



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# Ultimate Power – Perfect Control

Vehicle Safety, Body and Powertrain Applications



For a comprehensive and reliable portfolio of products for automotive and other applications, look no further than the product range from Infineon. We have used our 40 years of experience of developing and producing products to meet the demands of the automotive market, and our innovative technologies to design and produce a large number of power products that meet all requirements of the automotive industry and also the transportation, lighting and motor-drive industries.

Our commitment to quality is demonstrated through our focus on Automotive Excellence, the most rigorous zero defect program in the industry.

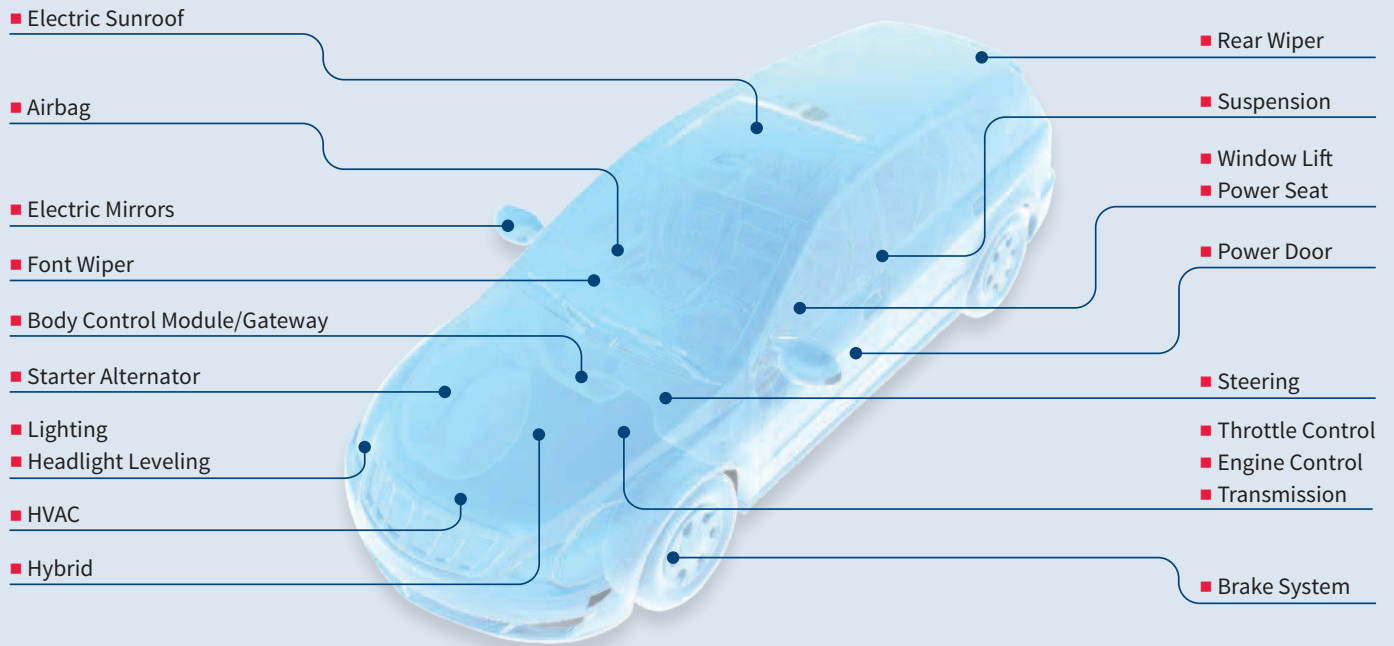
This Selection Guide provides an overview of our ICs and their packages, which are automotive qualified and available for your current and future electronic system designs.

## The ultimate power to control your applications including automotive, transportation, industrial, lighting and motor control.

### Symbols

$I_D$	DC Drain Current	$R_{thJC}$	Thermal Resistance Junction to Case
$I_{GS(TH)}$	Gate Source Threshold Current	$V_{CE}$	Collector Emitter Voltage
$I_{IS}$	Current Sense Output Current	$V_{CE(sat)}$	Saturation Collector Emitter Voltage
$I_{L(lim)}$	Load Current Limit	$V_{DS}$	Drain Source Voltage
$I_{L(NOM)}$	Load Current ( $T_a = 85^\circ\text{C}$ , specified PCB)	$V_{DS(AZ)}$	Drain Source Voltage (Active Zener)
$I_{L(sat)}$	Saturation Load Current	$V_{GS(th)}$	Gate Threshold Voltage
$I_q$	Quiescent Current	$V_Q$	Output Voltage
$I_Q$	Output Current	$V_S$	Supply Voltage
$Q_G$	Total Gate Charge	$V_{S(AZ)}$	Supply Voltage (Active Zener)
$R_{IS}$	Current Sense Resistor	$V_{S(op)}$	Operation Supply Voltage
$R_{DS(on)}$	Typical Drain Source Resistance in ON-State @ $25^\circ\text{C}$ (multiply by 2 for Max @ $150^\circ\text{C}$ )	Inverse	Normal $V_S$ Polarity and Inverse Load Current
$R_{DS(on) path}$	Typical Drain Source Resistance in ON-State @ $25^\circ\text{C}$ of both High-Side and Low-Side	PWM	Pulse Width Modulation
		Reverse	Reverse $V_S$ Polarity and Reverse Load Current

# Automotive Applications



## Automotive Power Components Used in Other Applications

Agriculture



Transportation/Navigation



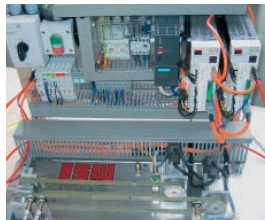
2-4 Wheeler



Lighting



Automation/Industrial



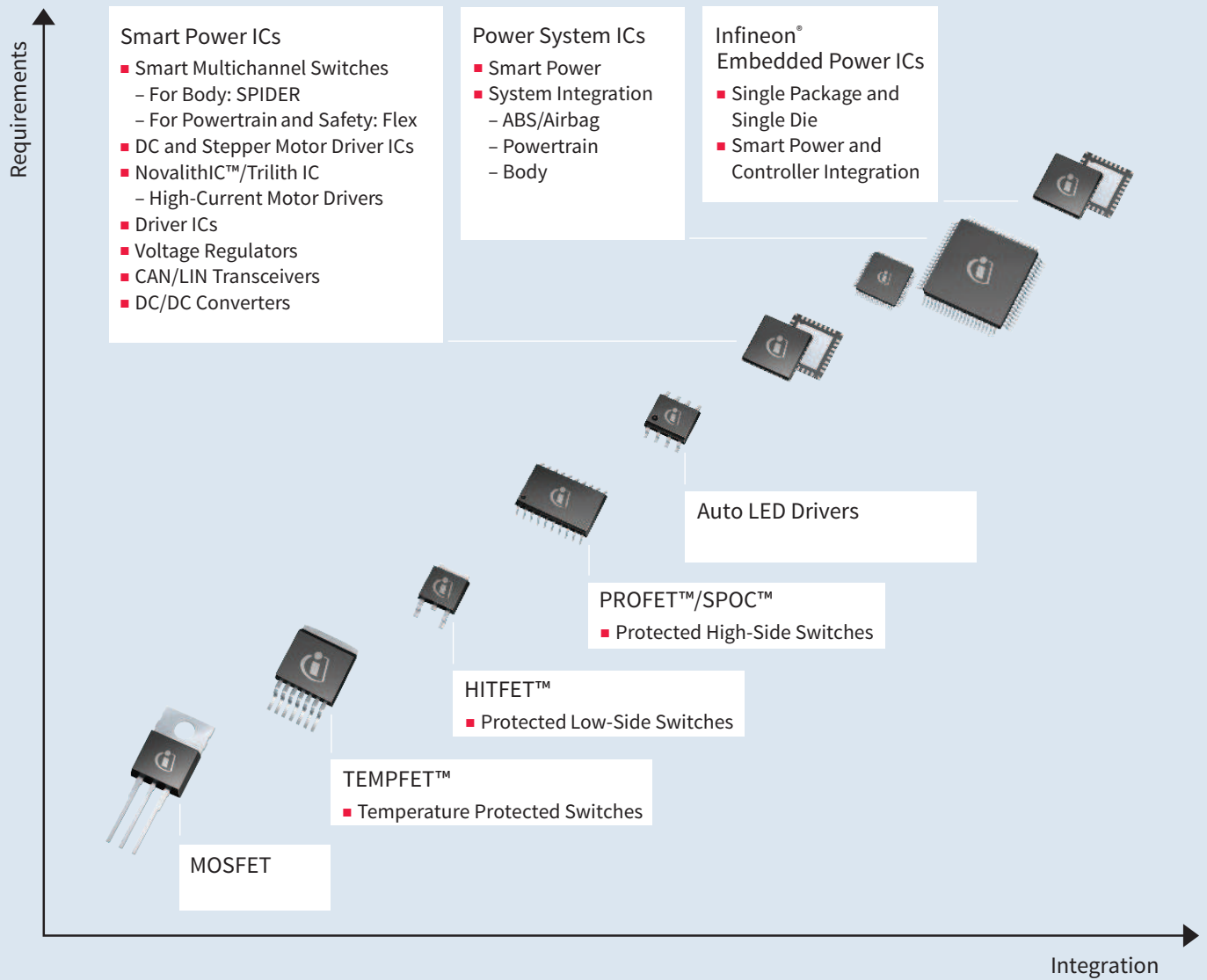
Toys/Games



Electric Tools/Home Appliance/Heating Pump



## We meet all requirements for cost-effective application solutions

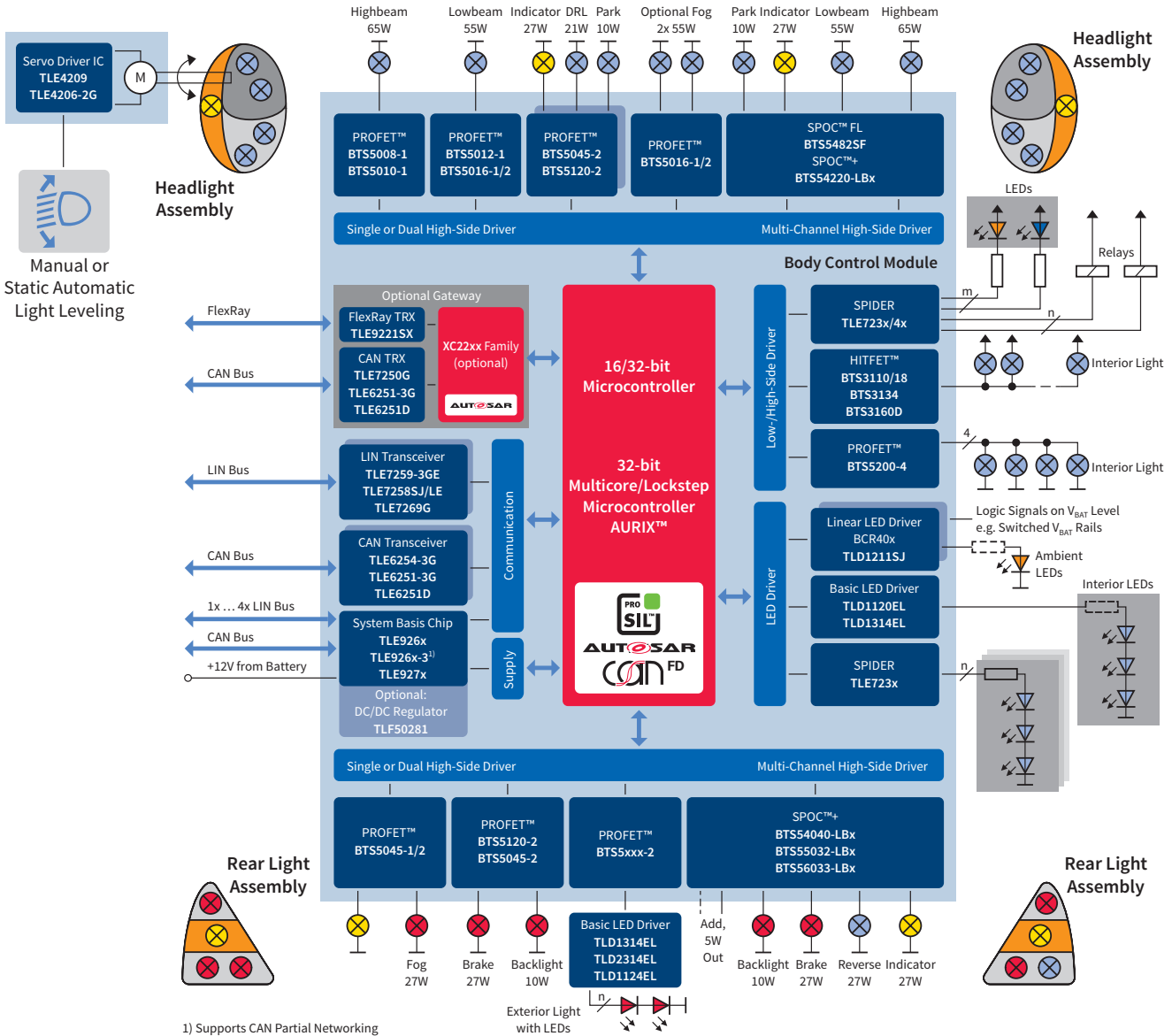


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# Body Applications

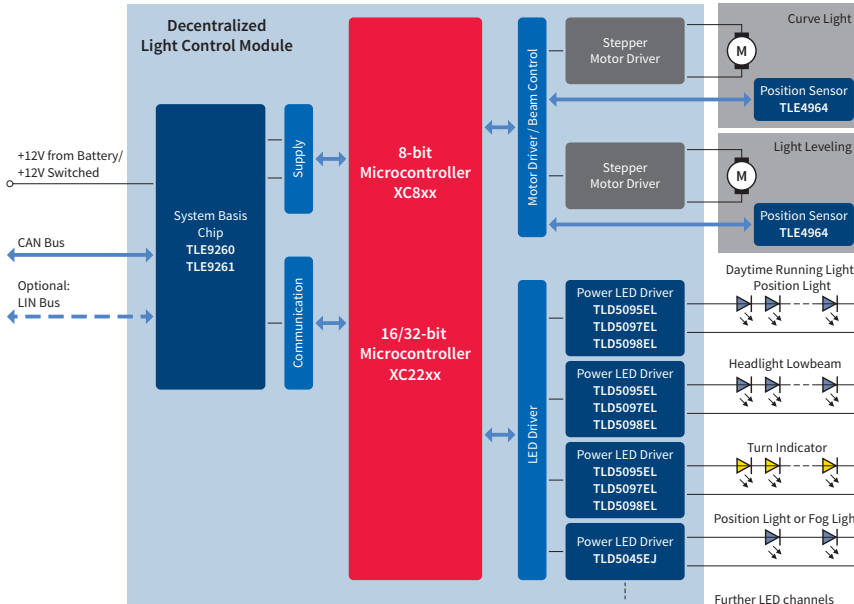
## Body Control Module



### System Benefits

- Reduced board space due to integrated functionality
- Protected load control with sophisticated diagnostic features
- Supports the “Limp Home” functional safety concept
- High scalability and benchmark short-circuit robustness of power semiconductors (PROFET™)
- Supports a smooth transition to LEDs for interior and exterior lighting

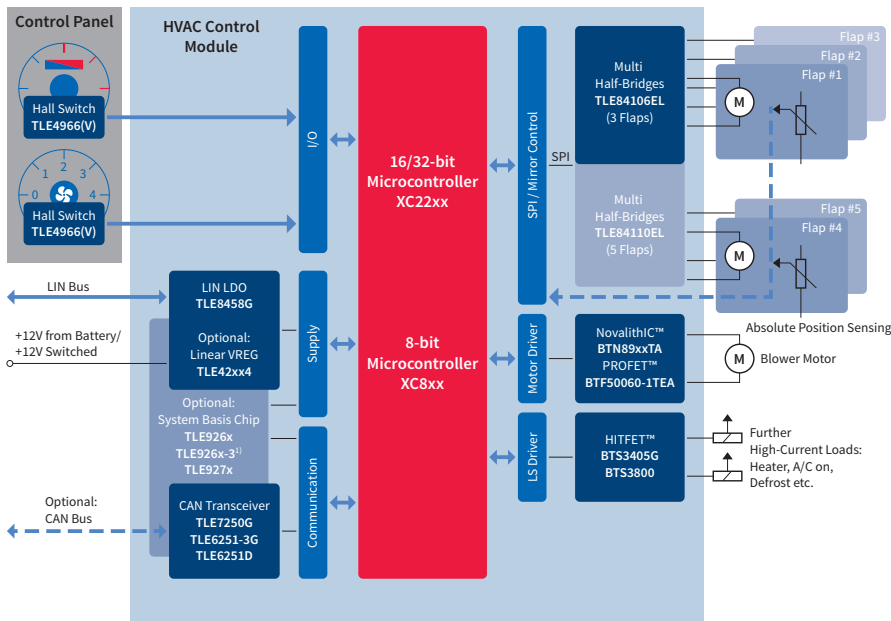
## Decentralized Front Light Module



### System Benefits

- Automotive LED drivers for high-brightness LEDs
- LED driver ICs supporting various DC/DC topologies (buck, boost, SEPIC, flyback)
- Microcontroller peripherals enable light control with a low CPU load
- System basis chips combine supply, network transceiver and supervision functions in a monolithic device

## HVAC Control Module Low to Mid-End/Manual + Semi-Automatic



### System Benefits

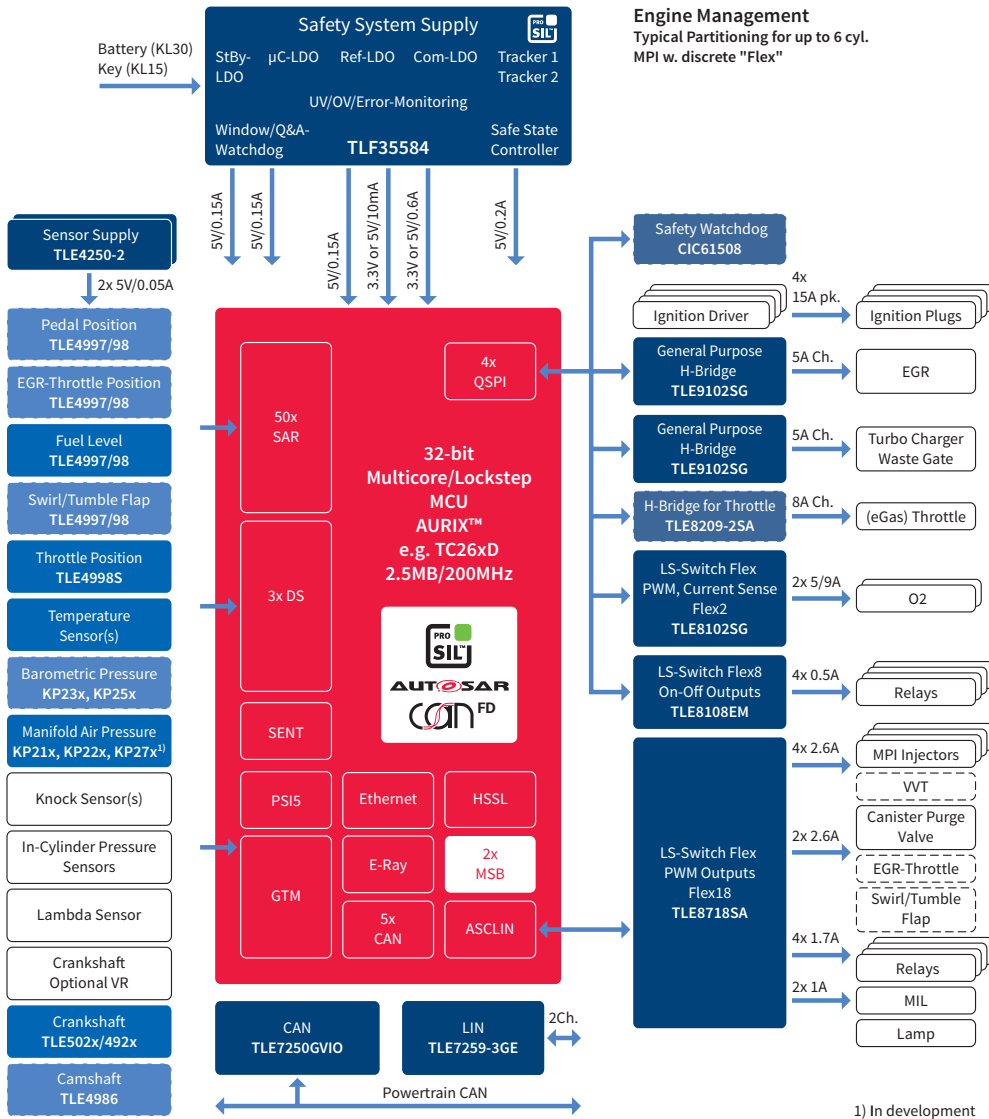
- High-performance, scalable microcontroller family for various classes of HVAC control algorithms
- Integrated motor control with diagnostics
- Dedicated multi half-bridge devices for flap motor control with potentiometer feedback
- Powerful half-bridge devices (NovalithIC™) with high-frequency PWM capability for the blower control

1) Supports CAN partial networking



# Powertrain Applications

## Gasoline Multi-Port Injection – Discrete Solution

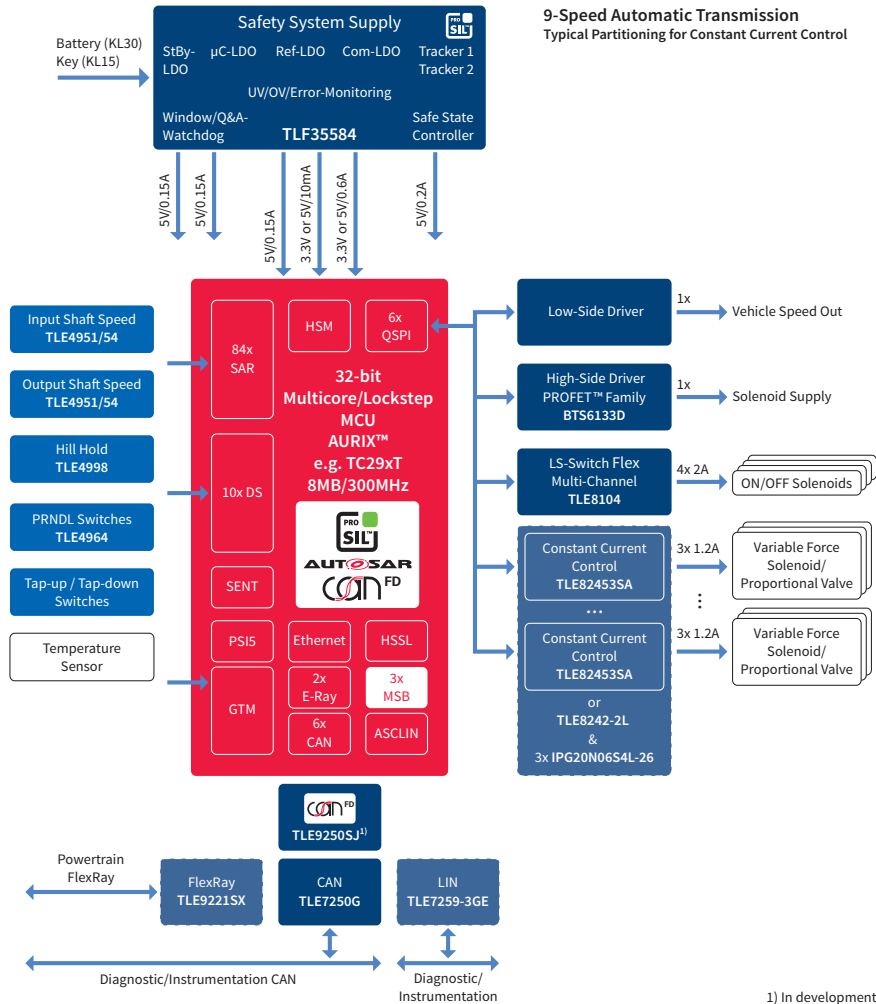


1) In development

### System Benefits

- Flexible and scalable product portfolio tailored to the cost and performance needs of the mid-end and entry segments
- Industry benchmark in embedded real-time performance facilitates pumping loss reduction, knock detection and efficient after-treatment
- Conforming with upcoming emission legislation at maximized fuel efficiency and with even more driving pleasure, the new sensor families provide enhanced measurement precision (e.g. ignition control, misfire detection)

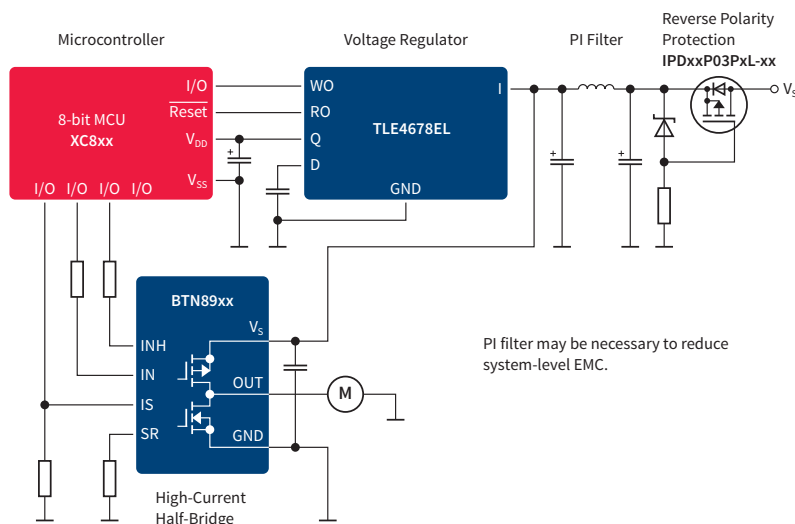
## Automatic Transmission – Hydraulic Control



### System Benefits

- Full range of products ranging from voltage regulators, transceivers, sensors, microcontrollers and smart power drivers
- Valve actuator ICs supporting highest precision current control
- Optimized sensors providing enhanced disturbance immunity (e.g. vibration) and direction detection
- High-temperature bare die IC supporting integrated transmission control up to the highest torque rate

## Fuel Pump

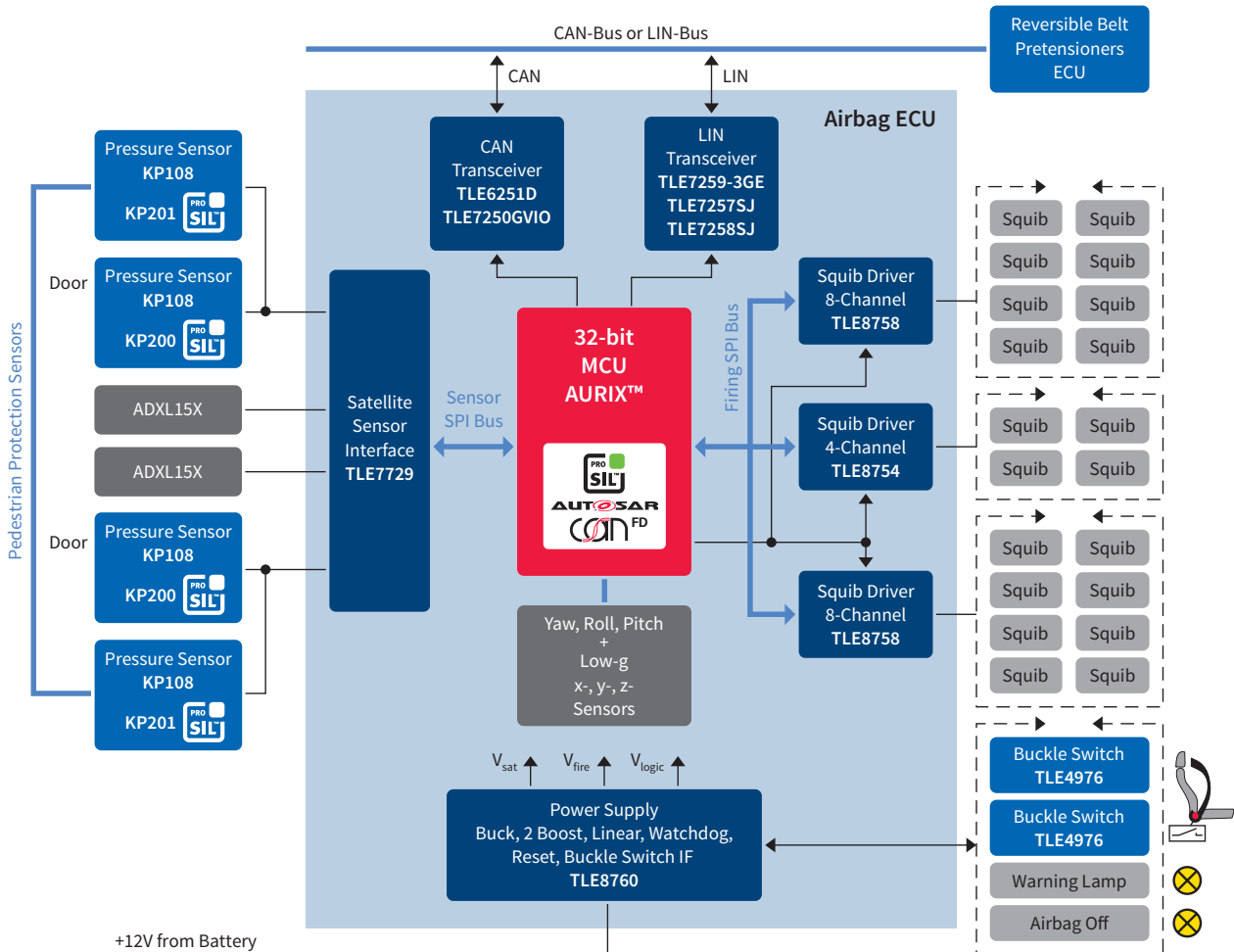


### System Benefits

- Large and scalable product portfolio tailored to performance & budget needs
- Fuel saving of > 1% compared to mechanical solution
- Lower hydrocarbon emissions
- Increased lifetime

# Safety Applications

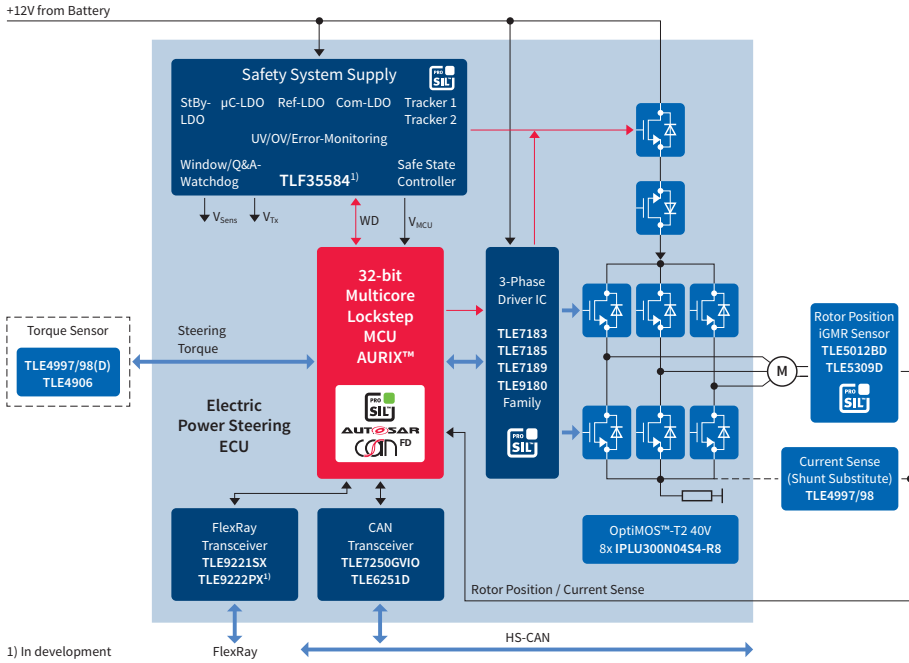
## Airbag System



### System Benefits

- Airbag systems are standard in most cars and are mandatory equipment in many countries, saving thousands of lives
- Infineon’s broad product spectrum supports scalability and flexibility for building systems from 4 to over 20 firing loops
- Full range of airbag ASSPs ranging from pressure sensors for side crash detection to driver and transceiver ICs
- High performance 32-bit AURIX™ MCU family with dedicated safety enables integration of multiple functions
- The parts are optimized in terms of system interoperability as well as best price-performance ratio
- This systems are mandatory to achieve highest possible scores in the various “New Car Assessment Programs” (NCAP) throughout the world and are even legislated in some countries

## Electric Power Steering (EPS)

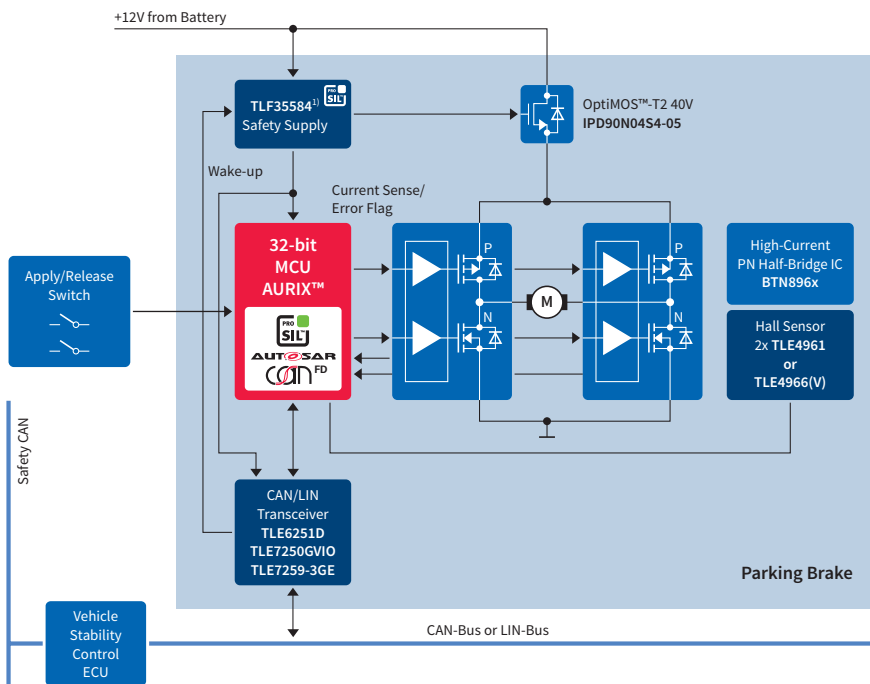


1) In development

### System Benefits

- Electric Power Steering (EPS) improves fuel efficiency by approximately 3% while having a positive effect on car handling, the overall driving experience and comfort
- It combines a compact design with reduced mounting costs
- EPS can be adapted via software to suit diverse car models as well as dedicated driving modes
- EPS is the steering technology needed to enable advanced driver assistance systems such as side-wind compensation, lane assist/keeping and parking assistance systems
- Infineon has over ten years of experience in this exciting application and provides the full range of ICs, from sensors to microcontrollers, and from bridge drivers to world-class MOSFETs

## Electric Parking Brake



1) In development

### System Benefits

- The electric parking brake provides drivers with many more comfort and convenience features than the standard mechanical system
- Hill hold, launch control, roll-away prevention are possible
- These convenience features are in many cases safety-relevant and therefore should be implemented using safety-compliant hardware (according ISO 26262)

# Automotive MOSFETs

## Infinion OptiMOS™ – Benchmark for Automotive MOSFETs

### OptiMOS™ Products are Best in Class

OptiMOS™ superior performance is based on Infineon's leading MOSFET technology combined with the unsurpassed quality of robust package:

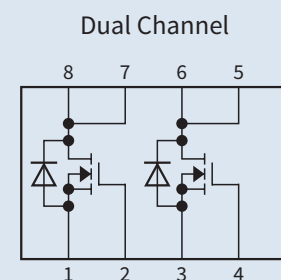
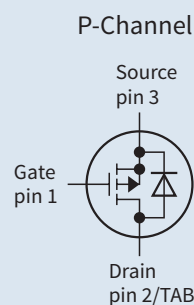
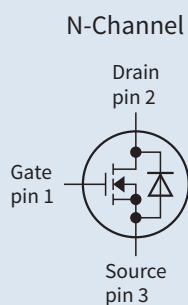
- Best in class  $R_{DS(on)}$  performance for increased system efficiency
- Lowest switching and conduction power losses for increased thermal system reliability
- Robust green package for easy process handling

### OptiMOS™ Robust Green Package

OptiMOS™ robust package is the benchmark for quality and reliability. Robust package sustains 260°C GREEN reflow processes at MSL1 combined with automotive qualification. No special handling or dry-pack is needed. All green packages are in compliance with RoHS/WEEE guidelines.

### OptiMOS™-T2 Product Family

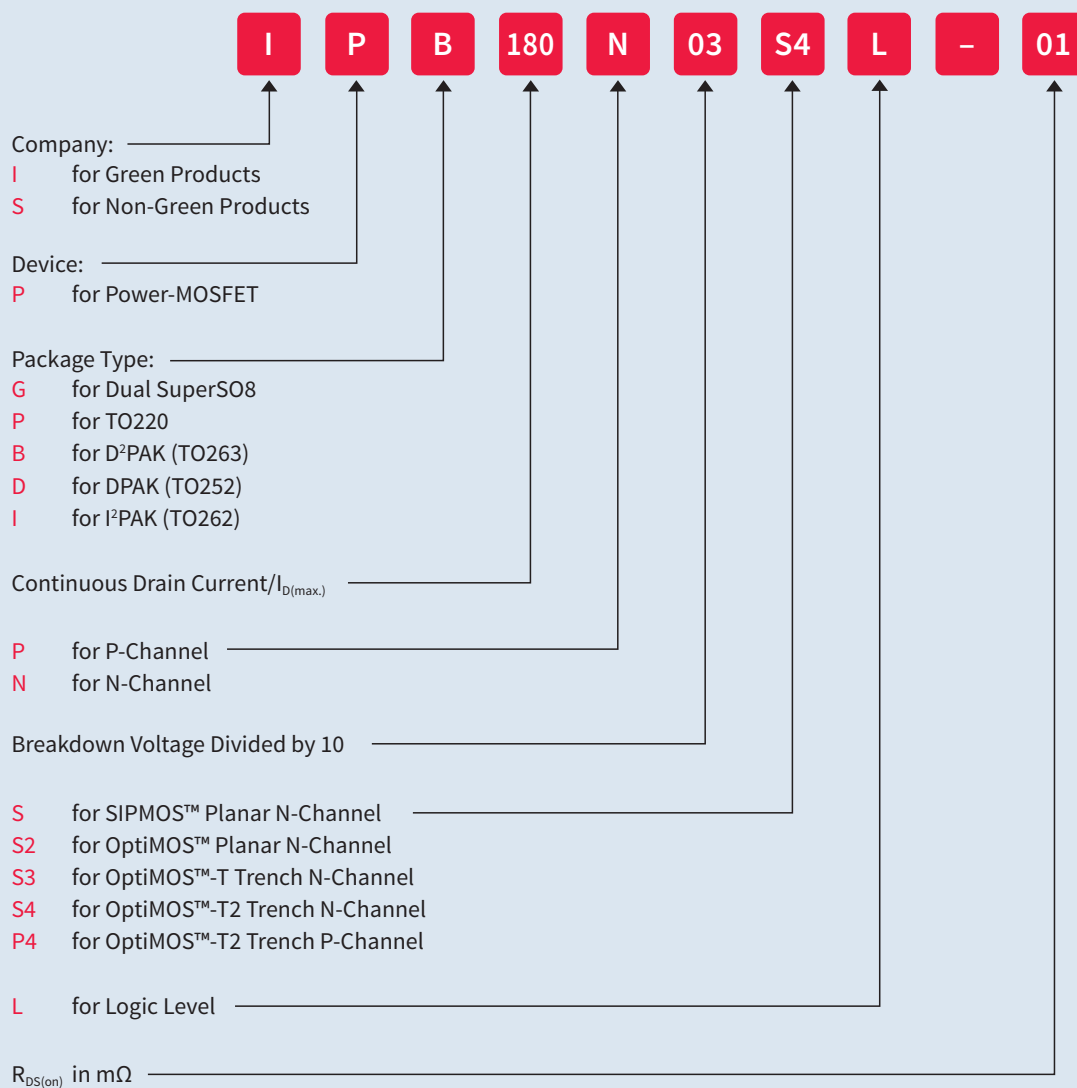
OptiMOS™-T2 trench technology is the benchmark for applications in energy efficiency, CO<sub>2</sub> reduction, electric drives, etc.. The OptiMOS™-T2 product family extends the existing family of OptiMOS™.



		Voltage Class [V]	OptiMOS™-T2 (Trench)	OptiMOS™-T (Trench)	OptiMOS™ (Planar)
<b>Single MOSFET</b>					
N-Channel		30	•		•
N-Channel		40	•		•
N-Channel		55			•
N-Channel		60	•		
N-Channel		75	•		•
N-Channel	NEW!	80	•		
N-Channel		100	•	•	
N-Channel		250		•	
P-Channel		30	•		
P-Channel		40	•		
<b>Dual MOSFET</b>					
Dual N-Channel	NEW!	2 x 40	•		
Dual N-Channel		2 x 55			•
Dual N-Channel	NEW!	2 x 60	•		
Dual N-Channel	NEW!	2 x 100	•		
<b>TWIN MOSFET</b>					
TWIN N-Channel	NEW!	2 x 40	•		



## Naming System



- MOSFETs
- TEMPFET™  
HITFET™
- Smart  
Multichannel  
Switches
- PROFET™
- SPOC™\_SPI Power  
Controller
- LED Drivers
- Motor Drivers
- Power Supply
- Automotive  
System ICs
- Automotive  
System ICs
- Glossary

# Automotive N-Channel MOSFETs

## OptiMOS™ 30V (Planar)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{thJC} (max)$ [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPD50N03S2L-06	6.4	50	1.1	1.2 ... 2.0	50	Ⓒ2
IPD30N03S2L-07	6.7	30	1.1	1.2 ... 2.0	51	Ⓒ2
IPD50N03S2-07	7.3	50	1.1	2.1 ... 4.0	52	Ⓒ2
IPD30N03S2L-10	10.0	30	1.5	1.2 ... 2.0	31	Ⓒ2
IPD30N03S2L-20	20.0	30	2.5	1.2 ... 2.0	14	Ⓒ2

## OptiMOS™ 40V (Planar)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{thJC} (max)$ [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPB160N04S2L-03	2.7	160	0.5	1.2 ... 2.0	230	Ⓒ8
IPB160N04S2-03	2.9	160	0.5	2.1 ... 4.0	123	Ⓒ8
IPB100N04S2L-03	3.0	100	0.5	1.2 ... 2.0	170	Ⓒ4
IPB100N04S2-04	3.3	100	0.5	2.1 ... 4.0	172	Ⓒ4
IPB80N04S2L-03	3.4	80	0.5	1.2 ... 2.0	170	Ⓒ4
IPB80N04S2-04	3.4	80	0.5	2.1 ... 4.0	127	Ⓒ4
IPB80N04S2-H4	3.7	80	0.5	2.1 ... 4.0	103	Ⓒ4
IPI80N04S2-04	3.7	80	0.5	2.1 ... 4.0	170	Ⓒ9
IPI80N04S2-H4	4.0	80	0.5	2.1 ... 4.0	148	Ⓒ9
IPP100N04S2L-03	3.3	100	0.5	1.2 ... 2.0	163	Ⓒ2
IPP80N04S2L-03	3.4	80	0.5	1.2 ... 2.0	163	Ⓒ2
IPP100N04S2-04	3.6	100	0.5	2.1 ... 4.0	172	Ⓒ2
IPP80N04S2-04	3.7	80	0.5	2.1 ... 4.0	127	Ⓒ2
IPP80N04S2-H4	4.0	80	0.5	2.1 ... 4.0	103	Ⓒ2

## OptiMOS™ 55V (Planar)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{thJC} (max)$ [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPD50N06S2L-13	12.7	50	1.1	1.2 ... 2.0	52	Ⓒ2
IPD30N06S2L-13	13.0	30	1.1	1.2 ... 2.0	52	Ⓒ2
IPD50N06S2-14	14.4	50	1.1	2.1 ... 4.0	39	Ⓒ2
IPD30N06S2-15	14.7	30	1.1	1.2 ... 2.0	39	Ⓒ2
IPD30N06S2L-23	23.0	30	1.5	1.2 ... 2.0	33	Ⓒ2
IPD30N06S2-23	23.0	30	1.5	2.1 ... 4.0	25	Ⓒ2
IPD26N06S2L-35	35.0	30	2.2	1.2 ... 2.0	10	Ⓒ2
IPD25N06S2-40	40.0	29	2.2	2.1 ... 4.0	14	Ⓒ2
IPD15N06S2L-64	64.0	19	3.2	1.2 ... 2.0	11	Ⓒ2
IPD14N06S2-80	80.0	17	3.2	2.1 ... 4.0	8	Ⓒ2
IPB100N06S2L-05	4.4	100	0.5	1.2 ... 2.0	170	Ⓒ4
IPB80N06S2L-05	4.5	80	0.5	1.2 ... 2.0	170	Ⓒ4
IPB100N06S2-05	4.7	100	0.5	2.1 ... 4.0	130	Ⓒ4
IPB80N06S2L-H5	4.7	80	0.5	1.2 ... 2.0	145	Ⓒ4
IPB80N06S2-05	4.8	80	0.5	2.1 ... 4.0	130	Ⓒ4
IPB80N06S2-H5	5.2	80	0.5	2.1 ... 4.0	116	Ⓒ4
IPB80N06S2L-06	6.0	80	0.6	1.2 ... 2.0	114	Ⓒ4
IPB80N06S2-07	6.3	80	0.6	2.1 ... 4.0	86	Ⓒ4
IPB80N06S2L-07	6.7	80	0.7	1.2 ... 2.0	95	Ⓒ4
IPB80N06S2-08	7.7	80	0.7	2.1 ... 4.0	72	Ⓒ4

1) See packages on page 112

## OptiMOS™ 55V (Planar) (cont'd)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{th,jc}$ (max) [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPB80N06S2L-09	8.2	80	0.8	1.2 ... 2.0	82	(34)
IPB80N06S2-09	8.8	80	0.8	2.1 ... 4.0	60	(34)
IPB80N06S2L-11	10.7	80	0.95	1.2 ... 2.0	62	(34)
IPB77N06S2-12	11.7	77	0.95	2.1 ... 4.0	45	(34)
IPI80N06S2L-05	4.8	80	0.5	1.2 ... 2.0	170	(59)
IPI80N06S2-07	6.6	80	0.6	2.1 ... 4.0	86	(59)
IPI80N06S2-08	8.0	80	0.7	2.1 ... 4.0	72	(59)
IPI80N06S2L-11	11.0	80	0.95	1.2 ... 2.0	62	(59)
BSP603S2L	33.0	5.2	20.0	1.2 ... 2.0	31	(23)
IPP100N06S2L-05	4.7	100	0.5	1.2 ... 2.0	170	(52)
IPP80N06S2L-05	4.8	80	0.5	1.2 ... 2.0	170	(52)
IPP100N06S2-05	5.0	100	0.5	2.1 ... 4.0	130	(52)
IPP80N06S2L-H5	5.0	80	0.5	1.2 ... 2.0	145	(52)
IPP80N06S2-05	5.1	80	0.5	2.1 ... 4.0	130	(52)
IPP80N06S2-H5	5.5	80	0.5	2.1 ... 4.0	116	(52)
IPP80N06S2L-06	6.3	80	0.6	1.2 ... 2.0	114	(52)
IPP80N06S2-07	6.6	80	0.6	2.1 ... 4.0	86	(52)
IPP80N06S2L-07	7.0	80	0.7	1.2 ... 2.0	95	(52)
IPP80N06S2-08	8.0	80	0.7	2.1 ... 4.0	72	(52)
IPP80N06S2L-09	8.5	80	0.8	1.2 ... 2.0	82	(52)
IPP80N06S2-09	9.1	80	0.8	2.1 ... 4.0	60	(52)
IPP80N06S2L-11	11.0	80	0.95	1.2 ... 2.0	62	(52)
IPP77N06S2-12	12.0	77	0.95	2.1 ... 4.0	45	(52)

## OptiMOS™ 75V (Planar)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{th,jc}$ (max) [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPD30N08S2L-21	20.5	30	1.1	2.1 ... 4.0	43	(32)
IPD30N08S2-22	21.5	30	1.1	2.1 ... 4.0	44	(32)
IPD22N08S2L-50	50.0	22	2.0	1.2 ... 2.0	21	(32)
IPB100N08S2L-07	6.5	100	0.5	1.2 ... 2.0	185	(34)
IPB100N08S2-07	6.8	100	0.5	2.1 ... 4.0	153	(34)
IPB80N08S2L-07	6.8	80	0.5	1.2 ... 2.0	186	(34)
IPB80N08S2-07	7.1	80	0.5	2.1 ... 4.0	182	(34)
IPI100N08S2-07	7.1	100	0.5	2.1 ... 4.0	144	(59)
IPI80N08S2-07	7.4	80	0.5	2.1 ... 4.0	144	(59)
IPP100N08S2L-07	6.8	100	0.5	1.2 ... 2.0	182	(52)
IPP100N08S2-07	7.1	100	0.5	2.1 ... 4.0	144	(59)
IPP80N08S2L-07	7.1	80	0.5	1.2 ... 2.0	183	(52)
IPP80N08S2-07	7.4	80	0.5	2.1 ... 4.0	144	(59)

1) See packages on page 112



# Automotive N-Channel MOSFETs

## OptiMOS™-T 100V (Trench)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{thJC} (max)$ [K/W]	$V_{GS(th)} (min-max)$ [V]	$Q_G (typ)$ [nC]	Package <sup>1)</sup>
IPB100N10S3-05 <sup>2)</sup>	4.8	100	0.5	2.0 ... 4.0	135	Ⓒ34
IPB70N10S3-12	11.3	70	1.2	2.0 ... 4.0	51	Ⓒ34
IPB70N10S3L-12	11.8	70	1.2	1.2 ... 2.4	60	Ⓒ34
IPB50N10S3L-16	15.4	70	1.5	1.2 ... 2.4	49	Ⓒ34
IPB35N10S3L-26	26.3	35	2.1	1.2 ... 2.4	30	Ⓒ34
IPD70N10S3-12 <sup>2)</sup>	11.1	70	1.2	2.0 ... 4.0	51	Ⓒ32
IPD70N10S3L-12 <sup>2)</sup>	11.5	70	1.2	1.2 ... 2.4	60	Ⓒ32
IPD50N10S3L-16 <sup>2)</sup>	15.0	50	1.5	1.2 ... 2.4	49	Ⓒ32
IPD35N10S3L-26	24.0	35	2.1	1.2 ... 2.4	39	Ⓒ32
IPD30N10S3L-34	31.0	30	2.6	1.2 ... 2.4	24	Ⓒ32
IPI100N10S3-05 <sup>2)</sup>	5.1	100	0.5	2.0 ... 4.0	135	Ⓒ39
IPI70N10S3-12	11.6	70	1.2	2.0 ... 4.0	51	Ⓒ39
IPI70N10S3L-12	12.1	70	1.2	1.2 ... 2.4	60	Ⓒ39
IPI50N10S3L-16	15.7	50	1.5	1.2 ... 2.4	49	Ⓒ39
IPP100N10S3-05 <sup>2)</sup>	5.1	100	0.5	2.0 ... 4.0	135	Ⓒ52
IPP70N10S3-12	12.1	70	1.2	2.0 ... 4.0	51	Ⓒ52
IPP70N10S3L-12	12.1	70	1.2	1.2 ... 2.4	60	Ⓒ52
IPP50N10S3L-16	15.7	50	1.5	1.2 ... 2.4	49	Ⓒ52

## OptiMOS™-T 250V (Trench)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{thJC} (max)$ [K/W]	$V_{GS(th)} (min-max)$ [V]	$Q_G (typ)$ [nC]	Package <sup>1)</sup>
IPD5N25S3-430	430	5	3.7	2.0 ... 4.0	1.5	Ⓒ32
IPB64N25S3-20	20	64	0.5	2.0 ... 4.0	67	Ⓒ34
IPB17N25S3-100	100	17	1.4	2.0 ... 4.0	5	Ⓒ34
IPP17N25S3-100	100	17	1.4	2.0 ... 4.0	5	Ⓒ52

1) See packages on page 112

2) Not for new design

## OptiMOS™-T2 30V (Trench)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{thJC} (max)$ [K/W]	$V_{GS(th)} (min-max)$ [V]	$Q_G (typ)$ [nC]	Package <sup>1)</sup>
IPD90N03S4L-02	2.2	90	1.1	1.0 ... 2.2	110	(32)
IPD90N03S4L-03	3.3	90	1.6	1.0 ... 2.2	60	(32)
IPD70N03S4L-04	4.3	70	2.2	1.0 ... 2.2	37	(32)
IPD50N03S4L-06	5.5	50	2.7	1.0 ... 2.2	24	(32)
IPD40N03S4L-08	8.0	40	3.6	1.0 ... 2.2	15	(32)
IPD30N03S4L-09	9.0	30	3.6	1.0 ... 2.2	15	(32)
IPD30N03S4L-14	13.6	30	4.9	1.0 ... 2.2	11	(32)
IPB240N03S4L-R9 <sup>2)</sup> <b>NEW!</b>	0.9	240	0.7	1.0 ... 2.2	230	(38)
IPB240N03S4L-R8 <sup>2)</sup> <b>NEW!</b>	0.8	240	0.5	1.0 ... 2.2	290	(38)
IPB180N03S4L-H0	1.0	180	0.6	1.0 ... 2.2	230	(38)
IPB180N03S4L-01	1.1	180	0.8	1.0 ... 2.2	187	(38)
IPB120N03S4L-03 <sup>3)</sup> <b>NEW!</b>	3.0	120	1.9	1.0 ... 2.2	55	(34)
IPB80N03S4L-02	2.4	80	1.1	1.0 ... 2.2	110	(34)
IPB80N03S4L-03	3.4	80	1.6	1.0 ... 2.2	60	(34)
IPB22N03S4L-15	14.6	22	4.9	1.0 ... 2.2	11	(34)
IPI80N03S4L-03	2.7	80	1.1	1.0 ... 2.2	110	(59)
IPI80N03S4L-04	3.6	80	1.6	1.0 ... 2.2	60	(59)
IPI22N03S4L-15	14.9	22	4.9	1.0 ... 2.2	11	(59)
IPP80N03S4L-03	2.7	80	1.1	1.0 ... 2.2	110	(52)
IPP80N03S4L-04	3.7	80	1.6	1.0 ... 2.2	60	(52)
IPP22N03S4L-15	14.9	22	4.9	1.0 ... 2.2	11	(52)

## OptiMOS™-T2 40V (Trench)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{thJC} (max)$ [K/W]	$V_{GS(th)} (min-max)$ [V]	$Q_G (typ)$ [nC]	Package <sup>1)</sup>
IPLU300N04S4-R8 <b>NEW!</b>	0.8	300	0.4	2.0 ... 4.0	221	(15)
IPLU300N04S4-1R1 <sup>3)</sup> <b>NEW!</b>	1.2	300	0.5	2.0 ... 4.0	116	(15)
IPLU300N04S4-1R7 <sup>3)</sup> <b>NEW!</b>	1.7	300	0.8	2.0 ... 4.0	76	(15)
IPD100N04S4-02	2.0	100	1.0	2.0 ... 4.0	91	(32)
IPD90N04S4-02	2.4	90	1.0	2.0 ... 4.0	91	(32)
IPD90N04S4-03	3.2	90	1.6	2.0 ... 4.0	51	(32)
IPD90N04S4L-04	3.8	90	2.1	1.2 ... 2.0	46	(32)
IPD90N04S4-04	4.1	90	2.1	2.0 ... 4.0	33	(32)
IPD90N04S4-05	5.2	90	2.3	2.0 ... 4.0	33	(32)
IPD75N04S4-06	5.9	75	2.6	2.0 ... 4.0	24.5	(32)
IPD50N04S4L-08	7.3	50	3.3	1.2 ... 2.0	23	(32)
IPD50N04S4-08	7.9	50	3.3	2.0 ... 4.0	17.2	(32)
IPD50N04S4-10	9.3	50	3.7	2.0 ... 4.0	14	(32)
IPB240N04S4-R9 <sup>2)</sup> <b>NEW!</b>	0.9	240	0.5	2.0 ... 4.0	220	(38)
IPB240N04S4-1R0 <sup>2)</sup> <b>NEW!</b>	1.0	240	0.7	2.0 ... 4.0	170	(38)
IPB180N04S4L-H0 <b>NEW!</b>	1.0	180	0.6	1.2 ... 2.2	239	(38)
IPB180N04S4-00	1.0	180	0.5	2.0 ... 4.0	220	(38)
IPB180N04S4-H0	1.1	180	0.6	2.0 ... 4.0	173	(38)

1) See packages on page 112

2) Coming Q4/2014

3) Coming Q2/2015

# Automotive N-Channel MOSFETs

## OptiMOS™-T2 40V (Trench) (cont'd)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{th,jc}$ (max) [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPB180N04S4-01	1.3	180	0.8	2.0 ... 4.0	135	(36)
IPB180N04S4L-01 <b>NEW!</b>	1.2	180	0.8	1.2 ... 2.0	188	(36)
IPB160N04S4-H1	1.6	160	0.9	2.0 ... 4.0	105	(34)
IPB160N04S4L-H1 <b>NEW!</b>	1.5	160	0.9	1.2 ... 2.2	146	(36)
IPB120N04S4L-02 <b>NEW!</b>	1.7	120	1.0	1.2 ... 2.2	143	(34)
IPB120N04S4-04 <sup>2)</sup> <b>NEW!</b>	3.6	120	1.9	2.0 ... 4.0	42	(34)
IPB120N04S4-02	1.8	120	1.0	2.0 ... 4.0	103	(34)
IPB90N04S4-02	2.1	90	1.0	2.0 ... 4.0	91	(34)
IPB100N04S4-H2	2.4	100	1.3	2.0 ... 4.0	70	(34)
IPB80N04S4-03	3.3	80	1.6	2.0 ... 4.0	51	(34)
IPB80N04S4L-04	4.0	80	2.1	1.2 ... 2.0	46	(34)
IPB80N04S4-04	4.2	80	2.1	2.0 ... 4.0	33	(34)
IPB70N04S4-06	6.2	70	2.6	2.0 ... 4.0	24.5	(34)
IPB45N04S4L-08	7.6	45	3.3	1.2 ... 2.0	23	(34)
IPI120N04S4-01	1.9	120	0.8	2.0 ... 4.0	135	(59)
IPI120N04S4-02	2.1	120	0.95	2.0 ... 4.0	103	(59)
IPI90N04S4-02	2.5	90	1.0	2.0 ... 4.0	91	(59)
IPI100N04S4-H2	2.7	100	1.3	2.0 ... 4.0	70	(59)
IPI80N04S4-03	3.7	80	1.6	2.0 ... 4.0	51	(59)
IPI80N04S4L-04	4.3	80	2.1	1.2 ... 2.0	46	(59)
IPI80N04S4-04	4.6	80	2.1	2.0 ... 4.0	33	(59)
IPI70N04S4-06	6.5	70	2.6	2.0 ... 4.0	24.5	(59)
IPI45N04S4L-08	7.6	45	3.3	1.2 ... 2.0	23	(59)
IPP120N04S4-01	1.9	120	0.8	2.0 ... 4.0	135	(52)
IPP120N04S4-02	2.1	120	1.0	2.0 ... 4.0	103	(52)
IPP90N04S4-02	2.5	90	1.0	2.0 ... 4.0	91	(52)
IPP100N04S4-H2	2.7	100	1.3	2.0 ... 4.0	70	(52)
IPP80N04S4-03	3.7	80	1.6	2.0 ... 4.0	51	(52)
IPP80N04S4L-04	4.3	80	2.1	1.2 ... 2.0	46	(52)
IPP80N04S4-04	4.6	80	2.1	2.0 ... 4.0	33	(52)
IPP70N04S4-06	6.5	70	2.6	2.0 ... 4.0	24.5	(52)
IPP45N04S4L-08	7.6	45	3.3	1.2 ... 2.0	23	(52)
IPC100N04S4-02 <sup>3)</sup>	2.4	100	1.0	2.0 ... 4.0	79	(43)
IPC80N04S4-03 <sup>3)</sup>	3.3	80	1.5	2.0 ... 4.0	55	(43)
IPC60N04S4-06 <sup>3)</sup>	6.0	60	2.4	2.0 ... 4.0	25	(43)
IPC60N04S4L-06 <sup>3)</sup>	5.6	60	2.4	1.2 ... 2.2	35	(43)

1) See packages on page 112

2) Coming Q4/2014

3) Coming Q1/2015

## OptiMOS™-T2 60V (Trench)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{th,jc}$ (max) [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPD100N06S4-03	3.5	100	1.0	2.0 ... 4.0	99.0	(32)
IPD90N06S4L-03	3.5	90	1.0	1.2 ... 2.0	133.0	(32)
IPD90N06S4-04	3.8	90	1.0	2.0 ... 4.0	99.0	(32)
IPD90N06S4L-05	4.6	90	1.4	1.2 ... 2.0	83.0	(32)
IPD90N06S4-05	5.1	90	1.4	2.0 ... 4.0	62.0	(32)
IPD90N06S4L-06	6.3	90	1.9	1.2 ... 2.0	58.0	(32)
IPD90N06S4-07	6.9	90	1.9	2.0 ... 4.0	43.0	(32)
IPD50N06S4L-08	7.8	50	2.1	1.2 ... 2.0	49.0	(32)
IPD50N06S4-09	9.0	50	2.1	2.0 ... 4.0	36.0	(32)
IPD50N06S4L-12	12.0	50	3.0	1.2 ... 2.0	30.0	(32)
IPD30N06S4L-23	23.0	30	4.2	1.2 ... 2.0	16.1	(32)
IPD25N06S4L-30	30.0	25	5.1	1.2 ... 2.0	12.5	(32)
IPB180N06S4-H1	1.7	180	0.6	2.0 ... 4.0	208	(38)
IPB120N06S4-H1	2.0	120	0.6	2.0 ... 4.0	208	(34)
IPB120N06S4-02	2.4	120	0.8	2.0 ... 4.0	150	(34)
IPB120N06S4-03	2.8	120	0.9	2.0 ... 4.0	125	(34)
IPB90N06S4L-04	3.4	90	1.0	1.2 ... 2.0	133	(34)
IPB90N06S4-04	3.7	90	1.0	2.0 ... 4.0	99	(34)
IPB80N06S4L-05	4.8	80	1.4	1.2 ... 2.0	83	(34)
IPB80N06S4-05	5.4	80	1.4	2.0 ... 4.0	62	(34)
IPB80N06S4-07	5.4	80	1.4	2.0 ... 4.0	62	(34)
IPB80N06S4L-07	6.4	80	1.9	1.2 ... 2.0	58	(34)
IPB45N06S4L-08	7.9	45	2.1	1.2 ... 2.0	49	(34)
IPB45N06S4-09	9.1	45	2.1	2.0 ... 4.0	36	(34)
IPI120N06S4-H1	2.4	120	0.6	2.0 ... 4.0	208	(59)
IPI120N06S4-02	2.8	120	0.8	2.0 ... 4.0	150	(59)
IPI120N06S4-03	3.2	120	0.9	2.0 ... 4.0	125	(59)
IPI90N06S4L-04	3.4	90	1.0	1.2 ... 2.0	133	(59)
IPI90N06S4-04	4.0	90	1.0	2.0 ... 4.0	99	(59)
IPI80N06S4L-05	4.8	80	1.4	1.2 ... 2.0	83	(59)
IPI80N06S4-05	5.4	80	1.4	2.0 ... 4.0	62	(59)
IPI80N06S4L-07	6.4	80	1.9	1.2 ... 2.0	58	(59)
IPI80N06S4-07	7.1	80	1.9	2.0 ... 4.0	43	(59)
IPI45N06S4L-08	8.2	45	2.1	1.2 ... 2.0	49	(59)
IPI45N06S4-09	9.1	45	2.1	2.0 ... 4.0	36	(59)
IPP120N06S4-H1	2.4	120	0.6	2.0 ... 4.0	208	(52)
IPP120N06S4-02	2.8	120	0.8	2.0 ... 4.0	150	(52)
IPP120N06S4-03	3.2	120	0.9	2.0 ... 4.0	125	(52)
IPP90N06S4L-04	3.4	90	1.0	1.2 ... 2.0	133	(52)
IPP90N06S4-04	3.7	90	1.0	2.0 ... 4.0	99	(52)
IPP80N06S4L-05	4.8	80	1.4	1.2 ... 2.0	83	(52)
IPP80N06S4-05	5.4	80	1.4	2.0 ... 4.0	62	(52)
IPP80N06S4L-07	6.4	80	1.9	1.2 ... 2.0	58	(52)
IPP80N06S4-07	7.1	80	1.9	2.0 ... 4.0	43	(52)
IPP45N06S4L-08	8.2	45	2.1	1.2 ... 2.0	49	(52)
IPP45N06S4-09	9.1	45	2.1	2.0 ... 4.0	36	(52)

1) See packages on page 112

# Automotive N-Channel MOSFETs

## OptiMOS™-T2 80V (Trench)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{th(jc)}$ (max) [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPD90N08S4-05 <b>NEW!</b>	5.3	90	1.0	2.0 ... 4.0	68	(32)
IPD50N08S4-13 <b>NEW!</b>	13.2	50	2.1	2.0 ... 4.0	30	(32)
IPB180N08S4-02 <b>NEW!</b>	2.2	180	0.5	2.0 ... 4.0	167	(38)
IPB160N08S4-03 <b>NEW!</b>	3.2	160	0.7	2.0 ... 4.0	112	(38)
IPB140N08S4-04 <b>NEW!</b>	4.2	140	0.9	2.0 ... 4.0	80	(38)
IPB120N08S4-03 <b>NEW!</b>	2.5	120	0.5	2.0 ... 4.0	167	(34)
IPB120N08S4-04 <b>NEW!</b>	4.1	120	0.8	2.0 ... 4.0	95	(34)
IPB80N07S4-05 <b>NEW!</b>	5.2	80	1.0	2.0 ... 4.0	69	(34)
IPB80N08S4-06 <b>NEW!</b>	5.5	80	1.0	2.0 ... 4.0	70	(34)
IPI120N08S4-03 <b>NEW!</b>	2.5	120	0.5	2.0 ... 4.0	167	(59)
IPI120N08S4-04 <b>NEW!</b>	4.1	120	0.8	2.0 ... 4.0	95	(59)
IPI80N07S4-05 <b>NEW!</b>	5.2	80	1.0	2.0 ... 4.0	69	(59)
IPI80N08S4-06 <b>NEW!</b>	5.5	80	1.0	2.0 ... 4.0	70	(59)
IPP120N08S4-03 <b>NEW!</b>	2.5	120	0.5	2.0 ... 4.0	167	(52)
IPP120N08S4-04 <b>NEW!</b>	4.1	120	0.8	2.0 ... 4.0	95	(52)
IPP80N07S4-05 <b>NEW!</b>	5.2	80	1.0	2.0 ... 4.0	69	(52)
IPP80N08S4-06 <b>NEW!</b>	5.5	80	1.0	2.0 ... 4.0	70	(52)

## OptiMOS™-T2 100V (Trench)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{th(jc)}$ (max) [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPD90N10S4L-06	6.6	90	1.1	1.1 ... 2.1	75	(32)
IPD90N10S4-06 <b>NEW!</b>	6.7	90	1.1	2.0 ... 3.5	52	(32)
IPD60N10S4L-12	12.0	60	1.6	1.1 ... 2.1	38	(32)
IPD60N10S4-12 <b>NEW!</b>	12.2	60	1.6	2.0 ... 3.5	26	(32)
IPB180N10S4-02	2.5	180	0.5	2.0 ... 3.5	156	(38)
IPB180N10S4-03 <b>NEW!</b>	3.3	180	0.6	2.0 ... 3.5	108	(38)
IPB120N10S4-03 <b>NEW!</b>	3.5	120	0.6	2.0 ... 3.5	108	(34)
IPB120N10S4-05 <b>NEW!</b>	5.0	120	0.8	2.0 ... 3.5	70	(34)
IPI120N10S4-03 <b>NEW!</b>	3.5	120	0.6	2.0 ... 3.5	108	(59)
IPI120N10S4-05 <b>NEW!</b>	5.0	120	0.8	2.0 ... 3.5	70	(59)
IPP120N10S4-03 <b>NEW!</b>	3.5	120	0.6	2.0 ... 3.5	108	(52)
IPP120N10S4-05 <b>NEW!</b>	5.0	120	0.8	2.0 ... 3.5	70	(52)

1) See packages on page 112

# Automotive P-Channel MOSFETs

## OptiMOS™-P2 30V P-Channel (Trench)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{thJC} (max)$ [K/W]	$V_{GS(th)} (min-max)$ [V]	$Q_G (typ)$ [nC]	Package <sup>1)</sup>
IPD90P03P4L-04	4.5	-90	1.1	-2.0 ... -1.0	100	(32)
IPD90P03P4-04	4.5	-90	1.1	-4.0 ... -2.0	100	(32)
IPD80P03P4L-07	6.8	-80	1.7	-2.0 ... -1.0	80	(32)
IPD50P03P4L-11	10.5	-50	2.6	-2.0 ... -1.0	42	(32)
IPB80P03P4L-04	4.1	-80	1.1	-2.0 ... -1.0	125	(34)
IPB80P03P4-05	4.7	-80	1.1	-4.0 ... -2.0	100	(34)
IPB80P03P4L-07	6.9	-80	1.7	-2.0 ... -1.0	63	(34)
IPB45P03P4L-11	10.8	-45	2.6	-2.0 ... -1.0	42	(34)
IPI80P03P4L-04	4.4	-80	1.1	-2.0 ... -1.0	125	(59)
IPI80P03P4L-07	7.2	-80	1.7	-2.0 ... -1.0	63	(59)
IPI45P03P4L-11	11.1	-45	2.6	-2.0 ... -1.0	42	(59)
IPP80P03P4L-04	4.4	-80	1.1	-2.0 ... -1.0	125	(52)
IPP80P03P4L-07	7.2	-80	1.7	-2.0 ... -1.0	63	(52)
IPP45P03P4L-11	11.1	-45	2.6	-2.0 ... -1.0	42	(52)

## OptiMOS™-P2 40V P-Channel (Trench)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{thJC} (max)$ [K/W]	$V_{GS(th)} (min-max)$ [V]	$Q_G (typ)$ [nC]	Package <sup>1)</sup>
IPB180P04P4L-02	2.4	-100	1.0	-2.2 ... -1.7	220	(38)
IPB180P04P4-03	2.8	-100	1.0	-4.0 ... -2.0	190	(34)
IPB120P04P4L-03	3.0	-120	1.1	-2.2 ... -1.7	180	(34)
IPB120P04P4-04	3.6	-120	1.1	-4.0 ... -2.0	158	(34)
IPB80P04P4L-04	4.2	-90	1.2	-2.2 ... -1.7	135	(34)
IPB80P04P4-05	4.9	-80	1.2	-4.0 ... -2.0	118	(34)
IPB80P04P4L-06	6.4	-80	1.7	-2.2 ... -1.7	71	(34)
IPB80P04P4-07	7.3	-80	1.7	-4.0 ... -2.0	71	(34)
IPB70P04P4L-08	7.5	-70	2.0	-2.2 ... -1.7	63	(34)
IPB70P04P4-09	9.3	-70	2.0	-4.0 ... -2.0	54	(34)
IPD90P04P4L-04	4.3	-90	1.2	-2.2 ... -1.7	135	(32)
IPD90P04P4-05	4.7	-90	1.2	-4.0 ... -2.0	118	(32)
IPD85P04P4L-06	6.4	-85	1.7	-2.2 ... -1.7	80	(32)
IPD85P04P4-07	7.3	-85	1.7	-4.0 ... -2.0	69	(32)
IPD70P04P4L-08	7.8	-70	2.0	-2.2 ... -1.7	63	(32)
IPD70P04P4-09	8.9	-70	2.0	-4.0 ... -2.0	54	(32)
IPD50P04P4L-11	10.6	-50	2.6	-2.2 ... -1.7	45	(32)
IPD50P04P4-13	12.7	-50	2.6	-4.0 ... -2.0	39	(32)
IPP120P04P4L-03	3.4	-120	1.1	-2.2 ... -1.7	180	(52)
IPP120P04P4-04	3.9	-120	1.1	-4.0 ... -2.0	158	(52)
IPP80P04P4L-04	4.7	-80	1.2	-2.2 ... -1.7	16	(52)
IPP80P04P4-05	5.2	-80	1.2	-4.0 ... -2.0	14	(52)
IPP80P04P4L-06	6.7	-80	1.7	-2.2 ... -1.7	71	(52)
IPP80P04P4-07	7.6	-80	1.7	-4.0 ... -2.0	71	(52)
IPP80P04P4L-08	7.9	-80	2.0	-1.2 ... -2.2	71	(59)
IPP70P04P4L-08	8.2	-70	2.0	-2.2 ... -1.7	63	(52)
IPP70P04P4-09	9.4	-70	2.0	-4.0 ... -2.0	54	(52)

1) See packages on page 112

# Automotive P-Channel MOSFETs

## OptiMOS™-P2 40V P-Channel (Trench) (cont'd)

Product Type	$R_{DS(on)}$ [mΩ]	$I_D$ [A]	$R_{thJC} (max)$ [K/W]	$V_{GS(th)} (min-max)$ [V]	$Q_G (typ)$ [nC]	Package <sup>1)</sup>
IPI120P04P4L-03	3.4	-120	1.1	-2.2 ... -1.7	180	Ⓣ9
IPI120P04P4-04	3.9	-120	1.1	-4.0 ... -2.0	135	Ⓣ9
IPI80P04P4L-04	4.7	-80	1.2	-2.2 ... -1.7	16	Ⓣ9
IPI80P04P4-05	5.2	-80	1.2	-4.0 ... -2.0	14	Ⓣ9
IPI80P04P4L-06	6.7	-80	1.7	-2.2 ... -1.7	71	Ⓣ9
IPI80P04P4-07	7.6	-80	1.7	-4.0 ... -2.0	71	Ⓣ9
IPI70P04P4L-08	8.2	-70	2.0	-2.2 ... -1.7	63	Ⓣ9
IPI70P04P4-09	9.4	-70	2.0	-4.0 ... -2.0	54	Ⓣ9

# Automotive Dual MOSFETs

## OptiMOS™ Dual N-Channel 55V

Product Type	$R_{DS(on)} (max) @ 10V$ [mΩ]/channel	$I_D$ [A]/channel	$R_{thJC} (max)$ [K/W]	$V_{GS(th)} (min-max)$ [V]	$Q_G (typ)$ [nC]	Package <sup>1)</sup>
IPG20N06S2L-35	2 x 35	20	2.3	1.2 ... 2.2	18.0	Ⓣ1
IPG20N06S2L-35A <b>NEW!</b>	2 x 35	20	2.3	1.2 ... 2.2	18.0	Ⓣ1
IPG20N06S2L-50	2 x 50	20	2.9	1.2 ... 2.2	12.4	Ⓣ1
IPG20N06S2L-50A <b>NEW!</b>	2 x 50	20	2.9	1.2 ... 2.2	12.4	Ⓣ1
IPG20N06S2L-65	2 x 65	20	3.5	1.2 ... 2.2	10.0	Ⓣ1
IPG20N06S2L-65A <b>NEW!</b>	2 x 65	20	3.5	1.2 ... 2.2	10.0	Ⓣ1

## OptiMOS™-T2 Dual N-Channel 40V

Product Type	$R_{DS(on)} (max) @ 10V$ [mΩ]/channel	$I_D$ [A]/channel	$R_{thJC} (max)$ [K/W]	$V_{GS(th)} (min-max)$ [V]	$Q_G (typ)$ [nC]	Package <sup>1)</sup>
IPG20N04S4-08	2 x 7.5	20	2.3	2.0 ... 4.0	28.0	Ⓣ1
IPG20N04S4-08A <sup>2)</sup> <b>NEW!</b>	2 x 7.5	20	2.3	2.0 ... 4.0	28.0	Ⓣ1
IPG20N04S4-09	2 x 8.6	20	2.8	2.0 ... 4.0	21.7	Ⓣ1
IPG20N04S4-09A <sup>2)</sup> <b>NEW!</b>	2 x 8.6	20	2.8	2.0 ... 4.0	21.7	Ⓣ1
IPG20N04S4-12	2 x 12.2	20	3.7	2.0 ... 4.0	14.0	Ⓣ1
IPG20N04S4-12A <b>NEW!</b>	2 x 12.2	20	3.7	2.0 ... 4.0	14.0	Ⓣ1
IPG20N04S4L-07	2 x 7.2	20	2.3	1.2 ... 2.2	39.0	Ⓣ1
IPG20N04S4L-07A <b>NEW!</b>	2 x 7.2	20	2.3	1.2 ... 2.2	39.0	Ⓣ1
IPG20N04S4L-08	2 x 8.1	20	2.8	1.2 ... 2.2	30.0	Ⓣ1
IPG20N04S4L-08A <b>NEW!</b>	2 x 8.1	20	2.8	1.2 ... 2.2	30.0	Ⓣ1
IPG20N04S4L-11	2 x 11.6	20	3.7	1.2 ... 2.2	20.0	Ⓣ1
IPG20N04S4L-11A <b>NEW!</b>	2 x 11.6	20	3.7	1.2 ... 2.2	20.0	Ⓣ1

1) See packages on page 112

2) Coming Q4/2014

# Automotive Dual MOSFETs

## OptiMOS™-T2 Dual N-Channel 60V

Product Type	$R_{DS(on)}$ (max) @ 10V [mΩ]/channel	$I_D$ [A]/channel	$R_{thJC}$ (max) [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPG20N06S4-15	2 x 15.5	20	3.0	2.0 ... 4.0	22	(31)
IPG20N06S4-15A <sup>2)</sup> <b>NEW!</b>	2 x 15.5	20	3.0	2.0 ... 4.0	22	(31)
IPG20N06S4L-11	2 x 11.1	20	2.3	1.2 ... 2.2	41	(31)
IPG20N06S4L-11A <sup>2)</sup> <b>NEW!</b>	2 x 11.1	20	2.3	1.2 ... 2.2	41	(31)
IPG20N06S4L-14	2 x 13.7	20	3.0	1.2 ... 2.2	30	(31)
IPG20N06S4L-14A <b>NEW!</b>	2 x 13.7	20	3.0	1.2 ... 2.2	30	(31)
IPG20N06S4L-26	2 x 26.0	20	4.5	1.2 ... 2.2	20	(31)
IPG20N06S4L-26A <b>NEW!</b>	2 x 26.0	20	4.5	1.2 ... 2.2	20	(31)

## OptiMOS™-T2 Dual N-Channel 100V

Product Type	$R_{DS(on)}$ (max) @ 10V [mΩ]/channel	$I_D$ [A]/channel	$R_{thJC}$ (max) [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
IPG20N10S4-36A <b>NEW!</b>	2 x 36	20	3.5	2.0 ... 3.5	9.4	(31)
IPG16N10S4-61	2 x 61	16	5.2	2.0 ... 3.5	5.4	(31)
IPG16N10S4-61A <b>NEW!</b>	2 x 61	16	5.2	2.0 ... 3.5	5.4	(31)
IPG20N10S4L-22	2 x 22	20	2.5	1.1 ... 2.1	21.0	(31)
IPG20N10S4L-22A <b>NEW!</b>	2 x 22	20	2.5	1.1 ... 2.1	21.0	(31)
IPG20N10S4L-35	2 x 35	20	3.5	1.1 ... 2.1	13.4	(31)
IPG20N10S4L-35A <b>NEW!</b>	2 x 35	20	3.5	1.1 ... 2.1	13.4	(31)
IPG16N10S4L-61A <b>NEW!</b>	2 x 61	16	5.2	1.1 ... 2.1	8.5	(31)

# TWIN MOSFETs

## OptiMOS™-T2 TWIN N-Channel 40V

Product Type	$R_{DS(on)}$ (max) @ 10V [mΩ]/channel	$I_D$ [A]/channel	$R_{thJC}$ (max) [K/W]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Package <sup>1)</sup>
ITD50N04S4L-07 <b>NEW!</b>	7.2	50	3.2	1.2 ... 2.2	25	(33)

1) See packages on page 112

2) Coming Q4/2014



# Small Signal MOSFETs

Infiniteon offers a full range of Small Signal MOSFETs qualified according AEC Q101.

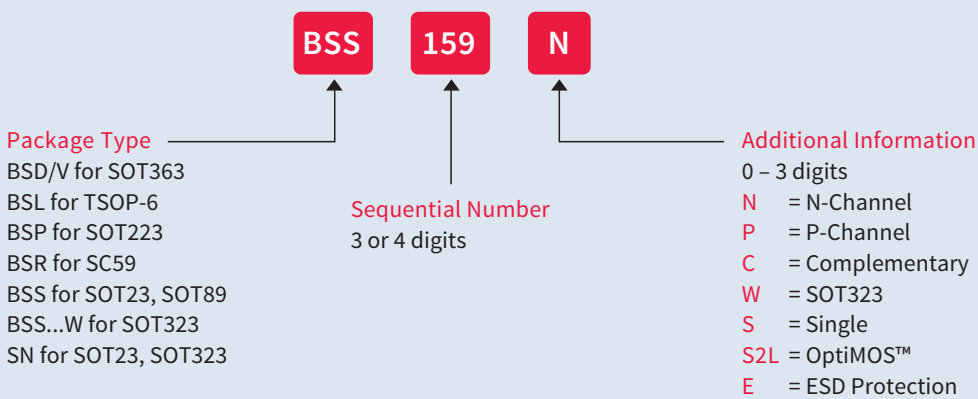
The portfolio includes:

- Polarity: N-Channel enhancement, N-Channel depletion and P-Channel MOSFETs
- Voltage classes: -250 ... 800V
- $V_{GS}$  rating: 10V (Normal Level), 4.5V (Logic Level), 2.5V (Super Logic Level), 1.8V (Ultra Logic Level)
- Packages: SOT223, SOT89, TSOP-6 (single and dual), SC59, SOT23, SOT323, SOT363 (single and dual)

- Configuration: single, dual, complementary (n+p pairs)
- Additional features: the products with names ending with "E" have an Integrated ESD protection

SC59 is an enhanced version of the SOT23: it's footprint compatible with SOT23, but allows a bigger chip inside, therefore a lower  $R_{DS(on)}$ .

## Naming System



[www.infineon.com/smallsignalmosfets](http://www.infineon.com/smallsignalmosfets)  
[www.infineon.com/complementary](http://www.infineon.com/complementary)  
[www.infineon.com/pchannel](http://www.infineon.com/pchannel)  
[www.infineon.com/depletion](http://www.infineon.com/depletion)

## N-Channel MOSFETs

Voltage	Product Type	$R_{DS(on)}$ (max) [mΩ]	$I_D$ [A]	$V_{GS(th)}$ (min-max) [V]	$Q_G$ (typ) [nC]	Technology	Package <sup>1)</sup>
20V	BSL802SN	-	7.5	0.3 ... 0.75	4.7	OptiMOS™2	④6
	BSL202SN	-	7.5	0.7 ... 1.2	5.8	OptiMOS™2	④6
	BSL205N	-	2.5	0.7 ... 1.2	2.1	OptiMOS™2	④6(dual)
	BSL214N	-	1.5	0.7 ... 1.2	0.8	OptiMOS™2	④6(dual)
	BSL207N	-	2.1	0.7 ... 1.2	2.1	OptiMOS™2	④6(dual)
	BSL806N	-	2.3	0.3 ... 0.75	1.7	OptiMOS™2	④6(dual)
	BSR202N	-	3.8	0.7 ... 1.2	5.8	OptiMOS™2	①8
	BSR802N	-	3.7	0.3 ... 0.75	4.7	OptiMOS™2	①8
	BSS205N	-	2.5	0.7 ... 1.2	2.1	OptiMOS™2	②1
	BSS214N	-	1.5	0.7 ... 1.2	0.8	OptiMOS™2	②1
	BSS806N	-	2.3	0.3 ... 0.75	1.7	OptiMOS™2	②1
	BSS816NW	-	1.4	0.3 ... 0.75	0.6	OptiMOS™2	②4
	BSS214NW	-	1.5	0.7 ... 1.2	0.8	OptiMOS™2	②4
	BSD214NW	-	1.5	0.7 ... 1.2	0.8	OptiMOS™2	②6
	BSD816SN	-	1.4	0.3 ... 0.75	0.6	OptiMOS™2	②6
BSD235N	-	0.95	0.7 ... 1.2	0.32	OptiMOS™2	②6(dual)	
BSD840N	-	0.88	0.3 ... 0.75	0.26	OptiMOS™2	②6(dual)	
30V	BSR302N	23	3.7	1.2 ... 2.0	4.4	OptiMOS™2	①8
	BSL302SN	25	7.1	1.2 ... 2.0	4.4	OptiMOS™2	④6
	BSL306N	57	2.3	1.2 ... 2.0	1.6	OptiMOS™2	④6(dual)
	BSS306	57	2.3	1.2 ... 2.0	1.5	OptiMOS™2	②1
	BSS316N	160	1.4	1.2 ... 2.0	0.6	OptiMOS™2	②1
55V	BSD316SN	160	1.4	1.2 ... 2.0	0.6	OptiMOS™2	②6
60V	BSS670S2L	650	0.54	1.2 ... 2.0	1.7	OptiMOS™	②1
	BSS606N	60	3.2	1.3 ... 2.3	6.1	OptiMOS™3	②2
	BSL606SN	60	4.5	1.3 ... 2.3	6.1	OptiMOS™3	④6
	BSR606N	60	2.4	1.3 ... 2.3	6.1	OptiMOS™3	①8
	BSP318S	90	2.6	1.2 ... 2.0	14.0	SIPMOS™	②3
	BSP320S	120	2.9	2.1 ... 4.0	9.7	SIPMOS™	②3
	BSP295	300	1.8	0.8 ... 1.8	14.0	SIPMOS™	②3
	2N7002DW	3,000	0.3	1.5 ... 2.5	0.4	OptiMOS™	②6(dual)
	BSS138N	3,500	0.23	0.6 ... 1.4	1.0	SIPMOS™	②1
	BSS138W	3,500	0.28	0.6 ... 1.4	1.0	SIPMOS™	②3
	SN7002N	5,000	0.2	0.8 ... 1.8	1.0	SIPMOS™	②1
	BSS7728N	5,000	0.2	1.3 ... 2.3	1.0	SIPMOS™	②1
	SN7002W	5,000	0.23	0.8 ... 1.8	1.0	SIPMOS™	②4
100V	BSL372SN	220	2.0	4.5	9.5	SIPMOS™	④6
	BSP372N	230	1.8	0.8 ... 2.0	9.5	SIPMOS™	②3
	BSL373SN	230	2.0	10.0	6.2	SIPMOS™	④6
	BSP373N	240	1.8	2.1 ... 4.0	6.2	SIPMOS™	②3
	BSL296SN	460	1.4	4.5	4.5	SIPMOS™	④6
	BSP296N	600	1.2	0.8 ... 1.8	4.5	SIPMOS™	②3
	BSS123N	6,000	0.19	0.8 ... 1.8	0.6	SIPMOS™	②1
	BSS119N	6,000	0.19	1.8 ... 2.3	0.6	SIPMOS™	②1
200V	BSP297	1,800	0.66	0.8 ... 1.8	12.9	SIPMOS™	②3
240V	BSP89	6,000	0.35	0.8 ... 1.8	4.3	SIPMOS™	②3
	BSP88	6,000	0.35	0.6 ... 1.4	4.5	SIPMOS™	②3
	BSS87	6,000	0.26	0.8 ... 1.8	3.7	SIPMOS™	②2
	BSS131	14,000	0.11	0.8 ... 1.8	2.1	SIPMOS™	②1

1) See packages on page 112

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