



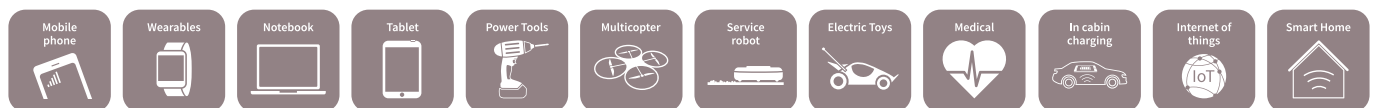
Application brief

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 OptiMOS™ driver
- > 32-bit microcontrollers – XMC™ 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 (600 V already available)
- > Dedicated automotive power products – MOSFETs, DC-DC, LDO, PMIC with ASIL qualification
- > Safety system expertise and high quality standards

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 please visit us at 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	Inverter MOSFETs	30 V	SuperSO8	BSC0996NS	11.8	Right fit
				BSC0993ND	7	Best performance
			PQFN 3.3 x 3.3	BSZ0589NS	4.4	Best performance
				BSZ0994NS	8.6	Right fit
				BSZ0909NS	15	Right fit
				BSZ097N04LS G	14.2	Right fit
			PQFN 3.3 x 3.3 Dual	BSZ0909ND	25	Best performance
				BSZ0910ND	13	Best performance
			PQFN 2 x 2	IRFHS8342PbF	25	Right fit
				IRLHS6342PbF	15.5	Best performance
	Coil selection switch	20 V 25 V 30 V	PQFN 2 x 2	IRLHS6242PbF	11.7 (=2.5 V drive capable)	Right fit
				IRFHS8242PbF	21	Right fit
				IRFHS8342PbF	25	Right fit
				IRLHS6342PbF	15.5 (=2.5 V drive capable)	Right fit
			PQFN 3.3 x 3.3	BSZ0994NS	8.6	Best performance
	BSZ0909NS	15	Right fit			
Driver IC	PX3517, PX3519 or AURIS2301S					
Microcontroller	XMC1302, XMC1402, XMC4108, XMC1402-Q040X0200 SC					

	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	Inverter 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
			SOT-23	IRLML0040pbF	62	2.8	49	Class D	
			SOT-23	IRLML0060pbF	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		
	200 V		BSZ12DN20NS3	111**	5.4**	39	Class E		
			BSZ42DN25NS3	375**	3.6**	21	Class E		
	Driver ICs	EiceDRIVER™ 2EDL71*							
		EiceDRIVER™ 1EDN and 2EDN							
	Microcontroller	XMC1302, XMC1402, XMC4108, XMC1402-Q040X0200 SC							

	Automotive products for wireless charging	Voltage class	Package	Part number	$R_{DS(on)}$ max @ $V_{GS} = 4.5$ V [mQ]	Q_g typical [nC]	
Inductive automotive	Inverter automotive grade MOSFETs	40 V	SuperSO8 5 x 6 Dual	IPG20N04S4-12A	15.5	9	
			S3O8 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	TDSON-8	IPG20N06S4L-11A	15.8	11.2	
				100 V	SuperSO8 5 x 6 Dual	IPG20N10S4L-22A	28
		IPG20N10S4L-35A	45			35	
				IPG16N10S4L-61A	78	61	
	MCU	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						

* In development
** $V_{GS} = 8$ V

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