

Fuel-cell air compressor drive

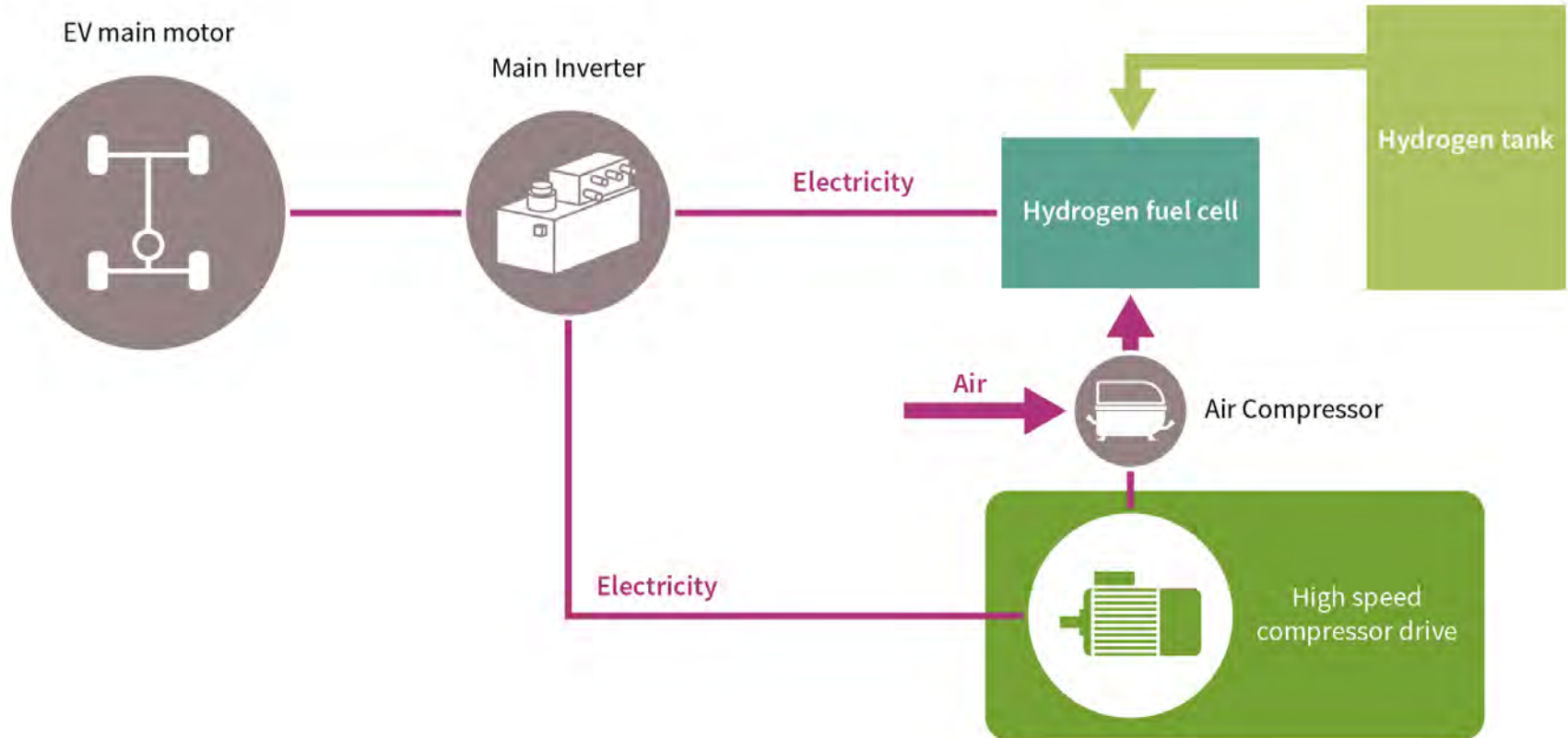
First high-speed compressor drive based on SiC MOSFETs



인피니언 전력반도체 솔루션
가상부스에 오신 걸 환영합니다!



Electric air compressor for fuel cell system



Frist commercial electric air compressor drive based on SiC MOSFETs enabled by IMZ120R030M1H

ZINSIGHT HS30



Benchmark power density

Rated power:	49 kW
Volume:	< 1.9 L
Power density:	> 25 kW/L

Control improved by SiC

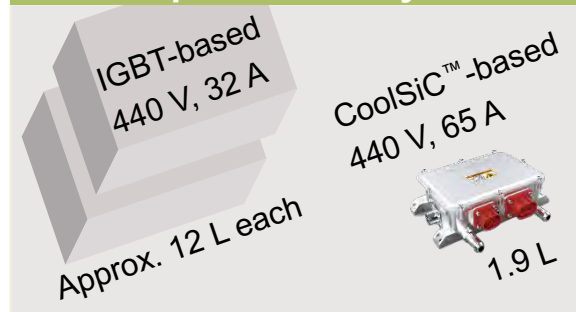
Acceleration time:	530 ms (0~30 krpm)
Speed accuracy:	< 10 rpm

System benefits

Output THD:	< 2%
Low weight:	2.3 kg
Drive efficiency:	98.5%
Compressor vibration:	< 1.5g
System loss reduced:	by 75%
Bearing lifetime:	x2
Motor temp. reduced:	by 38°C

CoolSiC™ MOSFET solution vs. IGBT solutions

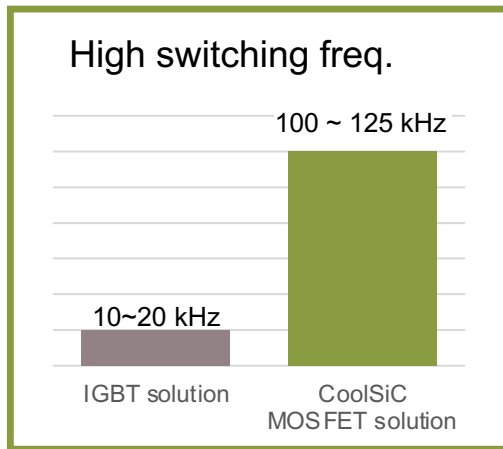
Benchmark power density



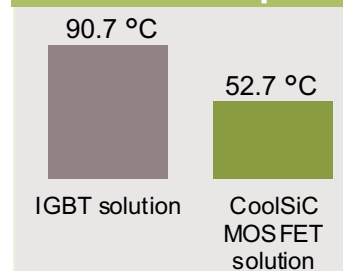
Low weight



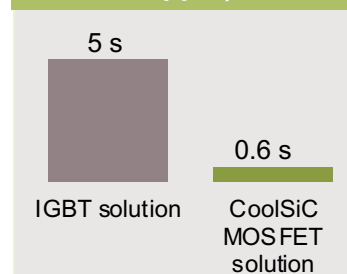
High switching freq.



Compressor motor temp.



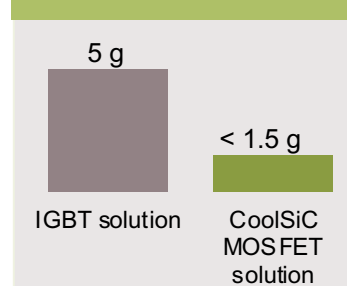
Acc. time (0~30 krppm)



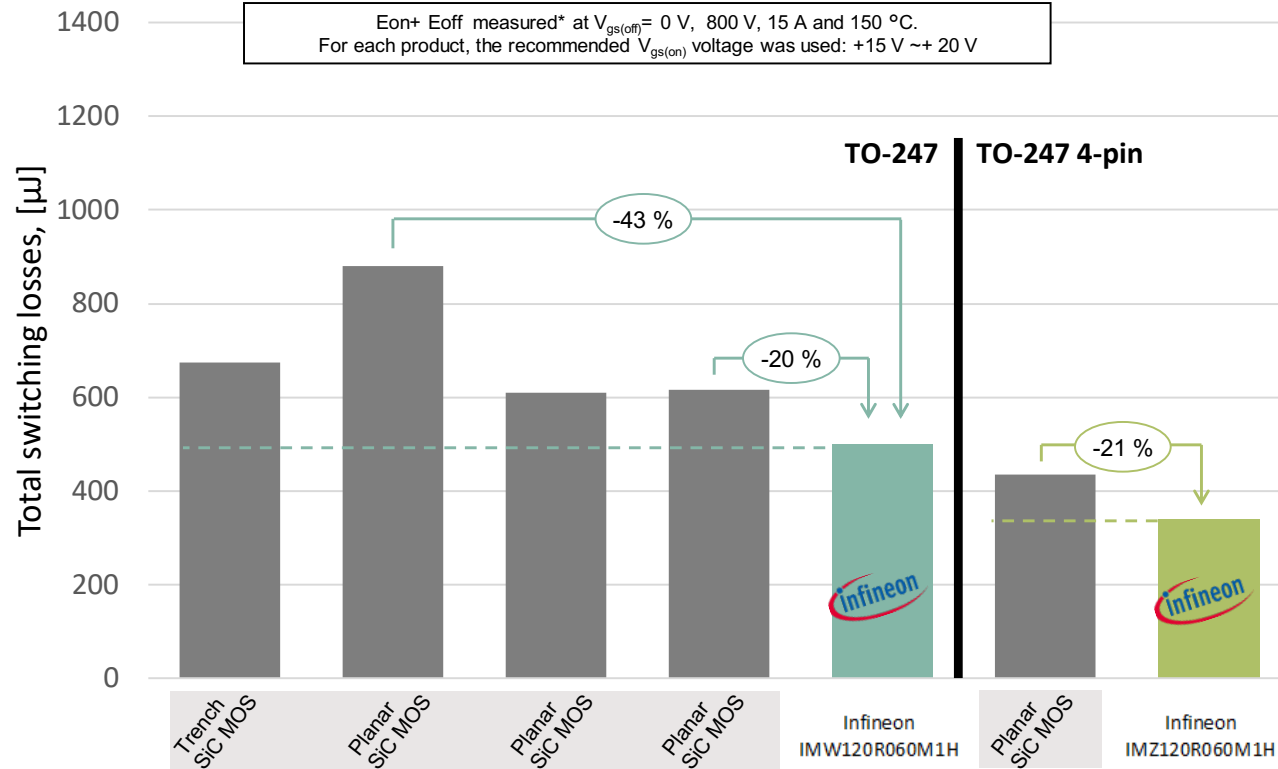
Max. speed



Compressor vibration



CoolSiC™ MOSFET with performance-based design sets dynamic loss benchmark







1200 V SiC MOSFET latest generation devices having a nominal on-state resistance of 60-80 mΩ, as per datasheets on supplier web pages September 2019

*Evaluation board used: <https://www.infineon.com/cms/en/product/evaluation-boards/eval-igbt-1200v-247>

1200 V – 1700 V CoolSiC™ MOSFET portfolio and upcoming products



	$R_{DS(on)}$ [mΩ]	TO-247 3 	TO-247 4 	D ² PAK-7L  Coming Soon	D ² PAK-7L extended creepage  New
1200 V	30	IMW120R030M1H	IMZ120R030M1H	IMBG120R030M1H	
	45	IMW120R045M1	IMZ120R045M1	IMBG120R045M1H	
	60	IMW120R060M1H	IMZ120R060M1H	IMBG120R060M1H	
	90	IMW120R90M1H	IMZ120R090M1H	IMBG120R090M1H	
	140	IMW120R140M1H	IMZ120R140M1H	IMBG120R140M1H	
	220	IMW120R220M1H	IMZ120R220M1H	IMBG120R220M1H	
	350	IMW120R350M1H	IMZ120R350M1H	IMBG120R350M1H	
1700 V	450				IMBF170R450M1
	650				IMBF170R650M1
	1000				IMBF170R1K0M1

Available / In pipeline: samples Q4 CY 2019, release 2020

Summary



CoolSiC™ solutions

As reliable as Si power transistors from Infineon

Outstanding performance and best ease of use

Comprehensive portfolio – all in mass production

This is the revolution you can rely on!

For more product information, please visit

Webpage: www.infineon.com/coolsic-mosfet

Forum: [www.infineonforums.com/forums/34-Silicon-Carbide-\(SiC\)-Forum](http://www.infineonforums.com/forums/34-Silicon-Carbide-(SiC)-Forum)



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