

Application Brief

Portable generator

Highly efficient and cost effective solutions

The use of energy globally is forecasted to increase by more than 70 percent by 2040. Rising demand for electricity puts an increasing strain on the grid. Where the grid is unavailable or inaccessible, portable generators can backup or emergency power supply for residential, commercial and industrial applications.

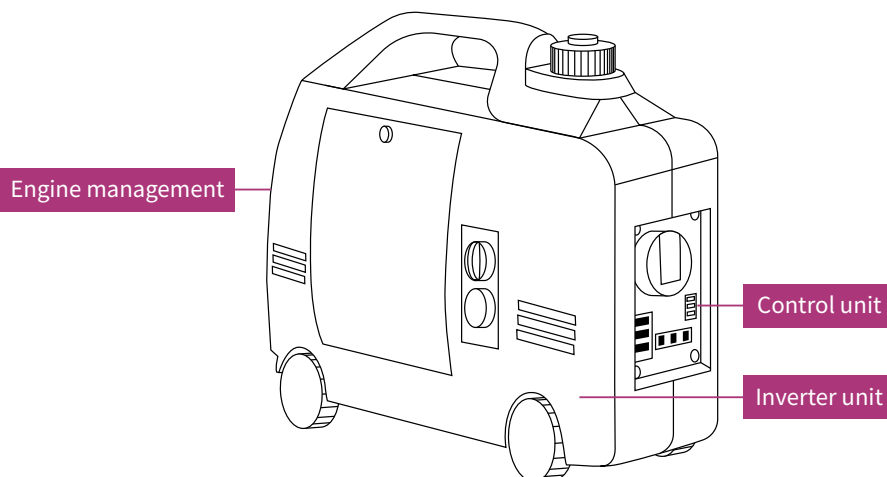
A portable generator is assembled from alternator, inverter, control panel, fuel system and battery charger. It can also have a muffler attached to its engine to reduce its operational noise.

Infineon's key enabling products are:

- > Low voltage power MOSFETs – OptiMOS™ and StrongIRFET™
- > High voltage power MOSFETs – CoolMOS™
- > Gate driver ICs – EiceDRIVER™
- > SiC diode – CoolSiC™
- > Microcontrollers – XMC™

Benefits of Infineon components

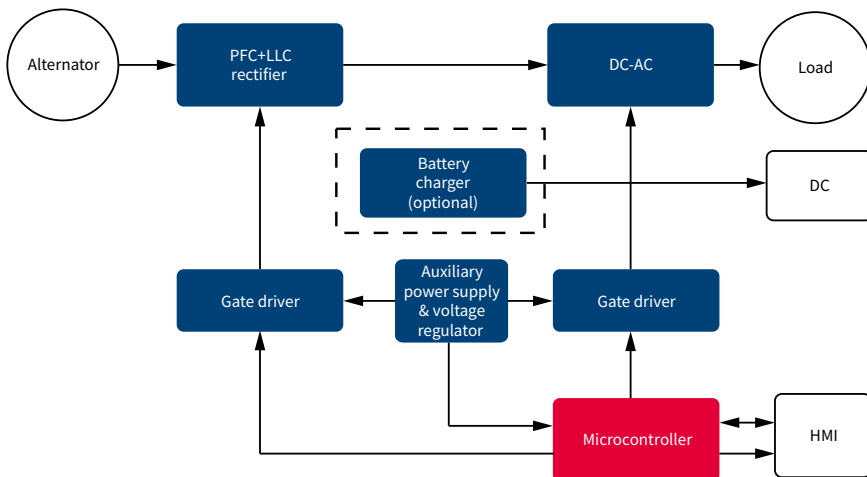
- > High power density semiconductors allowing for the miniaturization of the inverter unit, leading to smaller and lighter portable generators
- > Leading semiconductor technology to meet efficiency and emissions requirements/regulations
- > Highly efficient and innovative cost-attractive semiconductor solutions leading to overall BOM cost reduction
- > Reliable products optimized for use in target application



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Highly efficient and cost effective solutions

System block diagram



Solution tree for portable generators*

Engine management			Control unit	
Microcontroller	Small engine management IC		Microcontrollers	Voltage regulator
> XMC1000 family	> TLE8080EM		> XMC1000 family	> Linear voltage regulator
Inverter unit			Battery management**	
DC-AC			Low voltage MOSFETs	Gate driver ICs
High voltage MOSFET	Gate driver ICs	IGBT discretes	> OptiMOS™ 3 20 V-300 V > OptiMOS™ 5 25 V-80 V > StrongIRFET™ 20 V-200 V	> EiceDRIVER™ – 1EDN/2EDN
> CoolMOS™ CFD2	> EiceDRIVER™ – 1EDN/2EDN	> 600 V-1600 V TRENCHSHOP™ 5 / Highspeed3		
PFC/LLC, Rectifier				
PFC/LLC			Rectifier	
SiC diode	Gate driver ICs	High voltage MOSFETs	Low voltage MOSFETs	
> CoolMOS™ CFD2	> EiceDRIVER™ – 1EDN/2EDN	> CoolMOS™ P7 > CoolMOS™ C7 > CoolMOS™ CFD2	> OptiMOS™ 3 20 V-300 V > OptiMOS™ 5 25 V-80 V > StrongIRFET™ 20 V-200 V	

*Status Q3 2017; further portfolio extension planned
** Optional

Published by
Infineon Technologies Austria AG
9500 Villach, Austria

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