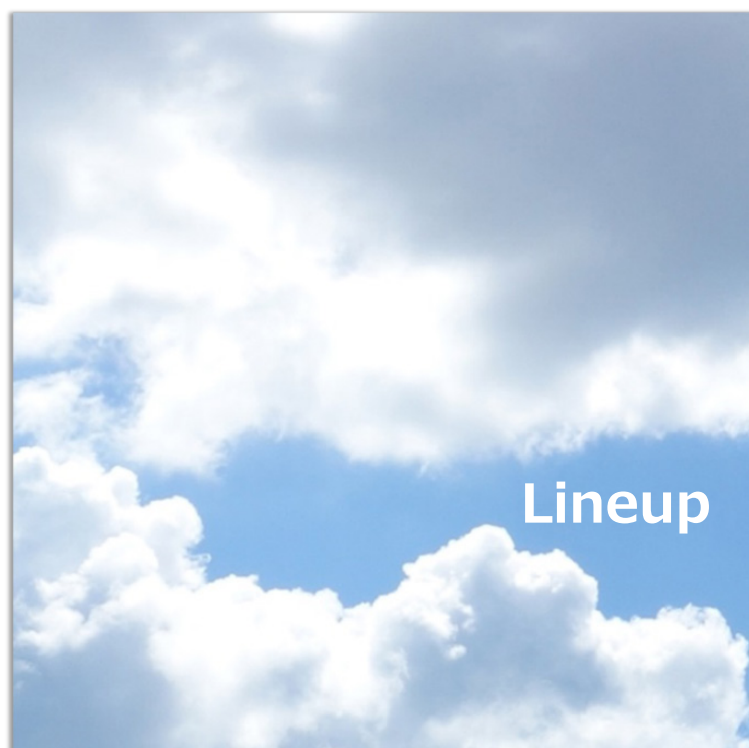
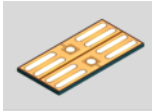
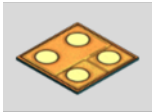

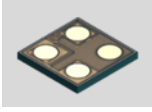
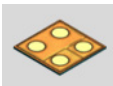


MOSFET Catalog



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	For Automotive Cell Balancing	P4



CSP MOSFET for General Switching

Parts	Type	VDS (V)	VGS (V)	ID *1 (A)	IDp *1 (A)	PD *1 (W)	Package			RDS(on) [VGS]								IDSS Max (μA)	IGSS[VGS] [±8V] Max (μA)	Qg Typ (nC)	Qgs Typ (nC)	Qgd Typ (nC)	
							Type	Size			[4.5V]		[2.5V]		[1.8V]		[1.5V]						
								L (mm)	W (mm)	T (mm)	Typ (mΩ)	Max (mΩ)	Typ (mΩ)	Max (mΩ)	Typ (mΩ)	Max (mΩ)	Typ (mΩ)						Max (mΩ)
FK4B01110L	Nch	12	±8	3.4	27	0.76	ALGA004-W-0606-RA01	0.6	0.6	0.1	47	64	57	84	70	119	91	210	10	±10	2.55	0.55	0.55
FK4B01100L	Nch	12	±8	5.2	41	0.82	XLGA004-W-0808-RA01	0.8	0.8	0.1	22	30	27	40	33	56	43	99	10	±10	5.8	0.75	0.95
FK4B01120L	Nch	12	±8	6.5	52	0.94	ULGA004-W-1010-RA01	1	1	0.1	14	24	17	27	21	36	27	62	10	±10	7	1.4	1.5
FJ4B01110L	Pch	-12	±8	-2.2	-17	0.76	ALGA004-W-0606-RA01	0.6	0.6	0.1	118	153	141	183	169	287	199	597	-10	±10	3.3	0.55	0.65
FJ4B01100L	Pch	-12	±8	-3.3	-26	0.82	XLGA004-W-0808-RA01	0.8	0.8	0.1	57	74	68	90	82	139	97	290	-10	±10	7	0.75	0.95
FJ4B01120L	Pch	-12	±8	-4.2	-33	0.94	ULGA004-W-1010-RA01	1	1	0.1	34	51	40	61	48	85	57	170	-1	±10	10.7	1.4	2.1

*1: Mounted on FR4 board (25.4mm×25.4mm×1.0mm). FR4 board fully covered with copper pad (35μm thickness).

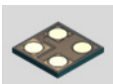


CSP MOSFET for Automotive Switching Circuit

Parts	Type	VDS (V)	VGS (V)	ID *1 (A)	IDp *1 (A)	PD *1 (W)	Package			RDS(on) [VGS]				IDSS Max (μA)	IGSS[VGS] [Nch: +16V/-8V] [Pch: -16V/+8V] Max (μA)	Qg Typ (nC)	Qgs Typ (nC)	Qgd Typ (nC)	
							Type	Size			[10V]		[4.5V]						
								L (mm)	W (mm)	T (mm)	Typ (mΩ)	Max (mΩ)	Typ (mΩ)						Max (mΩ)
FK9B0439ZL	Nch	40	+20/-10	11	88	1.6	MLGA009-W-1919-RA	1.94	1.94	0.1	9.5	12	11	18	10	±10	28	4.5	5
FK4B0420ZL (★)	Nch	40	+20/-10	8.1	64.8	1	FLGA004-W-2020-RA01	2	2	0.1	11	15	13	20	1	±10	26	4	5
FK4B0419ZL (★)	Nch	40	+20/-10	7.6	60.8	1	FLGA004-W-1818-RA01	1.8	1.8	0.1	13	17	15	23	1	±10	22	3.5	4
FK4B0417ZL (★)	Nch	40	+20/-10	5.8	46.4	0.9	MLGA004-W-1414-RA01	1.4	1.4	0.1	20	26	24	36	1	±10	14	2	2.5
FK4B0416ZL (★)	Nch	40	+20/-10	5.2	41.6	0.9	MLGA004-W-1212-RA01	1.2	1.2	0.1	25	33	31	47	1	±10	10	2	1.5
FK4B0617ZL (★)	Nch	60	+20/-10	6.2	49.6	1	FLGA004-W-2020-RA01	2	2	0.1	21	26	22	31	1	±10	26	4	5
FK4B0616ZL (★)	Nch	60	+20/-10	5.7	45.6	1	FLGA004-W-1818-RA01	1.8	1.8	0.1	24	30	27	38	1	±10	22	3.5	4
FK4B0614ZL (★)	Nch	60	+20/-10	4.2	33.6	0.9	MLGA004-W-1414-RA01	1.4	1.4	0.1	41	50	45	65	1	±10	14	2	2.5
FK4B0613ZL (★)	Nch	60	+20/-10	3.7	29.6	0.9	MLGA004-W-1212-RA01	1.2	1.2	0.1	53	65	60	85	1	±10	10	2	1.5
FJ4B0622ZL (★)	Pch	-60	-20/+10	-2.8	-22.4	1	FLGA004-W-2020-RA01	2	2	0.1	90	120	100	170	-1	±10	43	5.5	10
FJ4B0621ZL (★)	Pch	-60	-20/+10	-2.5	-20	1	FLGA004-W-1818-RA01	1.8	1.8	0.1	120	160	130	220	-1	±10	40	5	9
FJ4B0619ZL (★)	Pch	-60	-20/+10	-2	-16	0.9	MLGA004-W-1414-RA01	1.4	1.4	0.1	170	220	180	310	-1	±10	22	3	5
FJ4B0618ZL (★)	Pch	-60	-20/+10	-1.8	-14.4	0.9	MLGA004-W-1212-RA01	1.2	1.2	0.1	200	260	210	360	-1	±10	17	2	3
FJ9B0438ZL (★)	Pch	-40	-20/+10	-7.9	-63.2	1.6	MLGA009-W-2121-RA	2.14	2.14	0.1	20	26	23	40	-1	±10	60	10	12
FJ4B0425ZL (★)	Pch	-40	-20/+10	-5.3	-42.4	1	FLGA004-W-2020-RA01	2	2	0.1	30	35	35	60	-1	±10	58	8	11
FJ4B0424ZL (★)	Pch	-40	-20/+10	-4.6	-36.8	1	FLGA004-W-1818-RA01	1.8	1.8	0.1	35	45	40	70	-1	±10	45	6	8
FJ4B0422ZL (★)	Pch	-40	-20/+10	-3.5	-28	0.9	MLGA004-W-1414-RA01	1.4	1.4	0.1	54	70	64	110	-1	±10	24	3	5
FJ4B0421ZL (★)	Pch	-40	-20/+10	-3	-24	0.9	MLGA004-W-1212-RA01	1.2	1.2	0.1	74	96	83	142	-1	±10	16	2	4

★ : ES

*1: Mounted on FR4 board (25.4 mm×25.4 mm×1.0mm). FR4 board fully covered with copper pad (35μm thickness).

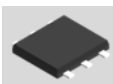


CSP MOSFETs for Automotive Battery Cell Balancing

Parts	Type	VDS (V)	VGS (V)	ISR *1 (A)	PD *1 (W)	Package			RDS(on) [VGS]						ZND VF [100μA] Max (V)	ZND VZ [1mA] Min (V)	Rgs	Rd	
						Type	Size			[4.5V]		[2.5V]		[1.5V]					
							L (mm)	W (mm)	T (mm)	Typ (mΩ)	Max (mΩ)	Typ (mΩ)	Max (mΩ)	Typ (mΩ)					Max (mΩ)
FK4B0343ZL(★)	Nch	30	+5, -0.5	0.15	1.3	MLGA004-W-1212-RA01	1.2	1.2	0.1	40	280	45	310	60	900	0.8	5	300	50
★ FJ4B0334ZL(★)	Pch	-30	-5, +0.5	-0.15	1.3	MLGA004-W-1212-RA01	1.2	1.2	0.1	100	350	110	400	140	1500	0.8	-5	300	50

★ : ES

*1 : Mounted on FR4 board (25.4mm×25.4mm×t1.0mm). FR4 board fully covered with copper pad (35μm thickness).



Resin sealed PKG MOSFETs for Automotive Battery Cell Balancing

Parts	Type	VDS (V)	VGS (V)	ID *1 (A)	PD *1 (W)	Package			RDS(on) [VGS]						ZND VF [100μA] Max (V)	ZND VZ [1mA] Min (V)	Rgs	
						Type	Size			[4.5V]		[2.5V]		[1.5V]				
							L (mm)	W (mm)	T (mm)	Typ (mΩ)	Max (mΩ)	Typ (mΩ)	Max (mΩ)	Typ (mΩ)				Max (mΩ)
FK6K0335ZL	Nch	30	+5, -0.5	1.5	0.7	WSMini6-F2-B	2.1	2	0.7	200	280	220	310	300	900	0.8	5	300
FC6K3339ZL	Nchx2	30	+5, -0.5	1.5	0.7	WSMini6-F2-B	2.1	2	0.7	200	280	220	310	300	900	0.8	5	300
FJ6K0338ZL	Pch	-30	-5, +0.5	-1.4	0.7	WSMini6-F2-B	2.1	2	0.7	280	350	300	400	400	1500	0.8	-5	-
FA6K3342ZL	Pchx2	-30	-5, +0.5	-1.4	0.7	WSMini6-F2-B	2.1	2	0.7	280	350	300	400	400	1500	0.8	-5	-

*1: Mounted on FR4 board (25.4 mm×25.4mm×t1.0mm). FR4 board fully covered with copper pad (35μm thickness).

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No.070920

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The semiconductor business of Panasonic Corporation was transferred on September 1, 2020 to Nuvoton Technology Corporation (hereinafter referred to as "Nuvoton"). Accordingly, Panasonic Semiconductor Solutions Co., Ltd. became under the umbrella of the Nuvoton Group, with the new name of Nuvoton Technology Corporation Japan (hereinafter referred to as "NTCJ").

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