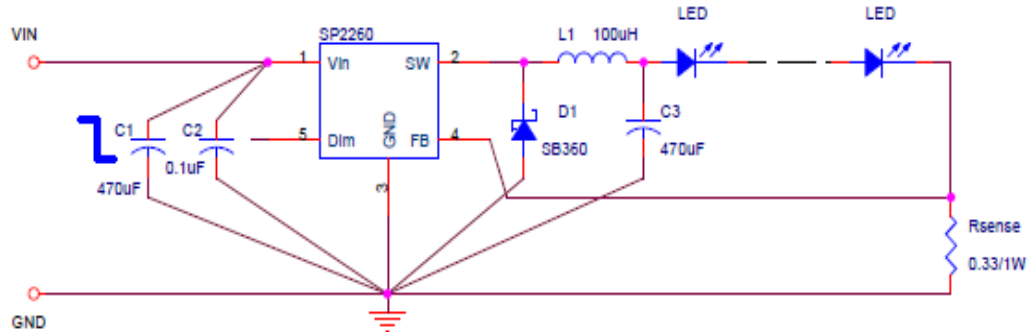
A : Lot Code
B : Date Code



SP2260

60V Buck LED Driver

TYPICAL APPLICATION CIRCUIT



PIN DESCRIPTION

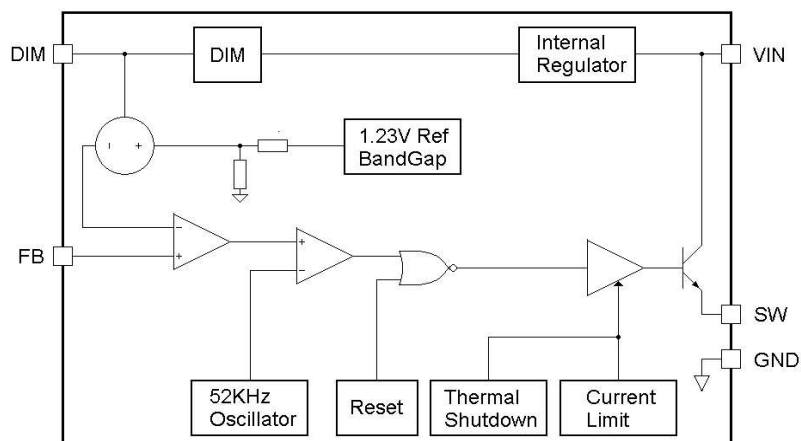
Pin (PSOP-8L)	Pin (TO263-5)	Symbol	Description
1	1	V _{IN}	Supply Voltage Input
2	2	SW	Switch
3	4	FB	Feedback
4	5	DIM	ON/Off and Linear Dimming
5~8	3	GND	Ground

ORDERING INFORMATION

Part Number	Package	Part Marking
SP2260S8RG	PSOP- 8L	SP2260
SP2260S8RGB	PSOP- 8L	SP2260
SP2260T265RG	TO-263-5L	SP2260
SP2260T265RGB	TO-263-5L	SP2260

- ※ SP2260S8RG : 13" Tape Reel ; Pb – Free
- ※ SP2260S8RGB : 13" Tape Reel ; Pb – Free; Halogen – Free
- ※ SP2260T265RG : 13" Tape Reel ; Pb – Free
- ※ SP2260T265RGB : 13" Tape Reel ; Pb – Free; Halogen – Free

BLOCK DIAGRAM





SP2260

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ABSOLUTE MAXIMUM RATINGS

($T_A=25^{\circ}\text{C}$ Unless otherwise specified)

Parameter	Symbol	Value	Unit
DC Supply Voltage	V_{IN}	63	V
ON/OFF and Dimming Voltage	DIM	-0.3~ V_{IN}	V
SW Voltage	SW	-0.8	V
FB Voltage	FB	-0.3~ V_{IN}	V
Operating Temperature	T_{OPR}	-40~125	$^{\circ}\text{C}$
Maximum Junction Temperature	$T_{J(Max)}$	150	$^{\circ}\text{C}$
Storage Temperature	T_S	-65~150	$^{\circ}\text{C}$

The IC has a protection circuit against static electricity. Do not apply high static electricity or high voltage that exceeds the performance of the protection circuit to the IC.

ELECTRICAL CHARACTERISTICS

($T_j=25^{\circ}\text{C}$, $V_{IN}=12\text{V}$, $I_{LOAD}=350\text{mA}$ Unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{IN}	Operating Voltage		5.5		60	V
V_{FB}	Feedback Voltage	$V_{IN} = 12\text{V}$, $I_{LOAD} = 350\text{mA}$, $DIM = 0\text{V}$	190	200	210	mV
		$V_{IN} = 5.5\text{V}\sim 60\text{V}$, $I_{LOAD} = 350\text{mA}$, $V_{DIM} = 0\text{V}$	180		220	mV
I_{FB}	Feedback Current	$V_{FB} = 250\text{mV}$, $DIM = 0\text{V}$	-150	-50	150	nA
F_{OSC}	Oscillator Frequency		47	52	58	KHz
V_{SAT}	Saturation Current	$I_{SW}=1.5\text{A}$		1.35	1.5	V
		$I_{SW}=3.0\text{A}$		1.35	1.5	V
D_{MAX}	Max Duty				100	%
I_{LO}	SW Leakage Current	$V_{IN}=60\text{V}$, $V_{FB} = 1.5\text{V}$, $V_{SW} = 0\text{V}$	-0.3	-0.07		mA
CL	Current Limit		2.5		4.5	A
			4.5		6.5	A
V_{TH}	DIM Threshold Voltage		1.0	1.4	2.0	V
I_{IH}	Input Current On/Off	$V_{On/Off} = 2.5\text{V}$	-1.0	0.01	1.0	μA
I_{IL}	Input Current On/Off	$V_{On/Off} = 0\text{V}$	-1.0	-0.3	1.0	μA
I_Q	Quiescent Current	$V_{FB} = 1.5\text{V}$		5.3	10	mA
I_{STBY}	Standby Current	$V_{IN}=60\text{V}$, $V_{DIM} = 5\text{V}$		50	200	μA
V_{DIM}	Dimming Voltage	$V_{IN} = 12\text{V}$, $I_{LOAD} = 0$	600	670	750	mV



SP2260

60V Buck LED Driver

PERFORMANCE CHARACTERISTICS

(Circuit for typical application circuit)

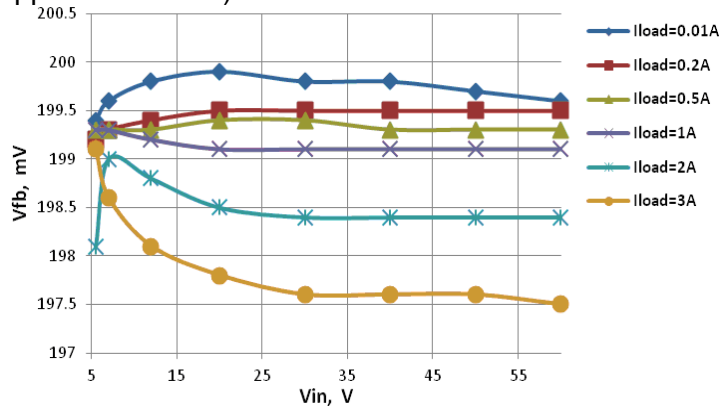


Fig.1 Feedback Voltage

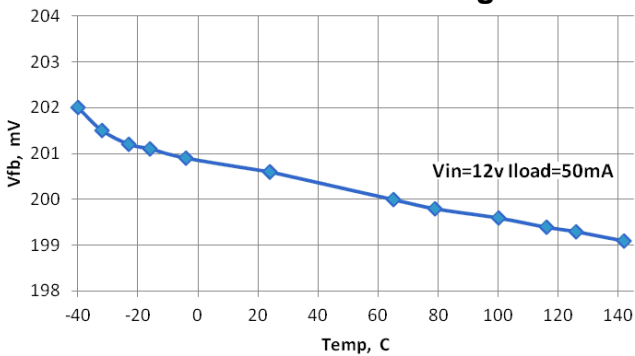


Fig.2 Normalized Feedback Voltage

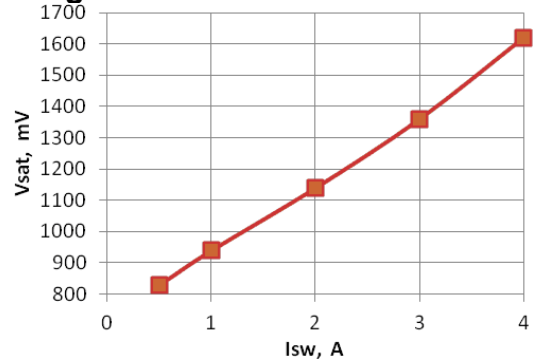


Fig.3 Switch Saturation Voltage
(no any components connected to SW-pin. Vfb=0)

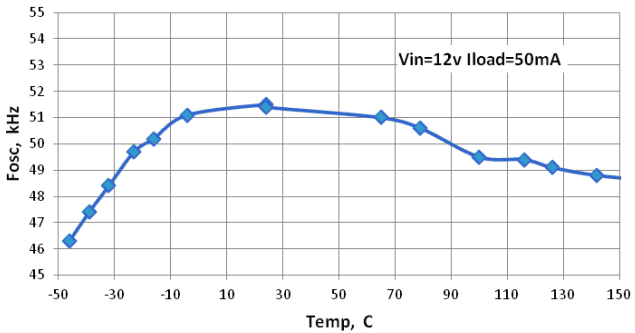


Fig.4 Oscillator Frequency

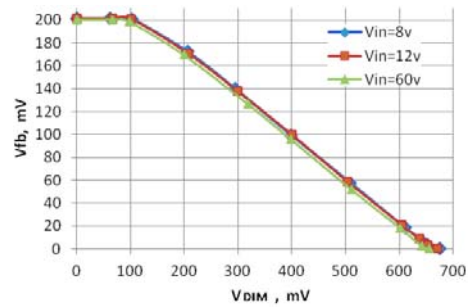


Fig.5 Dimming Voltage

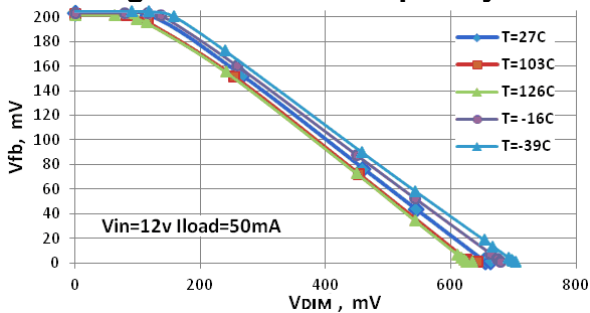


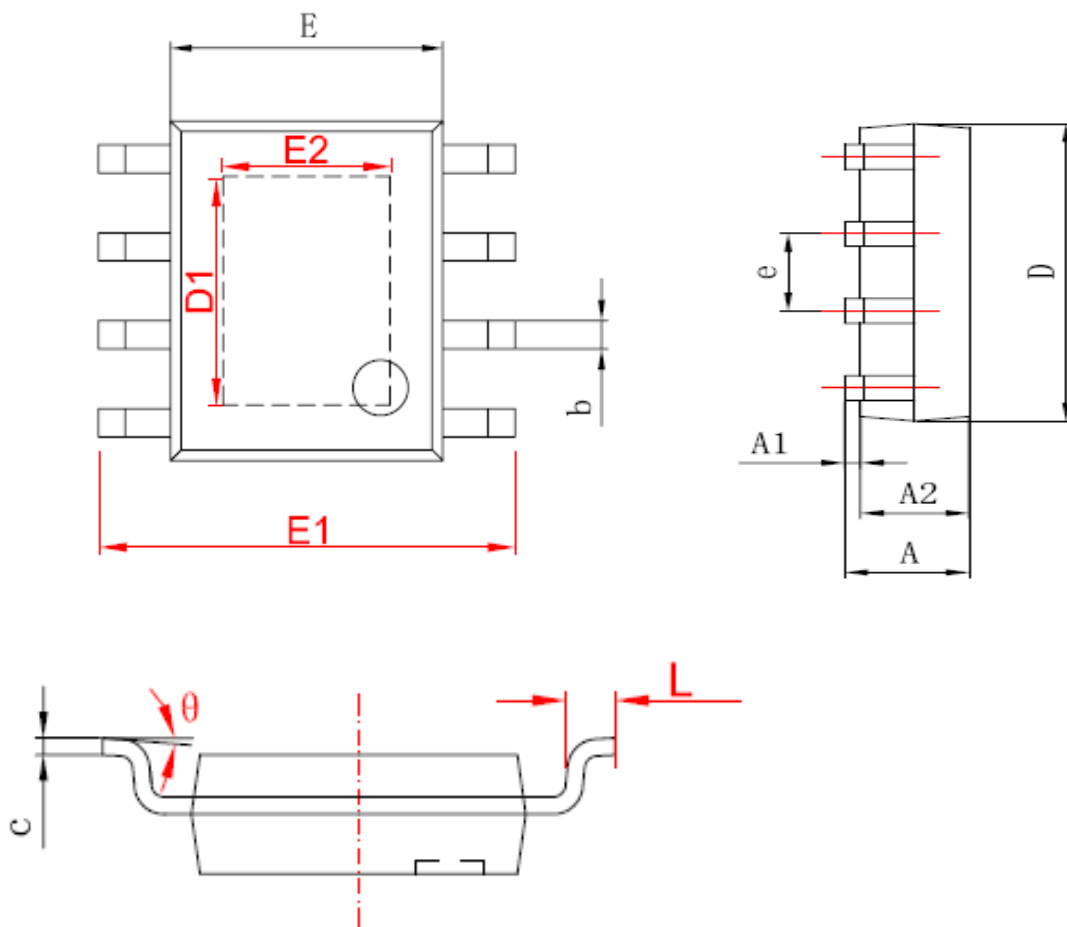
Fig.6 Normalized Dimming Voltage



SP2260

60V Buck LED Driver

PSOP- 8L PACKAGE OUTLINE



字符	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.050	0.150	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
D1	3.202	3.402	0.126	0.134
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
E2	2.313	2.513	0.091	0.099
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
theta	0°	8°	0°	8°

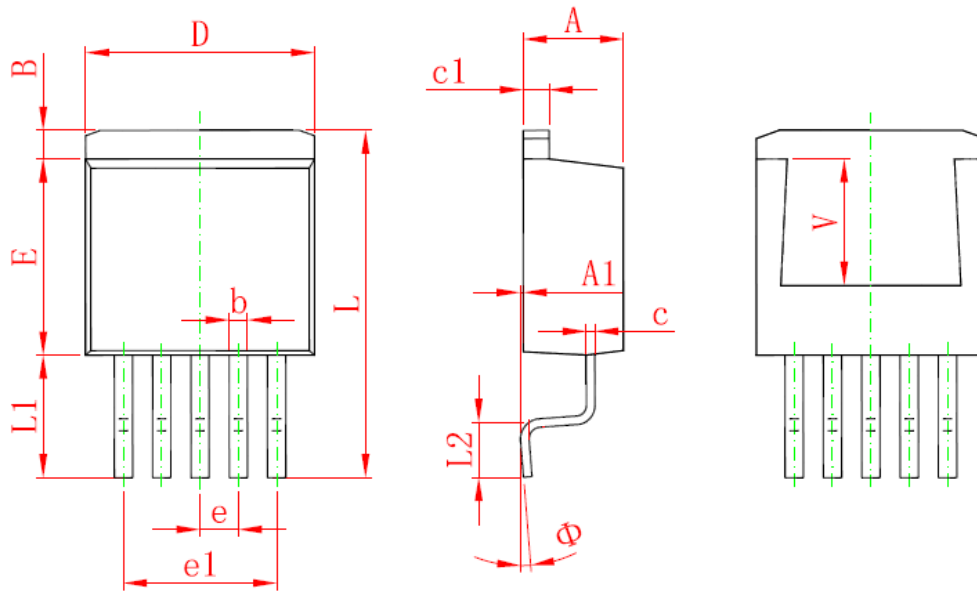


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TO-263 PACKAGE OUTLINE

TO-263-5L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.560	1.760	0.061	0.069
b	0.710	0.910	0.028	0.036
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	9.880	10.180	0.389	0.401
E	8.200	8.600	0.323	0.339
e	1.700 TYP.		0.067 TYP.	
e1	6.700	6.900	0.264	0.272
L	15.140	15.540	0.596	0.612
L1	5.080	5.480	0.200	0.216
L2	2.340	2.740	0.092	0.108
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220 REF.	



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