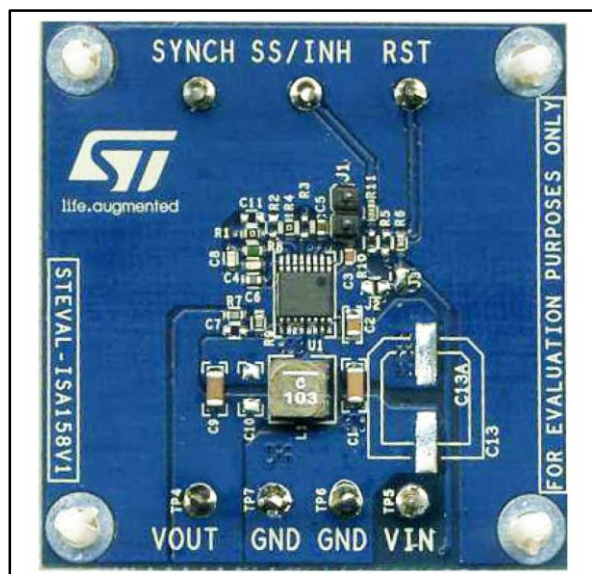


38 V, 2 A synchronous step-down switching regulator evaluation board based on the A6986

Data brief



Description

The STEVAL-ISA158V1 is a product evaluation board based on ST's A6986, a 38 V, 2 A synchronous step-down switching regulator with 30 μ A of quiescent current. It is designed for automotive system battery-powered applications. It can be used in low consumption mode (LCM) such as in car body implementations, or in low noise mode (LNM) such as in car audio applications.

Features

- 4 V to 38 V operating input voltage
- Low consumption mode or low noise mode
- 30 μ A I_Q at light load (LCM $V_{OUT} = 3.3$ V)
- 5 μ A $I_{Q-SHTDWN}$
- Adjustable f_{SW} (250 kHz - 2 MHz)
- Output voltage adjustable from 0.85 V to V_{IN}
- Embedded output voltage supervisor
- Synchronization
- Adjustable soft-start time
- Internal current limiting
- Overvoltage protection
- Output voltage sequencing
- Peak current mode architecture
- $R_{DS(on)HS} = 180$ m Ω ; $R_{DS(on)LS} = 150$ m Ω
- Thermal shutdown
- RoHS compliant

1 Schematic diagram

Figure 1: STEVAL-ISA158V1 circuit schematic

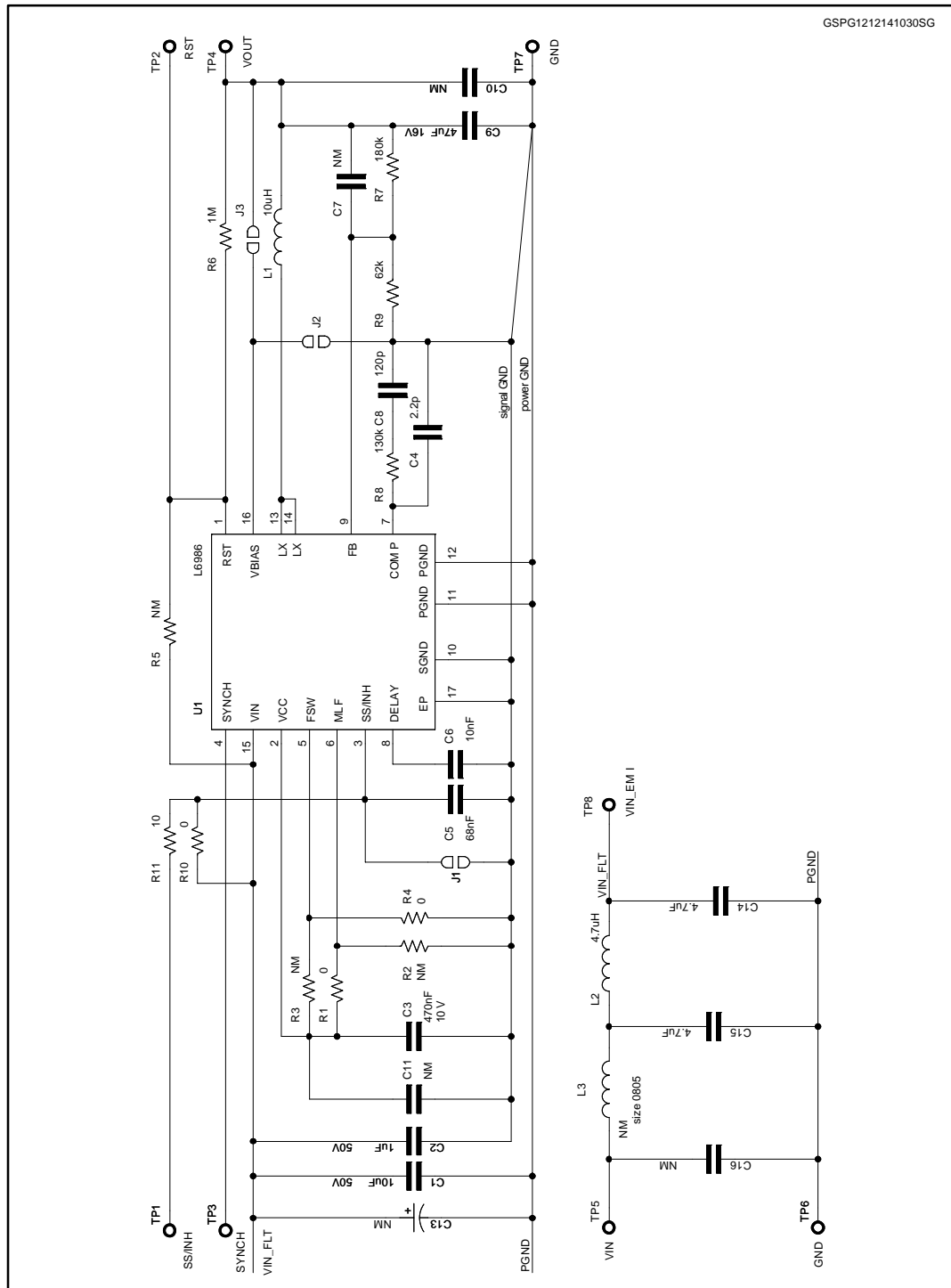


Table 1: BOM list

Reference	Part number	Description	Manufact.
C1	CGA5L3X5R1H106K	10 μ F - 1206 - 50 V - X7R - 10%	TDK
C2	C2012X7S2A105K	1 μ F - 0805 - 50 V - X7S - 10%	TDK
C3		470 nF - 50 V - 0603	
C4		2.2 pF - 50 V - 0603	
C5		68 nF - 50 V - 0603	
C6		10 nF - 50 V - 0603	
C8		120 pF - 50 V - 0603	
C9	C3216X5R1C476M	47 μ F - 1206 - 16 V - X5R - 20%	TDK
C14, C15, C16	C3216X7R1H475K160AC	4.7 μ F - 1206 - 50 V - X7R - 10%	TDK
C7, C10, C11, C13		Not mounted	
R1, R4		0 R - 0603	
R6		1 M Ω - 1% - 0603	
R7		180 k Ω - 1% - 0603	
R8		130 k Ω - 1% - 0603	
R9		62 k Ω - 1% - 0603	
R11		10 Ω - 1% - 0603	
R2, R3, R5, R10		Not mounted	
L1	XAL5050-103MEC	10 μ H	Coilcraft
L2	XAL5030-472MEC	4.7 μ H	Coilcraft
L3	MPZ2012S221A	EMC bead	TDK
J1	Open		
J2	Open		
J3	Closed	Switchover	
J4	Open		
U1	A6986		ST

2 Revision history

Table 2: Document revision history

Date	Rev	Changes
15-Jan-2015	1	First release.