



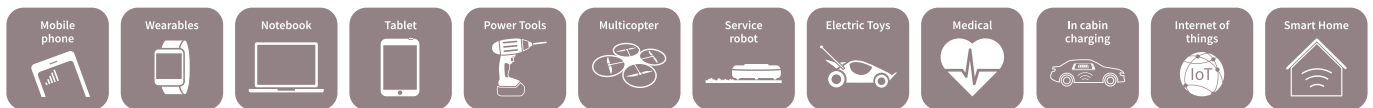
Application brief

Wireless charging solutions for consumer and automotive

Highest efficiency for the next level of charging

Over the last years, wireless charging has been increasingly gaining traction in the market and is expected to continue to heavily influence our daily lives. Infineon offers a broad portfolio of efficient, high quality products and solutions to serve the key requirements of the dominant market standards: inductive (Qi (WPC)) and resonant (AirFuel). Whether you charge a smartphone (e.g. at home or in the car), a handful of wearables, a power tool, a laptop or a service robot, Infineon's components and solutions help you overcome a wide range of common wireless power transfer challenges for consumer, industrial and automotive wireless charging designs.

There are many end markets for wireless charging



Infineon's key enabling products for consumer and automotive solutions

- > Low and mid voltage power MOSFETs – OptiMOS™ and StrongIRFET™
- > Gate driver ICs – EiceDRIVER™ or DC-DC low voltage gate driver
- > 32-bit microcontrollers – XMC™ and AURIX™
- > Wireless power controller (including software IP) – XMC™-SC and AURIX™
- > P-channel and N-channel small signal power MOSFETs
- > High voltage power MOSFETs – CoolMOS™ superjunction MOSFETs
- > PWM/flyback controllers and integrated power stage ICs – CoolSET™
- > Gallium nitride (GaN) – GaN e-mode HEMTs
- > Dedicated automotive power products – MOSFETs, DC-DC, LDO, PMIC with ASIL qualification
- > Voltage and buck regulators for component and bridge supply

Find the right solutions for your wireless charging designs

Our broad range of reference boards enable designers to develop wireless charging designs for different applications. For more information on the availability of our boards visit www.infineon.com/wirelesscharging or get in contact with us via www.infineon.com/support.

Searching for specific components for your design?

Try out Infineon's selection tool for wireless charging. Select the application, power range, standard and the topology you want to apply and get an overview of Infineon's most recommended components for your design.



Wireless charging product portfolio

	Sub-application	Voltage class	Package	Part number	$R_{DS(on)}$ max @ $V_{GS} = 4.5$ V [mQ]	Recommendation
Inductive consumer	MOSFETs	20 V	PQFN 2 x 2	IRLHS6242	11.7 (= 2.5 V drive capable)	Right fit
		25 V		IRFHS8242	21	Right fit
		30 V	Super SO8	BSC0996NS	11.8	Right fit
				BSC0993ND	7	Best performance
				BSZ0589NS	4.4	Best performance
				BSZ0994NS	8.6	Right fit
			PQFN 3.3 x 3.3	BSZ0909NS	15	Right fit
				BSZ0909ND	25	Best performance
				BSZ0910ND	13	Best performance
		PQFN 3.3 x 3.3 dual	IRFHS8342	25	Right fit	
			IRLHS6342	15.5 (= 2.5 V drive capable)	Best performance	
40 V	PQFN 3.3 x 3.3	BSZ097N04LS	14.2	Right fit		
Driver IC	PX3519, IRS2301S, WCDSC006*					
Microcontroller or wireless power controller	XMC™ MCU and wireless power controller XMC™-SC* (including software IP)					
Voltage regulators	IR3841M, IFX20002, IFX91041EJV50, IFX90121ELV50, IFX81481ELV					
Small signal MOSFETs	Please check online					
Authentication	SLS32AIA020Ux – OPTIGA™ Trust UWP (USON10 3x3 package)					

	Sub-application	Voltage class	Package	Part number	$R_{DS(on)}$ max @ $V_{GS} = 4.5$ [mQ]	Q_g typical [nC]	C_{oss} typical [pF]	Topology
Resonant consumer	MOSFETs	30 V	PQFN 2 x 2 dual	IRLHS6376PBF	48	2.8	32	Class D
			PQFN 3.3 x 3.3 dual	BSZ0909ND	25	1.8	120	Class D
				BSZ0910ND	13	5.6	230	Class D
			SOT 23	IRLML0030PBF	33	2.75	84	Class D
		40 V	SOT 23	IRLML0040	62	2.8	49	Class D
		60 V	SOT 23	IRLML0060	98	2.6	37	Class D
		80 V	PQFN 2 x 2	IRL80HS120	32	3.5	68	Class D/E
		100 V	PQFN 2 x 2	IRL100HS121	42	2.7	62	Class D/E
		150 V	PQFN 3.3 x 3.3	BSZ900N15NS3	75**	4.1**	46	Class E
				BSZ520N15NS3	42**	7.2**	80	Class E
				BSZ900N20NS3	78**	7.2**	52	Class E
				BSZ22DN20NS3	200**	3.5**	24	Class E
				BSZ12DN20NS3	111**	5.4**	39	Class E
		200 V	PQFN 3.3 x 3.3	BSZ42DN25NS3	375**	3.6**	21	Class E
		250 V						
Driver ICs	EiceDRIVER™ 2EDL71*, 1EDN7512, 2EDN7524 EiceDRIVER™ GaN HEMT driver IC 1EDS5663H, 1EDF5673F, 1EDF5673K							
GaN e-mode HEMTs	CoolGaN™ 600V e-mode GaN HEMT IGT60R190D1S (HDSOF-8-3)							
Microcontroller	XMC™ MCU and wireless power controller XMC™-SC* (including software IP)							
Voltage regulators	IR3841M, IFX20002, IFX91041EJV50, IFX90121ELV50, IFX81481ELV							
Small signal MOSFETs	Please check online							

	Sub-application	Voltage class	Package	Part number	$R_{DS(on)}$ max @ $V_{GS} = 4.5$ V [mQ]	Q_g typical [nC]	
Inductive automotive	Automotive products for wireless charging	40 V	SuperSO8 5 x 6 Dual	IPG20N04S4-12A	15.5	9	
	Inverter automotive grade MOSFETs		S308 3.3 x 3.3	IPZ40N04S5L-4R8	6.7	11	
				IPZ40N04S5L-7R4	10.7	6.5	
	Automotive products for wireless charging	Voltage class	Package	Part number	$R_{DS(on)}$ max @ $V_{GS} = 4.5$ V [mQ]	$R_{DS(on)}$ max @ $V_{GS} = 10$ V [mQ]	
	Coil selection switch	60 V	TDSO8-8	IPG20N06S4L-11A	15.8	11.2	
		100 V	SuperSO8 5 x 6 Dual	IPG20N10S4L-22A	28	22	
				IPG20N10S4L-35A	45	35	
				IPG16N10S4L-61A	78	61	
	Microcontroller and wireless power controller	AURIX™ SAK-TC212S-4F100N, SAK-TC212S-8F133SC					
	Power supply	TLD5190 – buck-boost controller/TLE8366, TLS4120x, TLS203x, TLF35584 – safety MCU supply + CAN supply					
CAN	TLE7250SJ – high performance CAN transceiver						
Drivers	AUIRS2301S						

*coming soon

** $V_{GS} = 8$ V

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