TI - 40400 Standard Control Loop Setup

Remote Sense
from the Load

VSNS +
9

VSNS -
10

R

R

R = 60k Ohm

Differential
Sense Amplifier

Closed Loop:
Gain = 1
Bandwidth = 2 MHz

DIFFO 8

To FET
Drivers

PWM
Modulator
Gain to Input of
LC Filter = 6

Error Amplifier
Open Loop Gain = 60 dB
Gain Bandwidth Product = 20 MHz

600 mV
Reference

Soft
Start

Least Positive
+ Input Controls

COMP. 6

FB 7

TRACK 5

C3   C2   R4

C1   R3

R1   R2

TI Example Design

Vin = 12 Volts
Vout = 1.2 Volts
Max Output = 20 Amps

Inductor = 0.75 uH

R1 = 10k Ohm
R2 = 10k Ohm
C1 = 820 pFd
R3 = 2.74k Ohm
C3 = 680 pFd
C2 = 2.2 nFd
R4 = 4.99k Ohm

$$Vout - Vref \times \frac{R1 + R2}{R2}$$

$$R2 = R1 \times \frac{Vref}{Vout - Vref}$$

TI Datasheet Pin Names
& Reference Designators

☐ TPS40400 Chip Pin

Drw: 54