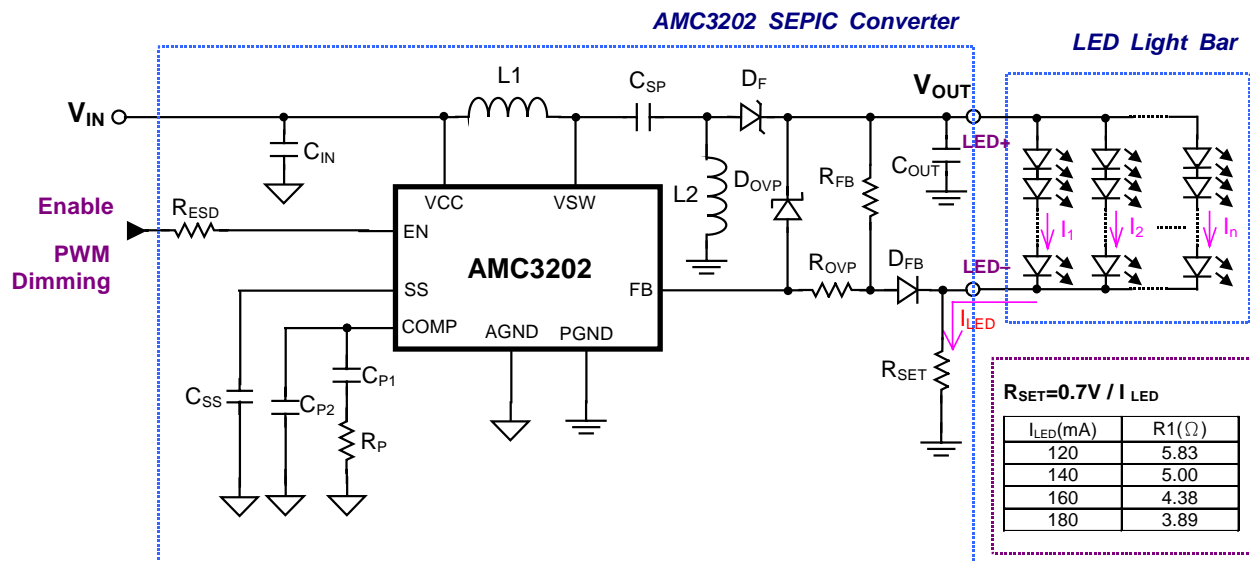# AMC3202 ─ SEPIC Driver for LED

♦ Driving scheme –

1. <u>The LED string **must** be connected before power ON the system</u> such that the feedback loop can be established.

2. The sum of input voltage and output voltage should be smaller than the voltage rating of the internal switch of AMC3202, that is, 42V.

$$2.7V \leq V_{IN} \leq 30V, (V_{IN} + V_{OUT}) \leq 42V$$

3. The current sense resistor R_{SET} determines the total LED driving current, I_{LED}. Due to the V_F deviation of LEDs used, the driving current through each string may not be uniform.

4. R_{ESD} is adopted to strengthen the ESD protection of EN pin.

5. D_{OVP} and R_{OVP} are used for Over Voltage Protection.

6. C_{SS} is used to provide soft start function.

7. PWM dimming is controlled through EN pin. The PWM frequency is recommended to be in the range of 150Hz ~ 200Hz, and the minimum duty cycle should be larger than 20%.

♦ Component List

C.R. NO	Q'TY	Description	Package
IC	1	AMC3202	SO-8
C_{IN}	1	10uF / 25V	SMD 1210
C_{OUT}	1	10uF / 25V	SMD 1210
C_{SP}	1	4.7uF / 25V	SMD 1210
C_{P1}	1	0.1uF	SMD 0603
C_{P2}	1	200pF	SMD 0603
C_{SS}	1	1uF	SMD 0603
R_P	1	33KΩ	SMD 0603
R_{ESD}	1	10KΩ	SMD 0603
R_{FB}	1	100KΩ	SMD 0603
R_{OVP}	1	200Ω	SMD 0603
R_{SET}	1	0.7V/I_{LED}	SMD 0805
L1	1	22uH/0.7A 【500KHz】	SMD
L2	1	22uH/0.7A 【500KHz】	SMD
D_F	1	Schottky Diode 【Reverse Voltage=40V/2A】	DO-214AC
D_{FB}	1	1N4148	SOD-80 (GQM)
D_{OVP}	1	Zener Diode 【Total V_F + 2V / 1W】 ^{*NOTE}	SOD-80 (GQM)

NOTE : V_Z of the Zener diode D_{OVP} is determined by the total forward voltage drop of the LED string. Select the V_Z that is nearest to the value calculated by the following formula:

$$V_Z = m \times V_{F, MAX} + 2 \ (V),$$

Where, m is the number of LEDs in the string, and

$V_{F, MAX}$ is the possible maximum forward voltage of one LED.

And the power rating is determined by:

$$P_D = V_Z \times I_{LED}$$