

# MULTI-MODE CONTROLLER FOR SMPS WITH BUILT-IN HIGH VOLTAGE POWER MOSFET

## 1. DESCRIPTION

The SD8666QS is a quasi-resonant current mode PWM+PFM controller with built-in high voltage power MOSFET, and external sensing resistor, is applicable to SMPS applications.

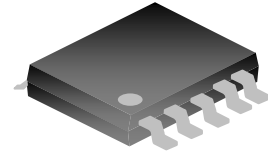
The SD8666QS features multi-mode control., At heavy load condition. it operates in QR mode to reduce switch loss in the high line input voltage, and it operates with fixed frequency (65kHz) in CCM mode in the low line input voltage. At medium load or light load conditions, it works in QR+PFM mode to improve the conversion efficiency. At no load condition, it enters burst mode to reduce the standby power dissipation.

The SD8666QS has frequency jitter function for low EMI. The available peak current compensation function ensures the limit output power consistency even with different AC input voltages. The soft startup reduces the device stress during power-on process.

The SD8666QS integrates comprehensive protections including  $V_{CC}$  overvoltage protection, output over-load protection, output overvoltage protection, leading edge blanking, cycle-by-cycle peak current limit, short circuit protection for output diode, AC input voltage undervoltage protection and over temperature protection, etc.

## 2. FEATURES

- ◆ QR mode for low EMI and low switch loss
- ◆ PFM mode at light load condition for higher conversion efficiency
- ◆ Entering burst mode at no load condition
- ◆ Frequency rising at low voltage and heavy load condition for high limit output power
- ◆ Frequency jitter for low EMI
- ◆ Peak current compensation
- ◆ Soft startup
- ◆  $V_{CC}$  overvoltage protection
- ◆ Output overload protection
- ◆ Leading edge blanking
- ◆ Cycle-by-cycle current limit
- ◆ Output diode short protection
- ◆ Undervoltage protection for AC input voltage
- ◆ Adjustable output overvoltage protection
- ◆ Over temperature protection



EHSOP-5-325-1.7

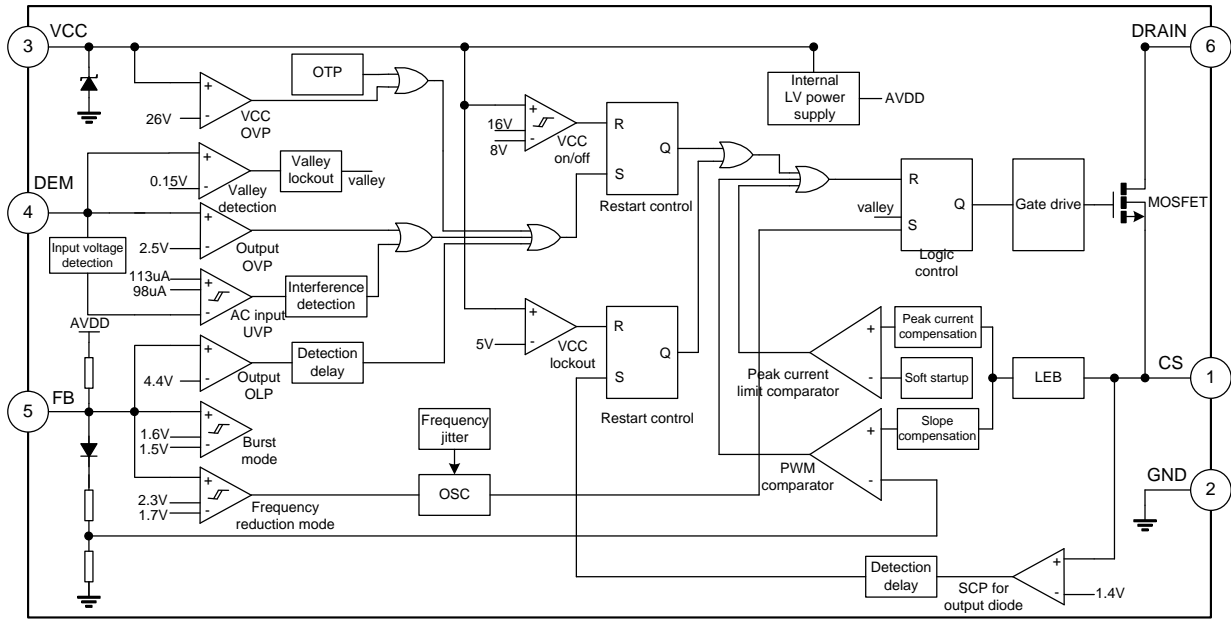
## 3. APPLICATIONS

- ◆ Open-frame SMPS
- ◆ Adapters
- ◆ Set-Top Box Power Supplies

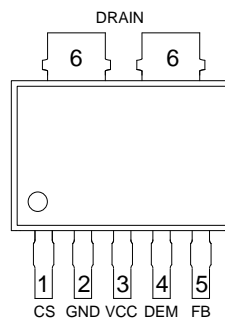
### 4. ORDERING INFORMATION

Part No.	Package	Marking	Hazardous Substance Control	Packing Type
SD8666QS	EHSOP-5-325-1.7	SD8666QS	Halogen free	Tube
SD8666QSTR	EHSOP-5-325-1.7	SD8666QS	Halogen free	Tape & Reel

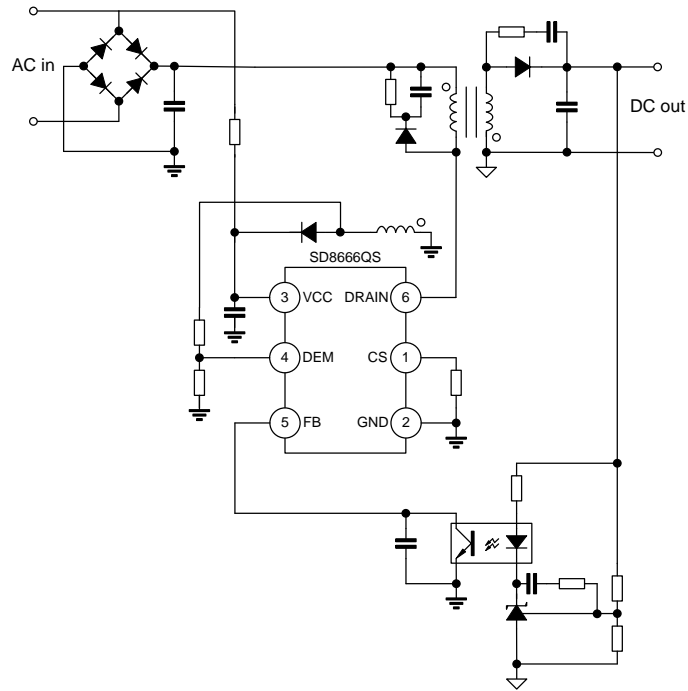
### 5. BLOCK DIAGRAM



### 6. PIN CONFIGURATION



7.TYPICAL APPLICATION CIRCUIT



8.PACKAGE OUTLINE

EHSOP-5-325-1.7 UNIT: mm

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.85
A1	0.00	—	0.15
A2	1.50	1.60	1.70
a	3.11	—	3.19
b	0.44	—	0.52
c	0.20	—	0.24
D	9.15	9.25	9.35
D1	7.26REF		
D2	6.60REF		
E	9.65	9.75	9.85
E1	6.25	6.35	6.45
E2	2.99BSC		
e	1.70BSC		
L	0.90	1.00	1.10
L1	1.70REF		

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