

# **G5 HVIC New Product Offering: IRS21851**

Energy Saving Products  
International Rectifier  
El Segundo, CA

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## **HVIC Evolution**

International Rectifier has invested (and continues to invest) in a new IC process that will support the continued improvement of our HVICs and allow these improvements to be realized while keeping price under control. This new process is referred to as G5 HVIC.

The adoption of a new IC process as an existing IC process approaches its limits is part of the natural progression in IC evolution. The G5 HVIC process allows improvements in device capabilities, tighter specifications, temperature stability, functions/\$, and the integration of previously unavailable features at an attractive price point.

Two categories of products have emerged from this new technology; G5 HVIC new products, and G5 HVIC replacement products (to replace existing HVIC products).

# Process Comparison: HVIC & G5 HVIC



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- **G5 HVIC products are grouped in two categories**
  - New products (e.g., with integrated bootstrap functionality, PFC, brake drive, etc.)
  - Upgraded version of existing HVICs (e.g., improved input filters, etc.)
- **G5 HVIC replacement products are pin-to-pin compatible with their predecessors**
- **Process identification**
  - IRSxxxx part numbers (G5 HVIC technology)
  - IR2(0,1,3,5)xx & IR44xx part numbers (existing HVIC technology)

# Adopting G5 HVIC: IRS21851

**Immediate improvements in functionality/\$**

**Capable of rapid improvements in functionality & capability**

**Previously unavailable features integrated at attractive price**

- Advanced clamping structure provides additional spike protection
- 4 A /4 A source/sink current
- Improved temperature stability
- UVLO protection for  $V_{CC}$  and  $V_{BS}$
- 15 ns /15 ns rise/fall times
- Higher signal to noise rejection at input and improved logic threshold values
- Improved DC operation under negative  $V_s$  conditions
- Compact 8-lead SOIC available

# Adopting G5 HVIC: IRS21851

	(units)	High-side driver						
		IRS2117	IRS2118	IRS2127	IRS21271	IRS2128	IRS21281	IRS21851
Offset voltage	V	600	600	600	600	600	600	600
Current sensing circuitry		No	No	Yes	Yes	Yes	Yes	No
Overcurrent shutdown	-			Yes	Yes	Yes	Yes	
Fault output				Yes	Yes	Yes	Yes	
<b>INPUT LOGIC</b>								
Logic compatibility	V	15	15	3.3, 5, 15	3.3, 5, 15	3.3, 5, 15	3.3, 5, 15	3.3, 5
IN	-	Yes		Yes	Yes			Yes
IN/N			Yes			Yes	Yes	
<b>OUTPUT</b>								
V <sub>out</sub>	V	10-20	10-20	12-20	9-20	12-20	9-20	10-20
I <sub>O+</sub>	mA	290	290	250	250	250	250	4000
I <sub>O-</sub>		600	600	500	500	500	500	4000
<b>UVLO</b>								
V <sub>BSUV+</sub>	V	8.6	8.6	10.3	7.2	10.3	7.2	8.9
V <sub>BSUV-</sub>		8.2	8.2	9	6.8	9	6.8	8.2
V <sub>BSUVH</sub>		-	-	-	-	-	-	-
V <sub>CCUV+</sub>		8.6	8.6					8.9
V <sub>CCUV-</sub>		8.2	8.2					8.2
V <sub>CCUVH</sub>		-	-					-
<b>TIMING</b>								
t <sub>on</sub>	ns	125	125	150	150	150	150	160
t <sub>off</sub>		105	105	150	150	150	150	160
t <sub>r</sub>		75	75	80	80	80	80	15
t <sub>f</sub>		35	35	40	40	40	40	15
t <sub>bl</sub>				750	750	750	750	
t <sub>cs</sub>				65	65	65	65	
t <sub>fit</sub>				270	270	270	270	
<b>CURRENT SENSING</b>								
V <sub>CSTH+</sub>	mV			250	1800	250	1800	

High Side Driver Comparison

## **G5 HVIC Tools**

- **IRS21851**
  - [Datasheet](#)
  - [Samples](#)

## Q&A

- **Will my existing HVIC be able to be replaced by its G5 HVIC counterpart?**
  - The G5 HVIC replacement products are designed to allow direct replacements of the existing HVIC parts in most applications. In many cases, the design will be able to take advantage of the new integrated bootstrap circuit (i.e., “D-series” HVICs).
- **When will the existing HVIC products no longer be available?**
  - This event will depend on the adoption rate of the G5 HVIC process and other market forces. Customers will be informed of this event and normal procedures will occur.
- **When will I see a reduction in cost for G5 HVIC products?**
  - This will depend on the adoption rate (volume) of the new technology and the maturing of the process. IR has a history of passing on cost savings to our customers as the processes are refined and improved (matured).
- **Will I be able to use the new D-series HVICs in place of my existing HVIC?**
  - In most cases, yes. Not all D-series HVICs are recommended for all applications (please check for details in the datasheet). Not all HVIC models are available with the integrated bootstrap functionality.