

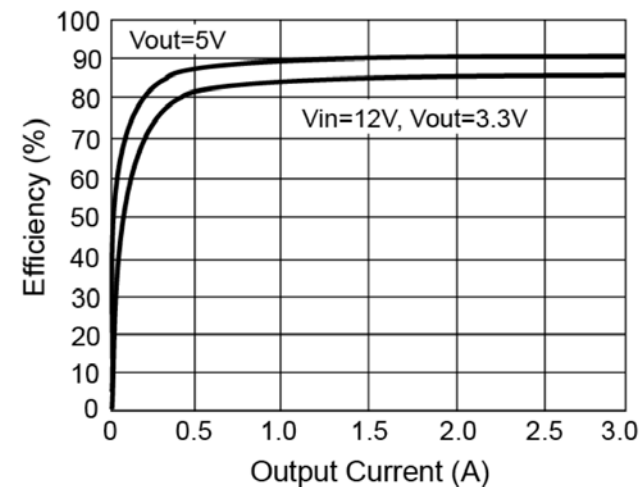
# NEWSLETTER 001-2009

## PWM Buck Converter, 3A, 500KHz (TS2509CS)

TSC P/N: TS2509CS RL  
Package: SOP-8

### Description:

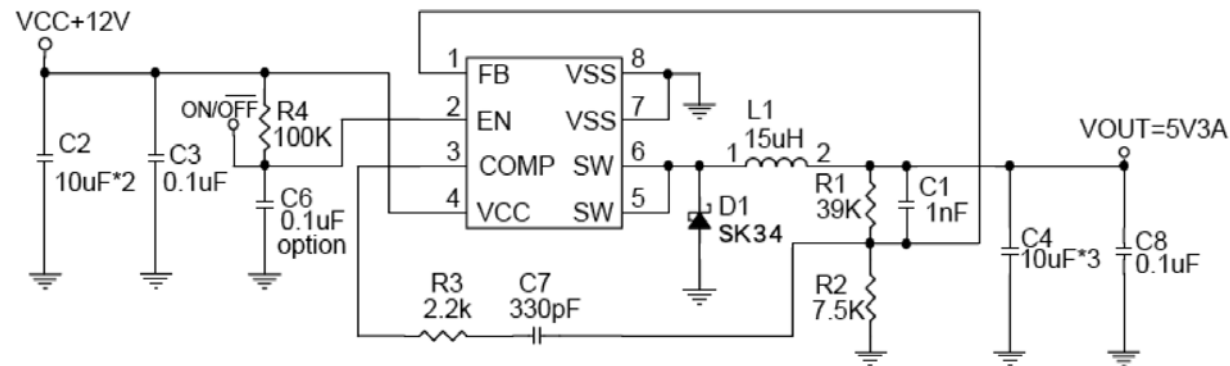
- Input Voltage: 3.6V ~ 23V
- Output Voltage: 0.8V ~ Vcc
- Duty Ratio: 0% ~ 100% PWM Control
- Oscillation Frequency: 500KHz typical
- Soft-Start (SS), Current Limit (CL), Enable Function
- Thermal Shutdown Function
- Short Circuit Protection (SCP)
- External SW P-Channel Mosfet
- Low ESR output capacitor (MLCC application)



# NEWSLETTER 001-2009

## PWM Buck Converter, 3A, 500KHz (TS2509CS)

### Typical Application Circuit (MLCC)



$$V_{OUT} = V_{FB} \times \left(1 + \frac{R1}{R2}\right)$$

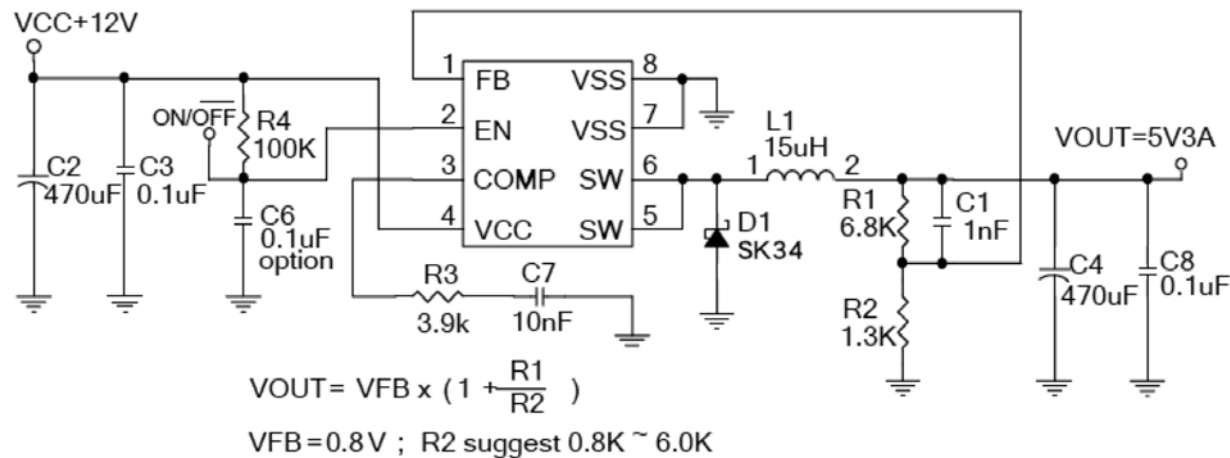
$V_{FB} = 0.8V$  ;  $R1$  suggest 10K ~ 50K

Compensation Capacitor Selection (MLCC)					
VIN	VOUT	L1	R3	C7	C1
7~23V	5.0/3.3/2.5V	15uH	2.2K	330pF	1nF
7~20V	1.8/1.5V	10uH	2K	330pF	1nF
9~20V	1.2V	10uH	2K	330pF	820pF
9~18V	1.1V	10uH	2K	560pF	820pF
9~18V	1.0V	10uH	2K	560pF	680pF
4~10V	3.3/2.5V	15uH	6.8K	330pF	1nF
4~10V	1.8/1.5/1.2/ 1.1/1.0V	10uH	4.7K	330pF	1nF

# NEWSLETTER 001-2009

## PWM Buck Converter, 3A, 500KHz (TS2509CS)

### Typical Application Circuit (EL CAP)



Compensation Capacitor Selection (EL CAP)					
VIN	VOUT	L1	R3	C7	C1
7-20V	5.0/3.3/2.5/1.8V	Coil	3.9K	10nF	1nF
7-20V	1.8/1.5V	Coil	2K	10nF	1nF
5-7V	3.3/2.5/1.8/1.5/1.2V	Coil	2K	10nF	1nF
5-20V	3.3/2.5/1.8/1.5/1.2V	SMD	0.82K	10nF	1nF

# NEWSLETTER 001-2009

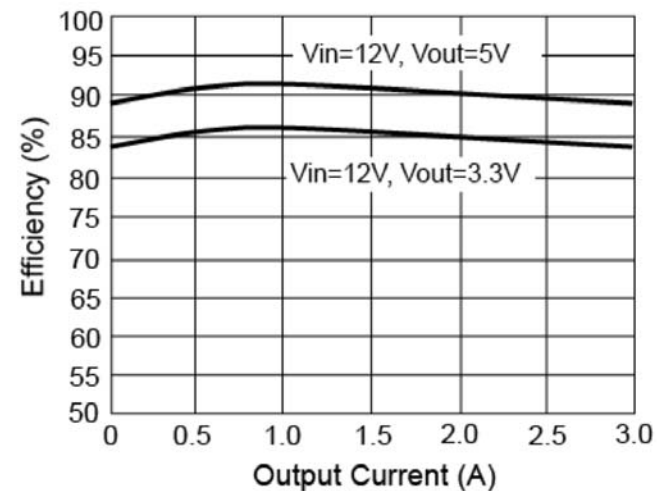
## PWM Buck Converter, 3A, 380KHz (TS2515CS)

TSC P/N: TS2515CS RL  
Package: SOP-8



### Description:

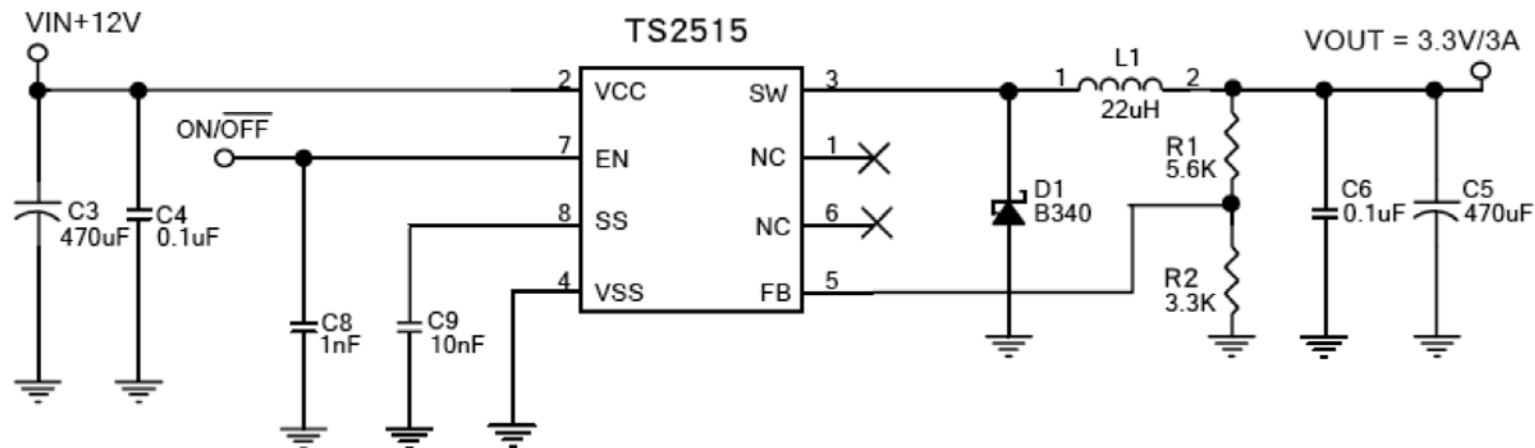
- Input Voltage: 4.5V ~ 23V
- Output Voltage: 1.222V ~ Vcc
- Duty Ratio: 0% ~ 100% PWM Control
- Oscillation Frequency: 380KHz typical
- Soft-Start (SS), Current Limit (CL), Enable Function
- Thermal Shutdown Function
- Short Circuit Protection (SCP)
- Built-in Internal SW P-Channel Mosfet



# NEWSLETTER 001-2009

## PWM Buck Converter, 3A, 380KHz (TS2515CS)

### Typical Application Circuit



$$V_{OUT} = V_{FB} \times \left(1 + \frac{R1}{R2}\right) \quad V_{FB} = 1.222V \quad R2 \text{ suggest } 0.8K \sim 6k$$

L1 recommend value ( $V_{IN}=12V, I_{OUT}=3A$ )				
$V_{OUT}$	1.8V	2.5V	3.3V	5V
L1 Value	15uH	15uH	22uH	22uH

# NEWSLETTER 001-2009

## PWM Buck Converter, 3A, 380 & 500KHz

### Cross References:

- [TS2509CS](#)
- DII – AP5002
- [TS2515CS](#)
- MPS - MP1583

# NEWSLETTER 001-2009

## PWM Buck Converter, 3A, 380 & 500KHz

### Applications:

- STB
- ADSL
- Distributed Power Systems
- Battery Charger
- Pre-Regulator for Linear Regulators

### Ordering Information:

- TS2509CS RL – 2.500 pieces – 13"-Reel
- TS2515CS RL – 2.500 pieces – 13"-Reel