### SMD804

#### 60V/1A Constant Current Buck Converter For LED Lighting

#### Shamrock Micro Devices Corp.

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- Operate at DC voltage 8V~60V
- Integrated MOSFET
- •Support driving current up to 1A
- •Operation frequency setting by external resistor in 25KHz~300KHz
- •Supports fixed frequency mode and constant-off time frequency mode
- •Built-in current limit circuit setting by external resistor
- •Tolerance of CS pin voltage is <4%
- Supports PWM dimming
- Support Linear dimming
- •Over Temperature Protection
- •ESOP-8 package



# Constant-Off Time Mode

- SMD804 support Constant-Off Time frequency mode (T<sub>OFF</sub> Mode).
- In the  $T_{OFF}$  Mode, the duty cycle of  $V_{OUT}$  /  $V_{IN}$  can be designed up to 95%.
- (2)Inductor vs ILED calculation, for higher LED current,
- suggested to increase the diameter of coil of Inductor.
- (3)Usually the ripple is defined by 30% of output current.



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### Constant-Off Time Mode Design

(1)Constant-Off Time calculation by Rosc

(2)Inductor vs ILED calculation, for higher LED current, suggested to increase the diameter of coil of Inductor.

(3)Usually the ripple is defined by 30% of output current.

(4)Peak current is calculated by using Vcs=0.25V $\pm$ 4%



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# **SMD804** Application Circuit





Strongly suggest for this high power circuit to use AL PCB for better heat sink.



#### **BOM for SMD804 Application Circuit**

#### Vin=48V-56V Vout=36V-42V Iout=1.2A

Item	Location	Spec.	Package	Q'ty
1	C1	63V100UF Electrolytic Cap.	8X12MM,P=3.5MM	1
2	C2	100NF 50V Chip Cap.	C0805	1
3	C3	2.2UF 25V Chip Cap.	C0805	1
4	C4	50V22UF Electrolytic Cap.	7X11MM,P=2MM	1
5	R1	1Ω	R1206	1
6	R2	0.2Ω	R2010	1
7	R4	43ΚΩ	R0805	1
8	D1	SS36	SMB	1
9	D3	ΟΩ	R1206	1
10	L1	220UH with Diameter > 0.5MM	CD127	1
11	U1	SMD804	SO8	1



## PWM Dimming Duty 1%~100% @ 1KHz



