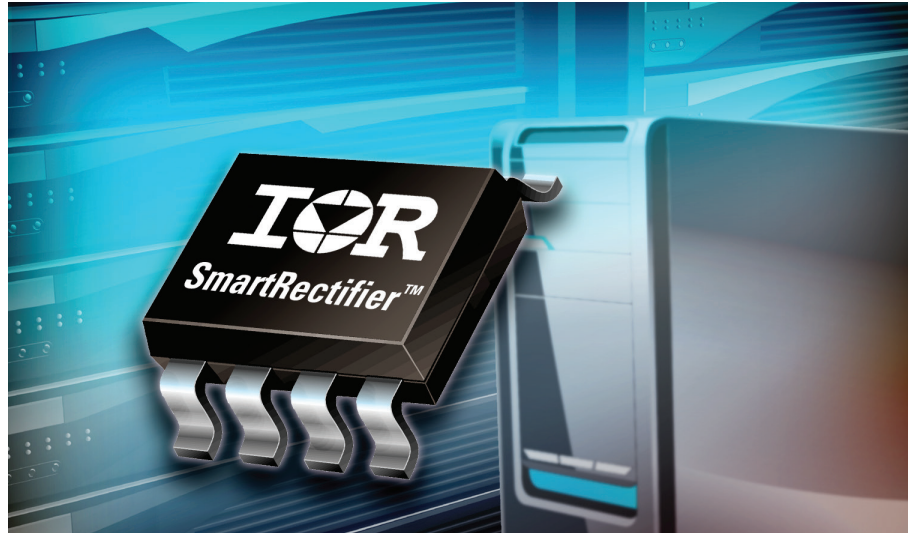


SmartRectifier™ Solutions for Synchronous Rectification

The IR Advantage:

- Simple, powerful solution
- Enables
 - Higher efficiency
 - Higher power density
 - Faster time-to-market
- Complies with CEC 80plus and 0.3W standby requirements
- Proprietary “Voltage Level Detection” and 200V HVIC technology
- Direct connection and drive to all 30-200V MOSFETs
- Enables ‘no heatsink’ SR designs



Synchronous rectification is broadly used in AC/DC converters to replace Schottky diodes and improve converter efficiency. IR's SmartRectifier™ family offers simple high efficiency secondary side synchronous rectification for all operating modes over a broad array of topologies.

IR1163 is a smart secondary-side driver IC designed to drive N-Channel power MOSFETs used as synchronous rectifiers in isolated Flyback, Forward, LLC, Half-bridge or full-bridge converters. IR1163 works in both DCM and CCM operation modes. The SYNC pin is used in CCM mode to directly turn-off the MOSFET by a control signal. IR1163 has wide V_{cc} operating range from 5V to 20V. It has ultra-low sleep mode current, enables lower system standby power.

The IR1169 is a smart secondary-side driver IC designed to drive N-Channel power MOSFETs used as synchronous rectifiers in isolated Flyback, Forward, LLC or Half-bridge converters. The IR1169 works in both DCM and CCM operation modes. The SYNC pin is used in CCM mode to directly turn-off the MOSFET by a signal from secondary or primary controller using simple capacitive coupling interface.

The IR1166(2) and IR1167(2) are smart secondary side driver ICs designed to drive N-Channel power MOSFETs used as synchronous rectifiers in isolated Flyback and resonant half-bridge converters. These ICs can control one or more paralleled N-MOSFETs to emulate the behavior of Schottky diode rectifiers.

The IR1168(2) is a dual smart secondary-side rectifier driver IC designed to drive two N-Channel power MOSFETs used as synchronous rectifiers in resonant converter applications. This IC offers shoot-through protection improving efficiency and increasing system reliability. This IC can control one or more paralleled MOSFETs to emulate the behavior of Schottky diode rectifiers.

Note: IR1163 will be released in July 2014

SmartRectifier™ ICs

Part Number	Package	V _{CC} Range (V)	V _{FET} max (V)	Sw Freq. max (KHz)	Gate Drive (A)	V _{GATE} Clamp (V)	Min. On Time (ns)	Enable Pin	Channel	Automatic MOT Protection	
IR1166SPBF	SO-8	11.3-20	200	500	+1 / -4	10.7	Program. 250-3000	Yes	1	No	
IR1167ASPBF		11.3-20			+2 / -7	10.7		Yes		No	
IR1167BSPBF		11.3-20			+2 / -7	14.5		Yes		No	
IR1168SPBF		8.5-20			+1 / -4	10.7	750	No	2	No	
IR11662SPBF		11.3-20			+1 / -4	10.7	Program. 250-3000	Yes	1	Yes	
IR11672ASPBF		11.3-20			+2 / -7	10.7		Yes		Yes	
IR11682SPBF		8.5-20		400	+1 / -4	10.7	850	No	2	Yes	
IR1169SPBF		11.3-20			500	+1 / -4	10.7	Program. 250-3000	Yes	1	Yes
IR1163SPBF		5-20				+2 / -7	-		Yes	1	Yes

Synchronous Rectification MOSFETs

Voltage (V)	R _{DS(on)} Max. (mΩ)	TO-220	TO-262	D ² Pak	S08	DirectFET Med. (6.3 x 4.9 mm)	PQFN 5 x 6
40	2.6						IRFH5004TRPBF
	3.3	IRFB7446PBF					IRFH7446TRPBF
	3.5						IRFH5104TRPBF
	3.6	IRF2204PBF	IRF2204LPBF	IRF2204SPBF		IRF6613TRPBF	
	3.7	IRF1404ZPBF	IRF1404ZLPBF	IRF1404ZSPBF			
	4.3						IRFH5204TRPBF
	5				IRF7842PBF	IRF6616TRPBF	
60	5.5	IRF4104PBF	IRF410LPBF	IRF4104SPBF			
	4.2	IRFB3306PBF	IRFSL3306PBF	IRFS3306PBF			IRFH5006TRPBF
	4.4						IRLH5036TRPBF
	5.6						IRFH5106TRPBF
	6.7						IRFH5206TRPBF
	7					IRF6648TRPBF	
75	5.8	IRFB3307zPBF	IRFSL3307zPBF	IRFS3307zPBF			IRFH5007TRPBF
	8.5						IRFH7107TRPBF
	8.8	IRFB3507PBF	IRFSL3507PBF	IRFS3507PBF			
	9	IRFB3607PBF	IRFSL3607PBF	IRFS3607PBF			
80	10					IRF6646TRPBF	
	13.4				IRF7854PBF		
100	5.2						IRFH7185TRPBF
	9	IRFB4410ZPBF	IRFSL4410ZPBF	IRFS4410zPBF			IRFH5010TRPBF
	12.4						IRFH5110TRPBF
	13.5						IRFH7110TRPBF
	13.9	IRFB4510PBF	IRFSL4510PBF	IRFS4510PBF		IRF6644TRPBF	
150	12	IRFB4115PBF	IRFSL4115PBF	IRFS4115PBF			
	15	IRFB4321PBF	IRFSL4321PBF	IRFS4321PBF			
	31						IRFH5015TRPBF
200	22	IRFB4127PBF	IRFSL4127PBF	IRFS4127PBF			

Note: more parts are available on www.irf.com
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