

Selection Guides

30 V N-channel Automotive TrenchMOS

R _{DSon} (max) @10 V (mΩ)	R _{DSon} (max) @5 V (mΩ)	I _D (max) @25 °C (A)	R _{th(j-mb)} (max) (K/W)	3-lead TO-220AB (SOT78A)	I2PAK (SOT226)	D2PAK (SOT404)	DDPAK (SOT428)	LFPAK (SOT669)
								
				15.5 x 10.0 x 4.3	11.0 x 10.0 x 4.3	11.0 x 10.0 x 4.3	6.0 x 6.6 x 2.3	3.95 x 4.9 x 1.1
1.5		100	0.45			<u>BUK661R5-30C</u>		
1.7			0.45	<u>BUK651R7-30C^[1]</u>	<u>BUK6E1R7-30C</u>			
1.8		100	0.45			BUK761R8-30C		
1.8		100	0.57			<u>BUK661R8-30C</u>		
2.1			0.59	<u>BUK652R1-30C^[1]</u>				
2.4	2.8	75	0.5	BUK952R8-30B		BUK962R8-30B		
2.5			0.74			<u>BUK662R5-30C</u>		
2.7		75	0.5	BUK752R7-30B	BUK7E2R7-30B	BUK762R7-30B		
2.7			0.74	<u>BUK652R7-30C^[1]</u>				
3	4	75	0.59		BUK9E04-30B			
3.4		75	0.59	BUK753R4-30B		BUK763R4-30B		
3.5			0.95			<u>BUK663R5-30C</u>		
3.7			0.95	<u>BUK653R7-30C^[1]</u>				
4.2	7	75	1.42					<u>BUK9Y07-30B</u>
4.5		75	0.95				<u>BUK724R5-30C</u>	
4.6	5	75	0.65	BUK9505-30A		BUK9605-30A		
5	7	75	0.95	BUK9507-30B		BUK9607-30B	BUK9207-30B	
7		75	1.42					<u>BUK7Y07-30B</u>
7		75	0.95	BUK7507-30B		BUK7607-30B	BUK7207-30B	
9	11	59	2					BUK9Y11-30B
10		66	1.76					<u>BUK7Y10-30B</u>
11	13	75	1				BUK9213-30A	
12	14	63	1.4				BUK9214-30A	
13		55	1.4				BUK6213-30A	
13.7	22	37	2.53					<u>BUK9Y22-30B</u>
20		39	2.53					<u>BUK7Y20-30B</u>

Types in **bold red** represent new products

Types in **bold red italic underline** represent products in development

^[1] these products use SOT78B package

40 V N-channel Automotive TrenchMOS

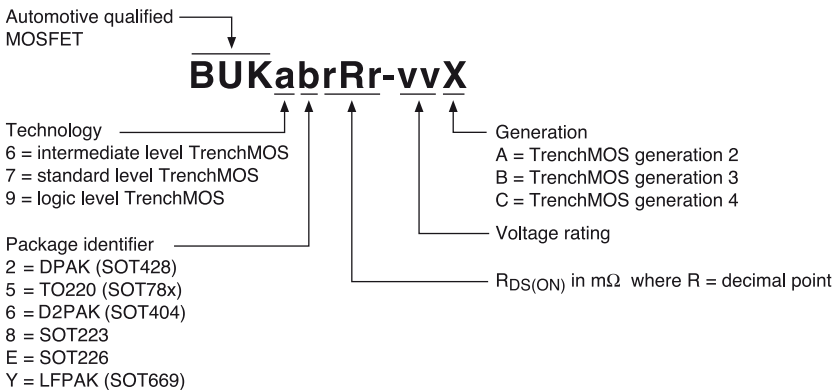
R _{DS(on)} (max) @10 V (mΩ)	R _{DS(on)} (max) @5 V (mΩ)	I _D (max) @25 °C (A)	R _{th(j-mb)} (max) (K/W)	3-lead TO-220AB (SOT78A)	I2PAK (SOT226)	D2PAK (SOT404)	DPAK (SOT428)	LFAK (SOT669)
								
				15.5 x 10.0 x 4.3	11.0 x 10.0 x 4.3	11.0 x 10.0 x 4.3	6.0 x 6.6 x 2.3	3.95 x 4.9 x 1.1
1.9		100	0.45			BUK661R9-40C		
2		100	0.45	BUK652R0-40C^[1]	BUK6E2R0-40C	BUK762R0-40C		
2.3		100	0.45	BUK752R3-40C	BUK7E2R3-40C			
2.4			0.59			BUK662R4-40C		
2.6		100	0.59	BUK652R6-40C^[1]				
2.8	3.2	100	0.5	BUK953R2-40B	BUK9E3R2-40B	BUK963R2-40B		
3.1		75	0.5	BUK753R1-40B		BUK763R1-40B		
3.2		100	0.74			BUK663R2-40C		
3.4		100	0.74	BUK653R4-40C^[1]	BUK6E3R4-40C			
3.6		100	0.74			BUK763R6-40C		
4		100	0.74	BUK754R0-40C				
4	4.4	75	0.5	BUK9504-40A	BUK9E04-40A	BUK9604-40A		
4	4.4	75	0.59	BUK954R4-40B	BUK9E4R4-40B	BUK964R4-40B		
4		75	0.74			BUK764R0-40C		
4.3		75	0.59	BUK754R3-40B		BUK764R3-40B		
4.5		75	0.5	BUK7504-40A	BUK7E04-40A	BUK7604-40A		
4.6			0.95			BUK664R6-40C		
4.8			0.95	BUK654R8-40C^[1]				
5			0.95				BUK625R0-40C	
5	6.4	75	0.74	BUK9506-40B		BUK9606-40B		
5		75	0.95				BUK725R0-40C	
5.2		75	0.74	BUK755R2-40B		BUK765R2-40B		
6.2	9	37	1.42					BUK9Y09-40B
7	9	75	0.95	BUK9509-40B		BUK9609-40B	BUK9209-40B	
7		75	0.95				BUK7207-40B	
8		75	0.95	BUK7508-40B		BUK7608-40B		
8		75	1.42					BUK7Y08-40B
8		75	0.95				BUK7208-40B	
11	14	56	1.8					BUK9Y14-40B
13		58	1.8					BUK7Y13-40B
18.7	27	34	2.53					BUK9Y27-40B
25		35	2.53					BUK7Y25-40B

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Automotive TrenchMOS part numbering



Selection Guides

55 V N-channel Automotive TrenchMOS

R _{DSon} (max) @10 V (mΩ)	R _{DSon} (max) @5 V (mΩ)	I _D (max) @25 °C (A)	R _{th(j-mb)} (max) (K/W)	3-lead TO-220AB (SOT78A)	I ² PAK (SOT226)	D2PAK (SOT404)	DPAK (SOT428)	LFPACK (SOT669)	SC-73 (SOT223)
									
				15.5 x 10.0 x 4.3	11.0 x 10.0 x 4.3	11.0 x 10.0 x 4.3	6.0 x 6.6 x 2.3	3.95 x 4.9 x 1.1	6.5 x 3.5 x 1.65
2.6		100	0.45			<i>BUK762R6-55C</i>			
2.7			0.45			<i>BUK662R7-55C</i>			
3			0.59			<i>BUK663R0-55C</i>			
3.2			0.45	<i>BUK653R2-55C^[1]</i>	<i>BUK6E3R2-55C</i>				
3.2		100	0.45	<i>BUK753R2-55C</i>					
3.5			0.59	<i>BUK653R5-55C^[1]</i>					
3.7	4.2	75	0.5	BUK954R2-55B		BUK964R2-55B			
4		75	0.5			BUK764R0-55B			
4		75	0.5	BUK754R0-55B					
4.6			0.74	<i>BUK654R6-55C^[1]</i>		<i>BUK664R4-55C</i>			
5.4	6	75	0.58	BUK9506-55B	BUK9E06-55B	BUK9606-55B			
5.8	6.3	75	0.58		BUK9E06-55A	BUK9606-55A			
6		75	0.59	BUK7506-55B		BUK7606-55B			
6.3		75	0.5	BUK7506-55A		BUK7606-55A			
7			0.95	<i>BUK6507-55C^[1]</i>		<i>BUK6607-55C</i>	<i>BUK6207-55C</i>		
7	8.4	75	0.74	BUK9508-55B	BUK9E08-55B	BUK9608-55B			
7.1		75	0.74	BUK7507-55B	BUK7E07-55B	BUK7607-55B			
7.5	8	75	0.59			BUK9608-55A			
8	9	75	0.71			BUK9609-55A			
8		75	0.59	BUK7508-55A		BUK7608-55A			
9	10	75	0.75	BUK9510-55A		BUK9610-55A			
9		75	0.71	BUK7509-55A		BUK7609-55A			
9.2	12	65	1.42					<i>BUK9Y12-55B</i>	
10	11	75	0.9	BUK9511-55A		BUK9611-55A			
10	12	75	0.95	BUK9512-55B		BUK9612-55B	BUK9212-55B		
10		75	0.5	BUK7510-55AL		BUK7610-55AL	BUK7210-55B		
11		75	0.95	BUK7511-55B	BUK7E11-55B	BUK7611-55B			
12		75	0.95				BUK7212-55B		
12		64	1.42					<i>BUK7Y12-55B</i>	
13	14	73	1	BUK9514-55A		BUK9614-55A			
13.6	15	62	1.3				BUK9215-55A		
14		73	0.9	BUK7514-55A		BUK7614-55A			
15	16	66	1.1	BUK9516-55A					
15		62	1.3				BUK7215-55A		
16		65	1.1	BUK7516-55A					

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55 V N-channel Automotive TrenchMOS

R _{DSon} (max) @10 V (mΩ)	R _{DSon} (max) @5 V (mΩ)	I _D (max) @25 °C (A)	R _{th(j-mb)} (max) (K/W)	3-lead TO-220AB (SOT78A)	I ² PAK (SOT226)	D2PAK (SOT404)	DPAK (SOT428)	LFAK (SOT669)	SC-73 (SOT223)
									
				15.5 x 10.0 x 4.3	11.0 x 10.0 x 4.3	11.0 x 10.0 x 4.3	6.0 x 6.6 x 2.3	3.95 x 4.9 x 1.1	6.5 x 3.5 x 1.65
16	18	61	1.1	BUK9518-55A		BUK9618-55A			
17.3	19	46	1.8					BUK9Y19-55B	
17.6	19	55	1.3				BUK9219-55A		
18	20	54	1.2	BUK9520-55A		BUK9620-55A			
18		47	1.76					<u>BUK7Y18-55B</u>	
19		55	1.3				BUK7219-55A		
20		54	1.2	BUK7520-55A		BUK7620-55A			
20	22	48	1.5				BUK9222-55A		
21.7	24	46	1.4	BUK9524-55A		BUK9624-55A			
22		48	1.5				BUK7222-55A		
22	25	43	1.6				BUK9225-55A		
25		43	1.6				BUK7225-55A		
25	28	42	1.56			BUK9628-55A			
27	30	38	1.7				BUK9230-55A		
28		42	1.5	BUK7528-55A		BUK7628-55A			
29	32	12	15						BUK9832-55A
30		38	1.7				BUK7230-55A		
32	35	34	1.8	BUK9535-55A		BUK9635-55A			
33	37	32	1.94				BUK9237-55A		
35		35	1.75	BUK7535-55A		BUK7635-55A			
35		28	2.53					<u>BUK7Y35-55B</u>	
36	40	26	2.5					BUK9Y40-55B	
37		32	1.9				BUK7237-55A		
40	45	28	2.1				BUK9245-55A		
68	75	20	2.4	BUK9575-55A		BUK9675-55A			
69	77	18	3				BUK9277-55A		
73	80	7	15						BUK9880-55A
75		20	2.4	BUK7575-55A		BUK7675-55A			
77		18	2.9				BUK7277-55A		
80		7	15						BUK7880-55A
125	140	11	4.1				BUK92150-55A		
137	150	13	2.8	BUK95150-55A					
137	150	5.5	15						BUK98150-55A
150		11	4.1	BUK75150-55A			BUK72150-55A		
150		5.5	15						BUK78150-55A

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Selection Guides

75 V N-channel Automotive TrenchMOS

R _{DS(on)} (max) @10 V (mΩ)	R _{DS(on)} (max) @5 V (mΩ)	I _D (max) @25 °C (A)	R _{th(j-mb)} (max) (K/W)	3-lead TO-220AB (SOT78A)	I2PAK (SOT226)	D2PAK (SOT404)	DPAK (SOT428)	LFPAK (SOT669)
								
				15.5 x 10.0 x 4.3	11.0 x 10.0 x 4.3	11.0 x 10.0 x 4.3	6.0 x 6.6 x 2.3	3.95 x 4.9 x 1.1
3.7			0.45			<u>BUK663R7-75C</u>		
4			0.45	<u>BUK654R0-75C</u> ^[1]	<u>BUK6E4R0-75C</u>			
4		100	0.45			BUK764R0-75C		
4.3		100	0.45	BUK754R3-75C	BUK7E4R3-75C			
4.8			0.59			<u>BUK664R8-75C</u>		
5			0.59	<u>BUK655R0-75C</u> ^[1]				
5.5	6.1	75	0.5	BUK9506-75B		BUK9606-75B		
5.6		75	0.5	BUK7506-75B		BUK7606-75B		
7		100	0.74	<u>BUK6507-75C</u> ^[1]		<u>BUK6607-75C</u>		
8.5	9	75	0.65	<u>BUK9509-75A</u>		BUK9609-75A		
9		75	0.65	BUK7509-75A		BUK7609-75A		
10		71	0.95	<u>BUK6510-75C</u> ^[1]		<u>BUK6610-75C</u>		
11			0.95				<u>BUK6211-75C</u>	
11		75	0.95				<u>BUK7211-75C</u>	
13		75	0.95	BUK7513-75B		BUK7613-75B		
14		70	0.95				BUK7214-75B	
14	16.4	67	0.95	BUK9516-75B		BUK9616-75B		
15	17	64	0.95				BUK9217-75B	
16.2	19	48	1.42					<u>BUK9Y19-75B</u>
18		49	1.42					<u>BUK7Y18-75B</u>
22	23	53	1.1	BUK9523-75A		BUK9623-75A		
23		53	1.1	BUK7523-75A		BUK7623-75A		
24.6	26	45	1.3				BUK9226-75A	
26		45	1				BUK7226-75A	
28		35	1.76					<u>BUK7Y28-75B</u>
28	30	34	1.8					BUK9Y30-75B
49.8	58	20	2.53					<u>BUK9Y58-75B</u>
54		21	2.53					<u>BUK7Y54-75B</u>

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^[1] These products are in SOT78B package

100 V N-channel Automotive TrenchMOS

R _{DSon} (max) @10 V (mΩ)	R _{DSon} (max) @5 V (mΩ)	I _D (max) @25 °C (A)	R _{th(j-mb)} (max) (K/W)	3-lead TO-220AB (SOT78A)	I2PAK (SOT226)	D2PAK (SOT404)	DPAK (SOT428)	LPAK (SOT669)	SC-73 (SOT223)
									
				15.5 x 10.0 x 4.3	11.0 x 10.0 x 4.3	11.0 x 10.0 x 4.3	6.0 x 6.6 x 2.3	3.95 x 4.9 x 1.1	6.5 x 3.5 x 1.65
9.7	10	75	0.5	BUK9510-100B		BUK9610-100B			
10		75	0.5	BUK7510-100B		BUK7610-100B			
14.4	15	75	0.65	BUK9515-100A		BUK9615-100A			
15		75	0.65	BUK7515-100A					
18.5	20	63	0.75	BUK9520-100B		BUK9620-100B			
19		64	0.75			BUK7619-100B			
19	20	63	0.75	BUK9520-100A					
20		63	0.75	BUK7520-100A		BUK7620-100A			
26		49	0.95	BUK7526-100B		BUK7626-100B			
27	28	49	0.9			BUK9628-100A			
27		48	0.95				BUK7227-100B		
27	29	46	0.95	BUK9529-100B		BUK9629-100B			
28	30	47	0.95				BUK9230-100B		
28		47	0.9	BUK7528-100A		BUK7628-100A			
31.2	34	35	1.42					<u>BUK9Y34-100B</u>	
33		35	1.42					<u>BUK7Y33-100B</u>	
34	35	41	1	BUK9535-100A		BUK9635-100A			
35		41	1	BUK7535-100A		BUK7635-100A			
38.6	40	33	1.3				BUK9240-100A		
39	40	39	0.95			BUK9640-100A			
40		37	1.1	BUK7540-100A		BUK7640-100A			
40		34	1.3				BUK7240-100A		
49	53	23	2					BUK9Y53-100B	
53		24	1.76					<u>BUK7Y53-100B</u>	
58	60	26	1.4			BUK9660-100A			
60		26	1.4			BUK7660-100A			
72	75	23	1.5	BUK9575-100A		BUK9675-100A			
72	75	21	1.7				BUK9275-100A		
72	75	7	15						BUK9875-100A
75		23	1.5	BUK7575-100A		BUK7675-100A			
75		21	1.7				BUK7275-100A		
95.7	104	14	2.53					<u>BUK9Y104-100B</u>	
102		15	2.53					<u>BUK7Y102-100B</u>	
173	180	11	2.8	BUK95180-100A		BUK96180-100A			
173	180	4.6	15						BUK98180-100A

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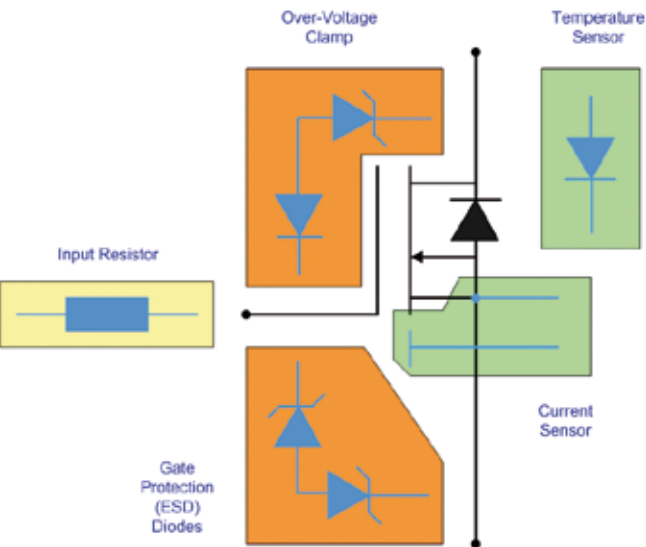
TrenchPLUS MOSFETs

TrenchPLUS is a range of standard MOSFETs with additional protection features, such as current and temperature sensing components, overvoltage clamps, and gate protection (ESD) diodes. The system microcontroller can use data gathered from

these sensors to implement cost-effective protection features, thus eliminating the need to design with protected power devices. All the standard products listed below offer one or more “PLUS” features. Custom versions can be developed for high-volume applications.

V _{DS} (V)	R _{DS(on)} (max) @10 V (mΩ)	R _{DS(on)} (max) @5 V (mΩ)	I _D (max) @25 °C (A)	Temp Sense	Gate Source Clamps	Gate Drain Clamps	Current Sensing	Gate Resistor	Surface Mount Package			Leaded Package	
									7-pin D2PAK (SOT427)	5-pin D2PAK (SOT426)	SO20 (SOT163)	TO220AB (SOT78C)	5-pin TO220 (SOT263B-01)
													
									11.0 x 10.0 x 4.3	11.0 x 10.0 x 4.3	13.0 x 7.5 x 2.65	15.0 x 10.0 x 4.5	15.0 x 10.0 x 4.5
34	3.3		75		✓	✓		✓				BUK7L3R3-34BRC	
34	6		75		✓	✓		✓				BUK7L06-34ARC	
34	11		75		✓	✓		✓				BUK7L11-34ARC	
40	4.1		75	✓						BUK714R1-40BT			BUK794R1-40BT
40	5		75		✓		✓			BUK7105-40AIE			BUK7905-40AIE
40	5		75	✓	✓					BUK7105-40ATE			BUK7905-40ATE
40	5		75				✓						BUK7905-40AI
40	6		75	✓	✓		✓		BUK7C06-40AITE				
40	6.6	7	75	✓	✓	✓				BUK9107-40ATC			BUK9907-40ATC
40	7		75	✓	✓	✓				BUK7107-40ATC			BUK7907-40ATC
40	8		75		✓		✓			BUK7108-40AIE			BUK7908-40AIE
55	6.6	7	75	✓	✓					BUK9107-55ATE			BUK9907-55ATE
55	7		75		✓		✓			BUK7107-55AIE			BUK7907-55AIE
55	7		75	✓	✓					BUK7107-55ATE			BUK7907-55ATE
55	8		75	✓	✓		✓		BUK7C08-55AITE				
55	9	10	75	✓			✓		BUK9C10-55BIT				

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V_{DS} (V)	$R_{DS(on)}$ (max) @10 V (m Ω)	$R_{DS(on)}$ (max) @5 V (m Ω)	I_D (max) @25 °C (A)	Temp Sense	Gate Source Clamps	Gate Drain Clamps	Current Sensing	Gate Resistor	Surface Mount Package			Leaded Package	
									7-pin D2PAK (SOT427)	5-pin D2PAK (SOT426)	SO20 (SOT163)	TO220AB (SOT78C)	5-pin TO220 (SOT263B-01)
													
									11.0 x 10.0 x 4.3	11.0 x 10.0 x 4.3	13.0 x 7.5 x 2.65	15.0 x 10.0 x 4.5	15.0 x 10.0 x 4.5
55	9+23	10+25	17+9	✓			✓				BUK9MGP-55PTS		
55	14+14	15+15	13+13	✓			✓				BUK9MJJ-55PSS		
55	14+14	15+15	13+13	✓			✓				BUK9MJJ-55PTT		
55	14+90	15+100	13+4	✓			✓				BUK9MJT-55PRF		
55	23+23	25 + 25	9+9	✓			✓				BUK9MPP-55PRR		
55	27+27	30+30	8+8	✓			✓				BUK9MMM-55PNN		
55	45+45	50+50	6+6	✓			✓				BUK9MLL-55PLL		
55	56+56	65+65	5+5	✓			✓				BUK9MRR-55PGG		
65	6,5	7	75	✓			✓		<u>BUK9C07-65BIT</u>				
65	9,2	10	75	✓			✓		<u>BUK9C10-65BIT</u>				
65	11+11	12+12	15+15	✓			✓				<u>BUK9MHH-65PNN</u>		
65	13+13	14+14	13+13	✓			✓				<u>BUK9MFF-65PSS</u>		
65	16+16	17+17	11+11	✓			✓				<u>BUK9MJJ-65PLL</u>		
65	25+25	27+27	8+8	✓			✓				<u>BUK9MPP-65PLL</u>		
65	33+33	36+36	7+7	✓			✓				<u>BUK9MNN-65PKK</u>		
65	61+61	67+67	5+5	✓			✓				<u>BUK9MRR-65PKK</u>		
65	90+90	100+100	4+4	✓			✓				<u>BUK9MTT-65PBB</u>		
75	7		75	✓	✓					BUK7109-75ATE			BUK7909-75ATE
75	9		75		✓		✓			BUK7109-75AIE			BUK7909-75AIE
75	10		75	✓	✓		✓		BUK7C10-75AITE				

Types in **bold red** represent new products

Types in **bold red italic underline** represent products in development

Automotive TrenchPLUS part numbering

Automotive qualified
MOSFET

BUKabrr-**vvX**ddd

Technology

7 = standard level TrenchMOS
9 = logic level TrenchMOS

Package identifier

1 = 5 pin D2PAK (SOT426)
9 = SOT263B-01
C = 7 pin D2PAK (SOT427)
L = SOT78C

$R_{DS(on)}$ in m Ω where R = decimal point

Features

C = Gate-Drain and Gate-Source clamps
E = ESD protection
I = Current sensor
R = Gate resistor
T = Temperature sensor

Generation

A = TrenchMOS generation 2
B = TrenchMOS generation 3
C = TrenchMOS generation 4

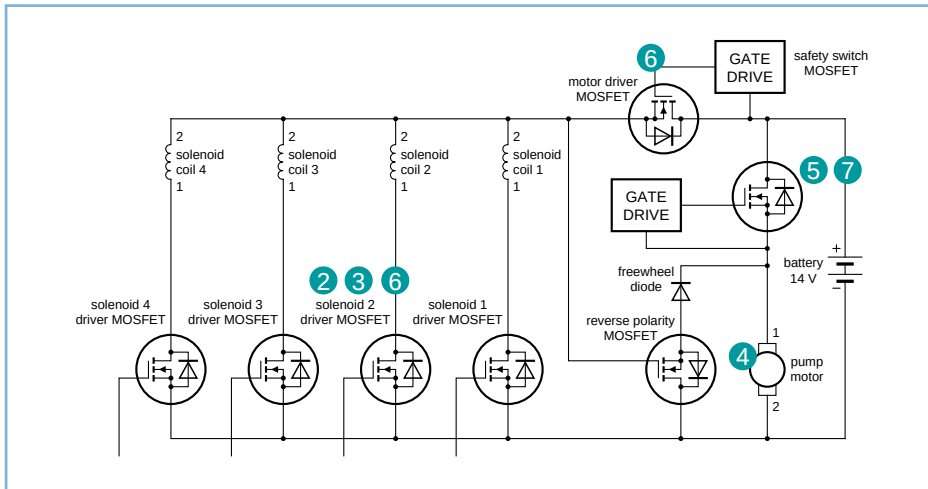
Voltage rating

Application Guidelines

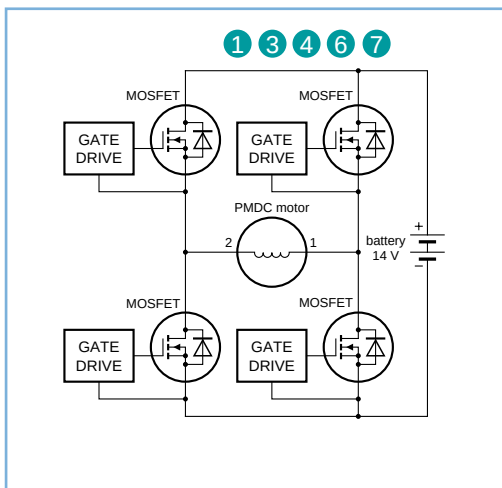
Key application requirements

- ① Mechanical robustness
For high-vibration environments
- ② Avalanche rugged
Tolerating V_{DS} overvoltage stress
- ③ Thermal robustness
Using maximum die temperature of 175 °C
- ④ Low ON resistance
Using MOSFETs with low $R_{DS(ON)}$
- ⑤ Linear-mode capable
Operating in linear mode under certain conditions
- ⑥ Compact power package
For small footprint and minimum PCB area
- ⑦ High surge-current rating
Capable of transient current overload

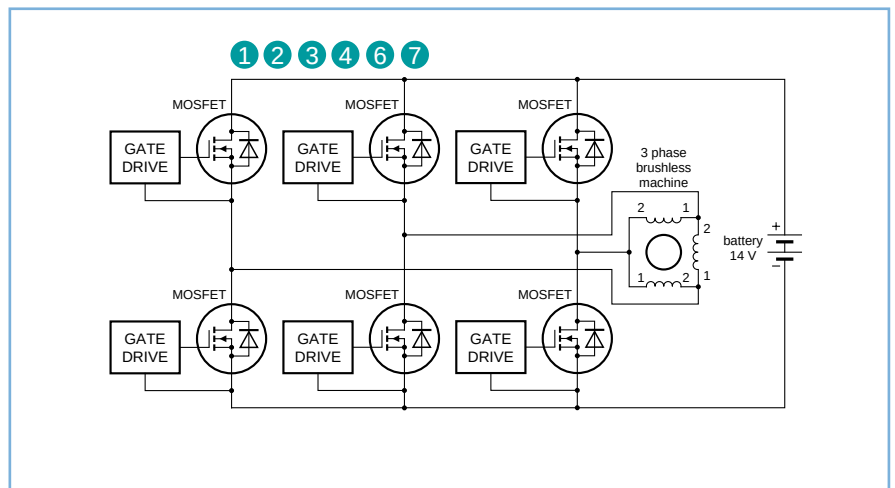
Typical ABS/ESP system



Motor drive for electric parking brake

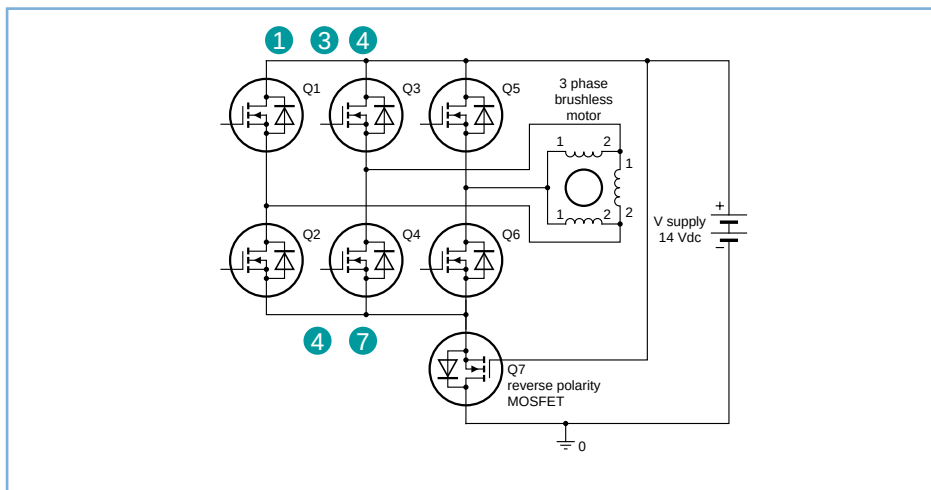


Integrated starter generator (ISG) for micro/mild hybrids

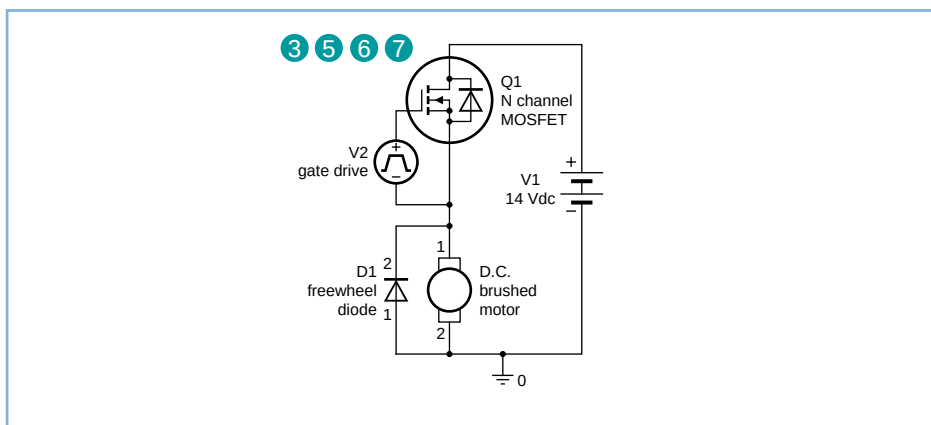


Application Guidelines

Drives for brushless 3 phase motors showing a MOSFET for reverse polarity protection



HS drive for brushed D.C. motor



Typical diesel fuel injector drive

