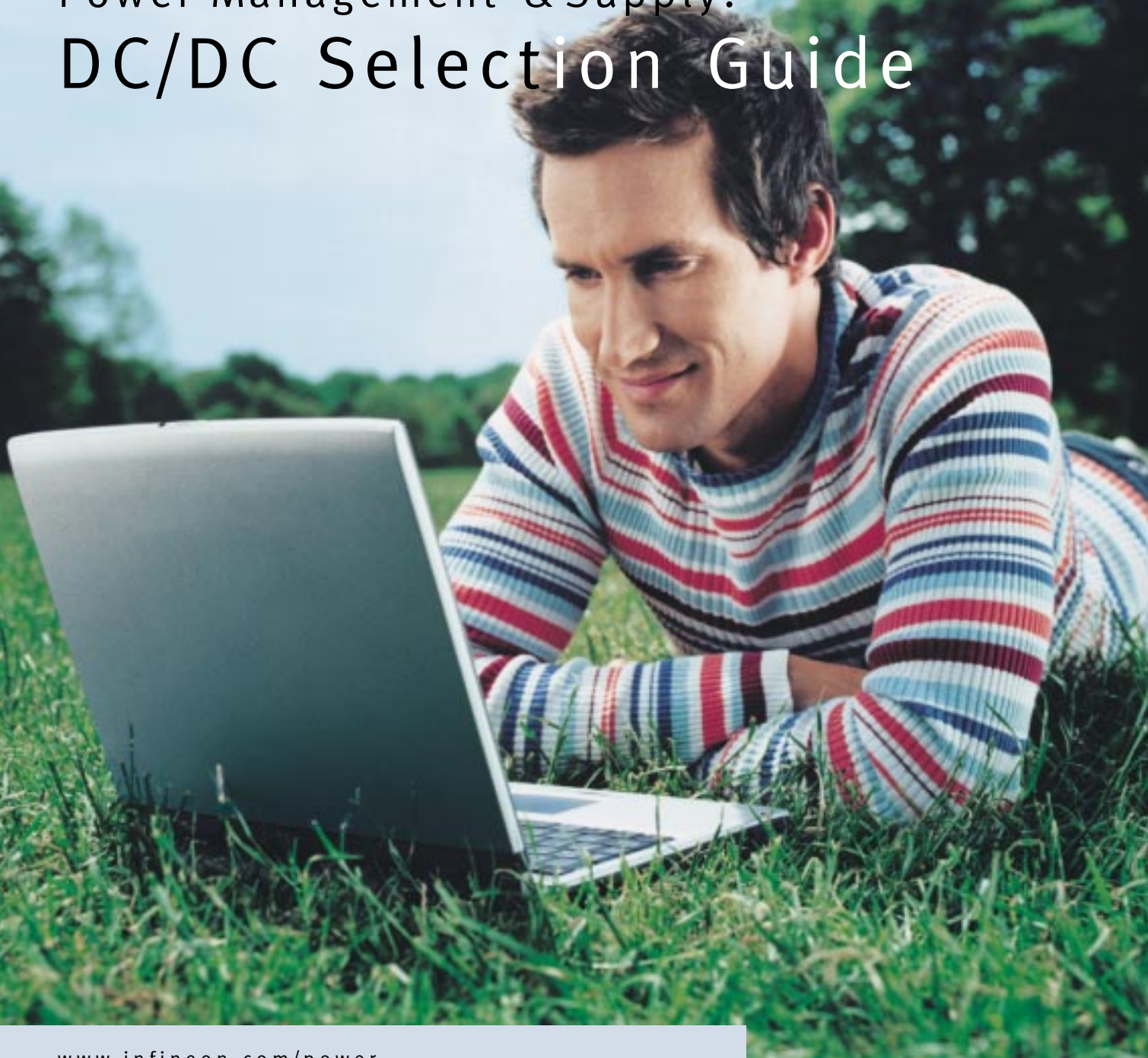


Power Management & Supply: DC/DC Selection Guide



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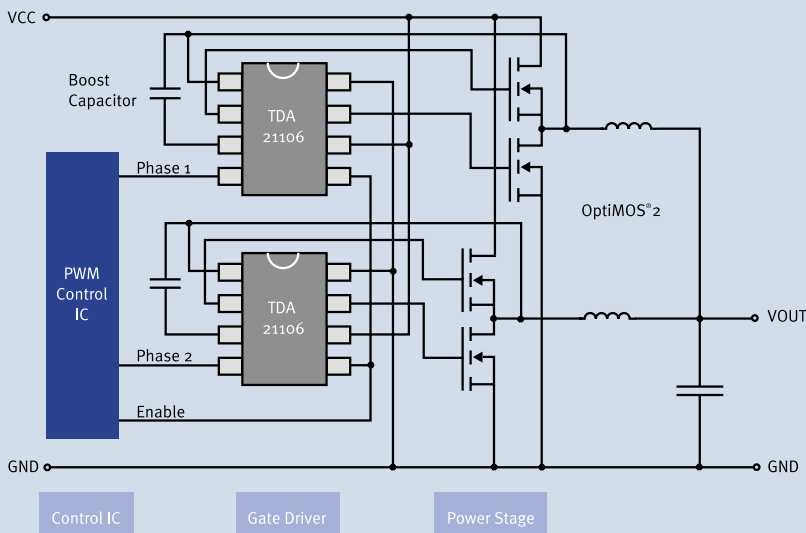
Never stop thinking.

Introduction

DC/DC CONVERSION plays a critical role in today's applications such as desktop and notebook computers, consumer equipment e.g. DVD players and set-top boxes or portable electronics, such as PDAs, MP3 players to mention but a few.

ALL THESE APPLICATIONS make ever-increasing demands on the internal power conversion; power losses must be reduced and efficiency improved, translating into less heat and a longer battery lifetime. At the same time devices are constantly shrinking in size, increasing the power density.

WE CAN HELP you out. Our OptiMOS² power MOSFET technology reduces the resistive and switching loss components significantly. The gate charge – and consequently the "figure-of-merit" of our devices – has become the new industry benchmark. More importantly, the output charge is reduced to extremely low levels, minimizing the total switching losses for a given output current. At the same time, best-in-class power MOSFETs with an on-resistance in the range of $3\text{m}\Omega$ and below, are now possible, making new circuit concepts and applications possible. New packages like our SS08 show strongly reduced package resistances, and – furthermore – parasitic inductances. Coupled with excellent thermal performance, our new 30 V OptiMOS² products allow for new levels of power conversion efficiency especially in portable applications. For applications with space constraints, a large product portfolio of devices in smaller packages is available, including dual and complementary devices.



IN A DC/DC CONVERTER solution all components must be optimized in order to achieve the highest efficiency and power density, at a given cost. Our low-voltage control ICs and gate drivers are designed for optimum performance, along with new ideas for control and protection functions.



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Integrated Switch

TDA 21201

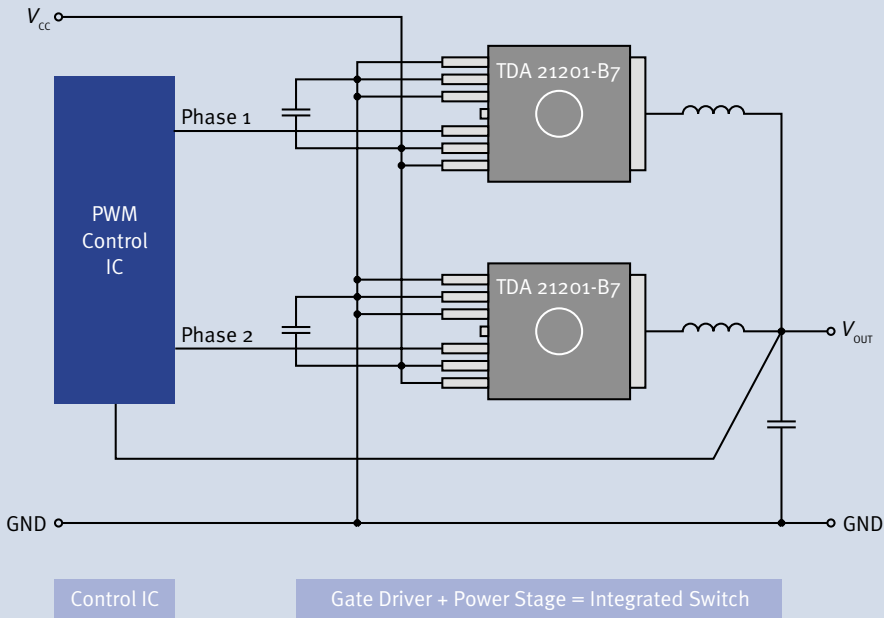
- Integrated switch = Gate driver + power MOSFETs
- Used for DC/DC conversion for CPU power supply on PC mainboards
- Can also be used for any voltage conversion with high V_{IN} / V_{OUT} ratio
- Gate driver functionality: Overtemperature protection, cross-current prevention, power-down
- Package: P-TO220-7 / D²-PAK
 - SMD version: TDA 21201-B7
 - Straight lead version: TDA 21201-P7
 - Staggered lead version: TDA 21201-S7
- Supply voltage 12 V
- Current rating depending on cooling:
30 A (Heatsink), 18 A (SMD)
- Efficiency >85% can be reached
- Simple board layout
- Volume production started

Gate Driver

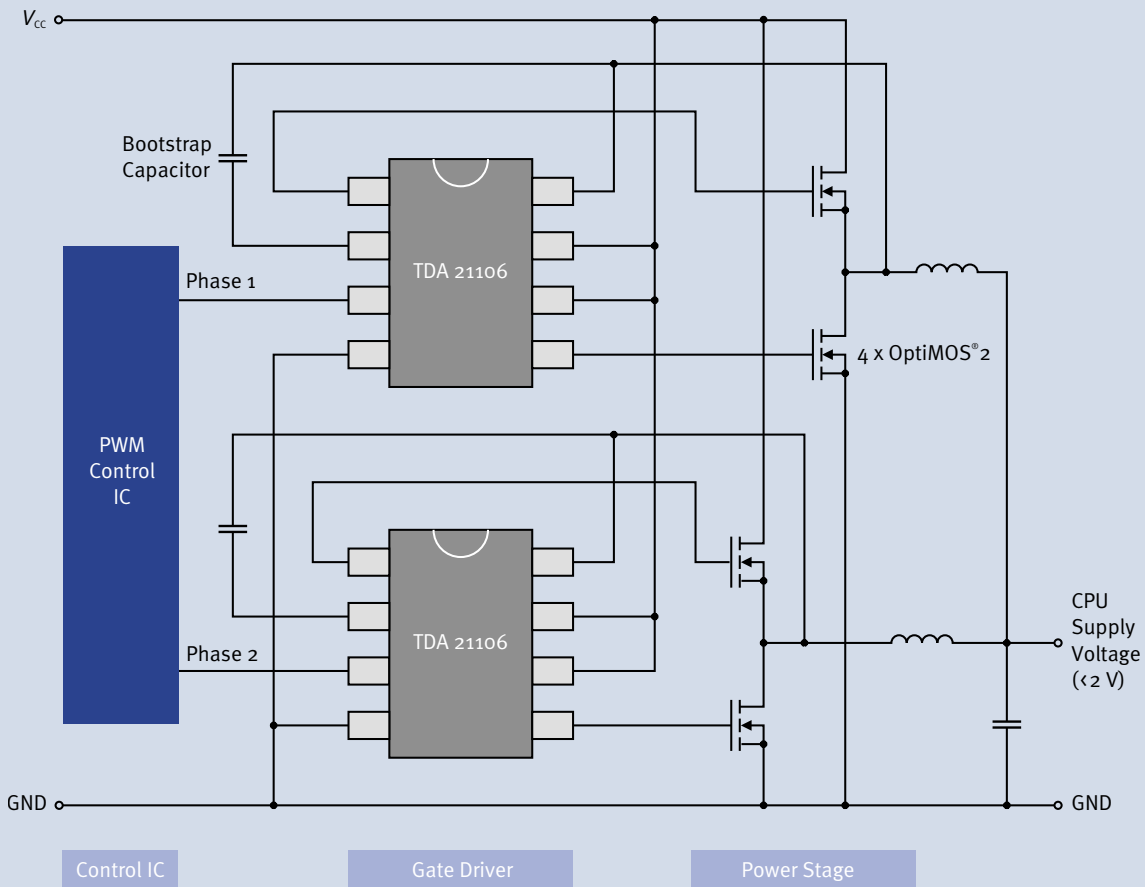
TDA 21102/TDA 21106

- High-speed MOSFET driver in single & dual version
- Drives two N-Channel MOS in half-bridge configuration (buck converter)
- Supply voltage 12 V
- Increased current handling capability for efficient high-speed designs:
Gate drive peak current \geq A
- Switching frequency >1 MHz
- Functionality: Cross-current prevention, shut-down mode
- Package P-DSO-8 (TDA 21106), P-DSO-14 (TDA 21102)
- Compatible with Intersil HIP6601 and 6602
- Can be used with all standard PWM controllers
- No bootstrap diode required





Application Example: Integrated Switch Application Circuit (2-phase solution) with a Simple and Clean Layout



Application Example: Stand-alone Gate Driver: Application Circuit (2-phase solution with single gate drivers)

N-Channel MOSFETs

N-Channel 25 V (OptiMOS[®] 2)

Package	$R_{DS(on) \text{ max. [m}\Omega]}$ @ $V_{GS} = 10 \text{ V}$	$V_{GS(th)} \text{ [V]}$	$I_D \text{ [A]}$	typ. $Q_g \text{ [nC]}$	Type
D-PAK	3.8	1.2...2.0	50.0	33.0	IPD04N03LA
	5.1	1.2...2.0	50.0	19.0	IPD05N03LA
	5.7	1.2...2.0	50.0	16.0	IPD06N03LA
	8.6	1.2...2.0	50.0	10.0	IPD09N03LA
	13.0	1.2...2.0	50.0	7.0	IPD13N03LA
Reverse D-PAK	4.1	1.2...2.0	50.0	33.0	IPF04N03LA
	5.4	1.2...2.0	50.0	19.0	IPF06N03LA
	8.9	1.2...2.0	50.0	10.0	IPF09N03LA
	13.3	1.2...2.0	30.0	7.0	IPF13N03LA
I-PAK	4.1	1.2...2.0	50.0	33.0	IPU04N03LA
	5.9	1.2...2.0	30.0	19.0	IPU06N03LA
	6.5	1.2...2.0	30.0	16.0	IPU07N03LA
	9.3	1.2...2.0	30.0	10.0	IPU09N03LA
	12.8	1.2...2.0	30.0	7.0	IPU13N03LA
D ² -PAK	2.7	1.2...2.0	80.0	43.0	IPB03N03LA
	3.9	1.2...2.0	80.0	24.0	IPB04N03LA
	4.6	1.2...2.0	80.0	19.0	IPB05N03LA
	5.9	1.2...2.0	50.0	16.0	IPB06N03LA
	8.9	1.2...2.0	50.0	10.0	IPB09N03LA
	13.6	1.2...2.0	50.0	7.0	IPB14N03LA
TO-220 (3-leg) I-PAK (TO-262)	3.0	1.2...2.0	80.0	43.0	IPP/I03N03LA
	4.2	1.2...2.0	80.0	24.0	IPP/I04N03LA
	4.9	1.2...2.0	80.0	19.0	IPP/I05N03LA
	6.2	1.2...2.0	50.0	16.0	IPP/I06N03LA
	9.2	1.2...2.0	50.0	10.0	IPP/I09N03LA
	13.9	1.2...2.0	50.0	7.0	IPP/I14N03LA

N-Channel 30 V (OptiMOS[®])

Package	$R_{DS(on) \text{ max. [m}\Omega]}$ @ $V_{GS} = 10 \text{ V}$	$V_{GS(th)} \text{ [V]}$	$I_D \text{ [A]}$	typ. $Q_g \text{ [nC]}$	Type
SO-8	7.8	1.2...2.0	13.0	27.0	BSO4420
	10.0	1.2...2.0	12.7	21.0	BSO4822
	13.0	1.2...2.0	11.1	17.0	BSO4410
	20.0	1.2...2.0	8.0	13.5	BSO4804 (dual)

Power Series 30 V (OptiMOS[®])

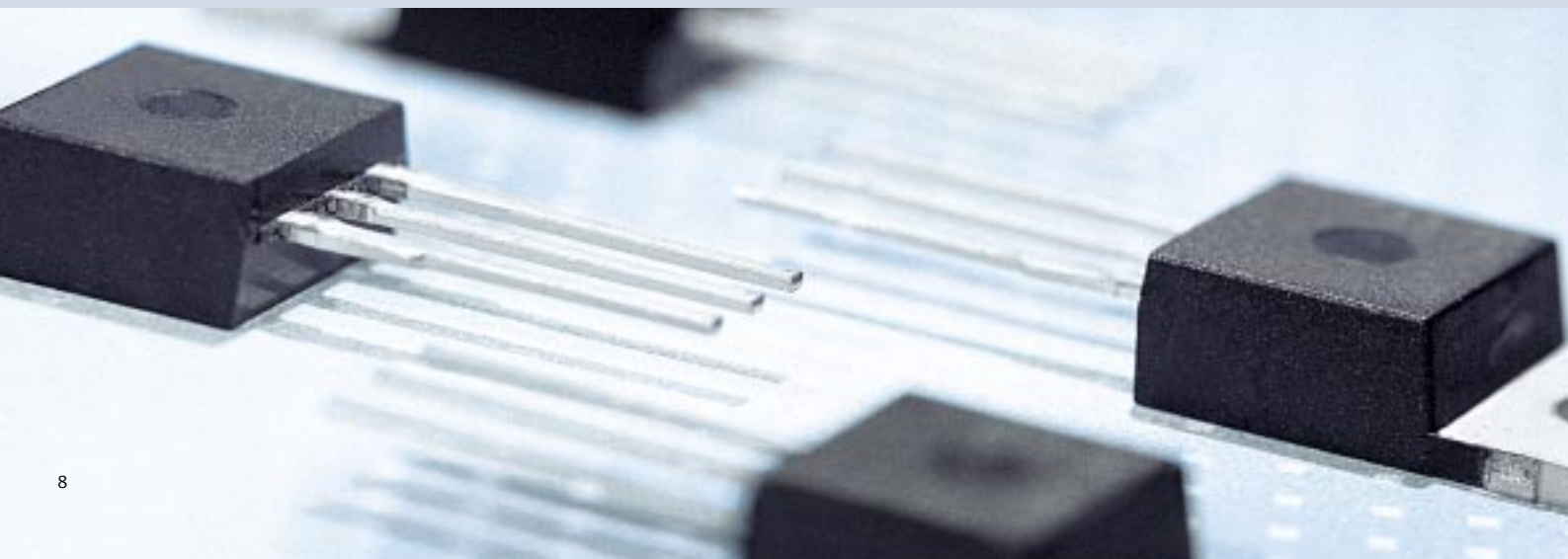
Package	$R_{DS(on)}$ max. [m Ω] @ $V_{GS} = 10$ V	$V_{GS(th)}$ [V]	I_D [A]	typ. Q_g [nC]	Type
D-PAK (5-leg) D-PAK	4.2	1.2...2.0	100.0	67.5	SPD100N03S2L-04
	6.7	1.2...2.0	30.0	51.0	SPD30N03S2L-07
	10.0	1.2...2.0	30.0	31.4	SPD30N03S2L-10
	20.0	1.2...2.0	30.0	14.3	SPD30N03S2L-20
	6.4	1.2...2.0	50.0	52.0	SPD50N03S2L-06
	7.3	2.1...4.0	50.0	35.0	SPD50N03S2-07
I-PAK	8.2	2.1...4.0	30.0	35.0	SPU30N03S2-08
	9.7	1.2...2.0	30.0	31.4	SPU30N03S2L-10
D ² -PAK	2.7	1.2...2.0	100.0	166.0	SPB100N03S2L-03
	3.0	2.1...4.0	100.0	113.0	SPB100N03S2-03
	2.8	1.2...2.0	80.0	166.0	SPB80N03S2-03
	3.1	2.1...4.0	80.0	110.0	SPB80N03S2-03
	3.9	1.2...2.0	80.0	79.0	SPB80N03S2L-04
	4.9	1.2...2.0	80.0	67.5	SPB80N03S2L-05
	5.9	1.2...2.0	80.0	51.0	SPB80N03S2L-06
	8.1	1.2...2.0	73.0	34.7	SPB73N03S2L-08
	12.6	1.2...2.0	42.0	22.9	SPB42N03S2L-13
TO-220 (3-leg) I ² -PAK (TO-262)	3.0	1.2...2.0	100.0	166.0	SPP/100N03S2L-03
	3.3	2.1...4.0	100.0	113.0	SPP/100N03S2-03
	3.1	1.2...2.0	80.0	166.0	SPP/180N03S2L-03
	3.4	2.1...4.0	80.0	110.0	SPP/180N03S2-03
	4.2	1.2...2.0	80.0	79.0	SPP/180N03S2L-04
	5.2	1.2...2.0	80.0	67.5	SPP/180N03S2L-05
	6.2	1.2...2.0	80.0	51.0	SPP/180N03S2L-06
	8.4	1.2...2.0	73.0	34.7	SPP/173N03S2L-08
	12.9	1.2...2.0	42.0	22.9	SPP/142N03S2L-13

N-Channel 40 V (OptiMOS®)

Package	$R_{DS(on) \text{ max.}}$ [mΩ] @ $V_{GS} = 10 \text{ V}$	$V_{GS(th)}$ [V]	I_D [A]	typ. Q_g [nC] @ $V_{GS} = 10 \text{ V}$	Type
TO-220 (3-leg) D ² -PAK	3.6	2.1...4.0	100.0	129.0	SPP/B100No4S2-04
	3.3	1.2...2.0	100.0	170.0	SPP/B100No4S2L-03
	3.7	2.1...4.0	80.0	135.0	SPP/B80No4S2-04
	3.4	1.2...2.0	80.0	160.0	SPP/B80No4S2L-03

N-Channel Enhancement 50 V

Package	$R_{DS(on)}$ [mΩ]	$V_{GS(th)}$ [V]	I_D [A]	Type
SOT-223	300	0.8...2.0	1.8	BSP295



N-Channel 55 V (OptiMOS®)

Package	$R_{DS(on) \text{ max. [m}\Omega]$ @ $V_{GS} = 10 \text{ V}$	$V_{GS(th) [V]}$	$I_D [A]$	typ. $Q_g [nC]$ @ $V_{GS} = 10 \text{ V}$	Type
TO-220 (3-leg) D ² -PAK	4.7	1.2...2.0	100.0	165.0	SPP/B100No6S2L-05
	5.0	2.1...4.0	100.0	127.0	SPP/B100No6S2-05
	4.8	1.2...2.0	80.0	165.0	SPP/B80No6S2L-05
	5.1	2.1...4.0	80.0	120.0	SPP/B80No6S2-05
	6.3	1.2...2.0	80.0	115.0	SPP/B80No6S2L-06
	6.6	2.1...4.0	80.0	96.0	SPP/B80No6S2-07
	7.0	1.2...2.0	80.0	97.0	SPP/B80No6S2L-07
	8.0	2.1...4.0	80.0	72.0	SPP/B80No6S2-08
	8.5	1.2...2.0	80.0	78.0	SPP/B80No6S2L-09
	9.1	2.1...4.0	80.0	62.0	SPP/B80No6S2-09
	11.0	1.2...2.0	80.0	62.0	SPP/B80No6S2L-11
12.0	2.1...4.0	77.0	49.0	SPP/B77No6S2-12	
D-PAK	12.7	1.2...2.0	50.0	55.0	SPD50No6S2L-13
	14.4	2.1...4.0	50.0	41.0	SPD50No6S2-14
	13.0	1.2...2.0	30.0	52.0	SPD30No6S2L-13
	14.7	2.1...4.0	30.0	40.0	SPD30No6S2-15
	23.0	1.2...2.0	30.0	33.0	SPD30No6S2L-23
	23.0	2.1...4.0	30.0	26.0	SPD30No6S2-23
	35.0	1.2...2.0	26.0	20.0	SPD26No6S2L-35
	40.0	2.1...4.0	25.0	16.0	SPD25No6S2-40
	64.0	1.2...2.0	15.0	12.0	SPD15No6S2L-64
80.0	2.1...4.0	14.0	9.0	SPD14No6S2-80	
SO-8	35.0	1.2...2.0	5.0	19.0	BSO604NS2 (dual)
SOT-223	33.0	1.2...2.0	5.2	33.0	BSP603S2L
	90.0	1.2...2.0	2.8	8.1	BSP615S2L
SOT-23	650.0	1.2...2.0	0.54	1.7	BSS670S2L

N-Channel Enhancement 60 V

Package	$R_{DS(on) \text{ max. [m}\Omega]$ @ $V_{GS} = 10 \text{ V}$	$V_{GS(th) [V]}$	$I_D [A]$	typ. $Q_g [nC]$	Type
SO-8	150	1.2...2.0	2.6	14.0	B50615N (dual)
	120	2.1...4.0	3.1	9.7	B50615NV (dual)
SOT-223	90	1.2...2.0	2.6	14.0	BSP318S
	120	2.1...4.0	2.9	9.7	BSP320S
SOT-23	3500	0.6...1.4	0.23	1.12	BSS138N
	5000	0.8...2.0	0.2	1.00	SN7002N
	5000	1.0...2.5	0.2	1.15	BSS7728N
SOT-323	3500	0.6...1.4	0.28	1.13	BSS138W
	5000	0.8...2.0	0.2	1.0	SN7002W

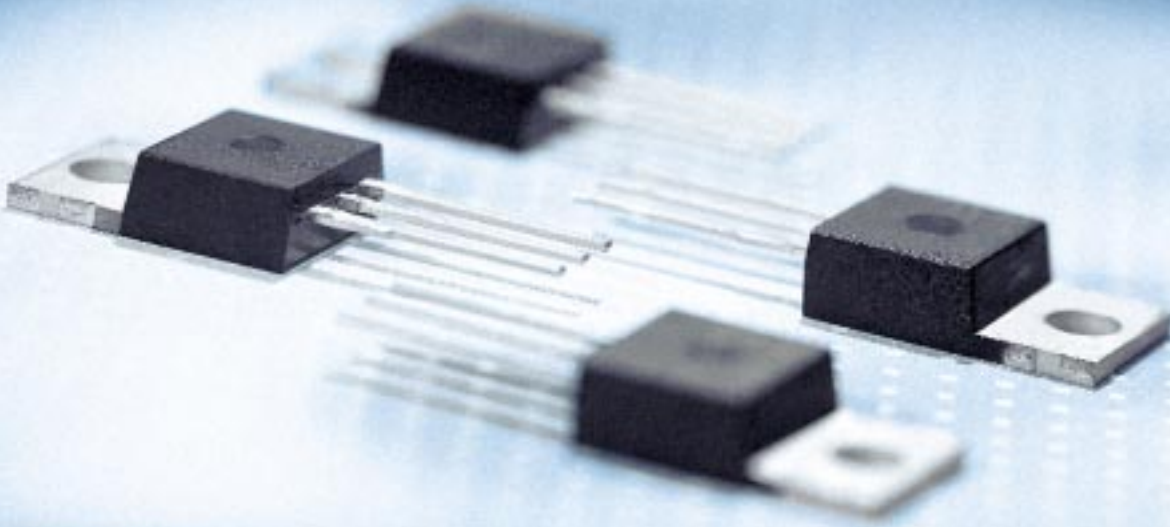
N-Channel 75 V (OptiMOS[®])

Package	$R_{DS(on) \text{ max. [m}\Omega]$ @ $V_{GS} = 10 \text{ V}$	$V_{GS(th) [V]}$	$I_D [A]$	typ. $Q_g [nC]$ @ $V_{GS} = 10 \text{ V}$	Type
D-PAK	21.5	2.1...4.0	30.0	43.0	SPD30No8S2-22
	20.5	1.2...2.0	30.0	33.0	SPD30No8S2L-21
	50.0	1.2...2.0	22.0	22.0	SPD22No8S2L-50
TO-220 (3-leg) D ² -PAK	7.1	2.1...4.0	100.0	153.0	SPP/B100No8S2-07
	6.8	1.2...2.0	100.0	185.0	SPP/B100No8S2L-07
	7.4	2.1...4.0	80.0	138.0	SPP/B80No8S2-07
	7.1	1.2...2.0	80.0	186.0	SPP/B80No8S2L-07
TO-262	7.3	2.1...4.0	80.0	138.0	SPI80No8S2-07R*

* with integrated gate resistor for easy paralleling of FETs

N-Channel Enhancement 100 V

Package	$R_{DS(on) \text{ max. [m}\Omega]$ @ $V_{GS} = 10 \text{ V}$	$V_{GS(th) [V]}$	$I_D [A]$	typ. $Q_g [nC]$ @ $V_{GS} = 10 \text{ V}$	Type
TO-220 (3-leg) D ² -PAK TO-262	14	1.2...2.0	80.0	160.0	SPP/B/180N10L
	16	1.2...2.0	70.0	160.0	SPP/B/170N10L
	26	1.2...2.0	47.0	90.0	SPP/B/147N10L
	33	2.1...4.0	47.0	70.0	SPP/B/147N10
	44	2.1...4.0	35.0	49.0	SPP/B/135N10
	80	2.1...4.0	21.0	28.9	SPP/B/121N10
	154	1.2...2.0	10.3	17.7	SPP/B/110N10L
	170	2.1...4.0	10.3	14.6	SPP/B/110N10
D-PAK	44	2.1...4.0	35.0	49.0	SPD35N10
	170	2.1...4.0	10.5	14.6	SPD/U11N10
SOT-223	300	2.1...4.0	1.7	–	BSP373
	310	0.8...2.0	1.7	–	BSP372
	800	0.8...2.0	1.0	–	BSP296
	6000	0.8...2.0	0.38	–	BSP123
SOT-23	6000	0.8...2.0	0.17	–	BSS123
	6000	1.6...2.6	0.17	–	BSS119
TO-218	35	2.1...4.0	50.0	210.0	BUZ344
	45	2.1...4.0	41.0	78.0	BUZ345
	60	2.1...4.0	32.0	62.0	BUZ349



N-Channel Enhancement 200 V

Package	$R_{DS(on) \text{ max.}} [\Omega]$ @ $V_{GS} = 10 \text{ V}$	$V_{GS(th)} [V]$	$I_D [A]$	typ. $Q_g [nC]$ @ $V_{GS} = 10 \text{ V}$	Type
D-PAK I-PAK	0.4	2.1...4.0	7.0	21.0	SPD/U07N20
SOT-223	2.0	0.8...2.0	0.65	–	BSP297
TO-218	0.07	2.1...4.0	33.0	112.0	BUZ341
	0.12	2.1...4.0	22.0	64.0	BUZ350
TO-220 (3-leg) D ² -PAK	0.13	2.1...4.0	21.0	64.0	BUZ30A
	0.2	2.1...4.0	14.5	50.0	BUZ31
	0.2	1.2...2.0	13.5	90.0	BUZ31L
	0.4	2.1...4.0	9.5	24.0	BUZ32
	0.4	2.1...4.0	7.0	24.0	BUZ73
	0.4	1.2...2.0	7.0	58.0	BUZ73L
	0.6	2.1...4.0	5.5	24.0	BUZ73A
	0.6	1.2...2.0	5.5	58.0	BUZ73AL

N-Channel Enhancement 240 V

Package	$R_{DS(on) \text{ max.}} [\Omega]$ @ $V_{GS} = 10 \text{ V}$	$V_{GS(th)} [V]$	$I_D [A]$	Type
SOT-223	6	0.8...2.0	0.5	BSP89
	8	0.6...1.2	0.25	BSP88
SOT-89	6	0.8...2.0	0.29	BSS87
SOT-23	16	0.8...2.0	0.1	BSS131

P-Channel MOSFETs

P-Channel -20 V (OptiMOS[®])

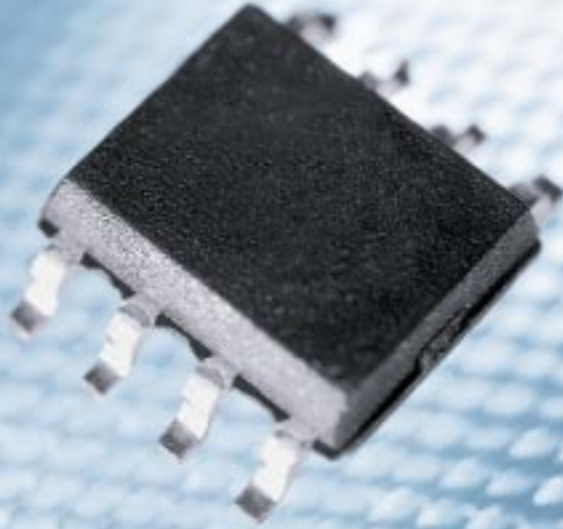
Package	$R_{DS(on) \text{ max. [m}\Omega]}$ @ $V_{GS} = 4.5 \text{ V}$	$R_{DS(on) \text{ max. [m}\Omega]}$ @ $V_{GS} = 2.5 \text{ V}$	$V_{GS(th)} \text{ [V]}$	$I_D \text{ [A]}$	typ. $Q_g \text{ [nC]}$	Type
SO-8	8	12.9	-1.2...-0.6	14.9	85.5	BSO201SP
	21	34.0	-1.2...-0.6	9.0	33.6	BSO203SP
	21	35.0	-1.2...-0.6	8.2	32.4	BSO203P (dual)
	30	42.0	-1.2...-0.6	7.0	23.9	BSO204P (dual)
	45	70.0	-1.2...-0.6	5.7	15.6	BSO207P (dual)
	67	110.0	-1.2...-0.6	4.7	15.9	BSO211P (dual)
SOT-323	550	900.0	-1.2...-0.6	0.58	0.92	BSS209PW
	1200	2100.0	-1.2...-0.6	0.39	0.5	BSS223PW
SOT-363	175	285.0	-1.2...-0.6	1.5	3.8	BSV236SP
	1200	2100.0	-1.2...-0.6	0.35	0.5	BSD223P (dual)
TSOP-6	41	65.0	-1.2...-0.6	6.0	13.3	BSL207SP
	67	110.0	-1.2...-0.6	4.7	8.3	BSL211SP
SC-75	1200	2100.0	-1.2...-2.1	-0.39	-0.5	BSA223SP

P-Channel -30 V (OptiMOS[®])

Package	$R_{DS(on) \text{ max. [m}\Omega]}$ @ $V_{GS} = 10 \text{ V}$	$R_{DS(on) \text{ max. [m}\Omega]}$ @ $V_{GS} = 4.5 \text{ V}$	$V_{GS(th)} \text{ [V]}$	$I_D \text{ [A]}$	typ. $Q_g \text{ [nC]}$	Type
D-PAK (5-leg)	7	12.5	-2.0...-1.0	50.0	119.0	SPD50Po3L
SO-8	8	12.0	-2.0...-1.0	14.9	121.0	BSO301SP
	21	32.0	-2.0...-1.0	8.2	48.3	BSO303P (dual)
	21	31.0	-2.0...-1.0	8.9	46.0	BSO303SP
TSOP-6	43	74.0	-2.0...-1.0	5.5	23.4	BSL307SP

P-Channel -60 V

Package	$R_{DS(on) \text{ max. [}\Omega]}$ @ $V_{GS} = 10 \text{ V}$	$R_{DS(on) \text{ max. [}\Omega]}$ @ $V_{GS} = 4.5 \text{ V}$	$V_{GS(th)} \text{ [V]}$	$I_D \text{ [A]}$	typ. $Q_g \text{ [nC]}$	Type
D-PAK I-PAK	0.075	–	-4.0...-2.1	-30.0	32.0	SPD/U30Po6P
	0.13	–	-4.0...-2.1	-18.6	22.0	SPD/U18Po6P
	0.25	0.4	-2.0...-1.0	-9.7	14.0	SPD/U09Po6PL
	0.3	–	-4.0...-2.1	-8.8	10.0	SPD/U08Po6P
SO-8	0.13	–	-4.0...-2.1	-3.44	20.0	BSO613SPV
SOT-23	2.0	3.0	-2.0...-1.0	-0.33	2.38	BSS83P
	8.0	12.0	-2.0...-1.0	-0.17	1.0	BSS84P



P-Channel -60 V

Package	$R_{DS(on) \text{ max.}} [\Omega]$ @ $V_{GS} = 10 \text{ V}$	$R_{DS(on) \text{ max.}} [\Omega]$ @ $V_{GS} = 4.5 \text{ V}$	$V_{GS(th)} [V]$	$I_D [A]$	typ. $Q_g [nC]$	Type
SOT-223	0.13	–	-4.0...-2.1	-2.9	22.0	BSP613P
	0.3	–	-4.0...-2.1	-1.9	12.5	BSP170P
	0.3	0.45	-2.0...-1.0	-1.9	13.3	BSP171P
	0.8	1.4	-2.0...-1.0	-1.17	5.2	BSP315P
SOT-323	8.0	12.0	-2.0...-1.0	-0.15	1.0	BSS84PW*
TO-220 (3-leg) D ² -PAK	0.023	–	-4.0...-2.1	-80.0	115.0	SPP/B80Po6P
	0.13	–	-4.0...-2.1	-18.6	22.0	SPP/B18Po6P
	0.3	–	-4.0...-2.1	-8.8	10.0	SPP/Bo8Po6P

* $R_{DS(on) \text{ max.}} = 25 \Omega$, @ $V_{GS} = 2.7 \text{ V}$

P-Channel -100V

Package	$R_{DS(on) \text{ max.}} [m\Omega]$ @ $V_{GS} = 10 \text{ V}$	$R_{DS(on) \text{ max.}} [m\Omega]$ @ $V_{GS} = 4.5 \text{ V}$	$V_{GS(th)} [V]$	$I_D [A]$	typ. $Q_g [nC]$	Type
SOT-223	1.8	2.3	-2.0...-1.0	-0.68	5.1	BSP316P
TO-220	0.24	–	-4.0...-2.1	15.0	33.4	SPP15P10P

P-Channel -250V

Package	$R_{DS(on) \text{ max.}} [m\Omega]$ @ $V_{GS} = 10 \text{ V}$	$R_{DS(on) \text{ max.}} [m\Omega]$ @ $V_{GS} = 4.5 \text{ V}$	$V_{GS(th)} [V]$	$I_D [A]$	typ. $Q_g [nC]$	Type
SOT-223	5	4	-2.0...-1.0	0.43	11.6	BSP317P
	12	15	-2.0...-1.0	0.26	4.3	BSP92P
SOT-89	12	15	-2.0...-1.0	0.19	4.9	BSS192P

Complementary P/N-Enhancement




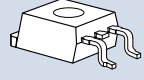
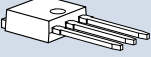
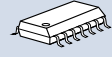
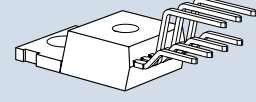



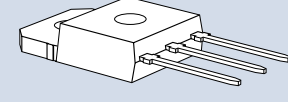
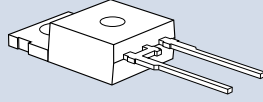
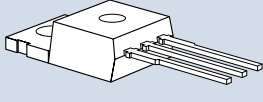
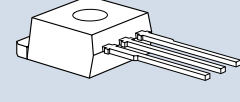

Package	$V_{DS} [V]$	$R_{DS(on)} [m\Omega]$	$V_{GS(th)} [V]$	$I_D [A]$	typ. $Q_g [nC]$		Type
					P	N	
SO-8	30	110	1.2...2.0	3.4	7.0	7.8	BSO315C
	-30	250	-2.0...-1.0	-2.3			
	60	110	1.2...2.0	-3.1	13.5	15.0	BSO615C
	-60	300	-2.0...-1.0	-2.0			
	60	120	2.1...4.0	3.0	10.5	10.3	BSO612CV
	-60	300	-4.0...-2.1	-2.0			



Alphanumeric Listing

Product Name	Product Description	Voltage Class	Page	Product Name	Product Description	Voltage Class	Page
BSA223SP	P-Channel MOSFET	-20V	12	IPF09No3LA	OptiMOS2 Transistor	25V	6
BSD223P (dual)	P-Channel MOSFET	-20V	12	IPF13No3LA	OptiMOS2 Transistor	25V	6
BSL207SP	P-Channel MOSFET	-20V	12	IPP14No3LA	OptiMOS2 Transistor	25V	6
BSL211SP	P-Channel MOSFET	-20V	12	IPP/103No3LA	OptiMOS2 Transistor	25V	6
BSL307SP	P-Channel MOSFET	-30V	12	IPP/104No3LA	OptiMOS2 Transistor	25V	6
BSO201SP	P-Channel MOSFET	-20V	12	IPP/105No3LA	OptiMOS2 Transistor	25V	6
BSO203P (dual)	P-Channel MOSFET	-20V	12	IPP/106No3LA	OptiMOS2 Transistor	25V	6
BSO203SP	P-Channel MOSFET	-20V	12	IPP/109No3LA	OptiMOS2 Transistor	25V	6
BSO204P (dual)	P-Channel MOSFET	-20V	12	IPP/114No3LA	OptiMOS2 Transistor	25V	6
BSO207P (dual)	P-Channel MOSFET	-20V	12	IPU04No3LA	OptiMOS2 Transistor	25V	6
BSO211P (dual)	P-Channel MOSFET	-20V	12	IPU06No3LA	OptiMOS2 Transistor	25V	6
BSO301SP	P-Channel MOSFET	-30V	12	IPU07No3LA	OptiMOS2 Transistor	25V	6
BSO303P (dual)	P-Channel MOSFET	-30V	12	IPU09No3LA	OptiMOS2 Transistor	25V	6
BSO303SP	P-Channel MOSFET	-30V	12	IPU13No3LA	OptiMOS2 Transistor	25V	6
BSO315C	Complementary P/N Enhancement MOSFET	30V	13	SN7002N	N-Channel Enhancement	60V	10
BSO315C	Complementary P/N Enhancement MOSFET	-30V	13	SN7002W	N-Channel Enhancement	60V	10
BSO4410	N-Channel MOSFET	30V	6	SPD14No6S2L-80	N-Channel MOSFET	55V	9
BSO4420	N-Channel MOSFET	30V	6	SPD15No6S2L-64	N-Channel MOSFET	55V	9
BSO4804 (dual)	N-Channel MOSFET	30V	6	SPD22No8S2L-50	N-Channel MOSFET	75V	10
BSO4822	N-Channel MOSFET	30V	6	SPD25No6S2L-40	N-Channel MOSFET	55V	9
BSO604NS2 (dual)	N-Channel MOSFET	55V	9	SPD26No6S2L-35	N-Channel MOSFET	55V	9
BSO613SPV	P-Channel MOSFET	-60V	12	SPD30No3S2L-07	Power Series	30V	7
BSO612CV	Complementary P/N Enhancement MOSFET	60V	13	SPD30No3S2L-10	Power Series	30V	7
BSO612CV	Complementary P/N Enhancement MOSFET	-60V	13	SPD30No3S2L-20	Power Series	30V	7
BSO615C	Complementary P/N Enhancement MOSFET	60V	13	SPD30No6S2L-15	N-Channel MOSFET	55V	9
BSO615C	Complementary P/N Enhancement MOSFET	-60V	13	SPD30No6S2L-23	N-Channel MOSFET	55V	9
BSO615N (dual)	N-Channel Enhancement	60V	10	SPD30No6S2L-13	N-Channel MOSFET	55V	9
BSO615NV (dual)	N-Channel Enhancement	60V	10	SPD30No6S2L-23	N-Channel MOSFET	55V	9
BSP123	N-Channel Enhancement MOSFET	100V	10	SPD30No8S2L-22	N-Channel MOSFET	75V	10
BSP170P	P-Channel MOSFET	-60V	13	SPD30No8S2L-21	N-Channel MOSFET	75V	10
BSP171P	P-Channel MOSFET	-60V	13	SPD35N10	N-Channel Enhancement MOSFET	100V	10
BSP295	N-Channel MOSFET	50V	8	SPD50No3S2L-07	Power Series	30V	7
BSP296	N-Channel Enhancement MOSFET	100V	10	SPD50No3S2L-06	Power Series	30V	7
BSP297	N-Channel Enhancement MOSFET	200V	11	SPD50No6S2L-14	N-Channel MOSFET	55V	9
BSP315P	P-Channel MOSFET	-60V	13	SPD50No6S2L-13	N-Channel MOSFET	55V	9
BSP316P	P-Channel MOSFET	-100V	13	SPD50P03L	P-Channel MOSFET	-30V	12
BSP317P	P-Channel MOSFET	-240V	13	SPD100No3S2L-04	Power Series	30V	7
BSP318S	N-Channel Enhancement	60V	10	SPD/U07N20	N-Channel Enhancement MOSFET	200V	11
BSP320S	N-Channel Enhancement	60V	10	SPD/U08P06P	P-Channel MOSFET	-60V	12
BSP372	N-Channel Enhancement MOSFET	100V	10	SPD/U09P06PL	P-Channel MOSFET	-60V	12
BSP373	N-Channel Enhancement MOSFET	100V	10	SPD/U11N10	N-Channel Enhancement MOSFET	100V	10
BSP603S2L	N-Channel MOSFET	55V	9	SPD/U18P06P	P-Channel MOSFET	-60V	12
BSP613P	P-Channel MOSFET	-60V	13	SPD/U30P06P	P-Channel MOSFET	-60V	12
BSP615S2L	N-Channel MOSFET	55V	9	SPI80No8S2L-07R	N-Channel MOSFET	75V	10
BSP88	N-Channel Enhancement	240V	11	SPP15P10P	P-Channel MOSFET	-100V	13
BSP89	N-Channel Enhancement	240V	11	SPP/B08P06P	P-Channel MOSFET	-60V	13
BSP92P	P-Channel MOSFET	-240V	13	SPP/B18P06P	P-Channel MOSFET	-60V	13
BSS119	N-Channel Enhancement MOSFET	100V	10	SPP/B77No6S2L-12	N-Channel MOSFET	55V	9
BSS123	N-Channel Enhancement MOSFET	100V	10	SPP/B80No4S2L-04	N-Channel MOSFET	40V	8
BSS131	N-Channel Enhancement	240V	11	SPP/B80No4S2L-03	N-Channel MOSFET	40V	8
BSS138N	N-Channel Enhancement	60V	10	SPP/B80No6S2L-05	N-Channel MOSFET	55V	9
BSS138W	N-Channel Enhancement	60V	10	SPP/B80No6S2L-05	N-Channel MOSFET	55V	9
BSS192P	P-Channel MOSFET	-240V	13	SPP/B80No6S2L-06	N-Channel MOSFET	55V	9
BSS209PW	P-Channel MOSFET	-20V	12	SPP/B80No6S2L-07	N-Channel MOSFET	55V	9
BSS223PW	P-Channel MOSFET	-20V	12	SPP/B80No6S2L-07	N-Channel MOSFET	55V	9
BSS670S2L	N-Channel MOSFET	55V	0	SPP/B80No6S2L-08	N-Channel MOSFET	55V	9
BSS7728N	N-Channel Enhancement	60V	10	SPP/B80No6S2L-09	N-Channel MOSFET	55V	9
BSS83P	P-Channel MOSFET	-60V	12	SPP/B80No6S2L-11	N-Channel MOSFET	55V	9
BSS84P	P-Channel MOSFET	-60V	12	SPP/B80No8S2L-07	N-Channel MOSFET	75V	10
BSS84PW	P-Channel MOSFET	-60V	13	SPP/B80No8S2L-07	N-Channel MOSFET	75V	10
BSS87	N-Channel Enhancement	240V	11	SPP/B80P06P	P-Channel MOSFET	-60V	13
BSV236SP	P-Channel MOSFET	-20V	12	SPP/B100No4S2L-04	N-Channel MOSFET	40V	8
BUZ30A	N-Channel Enhancement MOSFET	200V	11	SPP/B100No4S2L-03	N-Channel MOSFET	40V	8
BUZ31	N-Channel Enhancement MOSFET	200V	11	SPP/B100No6S2L-05	N-Channel MOSFET	55V	9
BUZ31L	N-Channel Enhancement MOSFET	200V	11	SPP/B100No6S2L-05	N-Channel MOSFET	55V	9
BUZ32	N-Channel Enhancement MOSFET	200V	11	SPP/B100No8S2L-07	N-Channel MOSFET	75V	10
BUZ341	N-Channel Enhancement MOSFET	200V	11	SPP/B100No8S2L-07	N-Channel MOSFET	75V	10
BUZ344	N-Channel Enhancement MOSFET	100V	10	SPP/B/110N10	N-Channel Enhancement MOSFET	100V	10
BUZ345	N-Channel Enhancement MOSFET	100V	10	SPP/B/110N10L	N-Channel Enhancement MOSFET	100V	10
BUZ349	N-Channel Enhancement MOSFET	100V	10	SPP/B/121N10	N-Channel Enhancement MOSFET	100V	10
BUZ350	N-Channel Enhancement MOSFET	200V	11	SPP/B/135N10	N-Channel Enhancement MOSFET	100V	10
BUZ73	N-Channel Enhancement MOSFET	200V	11	SPP/B/142No3S2L-13	Power Series	30V	7
BUZ73A	N-Channel Enhancement MOSFET	200V	11	SPP/B/147N10	N-Channel Enhancement MOSFET	100V	10
BUZ73AL	N-Channel Enhancement MOSFET	200V	11	SPP/B/147N10L	N-Channel Enhancement MOSFET	100V	10
BUZ73L	N-Channel Enhancement MOSFET	200V	11	SPP/B/170N10L	N-Channel Enhancement MOSFET	100V	10
IPB03No3LA	OptiMOS2 Transistor	25V	6	SPP/B/173No3S2L-08	Power Series	30V	7
IPB04No3LA	OptiMOS2 Transistor	25V	6	SPP/B/180N10L	N-Channel Enhancement MOSFET	100V	10
IPB05No3LA	OptiMOS2 Transistor	25V	6	SPP/B/180No3S2L-03	Power Series	30V	7
IPB06No3LA	OptiMOS2 Transistor	25V	6	SPP/B/180No3S2L-03	Power Series	30V	7
IPB09No3LA	OptiMOS2 Transistor	25V	6	SPP/B/180No3S2L-04	Power Series	30V	7
IPB14No3LA	OptiMOS2 Transistor	25V	6	SPP/B/180No3S2L-05	Power Series	30V	7
IPD04No3LA	OptiMOS2 Transistor	25V	6	SPP/B/180No3S2L-06	Power Series	30V	7
IPD05No3LA	OptiMOS2 Transistor	25V	6	SPP/B/100No3S2L-03	Power Series	30V	7
IPD06No3LA	OptiMOS2 Transistor	25V	6	SPP/B/100No3S2L-03	Power Series	30V	7
IPD09No3LA	OptiMOS2 Transistor	25V	6	SPP/B/100No3S2L-03	Power Series	30V	7
IPD13No3LA	OptiMOS2 Transistor	25V	6	SPU30No3S2L-08	Power Series	30V	7
IPF04No3LA	OptiMOS2 Transistor	25V	6	SPU30No3S2L-10	Power Series	30V	7
IPF06No3LA	OptiMOS2 Transistor	25V	6	SPP/B100No6S2L-05	N-Channel MOSFET	55V	9

Packages

<p>D-PAK (P-TO252-3-1)</p> 	<p>REVERSE D-PAK (P-TO252-3-23)</p> 	<p>D-PAK (5-leg) (P-TO252-5-1)</p> 	<p>D²-PAK (P-TO263-3-2)</p> 
<p>I-PAK (P-TO251-3-1)</p> 	<p>P-DSO-8</p> 	<p>P-DSO-14</p> 	<p>P-TO220-7</p> 
<p>SC-75</p> 	<p>SO-8 (P-DSO-8-1)</p> 	<p>SOT-23 (P-SOT23-3)</p> 	<p>SOT-89 (P-SOT89-4)</p> 
<p>SOT-223 (P-SOT223-4)</p> 	<p>SOT-323 (P-SOT323-3)</p> 	<p>SOT-363 (P-SOT363-6)</p> 	<p>TO-218 (P-TO218-3-1)</p> 
<p>TO-220 (2-leg) (P-TO220-2-2)</p> 	<p>TO-220 (3-leg) (P-TO220-3-1)</p> 	<p>I²-PAK (TO-262)</p> 	<p>TSOP-6 (P-TSOP-6-1)</p> 

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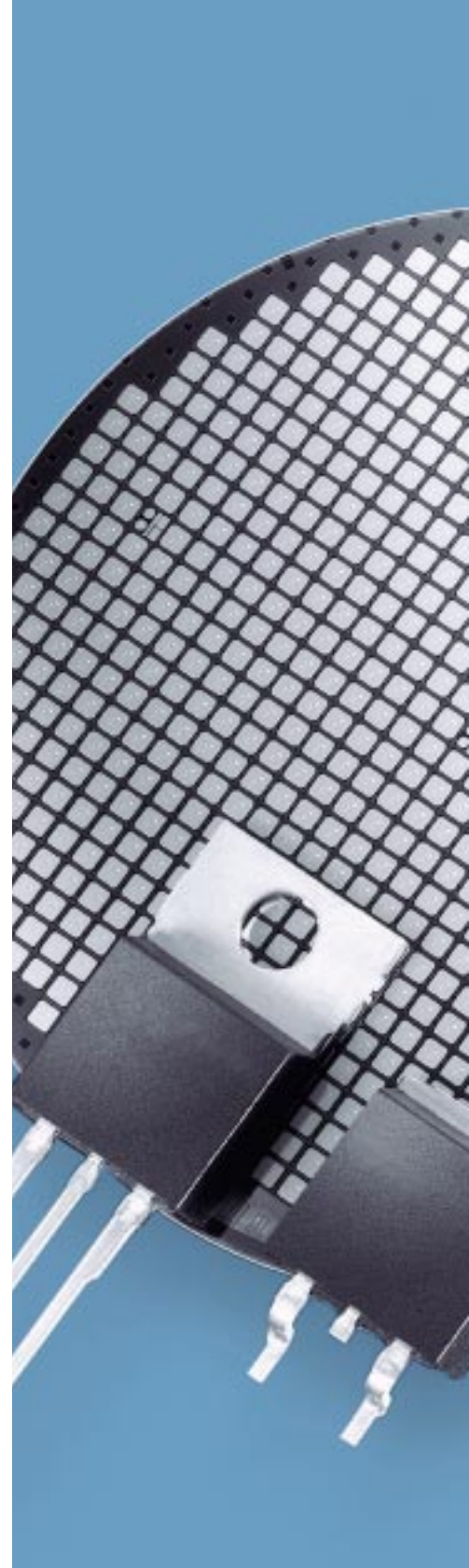
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