



PROFET™ Smart high-side switches

Product overview



PROFET™: Smart high-side switches

The highly integrated PROFET™ family (PROtected FET) incorporates a broad range of smart features, like diagnosis and protection. PROFET™ intelligent power switches consist of DMOS power transistor and CMOS logic circuitry for complete built-in protection.

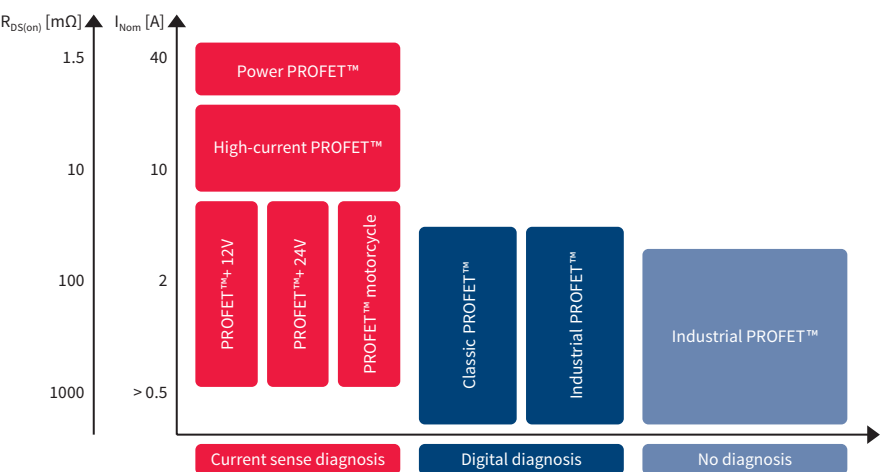
The PROFET™ family offers protection against overload, overvoltage, short-circuit, excessive temperature, loss of ground, power supply loss and Electrostatic Discharge (ESD). The PROFET™ family products are also capable of protecting against dynamic overvoltage such as load dump and inductive load turn-off.

The PROFET™ diagnostics offer the choice of either status or current sense features, or a combination of both. In the event of a malfunction, the status feature is able to diagnose overtemperature or open-load. The PROFET™ diagnostic features also provide the user with precise information about switch and load. Diagnostic feedback and load current sensing minimize risks by eliminating the need for additional discrete circuitry and assembly.

This vast range of smart features makes the PROFET™ ideal for a variety of applications:

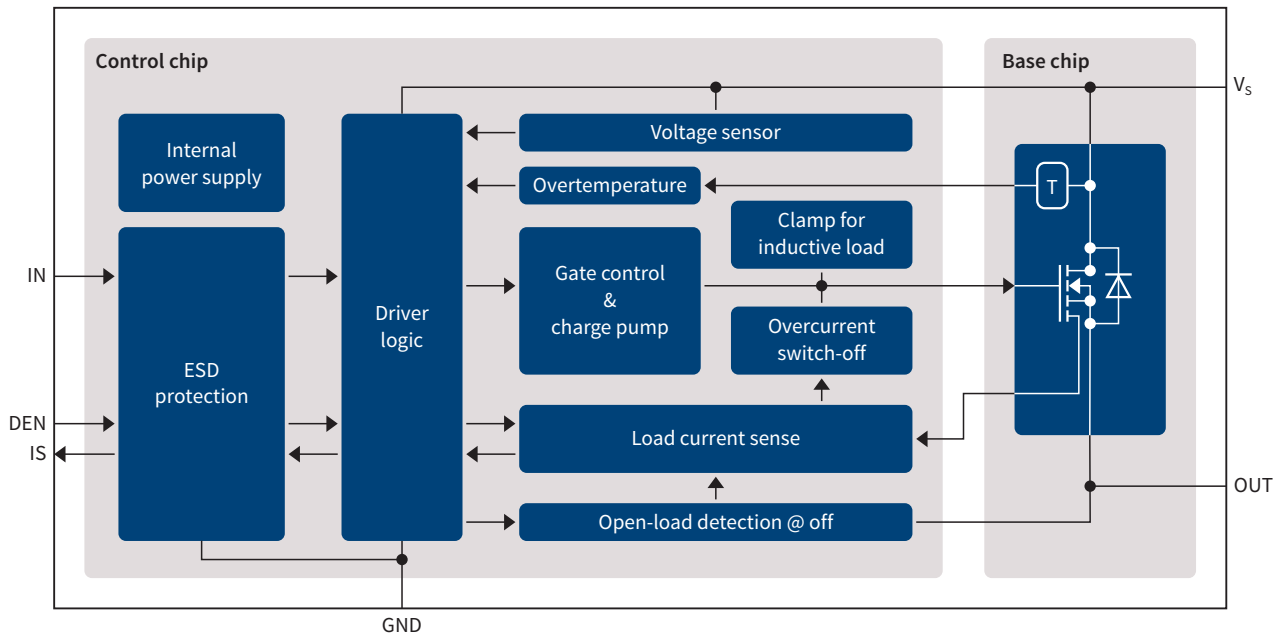
- > Automotive
- > Commercial, Construction & Agricultural Vehicles (CAV)
- > Industrial

PROFET™ family



PROFET product portfolio for automotive applications

Block diagram BTS500x0-1EGA



Application examples

- > Lighting
- > Heating
- > Power distribution
- > Motor control

Load

- > Capacitive, such as lamps and glow plugs
- > Resistive, such as seat heating
- > Inductive, such as solenoids
- > Electronic, such as ECU

Basic features

- > High-side switches (0.5 ... 45 A load current)
- > RoHS compliant & AEC qualified
- > Very low stand-by current
- > ESD protection, optimized EMC
- > PWM capability
- > Very low power DMOS leakage current in OFF
- > 3.3 V and 5 V compatible logic inputs

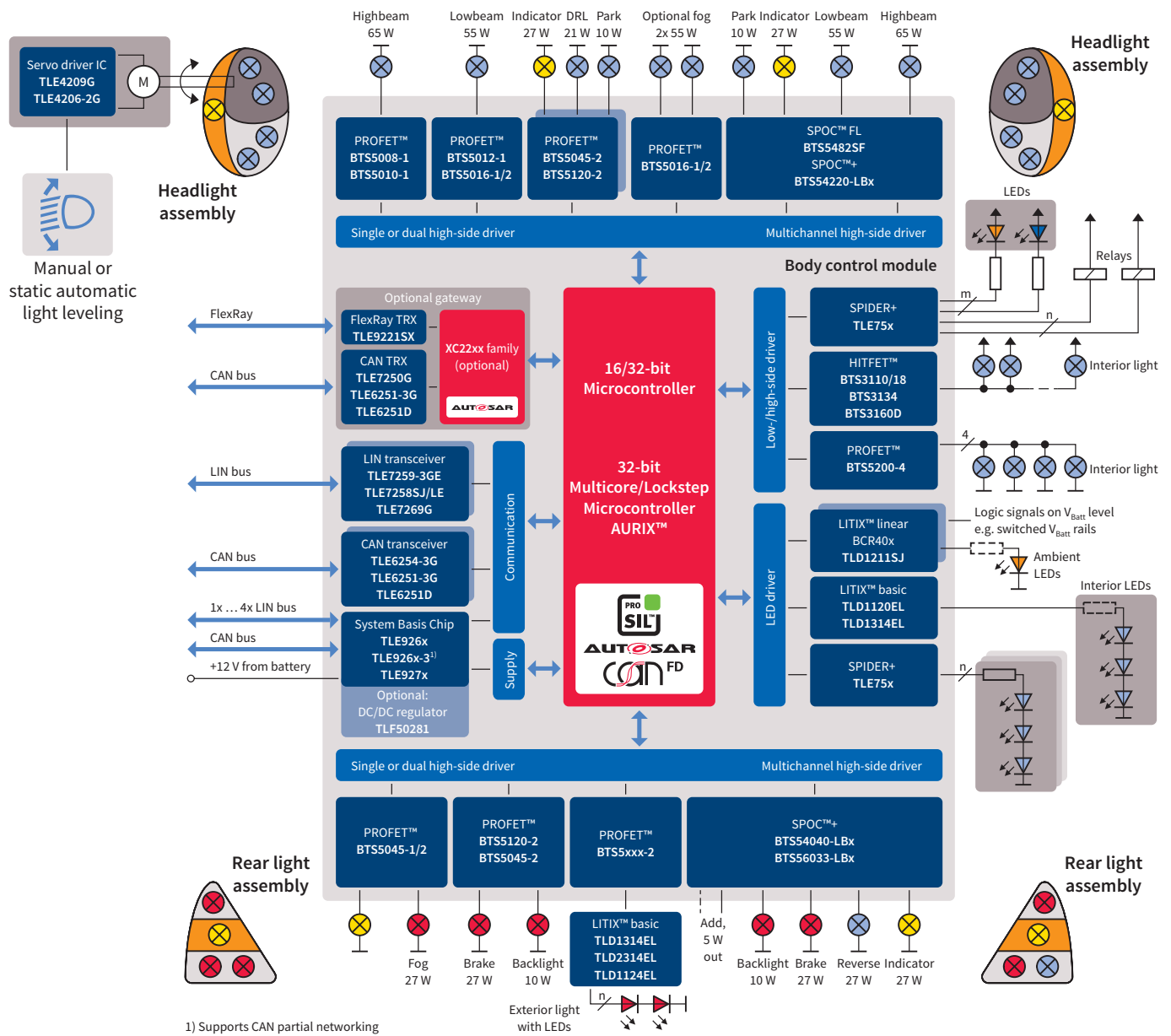
Protection features

- > Load dump
- > Current limitation
- > Thermal shutdown
- > Loss of ground/battery protection
- > Stable behavior at undervoltage
- > Overvoltage protection (ext. components)
- > Reverse polarity compliant

Diagnostic features

- > Proportional load current sense
- > Open-load in ON- and OFF-state
- > Short-circuit to battery and ground
- > Overtemperature sense

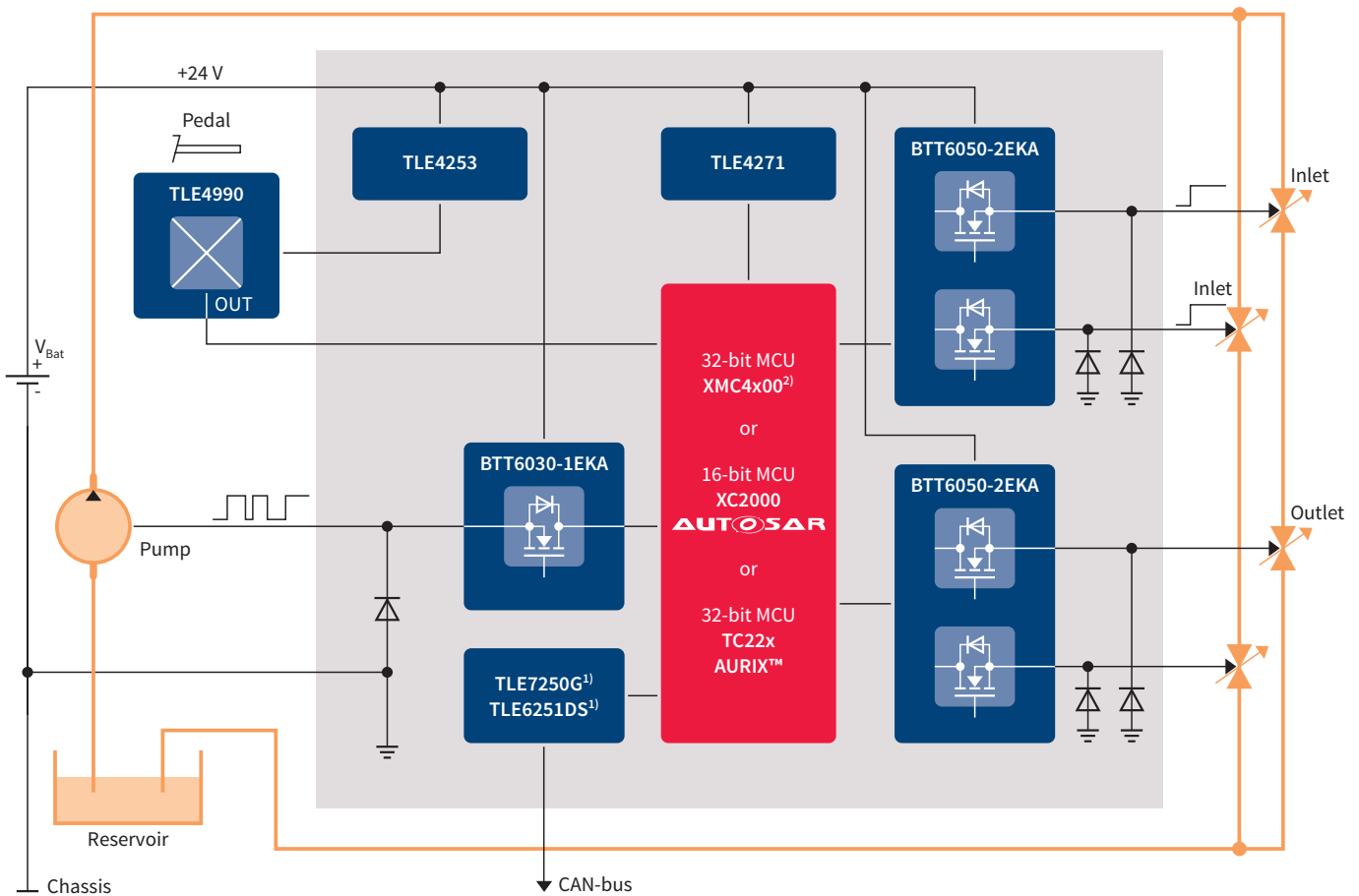
Body control module



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

Hydraulic management system



1) If ECU permanently supplied, you may need to add external protection against load dump 400 ms above 40 V.

2) Not AEC-Q100 qualified

System benefits

- > Integrated solution reduces the design outlay
- > Pin-to-pin compatibility between the 12 and 24 V PROFET™+ families
- > Family concept with $R_{DS(on)}$ scalability reduces the engineering outlay
- > Protection functions, including SC, overload, OT and ESD
- > Diagnostic functions, including open load, OT detection, integrated OPAMP and current sense
- > One-stop shop: supply, microcontrollers, actuators and sensors

Suggested products

Product	Description
AURIX™/XMC	32-bit high-performance microcontroller families (automotive/industrial)
PROFET™+ 24 V	Smart high-side switches for 24 V applications
Network transceivers	LIN and CAN transceivers
Hall sensors	Magnetic speed sensors
Supply ICs	Linear voltage regulator
TLE6389	DC/DC converter (automotive)

PROFET™: Smart high-side switches

No diagnosis

Basic features

- > 12 V or 24 V capable
- > Single channel

Protection features

- > Short-circuit protection
- > Current limitation
- > Overvoltage protection
- > Overtemperature protection

Product type	Product family	$R_{DS(on)}$ (typ) [mΩ]	$R_{DS(on)}$ (max) @ $T_j = 150$ °C [mΩ]	Nominal load current [A]
Automotive grade				
BTS4140N ¹⁾	Classic PROFET™	1000	3000	0.20
BSP742T	Classic PROFET™	260	700	1.10
BSP452	Classic PROFET™	160	400	0.70
BTS452T	Classic PROFET™	150	380	2.20
BSP752T	Classic PROFET™	150	380	1.70
BTS4141N	Classic PROFET™	150	320	0.70
BTS4142N	Classic PROFET™	150	320	1.40
BSP762T	Classic PROFET™	70	200	2.40
BTS462T	Classic PROFET™	70	200	4.40
BTS730	Classic PROFET™	70	140	3.00
BSP772T	Classic PROFET™	50	120	3.10
BTS441TG	Classic PROFET™	15	37	21.00

1) Current controlled input at $T_j = 125$ °C

E_{AS} [mJ]	Operating voltage range [V]	$I_{L(SC)}$ (typ) [A]	24 V capable	Package
1000 @ 0.15 A	4.90 ... 60.00	0.70	●	SOT223
100 @ 0.50 A	5.00 ... 34.00	3.00		DSO-8
500 @ 0.50 A	5.00 ... 34.00	1.50		SOT223
150 @ 1.00 A	6.00 ... 52.00	6.00	●	TO252-5 (DPAK 5-leg)
125 @ 1.00 A	6.00 ... 52.00	6.00	●	DSO-8
700 @ 0.70 A	12.00 ... 45.00	1.10	●	SOT223
160 @ 1.00 A	12.00 ... 45.00	2.20	●	SOT223
870 @ 1.00 A	5.00 ... 34.00	7.00		DSO-8
4400 @ 1.00 A	5.00 ... 34.00	10.00		TO252-5 (DPAK 5-leg)
n/a	5.90 ... 16.90	20.00		DSO-20
900 @ 1.50 A	5.00 ... 34.00	12.00		DSO-8
700 @ 21.00 A	4.75 ... 41.00	65.00	●	TO263-5-2 (TO220-5 (SMD))

PROFET™: Smart high-side switches

Digital diagnosis

Basic features

- > 12 V or 24 V capable
- > Single or multichannel

Protection features

- > Overload protection
- > Loss of battery/GND
- > Short-circuit protection
- > Overvoltage protection

Diagnosis features

- > Open drain status feedback
- > Overtemperature
- > Open-load
- > Current limitation

Product type	Product family	$R_{DS(on)}$ (typ) [mΩ]	$R_{DS(on)}$ (max) @ $T_j = 150\text{ °C}$ [mΩ]	Nominal load current [A]	E_{AS} [mJ]	Operating voltage range [V]	$I_{L(SC)}$ (typ) [A]
Automotive grade							
BTS4300SGA	Classic PROFET™	300	600	0.40	800 @ 0.300 A	5.00 ... 34.00	1.00
BSP742R	Classic PROFET™	250	700	0.40	800 @ 0.300 A	5.00 ... 34.00	1.00
BSP742RI ¹⁾	Classic PROFET™	250	700	0.40	800 @ 0.300 A	5.00 ... 34.00	1.00
BTS4175SGA	Classic PROFET™	175	350	1.30	125 @ 1.000 A	6.00 ... 52.00	6.50
BTS712N1	Classic PROFET™	165	400	1.10	150 @ 1.900 A	5.00 ... 34.00	4.00
BTS711L1	Classic PROFET™	165	400	1.10	150 @ 1.900 A	5.00 ... 35.00	4.00
BTS4160DGA	Classic PROFET™	160	320	1.20	65 @ 2.900 A	5.50 ... 20.00	6.50
BSP752R	Classic PROFET™	150	380	1.70	125 @ 1.000 A	6.00 ... 52.00	6.00
BTS452R	Classic PROFET™	150	380	2.20	150 @ 1.000 A	6.00 ... 52.00	6.00
BTS4880R	Classic PROFET™	150	320	0.60	10,000 @ 0.625 A	11.00 ... 45.00	1.10
BTS716GB	Classic PROFET™	140	280	1.30	76 @ 2.300 A	5.50 ... 40.00	6.50
BTS4130QGA	Classic PROFET™	130	260	1.10	76 @ 2.300 A	5.50 ... 20.00	6.50
BTS5210G	Classic PROFET™	110	280	1.90	65 @ 2.900 A	5.50 ... 40.00	6.50
BTS5210L	Classic PROFET™	110	280	1.90	84 @ 2.900 A	5.50 ... 40.00	6.50
BTS716G	Classic PROFET™	110	280	1.30	76 @ 2.300 A	5.50 ... 40.00	6.50
BTS723GW	Classic PROFET™	95	210	2.10	110 @ 2.500 A	7.00 ... 58.00	8.00
BTS721L1	Classic PROFET™	85	200	1.60	300 @ 2.900 A	5.00 ... 34.00	8.00
AUIPS7091G	Classic PROFET™	80	230	2.00	–	6.00 ... 35.00	5.00
BTS5215L	Classic PROFET™	70	180	4.80	178 @ 3.500 A	5.50 ... 40.00	12.00
BTS724G	Classic PROFET™	70	180	1.80	120 @ 3.300 A	5.50 ... 40.00	12.00
BTS428L2	Classic PROFET™	50	120	7.00	190 @ 7.000 A	4.75 ... 41.00	17.00
BTS432E2	High-Current PROFET™	38	70	11.00	1700 @ 20.000 A	4.50 ... 42.00	44.00
BTS432E2 E3062A	High-Current PROFET™	38	70	11.00	1700 @ 20.000 A	4.50 ... 42.00	44.00
AUIPS7221R	Classic PROFET™	30	70	6.00	–	6.00 ... 60.00	30.00
AUIPS72211R	Classic PROFET™	30	70	6.00	–	6.00 ... 60.00	30.00
AUIPS6021R	Classic PROFET™	24	52	8.00	–	6.00 ... 28.00	32.00
BTS442E2	High-Current PROFET™	18	35	21.00	2100 @ 20.000 A	4.50 ... 42.00	95.00
BTS442E2 E3062A	High-Current PROFET™	18	35	21.00	2100 @ 20.000 A	4.50 ... 42.00	95.00
BTS441RG	Classic PROFET™	15	37	21.00	700 @ 21.000 A	4.75 ... 41.00	55.00

1) Inversed logic for diagnosis

Number of channels	24 V capable	High current limit	Low current limit	Overvoltage shutdown	Short-circuit diagnosis			Package
					to GND	to battery	Open-load in ON-state	
1			•		•	•		DSO-8
1			•		•	•		DSO-8
1			•		•	•		DSO-8
1	•	•			•	•		DSO-8
4		•		•		•		DSO-20
4		•		•	•		•	DSO-20
2		•				•		DSO-14
1	•	•			•	•		DSO-8
1	•		•		•	•		TO252-5 (DPAK 5-leg)
8	•				•			DSO-36 (Power-SO)
4		•				•		DSO-20
4		•				•		DSO-20
2		•				•		DSO-14
2		•				•		DSO-12
4		•				•		DSO-20
2	•		•		•	•		DSO-14
4		•		•		•		DSO-20
1			•		•			SO-8 (DSO-8)
2		•				•		DSO-12
4		•				•		DSO-20
1		•			•		•	TO252-5 (DPAK 5-leg)
1	•	•		•	•		•	TO220-5-11
1	•	•		•	•		•	TO263-5-2 (TO220-5 (SMD))
1	•	•			•			TO-252 (DPAK 5-leg)
1	•	•			•			TO-252 (DPAK 5-leg)
1		•			•		•	TO-252 (DPAK 5-leg)
1	•	•		•	•		•	TO220-5-11
1	•	•		•	•		•	TO263-5-2 (TO220-5 (SMD))
1		•				•		TO263-5-2 (TO220-5 (SMD))

PROFET™: Smart high-side switches

Current sense, current input

Basic features

- > 12 V or 24 V capable
- > Single channel

Protection features

- > Current limitation
- > Overload protection
- > Short-circuit shutdown
- > ReverSave™
- > Loss of GND

Diagnosis features

- > Analog signal proportional to load current
- > Overload detection
- > Short-circuit detection

Product type	Product family	$R_{DS(on)}$ (typ) [mΩ]	$R_{DS(on)}$ (max) @ $T_J = 150\text{ °C}$ [mΩ]	Nominal load current [A]	E_{AS} @ 20 A [mJ]	Operating voltage range [V]	$I_{L(sc)}$ (typ) [A]
BTS6163D	High-Current PROFET™	20.00	40.00	6.50	250	5.50 ... 62.00	70
BTS443P	High-Current PROFET™	16.00	32.00	6.50	150	5.00 ... 36.00	65
BTS5016SDA	High-Current PROFET™	16.00	32.00	6.50	120	5.50 ... 20.00	75
BTS5014SDA	High-Current PROFET™	14.00	28.00	7.00	150	5.50 ... 20.00	80
BTS5012SDA	High-Current PROFET™	12.00	24.00	8.00	200	5.50 ... 20.00	90
BTS6142D	High-Current PROFET™	12.00	22.00	8.00	250	5.50 ... 24.00	100
BTS6143D	High-Current PROFET™	10.00	18.00	10.00	300	5.50 ... 38.00	105
BTS6133D	High-Current PROFET™	10.00	18.00	10.00	300	5.50 ... 38.00	105
BTS50085-1TMA	High-Current PROFET™	9.00	17.00	11.00	1200	5.50 ... 58.00	90
BTS50085-1TMB	High-Current PROFET™	9.00	17.00	11.00	1200	5.00 ... 58.00	90
BTS50080-1TMA	High-Current PROFET™	8.00	16.00	12.00	400	5.50 ... 38.00	130
BTS50080-1TMB	High-Current PROFET™	8.00	16.00	12.00	400	5.50 ... 38.00	130
BTS50080-1TMC	High-Current PROFET™	8.00	16.00	12.00	400	5.50 ... 38.00	130
BTS50080-1TEA	High-Current PROFET™	8.00	16.00	10.00	300	5.50 ... 30.00	125
BTS50080-1TEB	High-Current PROFET™	8.00	16.00	10.00	300	5.50 ... 30.00	125
AUIPS7111S	High-Current PROFET™	6.00	15.00	15.00	–	8.00 ... 50.00	45
BTS50055-1TMA	High-Current PROFET™	6.00	11.00	17.00	1500	5.00 ... 34.00	130
BTS50055-1TMB	High-Current PROFET™	6.00	11.00	17.00	1500	5.00 ... 34.00	130
BTS50055-1TMC	High-Current PROFET™	6.00	11.00	17.00	1500	5.50 ... 34.00	130
AUIR3316S	High-Current PROFET™	5.50	13.50	16.00	–	6.00 ... 26.00	120
AUIPS6121R	High-Current PROFET™	4.80	9.00	18.00	–	5.50 ... 35.00	90
BTS550P	High-Current PROFET™	3.50	6.50	35.00	3000	5.00 ... 34.00	220
AUIR3320S	High-Current PROFET™	3.30	6.50	22.00	–	6.00 ... 26.00	75
BTS555	High-Current PROFET™	2.50	4.00	45.00	3000	5.00 ... 34.00	400

24 V capable	Short-circuit to GND protection		Overtemperature protection		Inverse current operation capability	Open-load in ON detection	Package
	Latch	Restart	Latch	Restart			
•	•			•		•	TO252-5 (DPAK 5-leg)
		•		•		•	TO252-5 (DPAK 5-leg)
	•			•		•	TO252-5 (DPAK 5-leg)
	•			•		•	TO252-5 (DPAK 5-leg)
	•			•		•	TO252-5 (DPAK 5-leg)
	•			•		•	TO252-5 (DPAK 5-leg)
	•			•	•	•	TO252-5 (DPAK 5-leg)
•	•			•	•		TO263-7-1 (TO220-7 (SMD))
•	•			•	•		TO220-7-11
	•			•		•	TO263-7-1 (TO220-7 (SMD))
	•			•		•	TO220-7-12
	•			•		•	TO263-7-1 (TO220-7 (SMD))
	•			•		•	TO252-5 (DPAK 5-leg)
	•			•	•	•	TO252-5 (DPAK 5-leg)
•	•		•		•		TO-263-5 (D ² PAK 5-leg)
	•			•	•		TO263-7-1 (TO220-7 (SMD))
	•			•	•		TO220-7-11
		•		•	•		TO263-7-1 (TO220-7 (SMD))
	•		•		•		TO-263-5 (D ² PAK 5-leg)
	•		•		•		TO-252 (DPAK 5-leg)
	•			•	•		TO218-5
	•		•		•		TO-263-5 (D ² PAK 5-leg)
	•		•		•		TO218-5

PROFET™: Smart high-side switches

Current sense, voltage input

Basic features

- › 12 V or 24 V capable
- › Single or multichannel

Protection features

- › Short-circuit shutdown with auto-restart or latch
- › Overtemperature shutdown with auto-restart or latch
- › Reverse polarity protection by ReverSave™ for high-current PROFET™ or with external components for PROFET™+ 12/24 V
- › Loss of GND

Diagnosis features

- › Analog signal proportional to load current
- › Overload
- › Open-load in ON
- › Overtemperature
- › Short-circuit to GND

Product type	Product family	$R_{DS(on)}$ (typ) [mΩ]	$R_{DS(on)}$ (max) @ $T_j = 150\text{ °C}$ [mΩ]	Nominal load current [A]	E_{AS} [mJ]	Operating voltage range [V]	$I_{L(sc)}$ (typ) [A]
Automotive grade							
BTS5200-4EKA	PROFET™+ 12 V	200.00	400.00	4 x 0.80	50 @ 0.50 A	5.00 ... 28.00	7.30
BTS40k2-1EJC	Classic PROFET™	200.00	400.00	1.50	20 @ 1.00 A	5.00 ... 36.00	5.00
BTT6200-4EMA	PROFET™+ 24 V	200.00	400.00	4 x 1.00	20 @ 1.00 A	5.00 ... 48.00	11.00
BTT6200-1EJA	PROFET™+ 24 V	200.00	400.00	1.50	20 @ 1.00 A	5.00 ... 48.00	11.00
BTS5200-1EJA	PROFET™+ 12 V	200.00	400.00	1.50	40 @ 1.00 A	5.00 ... 48.00	11.00
BTS5180-2EKA	PROFET™+ 12 V	180.00	360.00	2 x 1.00	30 @ 1.00 A	5.00 ... 48.00	12.00
BTS5120-2EKA	PROFET™+ 12 V	120.00	240.00	2 x 1.00	15 @ 2.00 A	5.00 ... 48.00	12.00
BTT6100-2EKA	PROFET™+ 24 V	100.00	200.00	2 x 2.20	36 @ 1.50 A	5.00 ... 48.00	25.00
BTS5090-2EKA	PROFET™+ 12 V	90.00	180.00	2 x 2.00	42 @ 3.00 A	5.00 ... 28.00	32.00
BTS5090-1EJA	PROFET™+ 12 V	90.00	180.00	2.50	42 @ 3.00 A	5.00 ... 28.00	32.00
BTS6110-1SJA	PROFET™ Motorcycle	80.00	200.00	2.00	n/a	8.00 ... 24.00	27.00
BTT6050-1EKA	PROFET™+ 24 V	50.00	100.00	4.50	55 @ 4.00 A	5.00 ... 48.00	47.00
BTT6050-2EKA	PROFET™+ 24 V	50.00	100.00	2 x 3.00	55 @ 4.00 A	5.00 ... 48.00	47.00
BTS5045-2EKA	PROFET™+ 12 V	45.00	90.00	2 x 2.50	35 @ 4.00 A	5.00 ... 28.00	32.00
BTS5045-1EJA	PROFET™+ 12 V	45.00	90.00	3.00	35 @ 4.00 A	5.00 ... 28.00	32.00
BTT6030-2EKA	PROFET™+ 24 V	30.00	64.00	2 x 4.00	50 @ 4.00 A	5.00 ... 48.00	70.00
BTT6030-1EKA	PROFET™+ 24 V	30.00	64.00	6.00	50 @ 6.00 A	5.00 ... 48.00	70.00
BTS5030-2EKA	PROFET™+ 12 V	30.00	60.00	2 x 3.00	50 @ 6.00 A	5.00 ... 28.00	47.00
BTS5030-1EJA	PROFET™+ 12 V	30.00	60.00	4.00	50 @ 6.00 A	5.00 ... 28.00	47.00
BTS740S2	Classic PROFET™	27.00	60.00	4.30	370 @ 5.50 A	5.00 ... 34.00	50.00
BTS640S2G	Classic PROFET™	27.00	60.00	4.50	410 @ 12.60 A	5.00 ... 34.00	50.00
BTT6020-1EKA	PROFET™+ 24 V	20.00	42.00	7.00	100 @ 7.00 A	5.00 ... 48.00	74.00
BTS5020-2EKA	PROFET™+ 12 V	20.00	40.00	2 x 4.00	75 @ 6.00 A	5.00 ... 28.00	65.00
BTS5020-1EKA	PROFET™+ 12 V	20.00	40.00	5.00	74 @ 6.00 A	5.00 ... 28.00	65.00
BTS5016-2EKA	PROFET™+ 12 V	16.00	32.00	2 x 5.00	95 @ 7.00 A	5.00 ... 28.00	65.00
BTS5016-1EKB	PROFET™+ 12 V	16.00	32.00	6.00	95 @ 7.00 A	5.00 ... 28.00	65.00
BTS5012-1EKB	PROFET™+ 12 V	12.00	24.00	8.00	110 @ 10.00 A	5.00 ... 28.00	65.00
BTS5010-1EKB	PROFET™+ 12 V	10.00	20.00	9.00	155 @ 10.00 A	5.00 ... 28.00	65.00
BTT6010-1EKA	PROFET™+ 24 V	10.00	22.00	9.00	100 @ 8.00 A	5.00 ... 48.00	115.00
BTT6010-1EKB	PROFET™+ 24 V	10.00	22.00	9.00	100 @ 8.00 A	5.00 ... 48.00	86.00
BTS5008-1EKB	PROFET™+ 12 V	8.00	16.00	10.00	160 @ 11.00 A	5.00 ... 48.00	65.00
BTS50080-1EGA	High-Current PROFET™	8.00	16.00	13.00	125 @ 50.00 A	5.00 ... 48.00	150.00
BTS50070-1EGA	High-Current PROFET™	7.00	14.00	14.00	145 @ 50.00 A	5.00 ... 48.00	150.00
BTS50060-1EGA	High-Current PROFET™	6.00	12.00	15.00	170 @ 50.00 A	5.00 ... 48.00	150.00
BTS50060-1TEA	High-Current PROFET™	6.00	12.00	13.50	280 @ 20.00 A	5.00 ... 48.00	75.00
BTF50060-1TEA ¹⁾	High-Current PROFET™	6.00	12.00	13.50	280 @ 20.00 A	5.00 ... 48.00	75.00
BTS50050-1EGA	High-Current PROFET™	5.00	10.00	16.00	200 @ 50.00 A	5.00 ... 48.00	150.00
BTS50040-2SFA	High-Current PROFET™	4.00	8.20	2 x 11.00	411 @ 20.00 A	5.00 ... 48.00	160.00
AUIR3330S	High-Current PROFET™	3.00	6.20	23.00	n/a	5.00 ... 48.00	70.00
AUIR33402S	High-Current PROFET™	3.00	6.20	23.00	n/a	5.00 ... 48.00	70.00
BTS50015-1TAD ²⁾	Power PROFET™	1.50	3.00	39.00	550 @ 33.00 A	5.00 ... 48.00	135.00

1) Speed PROFET™, capable for PWM up to 25 kHz

2) Available in Q2/2016

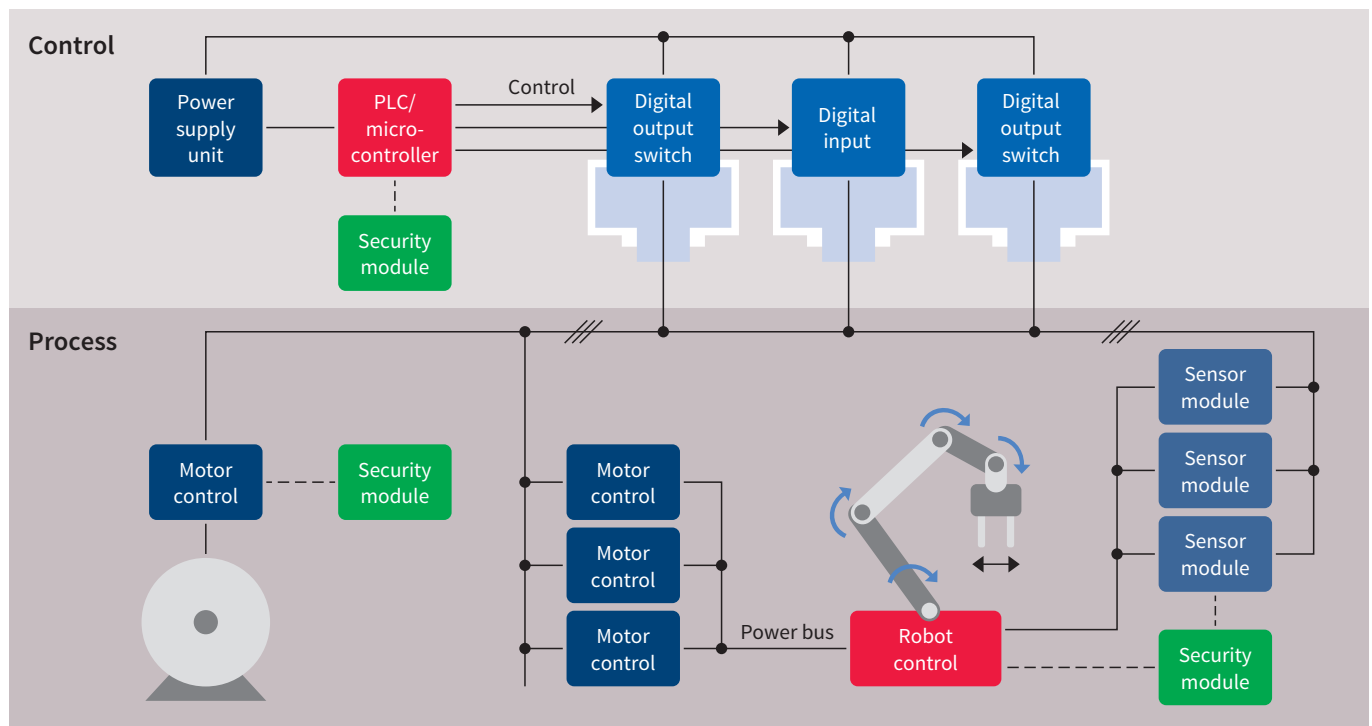
Number of channels	Load current		Overvoltage shutdown	Sense enable	Open-load in OFF	Latch	24 V	ReverSave™	Package
	Limit	Trip							
4	•			•	•				DSO-14 EP
1	•			•	•				DSO-8
4	•			•	•	•	•		SSOP-24
1	•			•	•	•	•		DSO-8 EP
1	•			•	•				DSO-8
2	•			•	•				DSO-14 EP
2	•			•	•				DSO-14 EP
2	•			•	•	•	•		DSO-14 EP
2	•			•	•				DSO-14 EP
1	•			•	•				DSO-8 EP
1	•					•			DSO-8
1	•			•	•	•	•		DSO-14 EP
2	•			•	•	•	•		DSO-14 EP
2	•			•	•				DSO-14 EP
1	•			•	•				DSO-8 EP
2	•			•	•	•	•		DSO-14 EP
2	•			•	•				DSO-14 EP
1	•			•	•				DSO-8 EP
2	•		•						DSO-20
1	•		•						TO263-7-1 (TO220-7 (SMD))
1	•			•	•	•	•		DSO-14 EP
2	•			•	•				DSO-14 EP
1	•			•	•				DSO-14 EP
2	•			•	•				DSO-14 EP
1	•			•	•				DSO-14 EP
1	•			•	•				DSO-14 EP
1	•			•	•	•	•		DSO-14 EP
1	•			•	•	•	•		DSO-14 EP
1	•			•	•				DSO-14 EP
1		•		•	•	•		•	DSO-12
1		•		•	•	•		•	DSO-12
1		•		•	•	•		•	DSO-12
1		•			•	•			TO252-5 (DPAK 5-leg)
1		•			•	•			TO252-5 (DPAK 5-leg)
1		•		•	•	•		•	DSO-12
2		•		•		•		•	DSO-36
1		•				•			TO-263-7 (D ² PAK 7-leg)
1		•				•			TO-263-7 (D ² PAK 7-leg)
1		•				•		•	TO263-7-8 (TO220-7 (SMD))

Industrial PROFET – Applications & Products

The well-established high-side switch Industrial PROFET™ products were designed for targeting a variety of industrial applications which include all types of resistive, inductive and capacitive loads. Due to their outstanding energy robustness, they are perfectly suitable for switching even higher inductive loads and driving relays. Their main application areas include high-voltage applications (V_{BAT} up to 58 V), high-speed PWM applications (up to 1 kHz) and they are most notably capable of switching higher inductances smoothly. Industrial PROFET™ can be applied to drive any kind of sensor units, Indicators, displays, LEDs, relays, valves and magnetic actuators or replace electromechanical relays, fuses and discrete circuits. Industrial PROFET™ are also the perfect match for applications with long wiring or any other kind of inductive loads or applications with space constraints.

- > Industrial automation
- > Programmable Logic Controllers (PLC)
- > Digital I/O modules
- > Robotics
- > Building & home management
- > Solar applications
- > Wind energy systems
- > Smart grid
- > Medical
- > E-bikes
- > Motor control and drives
- > Power supplies

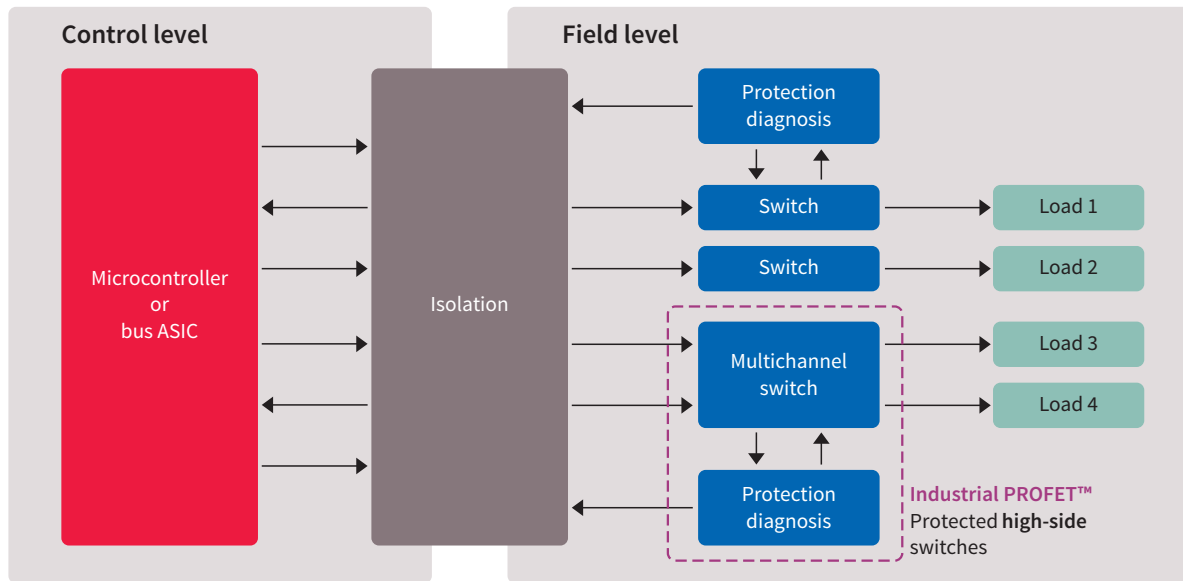
Industrial automation system diagram



System benefits

- > Right fit for digital output switches, motor or robot control, protected switching of decentralized loads like sensors or auxiliary supply
- > Suitable for all types of complex loads including high inductances (high EAS)
- > Outstanding robustness & reliability as required by industrial mission profiles
- > Thermally optimized products with low $R_{DS(on)}$ to deal with the high ambient temperatures and limited or even no cooling
- > Diagnosis & protection for safe system operation
- > Small & compact design for higher Integration and applications with space constraints

PLC – Programmable Logic Controller digital output modules



System benefits

- › Suitable for all types of complex loads including high inductances (EAS) as PLC manufacturers cannot predict how the end customer will use the digital outputs
- › Outstanding robustness & reliability as required by Industrial mission profiles
- › Thermally optimized products with low $R_{DS(on)}$ to deal with the high ambient temperatures within I/O modules with limited or even no cooling
- › Diagnosis & protection for safe system operation
- › Small & compact design for higher Integration
- › Addressing the I/O modules quasi standard currents 2 A & 0.5 A, but also lower currents as within micro-PLCs

Product	Number of channels	$R_{DS(on)}$ (typ) [mΩ]	Nominal load current [A]	E_{AS} [mJ]	Recommended operating voltage range [V]	$I_{L(SC)}$ (typ) [A]	Diagnosis	Package
ITS4060S-SJ-N	1	50	3.10	900 @ 1.50 A	5.00 ... 34.00	17.0	n/a	DSO-8
ISP772T	1	50	2.60	900 @ 1.50 A	5.00 ... 34.00	17.0	n/a	DSO-8
ITS428L2	1	60	7.00	190 @ 7.00 A	4.75 ... 41.00	22.0	Digital	TO252-5
ITS4100S-SJ-N	1	70	2.40	870 @ 1.00 A	5.00 ... 34.00	10.0	n/a	PG-DSO-8
ISP762T	1	70	2.00	870 @ 1.00 A	5.00 ... 34.00	10.0	n/a	DSO-8
ITS4200S-ME-O	1	150	1.10	700 @ 0.50 A	11.00 ... 45.00	1.4	n/a	SOT223-4
ITS4141N	1	150	1.10	700 @ 0.50 A	12.00 ... 45.00	1.4	n/a	SOT223-4
ITS4141D	1	150	1.10	12,000 @ 0.50 A	12.00 ... 45.00	1.4	n/a	TO-252-5
ITS4200S-ME-P	1	150	2.20	160 @ 1.00 A	11.00 ... 45.00	3.0	n/a	SOT223-4
ITS4142N	1	150	2.20	160 @ 1.00 A	12.00 ... 45.00	3.0	n/a	SOT223-4
ITS4200S-ME-N	1	160	1.20	500 @ 0.50 A	5.00 ... 34.00	1.5	n/a	DSO-8
ISP452	1	160	1.20	500 @ 0.50 A	5.00 ... 34.00	1.5	n/a	SOT223-4
ITS4200S-SJ-D	1	150	1.70	125 @ 1.00 A	6.00 ... 52.00	6.5	Digital	DSO-8
ISP752R	1	200	1.70	125 @ 1.00 A	6.00 ... 52.00	6.5	Digital	DSO-8
ISP752T	1	200	1.70	125 @ 1.00 A	6.00 ... 52.00	6.5	n/a	DSO-8
ITS4300S-SJ-D	1	250	0.80	800 @ 0.30 A	5.00 ... 34.00	1.2	Digital	DSO-8
ISP742RI	1	350	0.80	800 @ 0.30 A	5.00 ... 34.00	1.2	Digital, inverted	DSO-8
ITS41K0S-ME-N	1	1000	0.55	1000 @ 0.15 A	4.90 ... 60.00	0.9	n/a	SOT223-4
ITS4140N	1	1000	0.55	1000 @ 0.15 A	4.90 ... 60.00	0.9	n/a	SOT223-4
ITS5215L	2	90	2 x 2.00	178 @ 3.50 A	5.50 ... 40.00	15.0	Digital	DSO-12
ITS42K5D-LD-F	2	2500	2 x 0.25	Freewheeling	4.50 ... 45.00	0.6	Digital	TSON-10
ITS724G	4	90	4 x 2.00	120 @ 3.30 A	5.50 ... 40.00	15.0	Digital	DSO-20
ITS716G	4	140	4 x 1.00	76 @ 2.30 A	5.50 ... 40.00	9.0	Digital	DSO-20
ITS711L1	4	200	4 x 1.00	150 @ 1.90 A	5.00 ... 35.00	7.5	Digital	DSO-20
ITS42008-SB-D	8	200	8 x 0.60	10,000 @ 625 mA	11.00 ... 45.00	3.0	Digital	DSO-36
ITS4880R	8	200	8 x 0.60	10,000 @ 625 mA	11.00 ... 45.00	3.0	Digital	DSO-36

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