Experience the difference in power: CoolMOS™ 7 - CoolSiC™ - CoolGaN™

and complementing EiceDRIVER™ ICs

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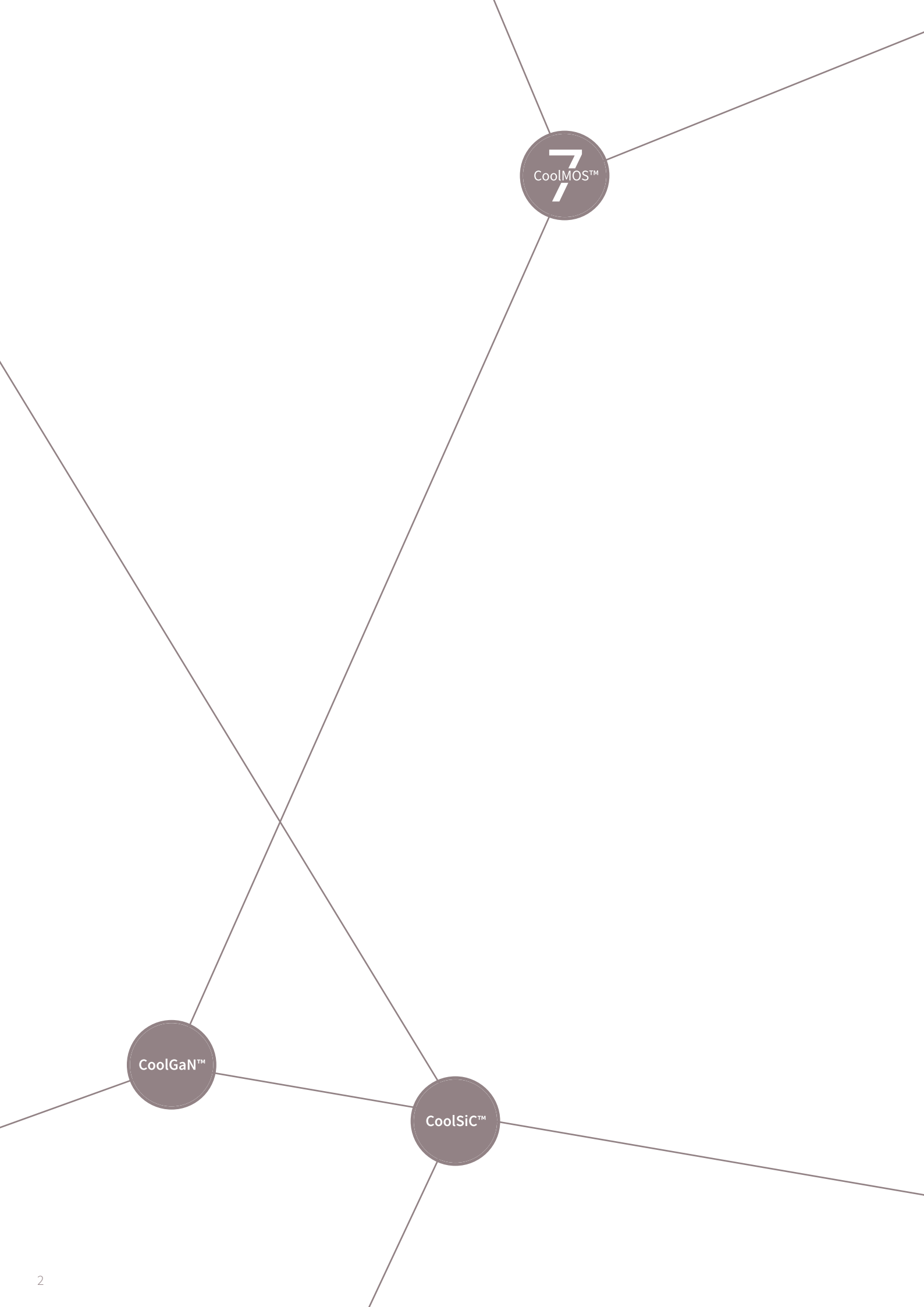

7
CoolMOS™
CoolGaN™
CoolSiC™

Content

Infineon masters it all – for you

Experience the difference in power with CoolMOS™, CoolSiC™, and CoolGaN™

Infineon is the leader in the power semiconductor market and currently the only manufacturer mastering all power technologies while offering the broadest product and technology portfolio of silicon (such as SJ MOSFETs, IGBTs), silicon carbide (such as Schottky diodes and MOSFETs) and gallium-nitride-based (e-mode HEMTs) devices, covering bare die, discretes, and modules.

Equipped with a 300-millimeter wafer fab for power semiconductors, Infineon is best positioned to fully seize the growth opportunities in the power semiconductor industry.

With its high-quality and highly efficient products, Infineon is setting new standards for energy efficiency, power density and ease of use.

CoolMOS™ SJ MOSFET products boast outstanding figures of merit in terms of conduction, switching and driving losses. CoolSiC™ and CoolGaN™ enable extremely efficient and compact system designs that meet future demands for greener and better performing products. Additionally, a comprehensive portfolio of gate-driver ICs for silicon and wide bandgap technologies unlock the full potential of the switches.

The 600 V/650 V class of power products is the area where CoolMOS™, CoolSiC™ and CoolGaN™ will coexist, delivering a specific value proposition depending on application requirements.

CoolMOS™ Superjunction MOSFETs

- Best price/performance ratio
- Largest SJ MOSFET portfolio on the market
- Mature, stable, well-established

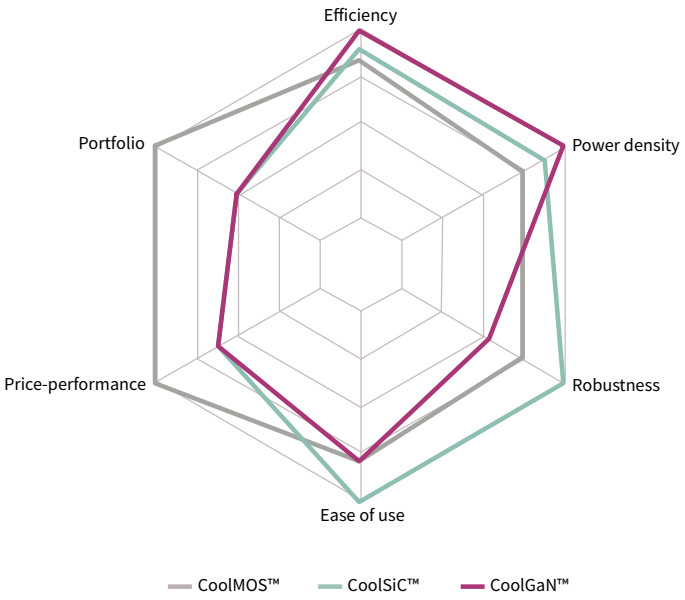
CoolSiC™ MOSFETs

- High performance, robustness and ease of use
- High reliability especially with high temperature and in harsh environments
- Smaller system size

CoolGaN™ HEMTs

- Highest efficiency at the highest frequency
- Smallest system size
- Enables system integration

Technology comparison



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Application to product matrix

	CoolMOS™ 7												CoolMOS™ Automotive			CoolSiC™		CoolGaN™	
Application	S7 600 V	CFD7 600 V	PFD7 600 V	C7 650 V	C7 600 V	G7 650 V	G7 600 V	P7 600 V	P7S 600 V	P7S 700 V	P7S 800 V	P7S 950 V	CPA 600 V	CFDA 650 V	C3A 800 V	SiC Diode	SiC MOS 650 V	600 V	400 V
Automotive																			
OBC													✓	✓					
DC-DC															✓				
Industrial																			
EV Charging		✓		✓		✓		✓									✓		
Server	✓	✓		✓	✓	✓	✓	✓			✓					✓	✓	✓	
Telecom	✓	✓		✓	✓	✓	✓	✓			✓					✓	✓	✓	
Industrial SMPS	✓	✓		✓	✓	✓	✓	✓			✓					✓	✓	✓	
Solar/UPS	✓			✓		✓		✓			✓					✓	✓		
LSEV (industrial battery charger)		✓		✓		✓		✓								✓	✓		
Solid state relays and circuit breakers	✓							✓		✓	✓								
Battery formation	✓	✓		✓	✓	✓	✓	✓			✓					✓	✓		
Consumer																			
TV/PC/Gaming									✓	✓	✓								
Charger/adapters			✓						✓	✓	✓	✓						✓	
Lighting									✓	✓	✓	✓							
Audio									✓	✓	✓								✓
Smart meter										✓	✓	✓							
Major home appliances			✓																

Automotive portfolio

CoolMOS™ C3A – 800 V	CoolMOS™ CPA – 600 V	CoolMOS™ CFDA – 650 V		CoolMOS™ CFD7A – 650 V	
Bias supply	PFC	PFC	LLC	PFC	LLC
$R_{DS(on)}$: 0.45 – 2.7 Ω					

Industrial portfolio

CoolMOS™ S7 – 600	CoolMOS™ C7 – 600 V C7 – 650 V G7 – 600 V G7 – 650 V CFD7 – 600 V	CoolMOS™ C7 – 600 V G7 – 600 V CFD7 – 600 V	CoolMOS™ CFD7 – 600 V	CoolMOS™ P7 – 600 V	CoolMOS™ P7 – 600 V CFD7 – 600 V	CoolMOS™ CFD7 – 600 V	CoolSiC™ diode 600 V/650 V	CoolGaN™ 600 V
Synchronous Rectification	PFC	LLC	ZVS PS FB	PFC	LLC	ZVS PS	PFC	PFC
$R_{DS(on)}$: 17 – 190 mΩ							I_F: 4-20 A	$R_{DS(on)}$: 70-190 mΩ

Consumer portfolio

CoolMOS™ PFD7 – 600 V	CoolMOS™ P7 – 600 V		CoolMOS™ P7 – 700 V		CoolMOS™ P7 – 800 V		CoolMOS™ P7 – 950 V		CoolGaN™ 400 V and 600 V
PFC/Flyback/Inverter	Flyback	LLC	PFC	Flyback	PFC	Flyback	PFC	Flyback	Flyback
$R_{DS(on)}$ 125 mΩ - 2 Ω	$R_{DS(on)}$ 0.18 – 0.6 Ω		$R_{DS(on)}$ 0.36 – 2.0 Ω		$R_{DS(on)}$ 0.28 – 4.5 Ω		$R_{DS(on)}$ 0.45 – 3.7 Ω		$R_{DS(on)}$ 70-190 mΩ

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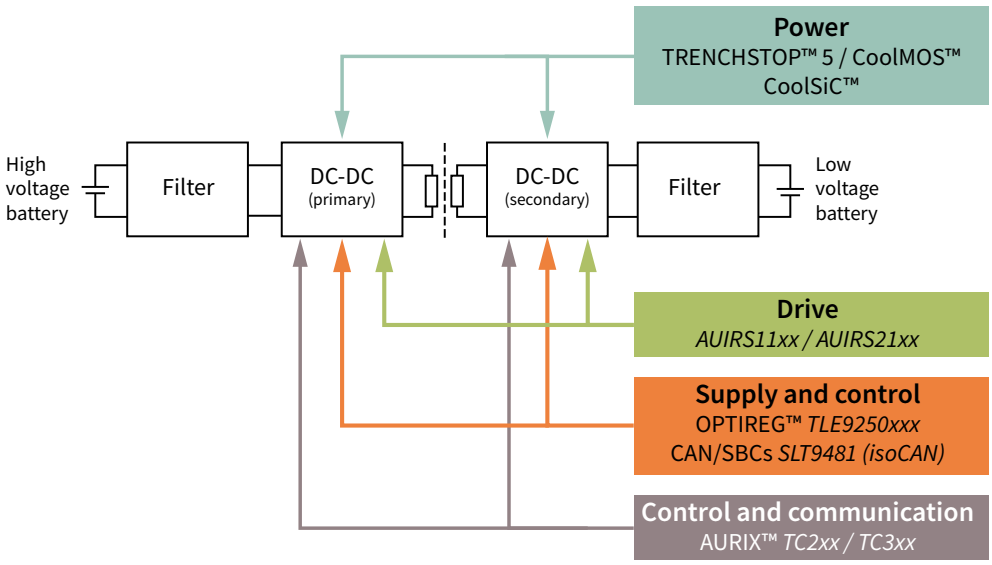
eMobility

High-voltage to low-voltage DC-DC converter

While DC-DC converters within the onboard charger take care about charging the battery, the high-voltage to low-voltage DC-DC converter ensures energy flow towards the low voltage battery in a hybrid or electric vehicle. In some cases the DC-DC converter will be bidirectional.

The systems are optimized for light load conditions. The power requirements are in the range of 3500 W. Typical requirements besides high power density and low cost are low ripple current, excellent EMI behavior, as well as bidirectional power flow capabilities.



Automotive products for onboard units

Functional block	Product category	Description
Power	Automotive CoolMOS™ CPA	600 V MOSFET with integrated fast body diode, $R_{DS(on)}$: 45 to 299 mΩ
	Automotive CoolMOS™ CFDA	650 V MOSFET with integrated fast body diode, $R_{DS(on)}$: 48 to 660 mΩ
	Automotive CoolMOS™ C3A	650 V MOSFET with integrated fast body diode, $R_{DS(on)}$: 45 to 299 mΩ
	Trenchstop™ 5 IGBT	600 V/650 V IGBT with and wo co-packed SIC or fast body diode, 15 – 50 A
	CoolSiC™ Schottky diode	650 V/1200 V, 8-40 A
	CoolSiC™ MOSFET	1200 V, 45 mΩ
Gate driver	Automotive EiceDRIVER™	Single- and dual-channel isolated driver
Supply and control	OPTIREG™	System supply optimized for AURIX™
	CAN FD Transceiver	High-speed automotive CAN transceiver
Control and communication	AURIX™ microcontroller	32-bit lockstep microcontroller

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eMobility

Onboard charger

Automotive-qualified products have a long track record at Infineon. With a proven experience in serving major market players with high quality and reliable devices, Infineon offerings balance highest performance at attractive costs combined with high delivery reliability. While further improving performance of new products, Infineon continuously invests in capacity expansion to support the upcoming demand. The mainstream applications use high voltage battery systems up to 475 V_{DC} supporting system cost optimization.

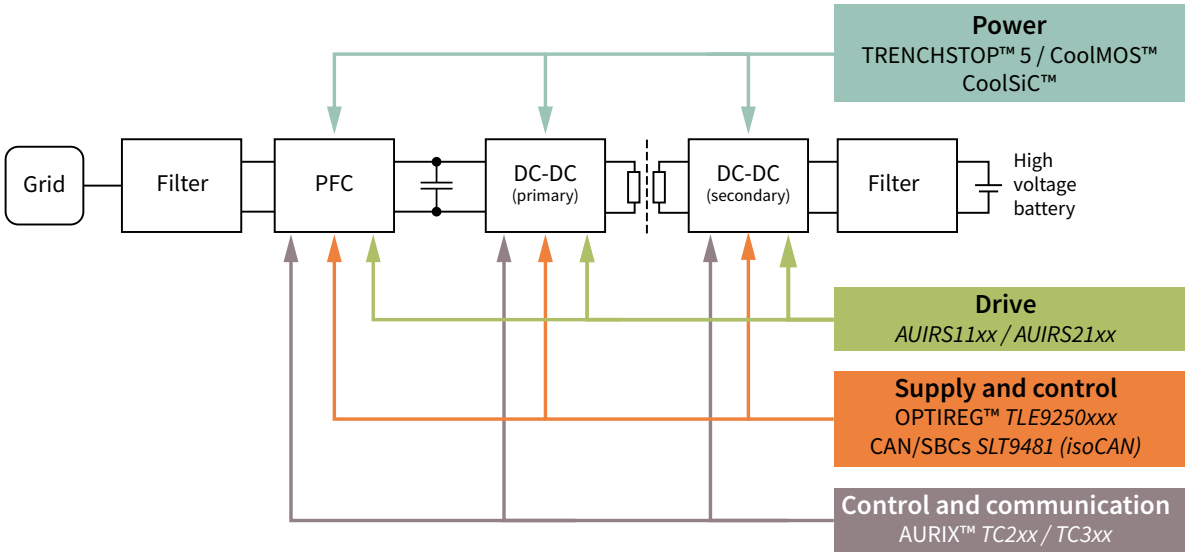
Onboard charger

In cars with onboard chargers (OBC), the batteries can be recharged from any standard AC power outlet (single or three phase), which provides power typically from 3.6 kW up to 11 kW. Charging cases can be clustered in:

› Harbor charging at home or at the office (low power AC)
› Destination charging at while parking e.g. supermarkets, cinemas and restaurants (low power AC or low power DC)
› Range extension charging at highways and travel routes (high power DC)

The main requirements for OBC beside meeting automotive reliability standards are high power density and low cost at moderate efficiency levels (> 94%). Bidirectional OBCs are emerging and will become an even more important additional feature in future.

The typical OBC structure contains a PFC stage and an isolated high-voltage DC to DC conversion stage. Filter stages are required to comply with EMI standards and to protect the board net form undesired disturbances.



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EV-Charging

Off-board DC EV charging stations

What speaks for off-board DC EV charging?

The automotive market is facing growth trend towards electric vehicles (EV), especially in China, where EVs have gained traction. To truly welcome EVs on a large scale, these markets need to provide widespread availability of DC charging infrastructure. DC charging systems are an attractive choice because they offer much faster charging than a standard AC EV charger which many EV drivers possess. Today a DC charger with e.g. 150 kW can put a 200 km charge on an EV battery in just 15 minutes. The improvement of charging technologies is expected to even further lower the charging time. Consequently, off-board charging is becoming more and more attractive.

Reaching the next level in designing DC EV chargers confronts engineers with many new challenges.
For a DC charging design to be a long term success, you must:

- Enhance output power to shorten the charging time
- Improve power density within the set dimensions of the charging station
- Increase efficiency by boosting the load and decreasing power dissipation
- Reduce design cost per watt

Overcoming all of the mentioned issues is possible – with the right partner.

Best-fit performance for target applications

- Ultrafast body diode and best-in-class Q_{rr} level of all CoolMOS™ families
- Highest reliability and robustness
- Highest efficiency within CoolMOS™ fast body diode series
- Enabling highest power density levels thanks to best-in-class $R_{DS(on)}$ in THD and SMD packages

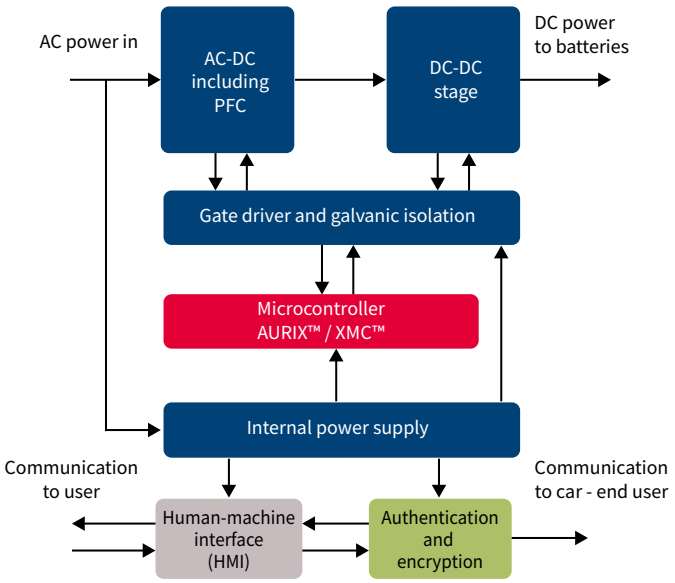
Adequate ease of use

- 600 V CoolMOS™ P7 offers
  - Excellent ESD robustness >2 kV (HBM)
  - Smooth switching waveforms
- 600 V CoolMOS™ CFD7 offers
  - Best-in-class body diode robustness
  - Early channel shutdown allows increase of $R_{Gon,}$ ext. without negative impact on efficiency

High quality and price/performance

- Best-in-class price/performance ratio
  - Attractive price position for high performance technology
- Granular portfolio - $R_{DS(on)}$ range from 70 mΩ down to 18 mΩ in the common TO-247 package
- High Infineon quality

System diagram DC EV charger



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PFC stage (three-phase input)

Product category	Product family	Product	Additional information
High voltage MOSFET / SiC MOSFET/IGBT	600 V CoolMOS™ C7	IPW60R017C7	600 V, 17 mΩ, TO-247
	600 V CoolMOS™ P7	IPW60R024P7	600 V, 24 mΩ, TO-247
		IPW60R037P7	600 V, 37 mΩ, TO-247
		IPW60R060P7	600 V, 60 mΩ, TO-247
	650 V CoolMOS™ C7	IPW65R019C7	650 V, 19 mΩ, TO-247
	CoolSiC™ MOSFET 650 V	IMZA65R027M1H	650 V, 35 mΩ, TO-247-4
		IMW65R027M1H	650 V, 35 mΩ, TO-247-3
		IMZA65R048M1H	650 V, 65 mΩ, TO-247-4
		IMW65R048M1H	650 V, 65 mΩ, TO-247-3
	TRENCHSTOP™ 5 IGBT 650 V H5	IKW50N65EH5/IKZ50N65EH5	650 V, 50 A, TO-247-3/4
		IKW75N65EH5/IKZ75N65EH5	650 V, 75 A, TO-247-3/4
	CoolSiC™ MOSFET 1200 V	IMW120R045M1/IMZ120R045M1	1200 V, 45 mΩ, TO-247-3/4
	CoolSiC™ Easy modules 1200 V	F3L15MR12W2M1_B69	1200 V, 15 mΩ, Easy 2B, Vienna rectifier phase leg
		FS45MR12W1M1_B11	1200 V, 45 mΩ, Easy 1B, sixpack
SiC diodes	CoolSiC™ Schottky diode 1200 V G5	IDW15G120C5B/IDWD15G120C5	1200 V, 15 A, TO-247-3/2
		IDW20G120C5B/IDWD20G120C5	1200 V, 20 A, TO-247-3/2
		IDW30G120C5B/IDWD30G120C5	1200 V, 30 A, TO-247-3/2
Gate driver ICs for high voltage MOSFETs and SiC MOSFETs	EiceDRIVER™ 2EDi	2EDF7175F	Dual-channel, functional, 1 A/2 A output, 4 V UVLO
		2EDF7275F	Dual-channel, functional, 4 A/8 A output, 4 V UVLO
		2EDF7975F	Dual-channel, functional, 2 A/4 A output, 4 V UVLO
	EiceDRIVER™ 1EDB*	1EDB7275F	Single-channel, functional, 4 A/8 A output, 4 V UVLO
		1EDB8275F	Single-channel, functional, 4 A/8 A output, 8 V UVLO
		1EDB9275F	Single-channel, functional, 4 A/8 A output, 14 V UVLO
	EiceDRIVER™ 1EDN-TDI	1EDN8550B	Single-channel, low-side gate driver with truly differential inputs

HV DC-DC main stage

Product category	Product family	Product	Additional information
High voltage MOSFET/ SiC MOSFET	600 V CoolMOS™ CFD7/CSFD	IPW60R024CFD7	600 V, 24 mΩ, TO-247
		IPW60R037CSFD	600 V, 37 mΩ, TO-247
		IPW60R040CFD7	600 V, 40 mΩ, TO-247
		IPW60R055CFD7	600 V, 55 mΩ, TO-247
		IPW60R070CFD7	600 V, 70 mΩ, TO-247
	CoolSiC™ MOSFET 1200 V	IMW120R045M1/IMZ120R045M1	1200 V, 45 mΩ, TO-247-3/4
	CoolSiC™ Easy module 1200 V	FF6MR12W2M1_B11	1200 V, 6 mΩ, Easy 2B, half-bridge
		FF8MR12W2M1_B11	1200 V, 8 mΩ, Easy 2B, half-bridge
		FF11MR12W1M1_B11	1200 V, 11 mΩ, Easy 1B, half-bridge
		FF23MR12W1M1_B11	1200 V, 23 mΩ, Easy 1B, half-bridge
		F4-23MR12W1M1_B11	1200 V, 23 mΩ, Easy 1B, fourpack
		FS45MR12W1M1_B11	1200 V, 45 mΩ, Easy 1B, sixpack
Gate driver ICs for high voltage MOSFETs and SiC MOSFETs	EiceDRIVER™ 2EDi	2EDS8165H	Dual-channel, reinforced, 1 A/2 A output, 8 V UVLO
		2EDS8265H	Dual-channel, reinforced, 4 A/8 A output, 8 V UVLO
		2EDS9265H	Dual-channel, reinforced, 4 A/8 A output, 14 V UVLO
SiC diodes / output rectification diodes	CoolSiC™ Schottky diode 1200 V G5	IDW15G120C5B/IDWD15G120C5	1200 V, 15 A, TO-247-3/2
		IDW20G120C5B/IDWD20G120C5	1200 V, 20 A, TO-247-3/2
		IDW30G120C5B/IDWD30G120C5	1200 V, 30 A, TO-247-3/2
	CoolSiC™ Schottky diode 650 V G5	IDW12G65C5	650 V, 12 A, TO-247
		IDW16G65C5	650 V, 16 A, TO-247
		IDW20G65C5	650 V, 20 A, TO-247
		IDW30G65C5	650 V, 30 A, TO-247
		IDW40G65C5	650 V, 40 A, TO-247
	CoolSiC™ Schottky diode 650 V G6	IDH12G65C6	650 V, 12 A, TO-220
		IDH16G65C6	650 V, 16 A, TO-220
		IDH20G65C6	650 V, 20 A, TO-220

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Battery powered applications

We live in a mobile world filled with electrical devices - consumer-grade robots, light electric vehicles, multicopters and other end-products driven by highly efficient electric motors. As these products evolve and improve, there is an increasing need for designers and engineers to find solutions that are more efficient, smaller, and less costly. Based on the industry-leading technology, highest quality, and manufacturing expertise, Infineon provides a variety of innovative power semiconductors addressing a broad range of battery powered motor control applications, such as power tools, forklifts, all kinds of light electric vehicles including e-skateboards, e-scooters, pedelecs, low speed cars, and many others. Through an excellent selection of devices for power management, consumption and voltage regulation – such as power MOSFETs (e.g. CoolMOS™, OptiMOS™, and HEXFET™/StrongIRFET™), XMC™ microcontrollers, EiceDRIVER™ gate drivers and more, Infineon offers all components that are needed for the compact, cost-effective designs of today, and for the innovative designs of tomorrow.

Key enabling products for battery powered applications

	Consumer robotics	Home and professional applications	Light electric vehicles
MOSFETs	HEXFET™/StrongIRFET™ 20-300 V		
	OptiMOS™ 25-100 V		OptiMOS™ 80-300 V
	CoolMOS™ 7		CoolMOS™ 7
Gate driver ICs	EiceDRIVER™		
	200 V and 600 V gate driver ICs		
IPM	CIPOS™ Nano		
Microcontrollers	XMC1100	XMC1300/XMC1400	
	XMC1000/XMC4000	XMC4500/XMC4400	
	iMOTION™ and embedded power ICs		
Microcontroller and driver supply	Linear voltage and DC-DC switching regulators		
CAN transceivers	IFX1050, IFX1051		
Magnetic sensors	Hall and xMR sensors		
Authentication	OPTIGA™ Trust B/X, OPTIGA™ TPM	OPTIGA™ Trust B	

A complete set of components that ensure system-cost competitiveness and high performance solution

Infineon product offering		Consumer robotics	Home and professional applications	Light electric vehicles
Supply voltage		12-48 V	10.8-56 V	24-144 V
OptiMOS™ and HEXFET™/ StrongIRFET™ power MOSFETs	Voltage	25-200 V	20-100 V	60-300 V
	Package	SuperS08, PQFN 3x3, DirectFET™ S/M/L-Can, TOLL, TO-220, DPAK, D^2PAK	SuperSO8, PQFN 3x3, DirectFET™ S/M/L-Can, TOLL, TO-220, TO-247, DPAK, D^2PAK, D^2PAK 7-pin	SuperS08, PQFN 3x3, TO-220, DPAK, D^2PAK, D^2PAK 7-pin, D2PAK 7-pin+, TOLL, DirectFET™ L-Can
HV MOSFETs CoolMOS™ 7	Voltage	600 -950 V CoolMOS™ P7	600-950 V CoolMOS™ P7	600 V CoolMOS™ P7 600 V CoolMOS™ CFD7/CSFD
Gate driver ICs		1EDN, 2EDN, 1EDN7550, 1EDN7550B, 1EDN8550B, 2EDL811x, 2EDF7275K, 2EDF7235K, 6ED003L02-F2, 6ED003L06-F2, 6EDL04N02PR, 6EDL04N06PT, 2EDL05N06PF, Integrated gate driver ICs: IFX9201/2, NovalithIC™ BTN8982, Trilith IC BTM7752	1EDN/2EDN/6EDL04N02PR, 6ED003L02- F2, 2EDL05N06PF, 2ED2304S06F, 2EDF7275K, 2EDF7235K, 1EDN7550B, 1EDN8550B Integrated: IFX9201SG/ BTN8982	1EDN/2EDN/ 2EDL/ 6EDL04N02PR, 6ED003L02-F2, 2EDL05N06PF, 2ED2304S06F
IPM – CIPOS™ Nano		IRSM836-0x4MA (x=2,4,8), IRSM808-204MH	IRSM005-800MH, IRSM005-301MH	
Authentication IC, security		OPTIGA™ Trust B/X, OPTIGA™ TPM	OPTIGA™ Trust B	OPTIGA™ Trust B
XMC™ microcontrollers iMotion™ ePower		XMC1100 XMC1000/XMC4000 iMOTION™: IRMCK099M ePower: TLE987X (BLDC), TLE986X (BDC)	XMC1300 XMC4400/XMC4500 iMOTION™ IRMCK099M ePower: TLE987X (BLDC)	XMC1300 XMC 4400/XMC4500
Microcontroller and driver supply: linear voltage and DC-DC switching regulators		IFX1763/IFX54441/IFX54211/IFX30081/IFX90121/IFX91041		
CAN transceivers		IFX1050, IFX1051		
Sensors		Hall switches (TLE 496X), angle sensor (TLI5012B, TLE5501), 3D magnetic sensor (TLV493D), current sensor (TLI4970)	Hall switches (TLE496X), angle sensor (TLI5012B), 3D magnetic sensor (TLV493D)	Hall switches (TLE496X), angle sensor (TLI5012B), 3D magnetic sensor (TLV493D)

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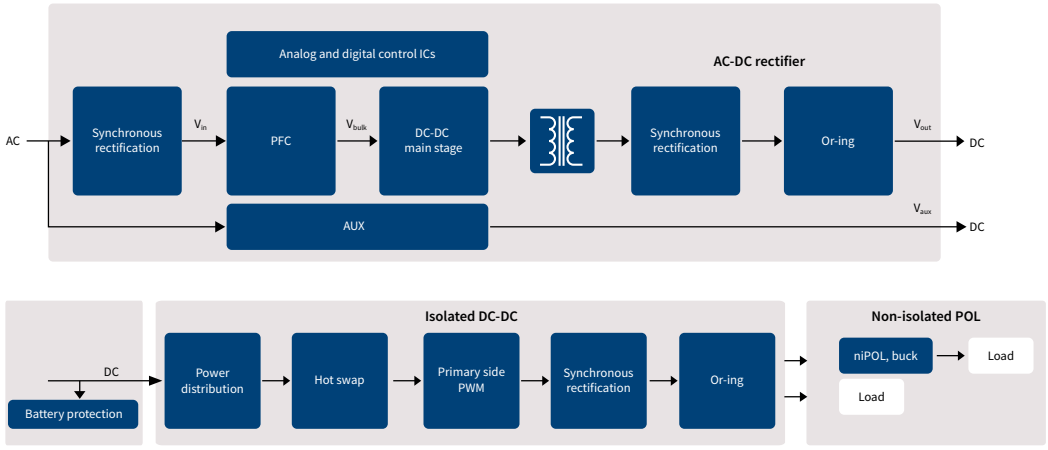
Telecom

Telecom power supply

The telecommunication industry providing data, voice, and video services is continuously growing supported by the expansion into new markets and accelerated by the spread of wireless and broadband technologies. The outstanding improvements in telecom SMPS performance made in the past 10 years have been primarily brought about by the dramatic reduction of the on-resistance achieved in high voltage MOSFETs, using the revolutionary superjunction principle. This principle was introduced by Infineon at the end of the nineties with the CoolMOS™ series.

Equally impressive improvements in reverse-recovery characteristics have been achieved for high voltage CoolSiC™ (silicon carbide) diodes. Infineon's high voltage (HV) offerings are complemented by the newly introduced HV GaN and SiC switches – the CoolGaN™ and CoolSiC™ ™ families, which enable highest electrical conversion efficiency at attractive system costs. In order to meet the new challenging efficiency targets, the synchronous rectification utilizing the unique performance of OptiMOS™ low voltage MOSFETs has become increasingly popular even in the typically high output voltage of telecom rectifiers.



Functional block	Product category	Topology	Product family	Benefits
PFC	High voltage MOSFETs	CCM/interleaved PFC; TTF	600 V/650 V CoolMOS™ C7/ G7	› Best FOM $R_{DS(on)}$*Q_G and $R_{DS(on)}$*E_{oss} › Lowest $R_{DS(on)}$ per package › Low dependency of switching losses form $R_{g,ext}$
			600 V CoolMOS™ P7	› Low turn-off losses › Low Q_{oss} › Low Q_G
	High voltage GaN	CCM totem pole	CoolGaN™ 600 V	› Switching at high frequencies (> Si) › Enables high power density
	SiC MOSFETs	CCM totem pole	CoolSiC™ MOSFET 650 V	› Increase efficiency › Increase power density › Supports harsh and high temperature operations
	SiC diodes	CCM/interleaved PFC	CoolSiC™ Schottky diode 650 V G6	› Low FOM V_F*Q_C
	Control ICs	CCM PFC ICs	800 V – ICE3PCS0xG	› High PFC and low THD
	Gate Driver ICs for SiC and GaN	CCM/interleaved PFC TTF	EiceDRIVER™ 2EDi (2EDF7275F 2EDF7175F) EiceDRIVER™ 1EDB* (1EDB7275F, 1EDB8275F)	EiceDRIVER™ 1EDB, 2EDi › Functional isolation up to 1500 V_{DC} channel-to-channel isolation › Strong driving for increased switching speed › Low part-to-part skew and low channel-to-channe mismatch for dead-time optimization
	Gate Driver ICs for high voltage MOSFETs		EiceDRIVER™ 1EDN-TDI (1EDN8550B)	EiceDRIVER™ 1EDN-TDI › Best suited for use as low-side gate driver in combination with EiceDRIVER™ 1EDBx for half-bridge driving › Recommended solution in case for high-power PFCs, to reduce the gate drive loop using single-channel drivers
	GaN driver ICs for high voltage SiC	CCM totem pole	EiceDRIVER™ 2EDi, 1EDB* (2EDF9275F 1EDB9275F)	› Functional isolation up to 1500 V_{DC} channel-to-channel isolation › Single-channel (1EDB) and dual-channel (2EDF) versions available › 14 V UVLO version for SiC MOSFETs driving
	GaN driver ICs for high voltage GaN	CCM totem pole	EiceDRIVER™ 1EDi-GaN (1EDF5673F 1EDF5673K)	› Functional isolation up to 1500 V_{DC} channel-to-channel isolation › Robust driving against switching induced gate overshoots › Reduced reverse conducion losses compared to bipolar driving

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* Coming soon

Functional block	Product category	Topology	Product family	Benefits
DC-DC main stage	High voltage MOSFETs	CCM/interleaved PFC; TTF HB LLC	600 V CoolMOS™ C7/P7/G7	› Fast-switching speed for improved efficiency and thermals › Low gate charge for enhanced light load efficiency and low power consumption at no load condition › Optimized V_{GS} threshold for lower turn-off losses › Rugged body diode which prevents device failure during hard commutation
		LLC	600 V CoolMOS™ C7/G7	› Low turn-off losses › Low Q_{oss} › Low Q_G
		CCM/interleaved PFC; TTF HB LLC	600 V CoolMOS™ CFD7	› Best-in-class Q_{rr} and t_{rr} level › Significantly reduced Q_G › Improved efficiency over previous CoolMOS™ fast body diode series
	SiC MOSFET	CMM totem pole	CoolSiC™ MOSFET 650 V	› Increased efficiency › Ease of use
	Control ICs	HB LLC ICs	ICE1HS01G-1, ICE2HS01G	› High efficiency and low EMI
	GaN driver ICs	LLC, ZVS phase shift full-bridge	EiceDRIVER™ 1EDi-GaN (1EDS5663H)	› Low driving impedance (on-resistance 0.85 Ω source, 0.35 Ω sink) › Input-output propagation delay accuracy: ± 5 ns › Functional and reinforced isolation available
	GaN e-mode HEMTs	LLC, ZVS phase shift full-bridge	CoolGaN™ 600 V	› Enable the highest efficiency and highest power density
	Gate driver ICs for high voltage MOSFETs	LLC, ZVS phase shift full-bridge	EiceDRIVER™ 2EDi (2EDS8265H 2EDS8165H)	› Reinforced isolation up to 1000 RMS input-to-output working voltage › Low part-to-part skew and low channel-to-channel mismatch for dead-time optimization
	Gate driver ICs for high voltage GaN	LLC, ZVS phase shift full-bridge	EiceDRIVER™ 1EDi (1EDS5663H)	› Functional isolation up to 1500 V_{DC} channel-to-channel isolation › Robust driving against switching induced gate overshoots › Reduced reverse conduction losses compared to bipolar driving
Synchronous rectification	Low voltage MOSFETs	Synchronous rectification MOSFET (Secondary side)	OptiMOS™ 80-150 V	› Industry's lowest FOM ($R_{DS(on)}$*Q_G) leading to high efficiency at good price/performance › Low voltage overshoots enabling easy design-in › Industry's lowest $R_{DS(on)}$ › Highest system efficiency and power density › Outstanding quality and reliability › Reduces the need for a snubber circuit
	High voltage MOSFETs	Synchronous rectification MOSFET (primary side)	600 V ColMOS™ S7	› Eliminated or reduced heat sink in solid state design › Increased energy efficiency
	Gate driver ICs for low and high voltage MOSFETs	Standard synchronous rectification	EiceDRIVER™ 2EDi EiceDRIVER™ 2EDL8 (2EDL811x)	EiceDRIVER™ 2EDi › Functional isolation up to 650 V_{DC} channel-to-channel isolation › Compact solution available in lGA-13 5x5 mm package EiceDRIVER™ 2EDL8 › Level-shift half-bridge gate driver up to 120 V isolation
		Full-bridge synchronous rectification	EiceDRIVER™ 1EDN (1EDN751x) EiceDRIVER™ 2EDN	› Low-side gate drivers › 4 V and 8 V UVLO output supply UVLO versions for logic level and normal level OptiMOS™ driving
Auxiliary power supply	Control ICs	5th generation QR/FF flyback CoolSET™	QR 800 V - ICE5QRxx80Ax FF 800 V - ICE5xRxx80AG	› Quasi-resonant switching operation for high efficiency and low EMI signature › Fixed frequency switching operation for ease of design – 100 KHz and 125 KHz › Fast and robust start-up with cascode configuration › Robust protection with adjustable line input over-voltage protection, V_{CC} and CS pin short-to-ground protection › Frequency reduction for mid- and light-load condition to reduce switching losses and increase efficiency › High power delivery of up to 42 W with 800 V CoolSET™ in heatsink-free SMD package
Housekeeping	Microcontrollers	-	XMC1xxx	› Flexibility, HR PWM, digital communication › ARM® based standard MCU family and wide family
Conversion	Microcontrollers	-	XMC4xxx	› Flexibility, HR PWM, digital communication › ARM® based standard MCU family and wide family
Or-ing	Low voltage MOSFETs	Or-ing MOSFET	OptiMOS™ 60-200 V	› Industry's lowest FOM ($R_{DS(on)}$*Q_G) leading to high efficiency at good price/performance › Low voltage overshoots enabling easy design-in
Battery protection	Low voltage MOSFETs	MOSFET	OptiMOS™ 60-150 V	
Isolated DC-DC	Low voltage MOSFETs	Primary side PWM MOSFET	OptiMOS™ 60-200 V	› Industry's lowest $R_{DS(on)}$ › Highest system efficiency and power density › Outstanding quality and reliability › Reduces the need for a snubber circuit
			StrongIRFET™ 60-200 V	
			Small signal MOSFETs 60-200 V	
		Synchronous rectification MOSFET	OptiMOS™ 40-100 V	
			StrongIRFET™ 40-100 V	
		Or-ing MOSFET	OptiMOS™ 25-30 V	
			StrongIRFET™ 25-30 V	

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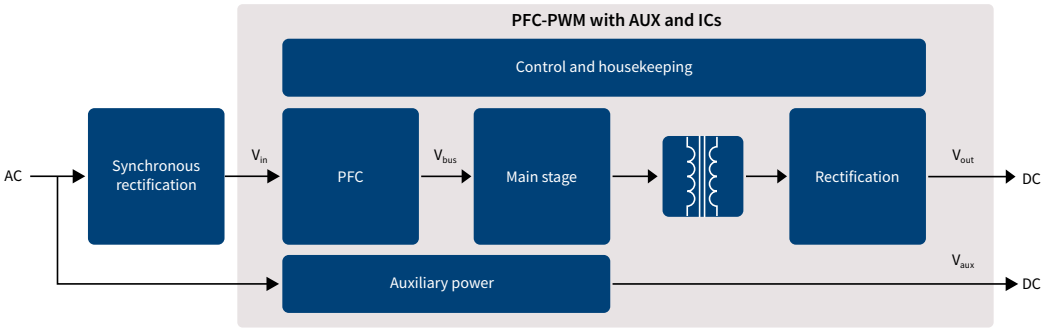
Server power supply

Efficiency optimization is the key requirement across the entire load range for server and data center design. The requirement for higher power, increased power density and cost effective design in server is the driving trend in the market. Infineon recommends the 600 V CoolMOS™ C7 family with the lowest FOM $R_{DS(on)}$* Q_G and $R_{DS(on)}$* E_{oss} for the PFC stage. This results in the lowest switching losses, enabling fast switching in high-end server SMPS, thus optimizing the efficiency starting from very light load operation. The very compact SMD packages such as ThinPAK, offer benefits in space and power density, and are used with Infineon's new industry standard non-isolated driver family 2EDN752x. Complementary to 600 V CoolMOS™ C7 in high efficiency PFC are the CoolSiC™ Schottky diodes G6 and G5. The 600 V CoolMOS™ P7 family offers a good compromise between price and performance. In applications with a low output voltage and high output current, further efficiency improvement is enabled by the continuous reduction of on-resistance by Infineon's low voltage OptiMOS™ MOSFET series used in the synchronous rectification stage. Infineon's low voltage families are complemented by StrongIRFET™ which is optimized for lower switching frequencies and highest system robustness.

The new CoolMOS™ S7 is the optimal price/performance fit for sockets switching at low frequency and for mechanical relay replacement. If it is used in the rectification bridges, in parallel or in place of diodes, it can boost efficiency with little design effort. It is used to replace inrush mechanical relays, the CoolMOS™ S7 can free up space and offer power density opportunities.

The new GaN and SiC based switches enable system with efficiency close to the theoretical limit and very high density. This is a step forward to fulfill the increasing demand for higher energy efficiency that large hyperscale datacenters are bringing in the industry.

Block diagram



Functional block	Product category	Topology	Product family	Benefits
PFC	High voltage MOSFETs	CCM/interleaved PFC; TTF	600 V/650 V CoolMOS™ C7 600 V/650 V CoolMOS™ G7	› Best FOM $R_{DS(on)}$*Q_G and $R_{DS(on)}$*E_{oss} › Lowest $R_{DS(on)}$ per package › Low dependency of switching losses form $R_{g,ext}$
	SiC MOSFETs	CMM totem pole	CoolSiC™ MOSFET 650 V	› Increased efficiency › Increased power density › Supports harsh and high temperature operations
	SiC diodes	CCM/interleaved PFC	CoolSiC™ Schottky diode 650 V G6 and G5	› Low FOM V_F*Q_G
	Control ICs	CCM PFC IC	ICE3PCS0xG	› Ease of use
	IGBTs	CCM/interleaved PFC	TRENCHSTOP™ IGBT 650 V H5	› High PFC and low THD
			TRENCHSTOP™ IGBT 650 V F5	› High efficiency in low inductance designs

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Functional block	Product category	Topology	Product family	Benefits
PFC	Gate driver ICs for high voltage MOSFETs	CCM/interleaved PFC TTF	EiceDRIVER™ 2EDi : (2EDF7275F 2EDF7175F) EiceDRIVER™ 1EDB*: (1EDB7275F 1EDB8275F) EiceDRIVER™ 1EDN-TDI: (1EDN8550B)	EiceDRIVER™ 1EDB*, 2EDi: › Functional isolation up to 1500 V_{DC} channel-to-channel isolation › Strong driving for increased switching speed › Low part-to-part skew and low channel-to-channel mismatch for dead-time optimization EiceDRIVER™ 1EDN-TDI: › Best used as low-side gate driver in combination with EiceDRIVER™ 1EDBx for half-bridge driving › Best for high-power PFCs to reduce the gate drive loop using single-channel drivers
	Gate driver ICs for SiC MOSFETs	CMM totem pole	EiceDRIVER™ 2EDi, 1EDB*: (2EDF9275F, 1EDB9275F)	› Up to 1500 V_{DC} channel-to-channel isolation › 14 V UVLO version for SiC MOSFETs driving
	Gate driver ICs for high voltage GaN	CMM totem pole	EiceDRIVER™ 1EDi-GaN (1EDF5673F 1EDF5673K)	› Functional isolation up to 1500 V_{DC} channel-to-channel isolation › Robust driving against switching induced gate overshoots › Reduced reverse conduction losses compared to bipolar driving
Main stage	High voltage MOSFETs	ITTF	600 V CoolMOS™ C7/P7	› Fast switching speed for improved efficiency and thermals, low gate charge for enhanced light load efficiency and low power consumption at no load condition › Optimized V_{GS} threshold for lower turn-off losses › Rugged body diode which prevents device failure during hard commutation
		LLC, half-bridge below 1 kW	600 V CoolMOS™ P7/CFD7	› Low turn-off losses › Low Q_{oss} › Low Q_G
		LLC, phase shift full-bridge below 1 kW	600 V CoolMOS™ CFD7 650 V CoolMOS™ CFD2	› Fast and rugged body diode › Optimized low Q_G and soft commutation behavior to reach highest efficiency › Highest reliability for 650 V V_{DS}
		ZVS PS FB; LLC, TTF	TRENCHSTOP™ IGBT 650 V F5	› Improved ruggedness and high efficiency in low inductance designs
	GaN e-mode HEMTs	LLC, ZVS phase shift full-bridge	CoolGaN™ 600 V	› Enable the highest efficiency and highest power density
	Control ICs	HB LLC IC	ICE1HS01G-1 ICE2HS01G	› High efficiency and low EMI
	Gate driver ICs for high voltage MOSFETs	LLC, ZVS phase shift full-bridge	EiceDRIVER™ 2EDi (2EDS8265H, 2EDS8165H)	› Reinforced isolation up to 1000 RMS input-to-output working voltage › Low part-to-part skew and low channel-to-channel mismatch for dead-time optimization
	Gate driver ICs for high voltage GaN	LLC, ZVS phase shift full-bridge	EiceDRIVER™ 1EDi-GaN (1EDS5663H)	› Functional isolation up to 1500 V_{DC} channel-to-channel isolation › Robust driving against switching induced gate overshoots › Reduced reverse conduction losses compared to bipolar driving
	Gate driver ICs for high voltage SiC	LLC, ZVS phase shift full-bridge	EiceDRIVER™ 2EDi (2EDS9265H)	› Reinforced isolation up to 1000 RMS input-to-output working voltage › 14V UVLO version for SiC MOSFETs driving
Sychronous rectification	Low voltage MOSFETs	HB LLC and centertap	40 V OptiMOS™	› High efficiency over whole load range, layout tolerance
			40 V StrongIRFET™	› High robustness and ruggedness
		ITTF	60 V OptiMOS™	› High efficiency, low thermals, low V_{DS} overshoot
			60 V StrongIRFET™	› High robustness and ruggedness
		ZVS PS FB and center-tap	80 V OptiMOS™	› High efficiency over whole load range, low V_{DS} overshoot and oscillations
			80 V StrongIRFET™	› High robustness and ruggedness
	High voltage MOSFETs	-	600 V CoolMOS™ S7	› Eliminated or reduced heat sink in solid state design › Increased energy efficiency
	Gate driver ICs for low voltage MOSFETs	Standard synchronous rectification	EiceDRIVER™ 2EDF7275K 2EDS7235K 2EDL811x	EiceDRIVER™ 2EDF72x5K › Functional isolation up to 650 V_{DC} channel-to-channel isolation › Compact solution available in LGA-13 5x5 mm package EiceDRIVER™ 2EDL811x › Level-shift half-bridge gate driver up to 120 V isolation
		Full-bridge synchronous rectification	EiceDRIVER™ 1EDN751x 2EDNx	› Low side gate drivers › 4 V and 8 V UVLO output supply UVLO versions for logic level and normal level OptiMOS™ driving
Auxiliary power supply	Control ICs	QR/FF flyback CoolSET™	800 V – ICE2QRxx80(Z)(G) ICE3xRxx80J(Z)(G) 700 V ICE5QRxx70A(Z)(G) 800 V ICE5QRxx80A(Z)(G)	› Low standby power, high efficiency and robustness › An integrated 700 V/800 V superjunction power MOSFET with avalanche capability standby power at › Burst mode entry/exit to optimiz different low load conditions
Housekeeping	Microcontrollers	-	XMC1xxx	› Flexibility, HR PWM, digital communication › ARM® based standard MCU family and wide family
Conversion	Microcontrollers	-	XMC4xxx	› Flexibility, HR PWM and digital communication

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Industrial SMPS

Industrial SMPS powers a wide range of devices from industrial automation robots to medical equipment and vending machines. With the expansion of the Internet of things and the adoption of Industry 4.0, the demand for industrial SMPS is on the rise.

The requirement to fit various usages, often in harsh environments, with many different mission profiles and together with the intrinsic availability needs of industrial and medical devices, makes product reliability one of the main concerns for industrial SMPS makers. There is also continuous trend towards towards higher power density that requires good thermal management at system level.

Infineon's CoolMOS™ 7 family and CoolSiC™ Schottky diode G6 boast superior quality, unparalleled energy efficiency and optimal price performance, are tailored to meet the high requirements of this market. The large product portfolio enables customers to meet all industrial SMPS power classes and fit well into the most used topologies. Infineon CoolGaN™ HV HEMTs and CoolSiC™ MOSFETs 650 V pace the next step towards max efficiency and max power density.

Power Class	Topology PFC	Topology main stage	Product family	Benefits
<75 W	–	Flyback (quasi- resonant)	700 V CoolMOS™ P7 800 V CoolMOS™ P7	› Robustness › Price performance › Energy efficiency › Outstanding portfolio granularity › Ease of use › Best EMI behavior
75-300 W	DCM PFC standard	Flyback (quasi- resonant)	700 V CoolMOS™ P7 800 V CoolMOS™ P7	
		LLC	600 V CoolMOS™ P7	
300-500 W	CCM PFC standard	Double forward	650 V/600 V CoolMOS™ C7 650 V/600 V CoolMOS™ CFD7 600 V CoolMOS™ P7 CoolSiC™ Schottky diode 650 V	› Robustness › Ruggedness › Fast body diode with CFD7 › Lowest $R_{DS(on)}$ per package with C7 › Best efficiency with C7 › Best Q_c x V_f FOM with CoolSiC™ 650 V diode › Largest high-power portfolio › Enables higher efficiency › Highest efficiency and power density with CoolSiC™ and CoolGaN™
	Active bridge rectification		600 V CoolMOS™ S7	
>500 W	CCM PFC standard interleaved dual boost CCM totem pole	Half-bridge Full-bridge	650 V/600 V CoolMOS™ C7 and G7 650 V/600 V CoolMOS™ CFD7 600 V CoolMOS™ P7 CoolSiC™ diode 650 V CoolSiC™ MOSFET 650 V	
	Active bridge rectification		600 V CoolMOS™ S7	› Enables higher efficiency
Gate driver ICs for high voltage MOSFETs and SiC	CCM, DCM PFC Standard, interleaved, dual-boost	-	EiceDRIVER™ 2EDi: (2EDSxx65H, 2EDFxx75F) EiceDRIVER™ 1EDBx275F*	› Functional and reinforced isolation available › Low part-to-part skew and low channel-to-channel mismatch for dead-time optimization › 4 V, 8 V, 14 V output supply UVLO variants for HV MOSFETs and SiC

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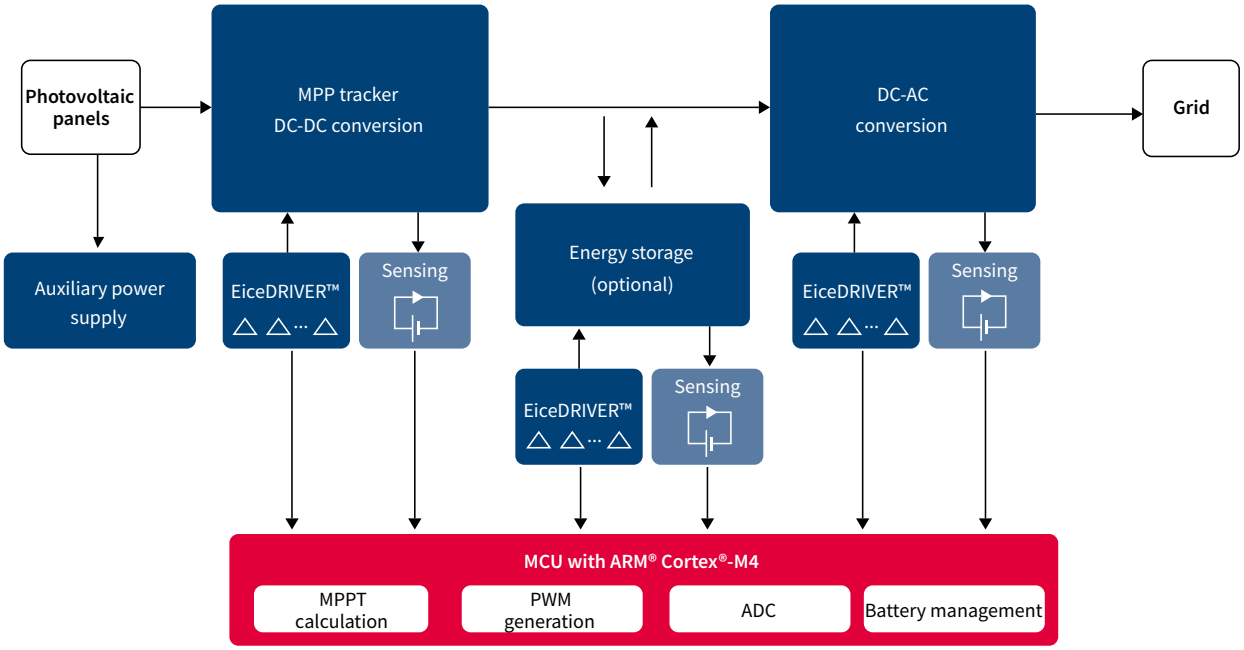
Solar

Infineon provides a comprehensive portfolio to deliver the best efficiency, power density and reliability for solar applications. Infineon's leading edge technology like CoolMOS™ SJ MOSFET, HighSpeed 3 and TRENCHSTOP™ 5, CoolSiC™ Schottky diodes, CoolSiC™ MOSFETs, coreless transformer driver etc., combined with rich experience and the highest quality, ensured our number 1 position in solar applications. The newest add ARM® Cortex®-M4 based MCU enables easy and high efficiency design.

	Optimizer 250-750 W	Single/dual/quad microinverter 250-1200 W	Single phase multilevel inverter <10 kW	Single phase string inverter standard <10 kW
MOSFETs	OptiMOS™ SuperSO8/DirectFET™ | 75-150 V	OptiMOS™ SuperSO8 | 60-200 V	OptiMOS™ SuperSO8/D²PAK | 150 V	
		CoolMOS™ D²PAK/TOLL | /600-800 V	CoolMOS™ TO-247/D²PAK | 600 V/650 V	CoolMOS™ TO-247-3/TO-247-4| 600/650 V
				CoolSiC™ MOSFET TO-247-3/TO-247-4 | 650/1200 V
SiC diodes		CoolSiC™ Schottky diodes DPAK 1200 V	CoolSiC™ Schottky diodes TO-247 | 600 V/1200 V D²PAK | 650 V	CoolSiC™ Schottky diodes TO-220/TO-247 | 600 V/1200 V D²PAK | 650 V
IGBTs				TRENCHSTOP™ 5/TRENCHSTOP™ IGBT6 TO-247-3/TO-247-4 | 600/650/1200 V
				Easy 1B/2B
Gate driver ICs		EiceDRIVER™ 2EDi Family	EiceDRIVER™ 2EDi product family (2EDSxx65H, 2EDFxx75F), EiceDRIVER™ 1EDBx275F*	
Schottky diode				BA165 Schottky diode
Auxiliary power supply				CoolSET™ 800 V
Microcontrollers	XMC1xxx ARM® Cortex®-M0 XMC45xx ARM® Cortex®-M4	XMC1xxx ARM® Cortex®-M0 XMC45xx ARM® Cortex®-M4	XMC1xxx ARM® Cortex®-M0 XMC45xx ARM® Cortex®-M4	XMC1xxx ARM® Cortex®-M0 XMC45xx ARM® Cortex®-M4

Infineon leading products for complete solar system



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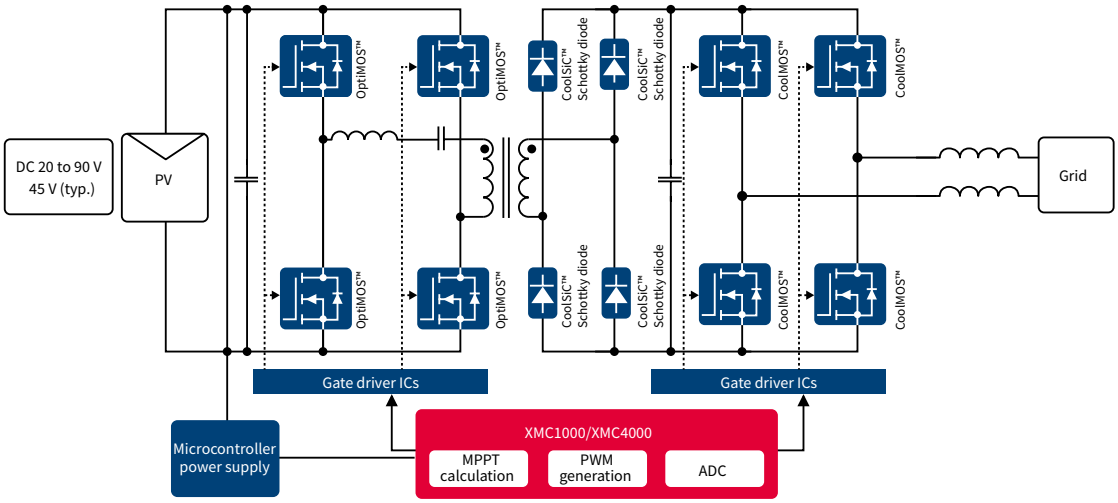
Microinverter



Functional block	Product technology	Voltage class [V_{DS} max]	Package	Part number	$R_{DS(on)}$
MPPT – boost stage	OptiMOS™	60 V	SuperSO8	BSC028N06NS	2.8 mΩ
		80 V		BSC026N08NS5	2.6 mΩ
		120 V		BSC190N12NS3	19.0 mΩ
		150 V		BSC093N15NS5	9.3 mΩ
				BSC160N15NS5	16.0 mΩ
Inverter stage	CoolMOS™	600 V	TO-Leadless	IPT60R102G7	102.0 mΩ
			D^2PAK	IPB60R145CDF7	145.0 mΩ
			TO247	IPW60R145CFD7	145.0 mΩ
		650 V	D^2PAK	IPB65R150CFD	150.0 mΩ
		650 V	TO247	IPW65R150CFD	150.0 mΩ
	CoolSiC™ Schottky diode	1200 V	DPAK	IDM02G120C5	2.0 A
				IDM05G120C5	5.0 A
				IDM08G120C5	8.0 A
Gate driver ICs	EiceDRIVER™ 2EDi Family (2EDF7175F and 2EDF7275F) , EiceDRIVER™ 1ED Compact,				
Microcontroller	XMC1000, XMC4000				

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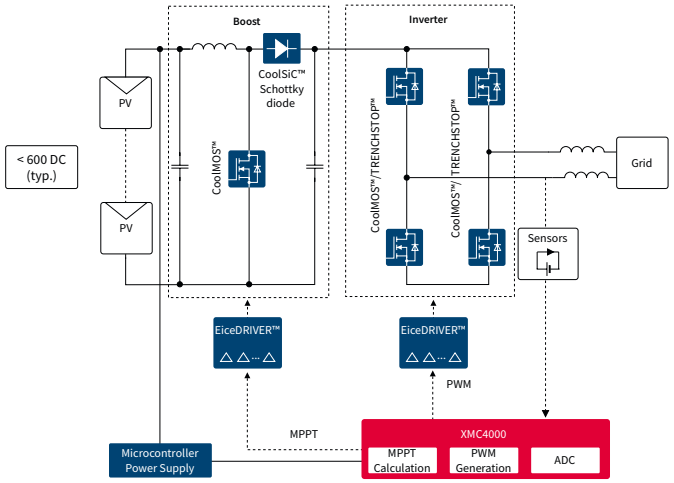
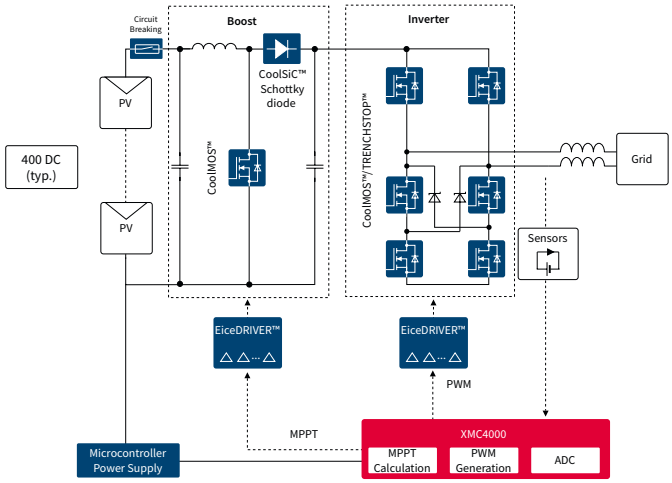
Single-phase string inverter

H4 topology



H6 topology



Inverter	Functional block	Product category	Product technology	Package	Part number
Single-phase	MPPT – boost stage	Si MOSFET	600 V CoolMOS™ P7	TO247-3	IPW60R037P7
				TO247-4	IPZA60R037P7
		SiC MOSFET	CoolSiC™ MOSFET 650 V	TO247-4	IMZA65R026M1H
				TO247-4	IMZA65R046M1H
		IGBT	TRENCHSTOP™ 5 650 V	TO247-3	IKW40N65H5
		Diode	CoolSiC™ diode 650 V	TO247	IDW20G65C5
	Inverter	Si MOSFET	650 V CoolMOS™ C7	TO247-3	IPW65R65C7
			600 V CoolMOS™ S7	TO-Leadless	IPT60R022S7 IPT60R040S7
			600 V CoolMOS™ CFD7	TO247-3	IPW60R018CFD7
				TO247-3	IPW60R031CFD7
		SiC MOSFET	CoolSiC™ MOSFET 650 V	TO247-4	IMZA65R026M1H
				TO247-4	IMZA65R048M1H
		IGBT	600 V HighSpeed 3	TO247-3	IKW40N60H3
			TRENCHSTOP™ 5 IGBT 650 V H5	TO247-3	IKW40N65H5

Gate driver ICs for string inverter

Power device	Driving method	Voltage class	Part number
IGBT/SiC MOSFET	Single channel	1200 V	EiceDRIVER™ 1ED Compact EiceDRIVER™ Enhanced 1ED020I12-F2/ 2ED020I12-F2
IGBT/SiC MOSFET	Half-bridge & high- and low-side	1200 V	EiceDRIVER™ Enhanced 2ED020I12-F2/FI
HV MOSFETs/SiC MOSFET	Half-bridge & high- and low-side	1200 V	EiceDRIVER™ 2EDi product family (2EDSxx65H, 2EDFxx75F), EiceDRIVER™ 1EDBx275F*

CoolSET™ for string inverter

Voltage class	Part number
800 V	ICE3AR2280JZ
650 V	ICE3BR1765JZ

Microcontrollers for string inverter

Topology	Package	Voltage class	Technology
Microcontroller	All	All	XMC1000
Microcontroller supply	Linear voltage regulator	Up to 20 V	IFX1763, IFX54441, IFX54211
Microcontroller	All	All	XMC4000

For Infineon's extensive module portfolio for string and central inverters, visit:
www.infineon.com/solar
www.infineon.com/igbtmodules1200v

* Coming soon

TV power supply

A growing number of TV manufacturers are using external adapters to deliver DC power to a TV, in order to achieve low thermal dissipation and a slim design. Infineon introduced two products based on digital power technology, designed to meet challenging efficiency and standby power requirements for the IoT-enabled TVs (both embedded PSU and adapter). Thanks to digital power, our customers can reduce the number of TV power supplies by adapting the digital IC parameters to different TVs and screen models by flexible parameter setting. Infineon recently introduced the digital based flyback controllers, ideal to implement in low power adapters for TVs and monitors. With the digital soft switching, the adapter power density can be improved significantly.

The new 600 V CoolMOS™ P7 has been developed to cover a broad spectrum of different applications where excellent performance and perfect ease of use are required. The rugged body diode is suitable for PFC, boost, and two transistor forward, as well as in resonant topologies such as LLC. For higher on-state resistance ($R_{DS(on)}$) classes, the new feature of an integrated ESD diode helps improve manufacturing quality, and at the same time, enables high efficiency in various topologies. Infineon developed specifically for TV power supplies a family of packages, characterized by short lead, SOT-223 mold stopper and wide creepage distance, which enables our customers to attain cost effectiveness and reliable manufacturing.

600 V CoolMOS™ P7 offers:

- Competitive price positioning
- Significant efficiency gains up to 1.8% at high but also at low line
- Lower superjunction device temperature enabling reduced thermals on application level

700 V CoolMOS™ P7 offers:

- Best price/performance ratio
- Possibility to switch to higher $R_{DS(on)}$ classes due to temperature dependency of the $R_{DS(on)}$ and the lower switching losses even with higher integrated gate resistor
- Increased efficiency compared to competitor device

Functional block	Product category	Topology	Product family	Benefits
Main stage/PFC combo non-AUX	High voltage MOSFETs	DCM PFC, HB LLC	600 V/700 V CoolMOS™ P7	› Fast-switching speed for improved efficiency › Low gate charge for enhanced light load efficiency and low power consumption at no load condition › Optimized V_{GS} threshold for lower turn-off losses › Rugged body diode for HB LLC application
			500 V/600 V CoolMOS™ CE	› Easy control of switching behavior even in non-optimized layout › Lower switching losses in comparison with its predecessor › Rugged body diode which prevents device failure during hard commutation
	Control ICs	IDP2308	PFC-LLC non-AUX digital IC for TV embedded PSU	› Low BOM count/system cost due to high integration › Low standby power › High system reliability › Shorter development cycles and higher design and production flexibility
		IDP2303A	PFC-LLC non-AUX digital IC for TV adapter	› Low BOM count/system cost due to high integration › Low standby power › Small form factor designs › High system reliability
PFC	Boost diodes	DCM PFC	650 V Rapid diode	› Low conduction losses
		CCM PFC	CoolSiC™ Schottky diode 650 V G5	› Very low reverse recovery losses
	Control ICs	CCM PFC ICs	ICE3PCS0xG	› High PFC and low THD
Main stage	Control ICs	HB LLC ICs	ICE1HS01G-1/ICE2HS01G	› High efficiency and low EMI
Auxiliary power supply	Control ICs	QR/FF flyback CoolSET™	700 V/800 V – ICE5QRxx70/80A(Z)(G)	› Low standby power, high efficiency and robustness
Flyback	Control ICs	Digital ZVS flyback	IDP2105	› Forced resonant ZVS control reduces the switching loss › Multilevel protection enables the robust design › Flexible firmware provides more differentiation for OEMs
	High voltage MOSFETs	Flyback	700 V CoolMOS™ P7	› Optimized for flyback topologies › Best price competitive CoolMOS™ SJ MOSFET family › Lower switching losses versus standard MOSFET › Controlled dV/dt and di/dt for better EMI

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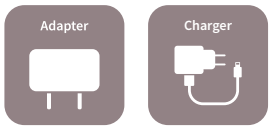


Adapter and charger power supply

Manufacturers of slimmer and lighter adapters require cost effective MOSFETs in small packages that feature good electromagnetic interference (EMI) and excellent thermal performance, enabling high efficiency and low standby power. Infineon offers a wide range of products specifically designed for adapters including high voltage SJ MOSFETs and control ICs for PFC and PWM stages, as well as low voltage MOSFETs for synchronous rectification. Especially versatile is the CoolMOS™ P7 family which combines high efficiency and optimized cost with ease of use. Packages – characterized by having a short lead, IPAK Short Lead with ISO-Standoff and wide creepage – enable cost-effective and reliable manufacturing specifically for adapters. High power density at low manufacturing cost can be achieved using Infineon's SOT-223 cost-effective package which enables SMT manufacturing, while maintaining very good thermal performances. For synchronous rectification, Infineon's OptiMOS™ series offer extremely low on-state resistance and low capacitances. New control ICs support topologies such as quasi-resonant flyback and forced frequency resonant flyback (zero voltage switching) operation, ideal to implement high power density adapters and well supporting USB-PD requirements.

600 V CoolMOS™ P7

- Most balanced technology of all CoolMOS™ families
- Integrated Zener diode
- Highest efficiency
- Excellent ease of use and commutation ruggedness
- Competitive price
- Outstanding portfolio granularity

700 V/800 V/950 V CoolMOS™ P7

- Price competitiveness compared to similar competitor technologies
- Supports increased switching frequency to reduce magnetics
- Integrated Zener diode
- Best fit for target applications in terms of
  - Thermals and efficiency
  - Ease of use level
  - Fulfilling common EMI criteria

600 V CoolGaN™

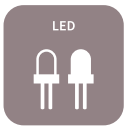
- Outstanding performance
- Highest power density > 20 W/in^3

600 V CoolMOS™ PFD7

- Minimizing switching losses
- BOM cost reduction and easy manufacturing
- Robustness and reliability
  - Integrated Zener Diode
  - Up to 2 kV ESD protection

Functional block	Product category	Topology	Product family	Benefits
Flyback converter	High voltage MOSFETs and HEMTs	Flyback (ACF, FFR, etc.)	600 V/700 V/800 V/950 V CoolMOS™ P7	› Fast-switching speed for improved efficiency and thermals › Reduced gate charge for enhanced light load efficiency › Optimized gate-to-source voltage (V_{GS}) threshold for lower turn-off losses
			CoolGaN™ 600 V e-mode HEMTs	› Highest efficiency › Highest power density
			600 V CoolMOS™ PFD7	› Optimized switching › Fast body diode › Integrated Zener diode
	Low voltage MOSFETs	Synchronous rectification	OptiMOS™ PD	› Low conduction losses and reduced overshoot › Logic level can support low voltage gate drive to achieve high efficiency
	Control ICs	QR flyback IC	ICE2QS03G, ICE5QSAG	› High efficiency and low standby power
		FFR flyback IC	XDPS21071	› High power density and digital control
PFC	High voltage MOSFETs, HEMTs, and diodes	DCM PFC	600/700/800/950 V CoolMOS™ P7	› Fast-switching speed for improved efficiency › Reduced gate charge for enhanced light load efficiency › Optimized gate-to-source voltage (V_{GS}) threshold for lower turn-off losses
		DCM/CCM PFC	CoolGaN™ 600 V e-mode HEMTs	› Highest efficiency contribution via less parasitic parameter › Space saving with SMD smaller package
	Boost diode	DCM/PFC	650 V Rapid 1 diodes	› Low conduction losses
	Control ICs	DCM PFC ICs	TDA4863G, IRS2505LTRPBF	› Simple external circuitry › High power factor and low THD
Main stage	High voltage MOSFETs and HEMTs	HB LLC	600 V CoolMOS™ P7	› Fast-switching speed for improved efficiency and thermals › Reduced gate charge for enhanced light load efficiency › Optimized gate-to-source voltage (V_{GS}) threshold for lower turn-off losses
			CoolGaN™ 600 V e-mode HEMTs	› Highest efficiency › Highest power density
Synchronous rectification	Low voltage MOSFETs	Synchronous rectification	OptiMOS™ PD	› Low conduction losses, reduced overshoot › Logic level switching
	Control ICs	Synchronous rectification	IR1161LTRPBF	› High efficiency › Simple external circuitry

www.infineon.com/adapter



LED lighting

Our focus at Infineon lies on supplying tailored products for LED drivers , LED tubes, LED controls and LED strips. Our portfolio of high-quality, energy-efficient products and solutions comprises LED driver ICs, MOSFETs and microcontrollers suited for LED drivers as well as sensors and ICs for secure communication. Lighting applications create high demands on power supply designs in terms of efficiency, thermal management, surge protection, electromagnetic interference and cost. Our CoolMOS™ products offer a significant reduction of conduction, switching and driving losses and enable high power density and efficiency for superior power conversion systems. In particular, the latest state-of-the-art generation of high-voltage power MOSFETs contributes to making LED drivers more efficient, more compact, lighter and cooler than ever before.

800 V/950 V CoolMOS™ P7

- Outstanding performance in terms of efficiency, thermals and ease of use
- Enabling higher power density designs, BOM savings, and lower assembly cost
- Easy to drive and to design in
- Better production yield by reducing ESD related failures

CoolMOS™ P7 in SOT-223

- Combining best-fit performant and ease of use superjunction technology with a cost-effective package solution
- SOT-223 as drop-in replacement for DPAK
- Enabling space savings and improved form factors in designs with low power dissipation

600 V CoolMOS™ P7

- Suitable for hard/soft switching due to outstanding commutation ruggedness
- Significant reduction of switching and conduction losses
- Optimized balance between efficiency and ease of use

LED drivers

Functional block	Product type	IC product family	MOSFET technology	Voltage class
PFC stage	PFC	IRS2505	CoolMOS™ P7	600/700/800/950 V [1]
Main stage	PFC + LCC (constant current) PFC + LLC (constant current)	ICL5102 [2]	CoolMOS™ P7 (up to 600 mΩ)	600 V
			CoolMOS™ CE (above 600 mΩ)	600 V
		ICL5102HV	CoolMOS™ P7	950 V
			CoolMOS™ C3	900 V
	PFC + flyback (dual stage)	XDPL8220 [3]/XDPL8221 [2]	CoolMOS™ P7	700/800/950 V
	PFC/flyback (single-stage constant current)	XDPL8105/XDPL8210	CoolMOS™ P7	800/950 V
	PFC/flyback (single-stage constant voltage)	XDPL8218	CoolMOS™ P7	800/950 V
	Main buck	IRS2982	CoolMOS™ P7	600/700 V
Buck/linear solutions	Secondary buck (single-channel) Secondary buck (multichannel)	ILD6150/ILD8150	Integrated	60/80 V
		XMC1300/XMC1400 [1]	OptiMOS™	100/150/200/250/300 V
	Secondary linear	BCR601	OptiMOS™	75/100 V
Synchronous rectification	Synchronous rectification controller	IR1161/IR11688	OptiMOS™	100/150/200 V
Dimming	0-10 V dimming interface IC	CDM10V	-	-
		CDM10VD	-	-
Hardware based security	OPTIGA™	OPTIGA™ Trust	-	-
MCU	XMC™ microcontroller	XMC1100	-	-
Sensors	XENSIV™ radar sensor IC	BGT24LTR11	-	-

1) 700 V, 800 V and 950 V CoolMOS™ P7 are optimized for PFC and flyback topologies. 600 V CoolMOS™ P7 is suitable for hard as well as soft switching topologies (flyback, PFC and LLC)
2) PFC and resonant combo controllers
3) PFC and flyback combo controllers

Linear/switch mode LED driver ICs

Functional block	Product type	IC product family	MOSFET technology	Voltage class
Linear LED driver IC	Linear	BCR400 series	Integrated (extra transistor for BCR450)	-
		BCR602	External N-channel MOSFET	75/100 V
Switch mode LED driver IC	Buck	ILD6000 series	Integrated	-
		XMC1300/XMC1400*	OptiMOS™	100/150/200/250/300 V

www.infineon.com/lighting

* including communication

Audio power supply

For consumer audio SMPS solutions Infineon's 600 V, 700 V and 800 V CoolMOS™ P7 SJ MOSFETs are the ideal switch allowing for lower switching noise, voltage ripple, and a proper switching frequency to not produce additional audio noise. Higher efficiency and less thermals allow for smaller form factors and thus for lower cost and easier integration into speakers and sound systems.

Class D audio amplifiers offer 0 percent distortion and 100 percent efficiency. What decreases the actual number depends on how close the PWM is to an ideal waveform shape and how much power loss is in the device. The zero reverse recovery charge in the body diode and very small, linear input and output capacitances from Infineon CoolGaN™ 400 V technology allow switching waveforms to be close to an ideal switch device and thus is perfectly suitable for professional audio solutions.

600 V/700 V/800 V CoolMOS™ P7

- Allows to reduce the number of total components while maintaining performance
- Increased efficiency
- Allows smaller form factors
- Reduced noise

CoolGaN™ benefits in Class D amplifier

- Efficient: best FOM of 400 V power devices
- Very low noise: zero reverse recovery charge enables quiet hard switching
- Small and linear C_{oss} narrows dead time window for better THD
- Easy-to-use: compatible with class D audio control ICs

Audio power supply portfolio

Functional block	Product category	Product family	Benefits
Main power supply	High voltage MOSFET	600/700/800 V CoolMOS™ P7	› Enables increased system level efficiency and compactness
Auxiliary power supply	Control IC with integrated MOSFET	PWM FF CoolSET™ 5th generation: › ICE5xRxxxxAG › ICE5xRxxxxBZS	› Adjustable line input OVP (only SMD) › Adjustable OLP › Adjustable burst mode entry/exit level › Ability to disable burst mode operation › CCM/DCM › 100kHz and 125kHz
	Control IC	ICE5ASAG ICE5GSAG	
Synchronous rectification	Low voltage MOSFET	OptiMOS™ 5 80 V › BSC0xxN08NS5 › BSZxxxN08NS5 › IPP020N08N5 › IPB017N08N5	› Fine-tuned for synchronous rectification applications reaching higher efficiency than the best competitor devices in the market over the whole load range
		OptiMOS™ 5 60 V › BSC070xLS › BSZ070xLS	
		OptiMOS™ 80 V › BSZ0602LS	
		OptiMOS™ 5 100 V › IPA050N10NM5S	

CoolGaN™ 400 V e-mode HEMT product offering for class D amplifiers

	CoolGaN 400 V e-mode HEMTs	Recommended discrete audio amplifier driver IC
Package	HSOF-8-3 (TO-leadless)	IRS209575PBF
P_{max}	Up to 200 W	
$R_{DS(on)\ max.}$	70 mΩ	
Part number	IGT40R070D1 E8220	

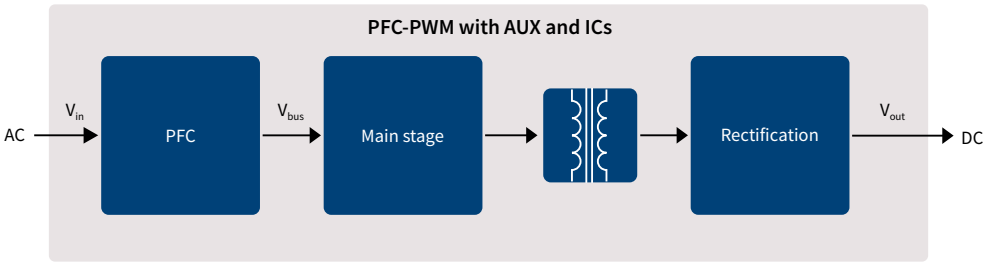
www.infineon.com/audio

PC power supply

The PC power market is divided into high-end gaming PC and better cost-performance sectors to achieve a better price performance goal for desktop SMPS. The PC OEMs are implementing the desktop SMPS by removing the AUX power block, to save the cost of having a flyback circuit.

There is an increased efficiency requirements in the PC power application that leads to high efficient devices. Infineon CoolMOS™ 7 is tailored to meet the light load efficiency requirement, which remains a trend in the PC industry. With higher efficiency, a better thermal performance is ensured.

CoolMOS™ 7 comes with improved form factor through the use of smaller packages, which enables slimmer designs. Particularly our CoolMOS™ P7 allows customers to achieve the best price/performance.



Functional block	Product category	Topology	Technology	Benefits
PFC/Main stage	High voltage MOSFETs	CrCM/DCM PFC	600 V CoolMOS™ P7	› Best thermal performance › Rugged body diode › ESD enhancement for production line › Wide $R_{DS(on)}$ portfolio including both THD and SMD packages
			600 V CoolMOS™ P6	› Fast-switching speed for improved efficiency and thermals › Low gate charge for enhanced light-load efficiency and low power consumption at no load condition › Optimized V_{GS} threshold for low turn-off losses
			500 V CoolMOS™ CE	› Optimized cost/performance › Lower transition losses versus standard MOSFET
	Boost diodes	DCM PFC	650 V Rapid 1	› Low conduction losses
		CCM PFC	650 V Rapid 2	› Low reverse recovery losses and PFC switch turn-on losses
			CoolSiC™ diode 650 V G6	› Very low reverse recovery losses
	Control ICs	CCM PFC ICs	ICE3PCS0xG	› High PFC and low THD
Main stage	Control ICs	HB LLC ICs	650 V – ICE1HS01G-1/ ICE2HS01G	› High efficiency and low EMI
Synchronous rectification	Medium voltage diodes	HB LLC + center-tap	OptiMOS™ 40 V	› Optimized cost/performance and low thermals
			OptiMOS™ 60 V	› Layout tolerance and low thermals

www.infineon.com/pcpower

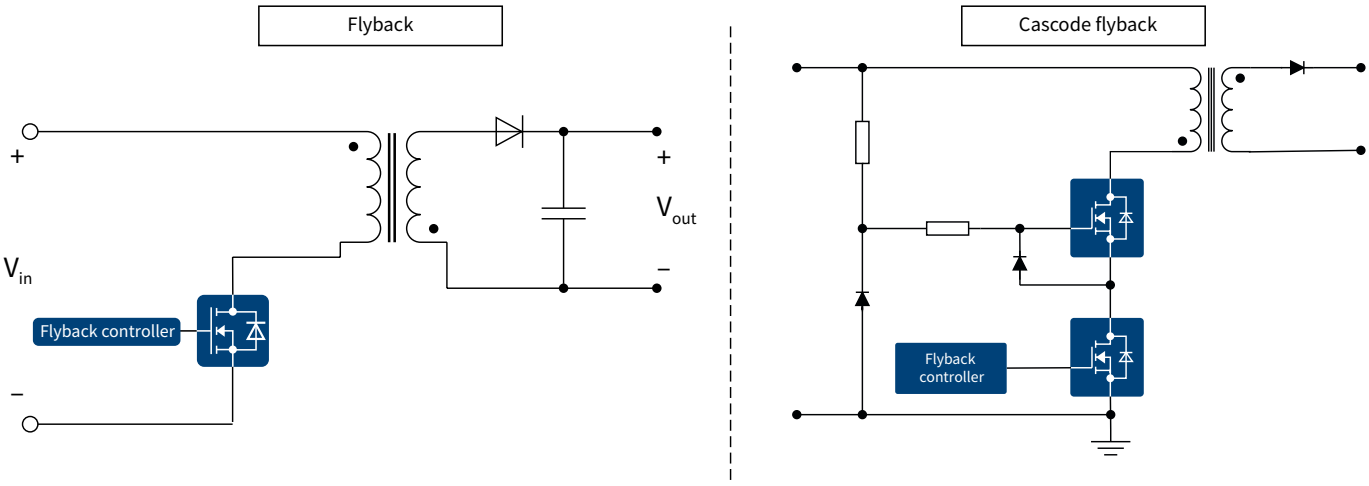
Smart metering

Smart meter

In today's technologically advanced world the demand for electrical energy is going up, as the traditional mechanical energy-based systems now depend on electrical power. An increasing trend can be seen in active monitoring and in dynamic pricing of electricity. A typical energy meter measures the amount of electrical energy consumed in kilowatt-hours (kWh) and can be mainly categorized into single phase and three phase types of smart meter. Existing and future energy meters should limit the self-consumption to 4 VA (~1.2 W) for single-phase or 8 VA (~2.4 W) for three-phasing energy meters. There is a tendency of moving from the traditional techniques of powering the meter to switch-mode-power-supply-based powering of the modern smart-grid-enabled smart energy meter.

Among the key characteristics of the smart meter SMPS are a wide input voltage (60 V_{AC} to 580 V_{AC}) and a quite low output voltage (12 V, 5 V, 3.3 V), as well as relatively low level of the output power (3-15 W). Among the requirements for the smart meter SMPS are low cost and low component count.

Infineon's latest CoolMOS™ P7 family, specifically 700 V/800 V/950 V CoolMOS™ P7, fulfills these requirements and satisfies comparatively high input voltage. The CoolMOS™ P7 technology brings the benefits of increased efficiency, low switching losses, high quality and reliability, and best-in-class thermal performance, being the right fit for the application.



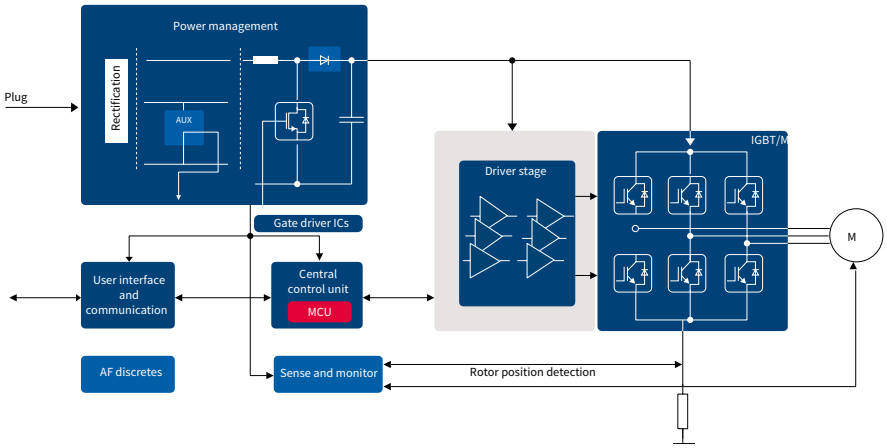
Functional block	Product category	Product family	Benefits
Flyback	High voltage MOSFETs	800/950 V CoolMOS™ P7	› Best-in-class performance › Highest efficiency › Outstanding thermal behavior
Cascode flyback		700/800/950 V CoolMOS™ P7	› Best-in-class performance › Highest efficiency › Outstanding thermal behavior
Controller ICs for flyback and cascode flyback topologies	AC-DC PWM controller ICs	PWM-FF (fixed frequency) PWM-QR (Quasi resonant)	› High reliability › High efficiency

www.infineon.com/950v-p7

Major home appliances

Major home appliances

Based on industry-leading technology and manufacturing expertise, Infineon's line of innovative components for household appliances meets and exceeds even the most rigorous requirements for reliability and quality. The following block diagram example of an air conditioning system, together with the product selection table, provides effective recommendation for engineers selecting the right component for each power management stage inside major home appliances. The latest 600 V CoolMOS™ PFD7 series sets a new benchmark in 600 V super junction (SJ) technologies dedicated for ultrahigh power density designs as well as low power motor drives. It combines best-in-class performance with state-of-the-art ease-of-use, crystalized from Infineon's over 20 years' pioneering superjunction technology innovation and experience.



Functional block	Topology	Voltage class	Technology/product family	Selection/benefit
PFC AC-DC	IGBT – PFC CCM (high frequency – SC)	600 V	HighSpeed 3	Recommendation
	IGBT – PFC CCM (low frequency – SC)	600 V	TRENCHSTOP™ Performance	Recommendation
	IGBT – PFC CCM (cost competitive – no SC)	650 V	TRENCHSTOP™ 5 – H5	Recommendation
	IGBT – PFC CCM (low losses - SC)	650 V	TRENCHSTOP™ IGBT6	Recommendation
	IGBT – PFC	600 V	TRENCHSTOP™ Advanced Isolation	Recommendation
	IGBT – PFC (cost competitive - no SC)	650 V	TRENCHSTOP™ 5 WR5	Recommendation
	MOSFET – PFC CCM	600 V	CoolMOS™ P7	Reference
	Diode – PFC CCM	650 V	Rapid 1 and Rapid 2 diodes	Recommendation
	Controller – PFC CCM	–	ICE2PCS0xG, ICE3PCS0xG	Recommendation
	IPM – PFC CCM	650 V	CIPOS™ Mini PFC interleaved IPM series, CIPOS™ PFC integrated IPM series	Recommendation
	Low-side gate driver IC-PFC	25 V	Single low-side driver 1ED44176N01F	OCP, fault and enable function in DSO-8
			Dual low-side driver IRS4427S	Rugged and reliable in DSO-8
			Single low-side driver IRS44273L	Rugged and reliable in SOT23-5
DC-AC	IGBT – B6-VSI	650 V	TRENCHSTOP™ IGBT6	Efficiency
	IGBT – B6-VSI	600 V	RC-Drives Fast	Recommendation
	MOSFET - B6-VSI	600 V	CoolMOS™PFD7	Cost/performance
	IPM – B6-VSI	600 V	CIPOS™ Mini	Recommendation
	Half-bridge gate driver IC	650 V	2ED2304S06F	SOI with integrated bootstrap diode
	Half-bridge gate driver ICs	600 V	2EDL05I06PF, 2EDL23I06PJ, 2ED28073J	Integrated bootstrap diode/FET
	Three-phase gate driver ICs	600 V	6EDL04I06PT, IR2136S, 6ED003L06-F2	OCP, fault and enable function
AUX	Flyback fixed frequency	700 V	CoolSET™ F5	Recommendation
Microcontroller/ motor control IC	32-bit ARM® Cortex®-M4	-	XMC4100/XMC4200	Recommendation
	iMOTION™		IRMCxx motor control IC (incl. motion control algorithm)	Recommendation
Microcontroller supply	Linear voltage regulator	Up to 20 V	IFX1763, IFX54441, IFX54211, IFX3008	Efficiency
Communication	CAN transceiver	-	IFX1050, IFX1051, IFX1040	Robustness
Position sensing	Angle sensor	-	TLE5009, TLI5012B	Recommendation
	Hall switch	-	TLI496x	Recommendation

www.infineon.com/homeappliance

CoolMOS™ SJ MOSFET package innovations for industrial applications

Space-saving and high performance packages

Innovative top-side cooled SMD solution for high power applications

Top-side cooled Double DPAK (DDPAK)

This is the first top-side cooled surface mount device (SMD) package addressing high power SMPS applications such as PC power, solar, server and telecom. SMD-based SMPS designs support fast switching and help to reduce the parasitic inductance associated with long leaded packages such as the common TO-220 package. In today's SMD-based designs, the output power is restricted by the thermal limit of the PCB material because the heat must be dissipated through the board. Thanks to the top-side cooling concept of DDPAK, the thermal decoupling of board and semiconductor is possible, enabling higher power density or improved system lifetime.

For highest efficiency and controllability in high power SMPS markets

TO-247 4-pin with asymmetric leads

The TO-247 4-pin package with asymmetric leads is an optimized version of the standard TO-247 4-pin and enables highest efficiency and controllability in the high power SMPS market. The fourth pin acts as a Kelvin source. The main current of the switch is placed outside of the gate loop and the feedback is eliminated. This leads to less switching losses, especially at high currents. Secondly, the EMI will be reduced due to cleaner waveforms. In addition, the asymmetric leads further improve the ease of use in the design-in process. Compared to the standard TO-247 4-pin the distance between the critical pins has been increased to enable simplified wave soldering and reduced board yield loss.

Enabling significant space savings

ThinPAK 8x8

With very small footprint of only 64 mm^2 (vs. 150 mm^2 for the D^2PAK) and a very low profile with only 1 mm height (vs. 4.4 mm for the D^2PAK) the ThinPAK 8x8 leadless SMD package for high voltage MOSFETs is a first choice to decrease system size in power-density driven designs. Low parasitic inductance and a separate 4-pin Kelvin source connection offer best efficiency and ease of use.
The package is RoHS compliant with halogen-free mold compound.

Optimized for high power applications

TO-Leadless

Combined with the latest CoolMOS™ C7 Gold (G7) technology, the TO-leadless (TOLL) package is Infineon's flagship SMD package for high power/high current SMD solutions. Compared to D2PAK 7-pin, TO-leadless shows a 30 percent reduction in footprint, yet offers improved thermal performance. This and the 50 percent height reduction result in a significant advantage whenever highest power density is demanded. Equipped with 4-pin Kelvin source connection and low parasitic inductances the package offers best efficiency and ease of use. The package is MSL1 compliant and reflow solderable.

www.infineon.com/coolmos-latest-packages

CoolMOS™ SJ MOSFET package innovations for consumer applications

Addressing today's consumer needs

Cost-effective drop-in replacement for DPAK

SOT-223

The SOT-223 package without middle pin is a cost-effective alternative to DPAK, addressing the need for cost reductions in price sensitive applications. It offers a smaller footprint, while still being pin-to-pin compatible with DPAK, thus, allowing a drop-in replacement for DPAK and second sourcing. Moreover, SOT-223 achieves comparable thermal performance to DPAK and enables customers to achieve improved form factors or space savings in designs with low power dissipation.

Solution for higher assembly yield in charger applications

IPAK Short Lead with ISO Standoff

ThinPAK 5x6 reduces the PCB area by 52 percent and height by 54 percent when compared to the DPAK package which is widely used in chargers and adapters. ThinPAK 5x6 is the right device to replace DPAK and meet the market demands of slimmer and smaller designs. Also ThinPAK 5x6 enables a reduced charger and adapter case hot spot temperature by increasing the space between the MOSFET and the charger and adapter case.

Solution for height reduction in adapters and chargers

TO-220 FullPAK Narrow Lead

Infineon's TO-220 FullPAK Narrow Lead addresses customer needs with regards to height reduction requirements in adapter and charger applications. By offering an optimized standoff width and height and improved creepage distance, the package can be fully inserted into the PCB without any production concerns and, therefore, is especially suitable for slim and semi-slim adapter solutions.

Improved creepage distance for open frame power supplies

TO-220 FullPAK Wide Creepage

This package solution has an increased creepage distance between the pins to 4.25 mm compared to 2.54 mm of a TO-220 FullPAK package. It targets open frame power supplies such as TV sets and PC power, where dust can enter the case through air vents. Dust particles can reduce the effective creepage between pins over time, which may lead to high voltage arcing. The package meets the requirements of open frame power supplies without any additional measures. Thus, it reduces system cost by offering an alternative to frequently used approaches to increase creepage distance.

www.infineon.com/coolmos-latest-packages

CoolMOS™ portfolio

950 V CoolMOS™ P7 ACTIVE & PREFERRED

$R_{DS(on)}$ [mΩ]	TO-220	TO-220 FullPAK	SOT-223	TO-251 Long lead	TO-252 (DPAK)	TO-220 Wide creepage	ThinPAK 8x8	D^2PAK
450		IPA95R450P7		IPU95R450P7	IPD95R450P7			
750		IPA95R750P7		IPU95R750P7	IPD95R750P7			
1200		IPA95R1K2P7	IPN95R1K2P7	IPU95R1K2P7	IPD95R1K2P7			
2000			IPN95R2K0P7	IPU95R2K0P7	IPD95R2K0P7			
3700			IPN95R3K7P7	IPU95R3K7P7				

900 V CoolMOS™ C3 ACTIVE

$R_{DS(on)}$ [mΩ]	TO-220	TO-262 (I^2PAK)	TO-263 (D^2PAK)	TO-220 FullPAK	TO-247	TO-252 (DPAK)
120					IPW90R120C3	
340	IPP90R340C3	IPI90R340C3	IPB90R340C3	IPA90R340C3	IPW90R340C3	
500		IPI90R500C3		IPA90R500C3	IPW90R500C3	
800	IPP90R800C3			IPA90R800C3		
1000	IPP90R1K0C3			IPA90R1K0C3		
1200	IPP90R1K2C3	IPI90R1K2C3		IPA90R1K2C3		IPD90R1K2C3

800 V CoolMOS™ P7 ACTIVE & PREFERRED

$R_{DS(on)}$ [mΩ]	TO -220	TO-220 FullPAK	TO-247	TO-252 (DPAK)	TO-251 (IPAK)	TO-251 (IPAK Short Lead)	SOT-223	TO-220 FullPAK narrow lead	ThinPAK 5x6*
280	IPP80R280P7	IPA80R280P7	IPW80R280P7	IPD80R280P7				IPAN80R280P7	
360	IPP80R360P7	IPA80R360P7	IPW80R360P7	IPD80R360P7				IPAN80R360P7	
450	IPP80R450P7	IPA80R450P7		IPD80R450P7				IPAN80R450P7	
600	IPP80R600P7	IPA80R600P7		IPD80R600P7	IPU80R600P7	IPS80R600P7	IPN80R600P7		IPLK80R600P7*
750	IPP80R750P7	IPA80R750P7		IPD80R750P7	IPU80R750P7	IPS80R750P7	IPN80R750P7		IPLK80R750P7*
900	IPP80R900P7	IPA80R900P7		IPD80R900P7	IPU80R900P7	IPS80R900P7	IPN80R900P7		IPLK80R900P7*
1200	IPP80R1K2P7	IPA80R1K2P7		IPD80R1K2P7	IPU80R1K2P7	IPS80R1K2P7	IPN80R1K2P7		IPLK80R1K2P7*
1400	IPP80R1K4P7	IPA80R1K4P7		IPD80R1K4P7	IPU80R1K4P7	IPS80R1K4P7	IPN80R1K4P7		IPLK80R1K4P7*
2000				IPD80R2K0P7	IPU80R2K0P7	IPS80R2K0P7	IPN80R2K0P7		IPLK80R2K0P7*
2400				IPD80R2K4P7	IPU80R2K4P7	IPS80R2K4P7	IPN80R2K4P7		
3300				IPD80R3K3P7	IPU80R3K3P7		IPN80R3K3P7		
4500				IPD80R4K5P7	IPU80R4K5P7		IPN80R4K5P7		

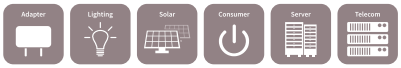
www.infineon.com/coolmos
www.infineon.com/c3
www.infineon.com/800v-p7
www.infineon.com/950v-p7

*Coming soon

800 V CoolMOS™ CE ACTIVE

$R_{DS(on)}$ [mΩ]	TO-220	TO-220 FullPAK	TO-247	TO-252 (DPAK)	TO-251 (IPAK)	TO-251 (IPAK Short Lead)
310		IPA80R310CE				
460		IPA80R460CE				
650		IPA80R650CE				
1000		IPA80R1K0CE		IPD80R1K0CE	IPU80R1K0CE	
1400		IPA80R1K4CE		IPD80R1K4CE		
2800				IPD80R2K8CE		

800 V CoolMOS™ C3 ACTIVE



$R_{DS(on)}$ [mΩ]	TO-220	TO-262 (I^2PAK)	TO-263 (D^2PAK)	TO-220 FullPAK	TO-247	TO-252 (DPAK)
85					SPW55N80C3	
290	SPP17N80C3		SPB17N80C3	SPA17N80C3	SPW17N80C3	
450	SPP11N80C3			SPA11N80C3	SPW11N80C3	
650	SPP08N80C3			SPA08N80C3		
900	SPP06N80C3			SPA06N80C3		SPD06N80C3
1300	SPP04N80C3			SPA04N80C3		SPD04N80C3
2700				SPA02N80C3		SPD02N80C3

700 V CoolMOS™ P7 ACTIVE & PREFERRED

$R_{DS(on)}$ [mΩ]	TO -220	TO – 262 (I^2PAK)	TO-251 (IPAK Short Lead)	TO-220 FullPAK	ThinPAK 5x6	TO-252 (DPAK)	TO-220 FullPAK narrow lead	TO-251 (IPAK Short Lead w/ ISO Standoff)	SOT-223
360			IPS70R360P7S	IPA70R360P7S		IPD70R360P7S	IPAN70R360P7S	IPSA70R360P7S	IPN70R360P7S
450				IPA70R450P7S			IPAN70R450P7S	IPSA70R450P7S	IPN70R450P7S
600			IPS70R600P7S	IPA70R600P7S	IPLK70R600P7	IPD70R600P7S	IPAN70R600P7S	IPSA70R600P7S	IPN70R600P7S
750				IPA70R750P7S	IPLK70R750P7		IPAN70R750P7S	IPSA70R750P7S	IPN70R750P7S
900			IPS70R900P7S	IPA70R900P7S	IPLK70R900P7	IPD70R900P7S	IPAN70R900P7S	IPSA70R900P7S	IPN70R900P7S
1200					IPLK70R1K2P7			IPSA70R1K2P7S	IPN70R1K2P7S
1400			IPS70R1K4P7S		IPLK70R1K4P7	IPD70R1K4P7S		IPSA70R1K4P7S	IPN70R1K4P7S
2000					IPLK70R2K0P7			IPSA70R2K0P7S	IPN70R2K0P7S

700 V CoolMOS™ CE ACTIVE

$R_{DS(on)}$ [mΩ]	TO-220	TO-220 FullPAK Wide Creepage	TO-262 (I^2PAK)	TO-251 (IPAK Short Lead with ISO Standoff)	TO-252 (DPAK)	TO-251 (IPAK)	TO-251 (IPAK Short Lead)	SOT-223
600		IPAW70R600CE		IPSA70R600CE	IPD70R600CE			
950		IPAW70R950CE	IPI70R950CE	IPSA70R950CE	IPD70R950CE		IPS70R950CE	
1000								IPN70R1K0CE
1400				IPSA70R1K4CE	IPD70R1K4CE		IPS70R1K4CE	
1500								IPN70R1K5CE
2000				IPSA70R2K0CE	IPD70R2K0CE		IPS70R2K0CE	
2100								IPN70R2K1CE

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650 V CoolMOS™ C7 Gold (G-series) ACTIVE & PREFERRED

$R_{DS(on)}$ [mΩ]	TO -220	TO-Leadless (TOLL)	TO-263 (D^2PAK)	TO-220 FullPAK	TO-247	TO -252 (DPAK)
33		IPT65R033G7				
105		IPT65R105G7				
195		IPT65R195G7				

650 V CoolMOS™ C7 ACTIVE & PREFERRED

$R_{DS(on)}$ [mΩ]	TO-220	TO-263 (D^2PAK)	TO-220 FullPAK	TO-247	TO-247 4-pin	TO-252 (DPAK)	ThinPAK 8x8
19				IPW65R019C7	IPZ65R019C7		
45	IPP65R045C7	IPB65R045C7	IPA65R045C7	IPW65R045C7	IPZ65R045C7		
65	IPP65R065C7	IPB65R065C7	IPA65R065C7	IPW65R065C7	IPZ65R065C7		
70							IPL65R070C7
95	IPP65R095C7	IPB65R095C7	IPA65R095C7	IPW65R095C7	IPZ65R095C7		
99							IPL65R099C7
125	IPP65R125C7	IPB65R125C7	IPA65R125C7	IPW65R125C7			
130							IPL65R130C7
190	IPP65R190C7	IPB65R190C7	IPA65R190C7	IPW65R190C7		IPD65R190C7	
195							IPL65R195C7
225	IPP65R225C7	IPB65R225C7	IPA65R225C7			IPD65R225C7	
230							IPL65R230C7

650 V CoolMOS™ CE ACTIVE

$R_{DS(on)}$ [mΩ]	TO-220	TO-220 FullPAK	TO-247	TO-252 (DPAK)	TO-251 (IPAK)	TO-251 (IPAK Short Lead)	SOT-223	TO-220 FullPAK Narrow Lead
400		IPA65R400CE		IPD65R400CE		IPS65R400CE		
650		IPA65R650CE		IPD65R650CE		IPS65R650CE		IPAN65R650CE
1000		IPA65R1K0CE		IPD65R1K0CE		IPS65R1K0CE		
1500		IPA65R1K5CE		IPD65R1K5CE			IPN65R1K5CE	

650 V CoolMOS™ CFD2 ACTIVE

$R_{DS(on)}$ [mΩ]	TO-220	TO-262 (I^2PAK)	TO-263 (D^2PAK)	TO-220 FullPAK	TO-247	TO-252 (DPAK)	ThinPAK 8x8
41					IPW65R041CFD		
80					IPW65R080CFD		
110	IPP65R110CFD		IPB65R110CFD	IPA65R110CFD	IPW65R110CFD		
150	IPP65R150CFD		IPB65R150CFD	IPA65R150CFD	IPW65R150CFD		
165							IPL65R165CFD
190	IPP65R190CFD	IPI65R190CFD	IPB65R190CFD	IPA65R190CFD	IPW65R190CFD		
210							IPL65R210CFD
310	IPP65R310CFD		IPB65R310CFD	IPA65R310CFD			
340							IPL65R340CFD
420	IPP65R420CFD			IPA65R420CFD	IPW65R420CFD	IPD65R420CFD	
660				IPA65R660CFD		IPD65R660CFD	
950						IPD65R950CFD	
1400						IPD65R1K4CFD	

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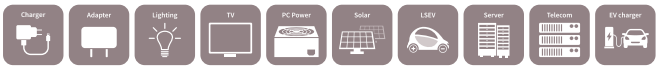
600 V CoolMOS™ S7 ACTIVE & PREFERRED

$R_{DS(on)}$ [mΩ]	TO -220	TO-Leadless (TOLL)
22	IPP60R022S7	IPT60R022S7
40		IPT60R040S7
65		IPT60R065S7

600 V CoolMOS™ P7 ACTIVE & PREFERRED
Industrial grade



$R_{DS(on)}$ [mΩ]	TO -220	TO-220 FullPAK	TO-247	TO-247 4-pin asymmetric leads	TO-252 (DPAK)	TO-220 FullPAK Wide Creepage	ThinPAK 8x8	D^2PAK
24			IPW60R024P7	IPZA60R024P7				
37			IPW60R037P7	IPZA60R037P7				
45			IPW60R045P7	IPZA60R045P7				IPB60R045P7
60	IPP60R060P7	IPA60R060P7	IPW60R060P7	IPZA60R060P7				IPB60R060P7
65							IPL60R065P7	
80	IPP60R080P7	IPA60R080P7	IPW60R080P7	IPZA60R080P7			IPL60R085P7	IPB60R080P7
99	IPP60R099P7	IPA60R099P7	IPW60R099P7	IPZA60R099P7				IPB60R099P7
105							IPL60R105P7	
120	IPP60R120P7	IPA60R120P7	IPW60R120P7	IPZA60R120P7				IPB60R120P7
125							IPL60R125P7	
160	IPP60R160P7	IPA60R160P7						
180	IPP60R180P7	IPA60R180P7	IPW60R180P7	IPZA60R180P7	IPD60R180P7			IPB60R180P7
185							IPL60R185P7	
280	IPP60R280P7	IPA60R280P7			IPD60R280P7			IPB60R280P7
285							IPL60R285P7	
360	IPP60R360P7	IPA60R360P7			IPD60R360P7			IPB60R360P7
365							IPL60R365P7	
600	IPP60R600P7	IPA60R600P7			IPD60R600P7			

600 V CoolMOS™ P7 ACTIVE & PREFERRED
Standard grade

$R_{DS(on)}$ [mΩ]	TO -220	TO-220 FullPAK	TO-220 FullPAK Narrow lead	TO-247 4-pin	TO-252 (DPAK)	TO-220 FullPAK Wide Creepage	ThinPAK 8x8	SOT-223
180		IPA60R180P7S	IPAN60R180P7S		IPD60R180P7S	IPAW60R180P7S		
280		IPA60R280P7S	IPAN60R280P7S		IPD60R280P7S	IPAW60R280P7S		
360		IPA60R360P7S	IPAN60R360P7S		IPD60R360P7S	IPAW60R360P7S		IPN60R360P7S
600		IPA60R600P7S	IPAN60R600P7S		IPD60R600P7S	IPAW60R600P7S		IPN60R600P7S

600 V CoolMOS™ CFD7 ACTIVE & PREFERRED

$R_{DS(on)}$ [mΩ]	TO-220	TO-263 (D^2PAK)	TO-220 FullPAK	TO-247	TO-252 (DPAK)	ThinPAK 8x8	DDPAK	TO-Leadless (TOLL)
18				IPW60R018CFD7				
24				IPW60R024CFD7				
31/35				IPW60R31CFD7				IPT60R035CFD7*
40/45		IPB60R040CFD7		IPW60R40CFD7			IPDD60R045CFD7*	IPT60R045CFD7*
55		IPB60R055CFD7		IPW60R55CFD7			IPDD60R055CFD7*	IPT60R055CFD7*
60						IPL60R060CFD7		
70	IPP60R70CFD7	IPB60R070CFD7		IPW60R70CFD7				
75						IPL60R75CFD7	IPDD60R075CFD7*	IPT60R075CFD7*
90/95	IPP60R90CFD7	IPB60R090CFD7		IPW60R90CFD7		IPL60R095CFD7	IPDD60R090CFD7*	IPT60R090CFD7*
105/115	IPP60R105CFD7	IPB60R105CFD7		IPW60R105CFD7		IPL60R115CFD7	IPDD60R105CFD7*	IPT60R105CFD7*
125/140	IPP60R125CFD7	IPB60R125CFD7	IPA60R125CFD7	IPW60R125CFD7		IPL60R140CFD7	IPDD60R125CFD7*	IPT60R125CFD7*
145/160	IPP60R145CFD7	IPB60R145CFD7	IPA60R145CFD7	IPW60R145CFD7	IPD60R145CFD7	IPL60R160CFD7	IPDD60R145CFD7*	IPT60R145CFD7*
170	IPP60R170CFD7	IPB60R170CFD7	IPA60R170CFD7	IPW60R170CFD7	IPD60R170CFD7		IPDD60R170CFD7*	
185						IPL60R185CFD7		
210/225	IPP60R210CFD7	IPB60R210CFD7	IPA60R210CFD7		IPD60R210CFD7	IPL60R225CFD7		
280	IPP60R280CFD7	IPB60R280CFD7	IPA60R280CFD7		IPD60R280CFD7			
360	IPP60R360CFD7	IPB60R360CFD7	IPA60R360CFD7		IPD60R360CFD7			

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*Coming soon

600 V CoolMOS™ C7 Gold (G-series) ACTIVE & PREFERRED

$R_{DS(on)}$ [mΩ]	TO -220	TO-Leadless (TOLL)	TO-220 FullPAK	TO-247	TO-247 4-pin	Double DPAK	ThinPAK 8x8
28		IPT60R028G7					
50		IPT60R050G7				IPDD60R050G7	
80		IPT60R080G7				IPDD60R080G7	
102		IPT60R102G7				IPDD60R102G7	
125		IPT60R125G7				IPDD60R125G7	
150		IPT60R150G7				IPDD60R150G7	
190						IPDD60R190G7	

600 V CoolMOS™ C7 ACTIVE & PREFERRED

$R_{DS(on)}$ [mΩ]	TO-220	TO-263 (D^2PAK)	TO-220 FullPAK	TO-247	TO-247 4-pin	TO-252 (DPAK)	ThinPAK 8x8
17				IPW60R017C7	IPZ60R017C7		
40	IPP60R040C7	IPB60R040C7		IPW60R040C7	IPZ60R040C7		
60	IPP60R060C7	IPB60R060C7	IPA60R060C7	IPW60R060C7	IPZ60R060C7		
65							IPL60R065C7
99	IPP60R099C7	IPB60R099C7	IPA60R099C7	IPW60R099C7	IPZ60R099C7		
104							IPL60R104C7
120	IPP60R120C7	IPB60R120C7	IPA60R120C7	IPW60R120C7			
125							IPL60R125C7
180	IPP60R180C7	IPB60R180C7	IPA60R180C7	IPW60R180C7		IPD60R180C7	
185							IPL60R185C7

600 V CoolMOS™ P6 ACTIVE

$R_{DS(on)}$ [mΩ]	TO-220	TO-220 FullPAK	TO-247	TO-247 4-pin	TO-252 (DPAK)	ThinPAK 5x6	ThinPAK 8x8
41			IPW60R041P6				
70			IPW60R070P6	IPZ60R070P6			
99	IPP60R099P6	IPA60R099P6	IPW60R099P6	IPZ60R099P6			
125	IPP60R125P6	IPA60R125P6	IPW60R125P6				
160	IPP60R160P6	IPA60R160P6	IPW60R160P6				
180							IPL60R180P6
190	IPP60R190P6	IPA60R190P6	IPW60R190P6				
210							IPL60R210P6
230		IPA60R230P6					
255							
280	IPP60R280P6	IPA60R280P6	IPW60R280P6				
330/360						IPL60R360P6S	
380		IPA60R380P6			IPD60R380P6		
600		IPA60R600P6			IPD60R600P6		
650						IPL60R650P6S	

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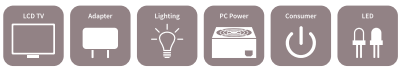
600 V CoolMOS™ PFD7 ACTIVE & PREFERRED

$R_{DS(on)}$ [mΩ]	TO-220 FullPAK Narrow Leads	TO-251 (IPAK Short Lead)	TO-252 (DPAK)	SOT-223	ThinPAK 5x6
125	IPAN60R125PFD7S				
210	IPAN60R210PFD7S	IPS60R210PFD7S	IPD60R210PFD7S		
280	IPAN60R280PFD7S	IPS60R280PFD7S	IPD60R280PFD7S		
360	IPAN60R360PFD7S	IPS60R360PFD7S	IPD60R360PFD7S	IPN60R360PFD7S	IPLK60R360PFD7
600		IPS60R600PFD7S	IPD60R600PFD7S	IPN60R600PFD7S	IPLK60R600PFD7
1000		IPS60R1K0PFD7S	IPD60R1K0PFD7S	IPN60R1K0PFD7S	IPLK60R1K0PFD7
1500			IPD60R1K5PFD7S	IPN60R1K5PFD7S	IPLK60R1K5PFD7
2000			IPD60R2K0PFD7S	IPN60R2K0PFD7S	

600 V CoolMOS™ CE ACTIVE

$R_{DS(on)}$ [mΩ]	TO-220 FullPAK	TO-220 FullPAK Wide Creepage	TO-247	TO-252 (DPAK)	TO-251 (IPAK)	TO-251 (IPAK Short Lead)	SOT-223	TO-220 FullPAK Narrow Lead
190		IPAW60R190CE						
280		IPAW60R280CE						
380		IPAW60R380CE						
400	IPA60R400CE			IPD60R400CE		IPS60R400CE		
460	IPA60R460CE			IPD60R460CE		IPS60R460CE		
600		IPAW60R600CE						
650	IPA60R650CE			IPD60R650CE		IPS60R650CE		IPAN60R650CE
800				IPD60R800CE		IPS60R800CE		IPAN60R800CE
1000	IPA60R1K0CE			IPD60R1K0CE	IPU60R1K0CE	IPS60R1K0CE	IPN60R1K0CE	
1500	IPA60R1K5CE			IPD60R1K5CE	IPU60R1K5CE	IPS60R1K5CE	IPN60R1K5CE	
2100				IPD60R2K1CE	IPU60R2K1CE	IPS60R2K1CE	IPN60R2K1CE	
3400				IPD60R3K4CE		IPS60R3K4CE	IPN60R3K4CE	

500 V CoolMOS™ CE ACTIVE & PREFERRED



$R_{DS(on)}$ [mΩ]	TO-220	TO-220 FullPAK	TO-247	TO-252 (DPAK)	TO-251 (IPAK)	TO-251 (IPAK Short Lead)	SOT-223	TO-220 FullPAK Narrow Lead
190	IPP50R190CE	IPA50R190CE						
280	IPP50R280CE	IPA50R280CE		IPD50R280CE				
380	IPP50R380CE	IPA50R380CE		IPD50R380CE				
500		IPA50R500CE		IPD50R500CE				IPAN50R500CE
650				IPD50R650CE			IPN50R650CE	
800		IPA50R800CE		IPD50R800CE			IPN50R800CE	
950		IPA50R950CE		IPD50R950CE			IPN50R950CE	
1400				IPD50R1K4CE			IPN50R1K4CE	
2000				IPD50R2K0CE			IPN50R2K0CE	
3000				IPD50R3K0CE			IPN50R3K0CE	

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CoolMOS™ SJ MOSFET automotive portfolio

650 V CoolMOS™ CFDA ACTIVE & PREFERRED

Product type	$R_{DS(on)}$ @ T_J = 25°C V_{GS} = 10 V [mΩ]	$I_{D,max.}$ @ T_J = 25°C [A]	$I_{D\_puls,max.}$ [A]	$V_{GS(th),min.-max.}$ [V]	$Q_{G,typ.}$ [nC]	$R_{thJC,max.}$ [K/W]	Package
IPW65R048CFDA	48	63.3	228	3.5...4.5	27	0.25	TO-247
IPW65R080CFDA	80	43.3	127	3.5...4.5	16	0.32	TO-247
IPB65R110CFDA	110	31.2	99.6	3.5...4.5	11	0.45	TO-263
IPP65R110CFDA	110	31.2	99.6	3.5...4.5	11	0.45	TO-220
IPW65R110CFDA	110	31.2	99.6	3.5...4.5	11	0.45	TO-247
IPB65R150CFDA	150	22.4	72	3.5...4.5	86	0.64	TO-263
IPP65R150CFDA	150	22.4	72	3.5...4.5	86	0.64	TO-220
IPW65R150CFDA	150	22.4	72	3.5...4.5	86	0.64	TO-247
IPB65R190CFDA	190	17.5	57.2	3.5...4.5	68	0.83	TO-263
IPP65R190CFDA	190	17.5	57.2	3.5...4.5	68	0.83	TO-220
IPW65R190CFDA	190	17.5	57.2	3.5...4.5	68	0.83	TO-247
IPB65R310CFDA	310	11.4	34.4	3.5...4.5	41	1.2	TO-263
IPP65R310CFDA	310	11.4	34.4	3.5...4.5	41	1.2	TO-220
IPD65R420CFDA	420	8.7	27	3.5...4.5	32	1.5	TO-252
IPB65R660CFDA	660	6	17	3.5...4.5	20	2	TO-263
IPD65R660CFDA	660	6	17	3.5...4.5	20	2	TO-252

650 V CoolMOS™ CFD7A ACTIVE & PREFERRED

Product type	$R_{DS(on)}$ @ T_J = 25°C V_{GS} = 10 V [mΩ]	$I_{D,max.}$ @ T_J = 25°C [A]	$I_{D\_puls,max.}$ [A]	$V_{GS(th),min.-max.}$ [V]	$Q_{G,typ.}$ [nC]	$R_{thJC,max.}$ [K/W]	Package
IPB65R115CFD7A	115	21	82	3.5-4.5	42	1.1 °C/W	TO-263
IPBE65R115CFD7A	115	21	82	3.5-4.5	41	1.1 °C/W	TO-263-7

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600 V CoolMOS™ CPA ACTIVE

Product type	$R_{DS(on)}$ @ T_J = 25°C V_{GS} = 10 V [mΩ]	$I_{D,max.}$ @ T_J = 25°C [A]	$I_{D\_puls,max.}$ [A]	$V_{GS(th),min.-max.}$ [V]	$Q_{G,typ.}$ [nC]	$R_{thJC,max.}$ [K/W]	Package
IPW60R045CPA	45	60	230	2.5 … 3.5	150	0.29	TO-247
IPW60R075CPA	75	39	130	2.5 … 3.5	87	0.4	TO-247
IPB60R099CPA	99	31	93	2.5 … 3.5	60	0.5	TO-263
IPI60R099CPA	99	31	93	2.5 … 3.5	60	0.5	TO-262
IPP60R099CPA	99	31	93	2.5 … 3.5	60	0.5	TO-220
IPW60R099CPA	99	31	93	2.5 … 3.5	60	0.5	TO-247
IPB60R199CPA	199	16	51	2.5 … 3.5	32	0.9	TO-263
IPB60R299CPA	299	11	34	2.5 … 3.5	22	1.3	TO-263

800 V CoolMOS™ C3A ACTIVE & PREFERRED

Product type	$R_{DS(on)}$ @ T_J = 25°C V_{GS} = 10 V [mΩ]	$I_{D,max.}$ @ T_J = 25°C [A]	$I_{D\_puls,max.}$ [A]	$V_{GS(th),min.-max.}$ [V]	$Q_{G,typ.}$ [nC]	$R_{thJC,max.}$ [K/W]	Package
IPB80R290C3A	290	17	51	2.1 … 3.9	91	0.55	TO-263
IPW80R290C3A	290	17	51	2.1 … 3.9	91	0.55	TO-247
IPD80R2K7C3A	2700	2	6	2.1 … 3.9	12	3	TO-252

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CoolSiC™ portfolio

CoolSiC™ MOSFET Gen1 ACTIVE & PREFERRED

$R_{DS(on)}$ max. [mΩ]	$R_{DS(on)}$ typ. [mΩ]	TO-247 4-pin	TO-247
34	27	IMZA65R027M1H	IMW65R027M1H
64	48	IMZA65R048M1H	IMW65R048M1H
94	72	IMZA65R072M1H	IMW65R072M1H
142	107	IMZA65R107M1H	IMW65R107M1H

CoolSiC™ Schottky diodes 650 V G6 ACTIVE & PREFERRED

I_F [A]	TO-220 R2L	TO-247 Dual Die	TO-247	Double DPAK	D^2PAK R2L	ThinPAK 8x8
4	IDH04G65C6			IDDD04G65C6		
6	IDH06G65C6			IDDD06G65C6		
8	IDH08G65C6			IDDD08G65C6		
10	IDH10G65C6			IDDD10G65C6		
12	IDH12G65C6			IDDD12G65C6		
16	IDH16G65C6			IDDD16G65C6		
20	IDH20G65C6			IDDD20G65C6		

CoolSiC™ Schottky diodes 650 V G5 ACTIVE

I_F [A]	TO-220 R2L	TO-247 Dual Die	TO-247	D^2PAK R2L	ThinPAK 8x8
2	IDH02G65C5			IDK02G65C5	IDL02G65C5
3	IDH03G65C5			IDK03G65C5	
4	IDH04G65C5			IDK04G65C5	IDL04G65C5
5	IDH05G65C5			IDK05G65C5	
6	IDH06G65C5			IDK06G65C5	IDL06G65C5
8	IDH08G65C5			IDK08G65C5	IDL08G65C5
9	IDH09G65C5			IDK09G65C5	
10	IDH10G65C5		IDW10G65C5	IDK10G65C5	IDL10G65C5
12	IDH12G65C5		IDW12G65C5	IDK12G65C5	IDL12G65C5
16	IDH16G65C5		IDW16G65C5		
20	IDH20G65C5	IDW20G65C5B	IDW20G65C5		
24		IDW24G65C5B			
30/32		IDW32G65C5B	IDW30G65C5		
40		IDW40G65C5B	IDW40G65C5		

CoolSiC™ Schottky diodes 650 V G3 ACTIVE

I_F [A]	TO-220 R2L	TO-247 Dual Die	TO-247	DPAK R2L	D^2PAK	ThinPAK 8x8
3	IDH03SG60C			IDD03SG60C		
4	IDH04SG60C			IDD04SG60C		
5	IDH05SG60C			IDD05SG60C		
6	IDH06SG60C			IDD06SG60C		
8	IDH08SG60C			IDD08SG60C		
9	IDH09SG60C			IDD09SG60C		
10	IDH10SG60C			IDD10SG60C		
12	IDH12SG60C			IDD12SG60C		

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CoolGaN™ portfolio

CoolGaN™ 400 V e-mode

$R_{DS(on)}$ [mΩ]	HSOF-8-3 (TOLL)
P_{max}	Up to 200 W
$R_{DS(on)}$ max.	70 Ω
Typical part number	IGT40R070D1 E8220

600 V CoolGaN™ **

$R_{DS(on)}$ max.	DSO-20-85 Bottom-side cooling	DSO-20-87 Top-side cooling	HSOF-8-3 (TO-leadless)	LSON-8-1 DFN8x8
42	IGO60R042D1**	IGOT60R042D1**	IGT60R042D1**	
70	IGO60R070D1	IGOT60R070D1	IGT60R070D1	IGLD60R070D1
190			IGT60R190D1S*	IGLD60R190D1

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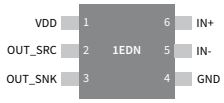
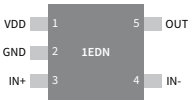
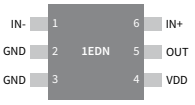
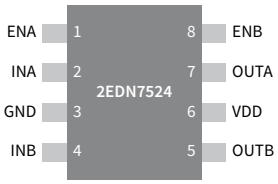
*Standard grade
**Coming soon

EiceDRIVER™ portfolio

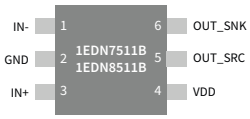
1EDN EiceDRIVER™ portfolio

Package		UVLO	Orderable part number	Pinout
	SOT-23 6pin	4 V	1EDN7511BXUSA1	
		8 V	1EDN8511BXUSA1	
	SOT-23 5pin	4 V	1EDN7512BXTSA1	
	WSON 6pin	4 V	1EDN7512GXTMA1	

2EDN EiceDRIVER™ portfolio

Package		UVLO	Inputs	Orderable part number	Industry standard pinout configuration
	DSO 8pin	4 V	Direct	2EDN7524FXTMA1	
			Inverted	2EDN7523FXTMA1	
			Direct	2EDN7424FXTMA1	
		8 V	Direct	2EDN8524FXTMA1	
			Inverted	2EDN8523FXTMA1	
	TSSOP 8pin	4 V	Direct	2EDN7524RXUMA1	
			Inverted	2EDN7523RXUMA1	
			Direct	2EDN7424RXUMA1	
		8 V	Direct	2EDN8524RXUMA1	
			Inverted	2EDN8523RXUMA1	
	WSON 8pin	4 V	Direct	2EDN7524GXTMA1	
			Inverted	2EDN7523GXTMA1	

1EDN7550 and 1EDN8550 EiceDRIVER™ with truly differential inputs (TDI) portfolio

Package		UVLO	Ground shift robustness		Product name	Industry standard pinout configuration
			dynamic	static		
	SOT-23 6pin	4 V	± 150 V	± 70 V	1EDN7550B	
		8 V	± 150 V	± 70 V	1EDN8550B	

2EDS8xx5H and 2EDF72x5x EiceDRIVER™ (2EDi) portfolio

Package	UVLO	Isolation (input to output)	Output Current (source sink)	Orderable part number
16-pin DSO 150-mil	4 V	1.5 kV_{peak}	4 A/8 A	2EDF7275FXUMA1
16-pin DSO 300-mil	8 V	V_{IOTM} = 6 kV_{peak} (VDE 0884-11)	4 A/8 A	2EDS8255HXUMA1
		V_{IOTM} = 6 kV_{peak} (VDE 0884-10)		2EDS8265HXUMA1
		V_{IOTM} = 6 kV_{peak} (VDE 0884-11)	1 A/2 A	2EDS8155HXUMA1
		VI_{OTM} = 6 kV_{peak} (VDE 0884-10)		2EDS8165HXUMA1
13-pin LGA (5x5 mm)	4 V	1.5 kV_{peak}	4 A/8 A	2EDF7275KXUMA1
			4 A/8 A	2EDF7235KXUMA1

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GaN EiceDRIVER™ family product portfolio

Product	Package	Input to output isolation				Propagation delay accuracy	Typ. high level (sourcing) output resistance	Typ. low level (sinking) output resistance	Orderable part number
		Isolation class	Rating	Surge testing	Certification				
1EDF5673K	LGA, 13-pin 5x5 mm	functional	V_{IO} = 1.5 kV_{DC}	n.a.	n.a.	-6 ns/+7 ns	0.85 Ω	0.35 Ω	1EDF5673KXUMA1
1EDF5673F	DSO, 16-pin 150 mil	functional	V_{IO} = 1.5 kV_{DC}	n.a.	n.a.	-6 ns/+7 ns	0.85 Ω	0.35 Ω	1EDF5673FXUMA1
1EDS5663H	DSO, 16-pin 300 mil	reinforced	V_{IOTM} = 8 kV_{pk} V_{ISO} = 5.7 kV_{rms}	V_{ISOM} > 10 kV_{pk}	VDE0884-10 UL1577	-6 ns/+7 ns	0.85 Ω	0.35 Ω	1EDS5663HXUMA1

650 V SiC MOSFET EiceDRIVER™ family product portfolio

Product	Package	Input to output isolation	Output current (source sink)	V_{ISO}	UVLO	Orderable part number
1EDB7275F*	DSO, 8-pin 150 mil	3000 V_{RMS} (UL1577)	4 A/8 A	3 kV_{rms}	4 V	1EDB7275FXUMA1
1EDB8275F*	DSO, 8-pin 150 mil	3000 V_{RMS} (UL1577)	4 A/8 A	3 kV_{rms}	8 V	1EDB8275FXUMA1
1EDB9275F*	DSO, 8-pin 150 mil	3000 V_{RMS} (UL1577)	4 A/8 A	3 kV_{rms}	14 V	1EDB9275FXUMA1

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*Coming soon

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