



Transistors

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MOSFETs

Small Signal MOSFET Series

Quick Reference

	Drive Voltage (V)	V _{DSS} (V)	I _D (A)									Package		
			0.1 / 0.15	0.2	0.25	0.3	0.5	0.6	0.7	0.8	0.9		1	
Single Type	0.9	30	☆RV1E001SP (P)										VML0806	
			☆RV1J001YN (N)										VML0806	
		50						☆RV2J006YN (N)						VML1006
														VMT3
														EMT3
														EMT3F
														UMT3
													UMT3F	
	1.2	20												SST3
														VML0806
														VML0806
														VML1006
														VML1006
														VML1006
														VML1006
														VML1006
														VML1006
														VML1006
	2.5	30												VML0806
														VML1006
		60												VML1006
														VML1006
														VML1006
														VML1006
														VML1006
	4	30												VML1006
														VML1006
														VML1006
													VML1006	
													VML1006	
													VML1006	
Dual Type	0.9	50											EMT6	
													UMT6	
	1.2	20											VMT6	
													EMT6	
													EMT6	
	1.8	20											UMT6	
													EMT6	
	2.5	60											EMT6	
													UMT6	
	4	30										UMT6		

•Character "N", "P" in parentheses indicates "N-channel", "P-channel" respectively. ☆ : Under development

Small Signal MOSFET Series

Product Lineup

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _a =25°C)	R _{DS} (on) Typ. (Ω)							Drive Voltage (V)		
							V _{GS} (V)									
							0.9	1.2	1.5	2.5	4	4.5	10			
VML0806 (0806)	Switching	RV1C002UN	N	20	0.15	0.1	—	3.8	2.7	2.2	1.7	1.4	—	1.2		
		RV1C001ZP	P	-20	-0.1	0.1	—	10	6	4.8	3.4	2.5	—			
		☆RV1J001YN	N	50	0.1	0.1	7.5	5.5	5	4.25	—	4	—		0.9	
		☆RV1L001SN	N	60	0.1	0.1	—	—	—	7.5	5.75	5.25	—		2.5	
		☆RV1E001SP	P	-30	-0.1	0.1	—	—	—	—	4	3.6	2.4		4	
VML1006 (1006)	Switching	☆RV1E002AJ	N	30	0.2	0.1	—	—	—	1.3	—	0.5	—	2.5		
		☆RV2C0010UN	N	20	1	0.1	—	0.75	0.53	0.34	—	0.28	—	1.2		
		☆RV2J006YN	N	50	0.6	0.1	2.1	1.5	1.4	1.2	—	1.1	—	0.9		
		☆RV2C007ZP	P	-20	-0.7	0.1	—	—	—	1.7	—	0.7	—	0.6	1.2	
		☆RV2L005SN	N	60	0.5	0.1	—	—	—	2.1	1.6	1.5	—	2.5		
VMT3 (1212)	Switching	☆RV2E008SP	P	-30	-0.8	0.1	—	—	—	—	1.1	1	0.7	4		
		☆RV2E009AJ	N	30	0.9	0.1	—	—	—	0.52	—	0.2	—	2.5		
		RYM002N05	N	50	0.2	0.15	3	2.2	2	1.7	—	1.6	—	0.9		
		RUM001L02		20	0.1	0.15	—	6	4.5	3.8	3	2.5	—	1.2		
		RUM002N02		20	0.2	0.15	—	1.6	—	0.8	—	—	—			
		RUM002N05	50	0.2	0.15	—	2.4	—	1.7	—	1.6	—				
		RZM001P02	P	-20	-0.1	0.15	—	10	6	4.8	3.4	2.5	—	1.2		
		RZM002P02		-20	-0.2	0.15	—	2.4	—	1	—	0.8	—			
		RSM002N06	N	60	0.25	0.15	—	—	—	3	2.3	2.1	1.7	2.5		
		RSM002P03	P	-30	-0.2	0.15	—	—	—	—	1.6	1.4	0.9	4		
VT6K1	N+N	20	0.1	0.15	—	6	4.5	3.8	3	2.5	—	1.2				
VT6J1	P+P	-20	-0.1	0.15	—	10	6	4.8	3.4	2.5	—					
VMT6 (1212)	Switching	VT6M1	N	20	0.1	0.15	—	6	4.5	3.8	3	2.5	—			
			P	-20	-0.1	0.15	—	10	6	4.8	3.4	2.5	—			
EMT3 (1616) (SC-75A) (SOT-416)	Switching	RYE002N05	N	50	0.2	0.15	3	2.2	2	1.7	—	1.6	—	0.9		
		RUE002N05		50	0.2	0.15	—	2.4	—	1.7	—	1.6	—			
		RUE002N02		20	0.2	0.15	—	1.6	—	0.8	—	—	—			
		RZE002P02	P	-20	-0.2	0.15	—	2.4	—	1	—	0.8	—			
		RSE002N06	N	60	0.25	0.15	—	—	—	3	2.3	2.1	1.7	2.5		
EMT3F (1616)	Switching	RSE002P03	P	-30	-0.2	0.15	—	—	—	—	1.6	1.4	0.9	4		
		RE1C001UN	N	20	0.1	0.15	—	6	4.5	3.8	3	2.5	—	1.2		
		RE1C002UN		20	0.2	0.15	—	1.6	—	0.8	—	—	—			
		RE1J002YN		50	0.2	0.15	3	2.2	2	1.7	—	1.6	—			
		RE1L002SN		60	0.25	0.2	—	—	—	3	2.3	2.1	1.7			
		RE1C001ZP	P	-20	-0.1	0.15	—	10	6	4.8	3.4	2.5	—	1.2		
		RE1C002ZP		-20	-0.2	0.15	—	2.4	—	1	—	0.8	—			
		RE1E002SP		-30	-0.2	0.15	—	—	—	—	1.6	1.4	0.9			
		EMT6 (1616)	Switching	EM6K34	N+N	50	0.2	0.15	3	2.2	2	1.7	—	1.6	—	0.9
				EM6K7		20	0.2	0.15	—	1.6	—	0.8	—	—	—	
EM6K33	50			0.2		0.15	—	2.4	—	1.7	—	1.6	—			
EM6J1	P+P			-20	-0.2	0.15	—	2.4	—	1	—	0.8	—	1.2		
EM6M2	N			20	0.2	0.15	—	1.6	—	0.8	0.7	—	—			
EM6K6	N+N			20	0.3	0.15	—	—	1 [*]	0.8	0.7	—	—		1.8	
EM6K31		60	0.25	0.15	—	—	—	3	2.3	2.1	1.7	2.5				
UMT3 (2021) (SC-70) (SOT-323)	Switching	RYU002N05	N	50	0.2	0.2	3	2.2	2	1.7	—	1.6	—	0.9		
		RUU002N05		50	0.2	0.2	—	2.4	—	1.7	—	1.6	—	1.2		
		RSU002N06		60	0.25	0.2	—	—	—	3	2.3	2.1	1.7	2.5		
		RSU002P03	P	-30	-0.25	0.2	—	—	—	—	1.6	1.4	0.9	4		
UMT3F (2021)	Switching	RU1C001UN	N	20	0.1	0.2	—	6	4.5	3.8	3	2.5	—	1.2		
		RU1C002UN		20	0.2	0.2	—	1.6	—	0.8	—	—	—			
		RU1J002YN		50	0.2	0.2	3	2.2	2	1.7	—	1.6	—			
		RU1L002SN		60	0.25	0.2	—	—	—	3	2.3	2.1	1.7			
		RU1C001ZP	P	-20	-0.1	0.15	—	10	6	4.8	3.4	2.5	—	1.2		
		RU1C002ZP		-20	-0.2	0.15	—	2.4	—	1	—	0.8	—			
		RU1E002SP		-30	-0.2	0.2	—	—	—	—	1.6	1.4	0.9			
UMT6 (2021) (SC-88) (SOT-363)	Switching	UM6K34N	N+N	50	0.2	0.15	3	2.2	2	1.7	—	1.6	—	0.9		
		UM6K33N		50	0.2	0.15	—	2.4	—	1.7	—	1.6	—			
		UM6K31N		60	0.25	0.15	—	—	—	3	2.3	2.1	1.7		2.5	
		UM6J1N	P+P	-30	-0.2	0.15	—	—	—	—	1.6	1.4	0.9	4		
SST3 (2924) (SOT-23)	Switching	RUC002N05	N	50	0.2	0.2	—	2.4	—	1.7	—	1.6	—	1.2		
		RK7002BM		60	0.25	0.2	—	—	—	3	2.3	2.1	1.7		2.5	
		RYC002N05		50	0.2	0.2	3	2.2	2	1.7	—	1.6	—		0.9	
		RSC002P03	P	-30	-0.2	0.2	—	—	—	—	1.6	1.4	0.9	4		

*1 = 1.8V ☆ : Under development

MOSFETs

■ Middle Power MOSFET Series

● Quick Reference

	Drive Voltage (V)	V _{DS} (V)	I _D (A)								Package			
			0.5 to 1.6	2 / 2.5	3 / 3.5	4 / 4.5	5 / 5.5	6 / 6.5	7 / 7.5	8 / 8.5		9 to 15		
Single Type	1.5	12	RW1A013ZP (P)	RW1A020ZP (P) RW1A025AP (P)	RW1A030AP (P)							WEMT6		
			RZF013P01 (P)	RZF020P01 (P) RAL025P01 (P)	RZF030P01 (P) RAL035P01 (P)	RAF040P01 (P) RAL045P01 (P)						TUMT3		
						RT1A045AP (P) RZR040P01 (P)	RT1A050ZP (P)	RT1A060AP (P)				TUMT6		
												TSST8		
												TSMT3		
						RAQ045P01 (P)	RZQ050P01 (P)					TSMT6		
		20							RQ1A060ZP (P)	RQ1A070ZP (P) RQ1A070AP (P)		TSMT8		
			RW1C015UN (N)	RW1C020UN (N) RW1C025ZP (P) RW1C026ZP (P)								WEMT6		
				RUF020N02 (N) RUF025N02 (N)								TUMT3		
					RUL035N02 (N)							TUMT6		
									RT1C060UN (N)			TSST8		
					RUR020N02 (N)		RUR040N02 (N)					TSMT3		
	1.8	2.5	30	RUF015N02 (N)	☆RF5E020AJ (N) RTF025N03 (N)	☆RF5E030AJ (N)							TUMT3	
				RTF015N03 (N)		RTL035N03 (N)	☆RF6E045AJ (N)						TUMT6	
					☆RQ5E025AJ (N) RTR025N03 (N)	☆RQ5E035AJ (N)	☆RQ5E040AJ (N) RTR040N03 (N)						TSMT3	
			45		RTQ020N03 (N)	RTQ035N03 (N)	☆RQ6E040AJ (N) RTQ045N03 (N)	☆RQ6E055AJ (N)					TSMT6	
				RTF016N05 (N)									TUMT3	
					RTR020N05 (N) RTR025N05 (N)	RTR030N05 (N)							TSMT3	
		4	30	30	RW1E014SN (N) RW1E015RP (P)	RW1E025RP (P)								WEMT6
					RSF014N03 (N) RRF015P03 (P)									TUMT3
						RRL025P03 (P)	RRL035P03 (P)							TUMT6
				RRR015P03 (P)	RSR025N03 (N)	RRR030P03 (P) RXR035N03 (N)	RRR040P03 (P)						TSMT3	
					RSQ020N03 (N) RRQ020P03 (P)	RRQ030P03 (P)	RXQ040N03 (N) RSQ045N03 (N) RRQ045P03 (P)						TSMT6	
							RT1E040RP (P)	RT1E050RP (P)	RT1E060XN (N)				TSST8	
	45							RQ1E050RP (P)		RQ1E070RP (P) RQ1E075XN (N)	RQ1E100XN (N)	TSMT8		
			RSF010P05 (P)									TUMT3		
				RSR020P05 (P) RSR025N05 (N)								TSMT3		
	60		60										TSMT6	
RSF015N06 (N)												TUMT3		
RSR015P06 (P) RSQ015N06 (N)				RSR020N06 (N)	RSR030N06 (N)							TSMT3		
100											TSMT6			
		RSR010N10 (N) RSQ015P10 (P)									TSMT3			
		RDR005N25 (N)									TSMT6			
4.5	30	30	☆RW1E015AT (P)	☆RW1E025AT (P)								WEMT6		
			☆RF5E015BN (N)	☆RF5E020AT (P) ☆RF6E025AT (P)	☆RF5E030AT (P) ☆RF6E035BN (N) ☆RF6E035AT (P)			☆RF5E065BN (N)	☆RF6E070BN (N)		TUMT3			
				☆RQ5E020BN (N) ☆RQ5E020AT (P)	☆RQ5E035BN (N) ☆RQ5E035AT (P)	☆RQ5E045AT (P)	☆RQ5E055BN (N)			☆RQ5E090BN (N)	TSMT3			
		60		☆RQ6E020BN (N) ☆RQ6E025AT (P)	☆RQ6E035BN (N) ☆RQ6E035AT (P)	☆RQ6E045BN (N)	☆RQ6E050AT (P) ☆RQ6E055AT (P) ☆RQ7E055AT (P)			☆RQ6E085BN (N)		TSMT6		
									☆RQ7E075BN (N)	☆RQ7E080AT (P)	☆RQ7E095AT (P) ☆RQ7E100BN (N) ☆RQ7E150BN (N)	TSMT8		
												TSMT3		
	60				☆RGR040N06 (N)						TSMT3			

Dual Type	Drive Voltage (V)	V _{DSS} (V)	I _D (A)								Package	
			0.5 to 1.6	2 / 2.5	3 / 3.5	4 / 4.5	5 / 5.5	6 / 6.5	7 / 7.5	8 / 8.5		9 to 15
Dual Type	1.5	12	US6J11 (P+P)	US6J12 (P+P)								TUMT6
				TT8J13 (P+P)	TT8J11 (P+P)							TSST8
				QS6J11 (P+P)								TSMT6
					QS8J11 (P+P)	QS8J2 (P+P) QS8J12 (P+P)	QS8J13 (P+P)					TSMT8
	1.5	20		TT8K1 (N+N) TT8J21 (P+P) TT8M1 (N+P) TT8M3 (N+P)								TSST8
			12 / 20	US6M11 (N+P)								TUMT6
	1.5 / 2.5	20 / 30		TT8M2 (N+P)							TSST8	
	1.8	20		US6K4 (N+N)								TUMT6
				US6M2 (N+P)								TUMT6
	2.5	20 / 30		QS6M4 (N+P)								TSMT6
				US6K1 (N+N)								TUMT6
		30			TT8K2 (N+N)							TSST8
					QS5K2 (N+N)							TSMT5
				QS6K1 (N+N)	☆QH6KA1 (N+N)							TSMT6
		45	20 / 30			QS8K2 (N+N)				☆QH8KA5 (N+N)	☆QH8KA4 (N+N)	
				QS6K21 (N+N)							TSMT6	
	2.5 / 4	20 / 30		US6M1 (N+P)							TUMT6	
	4	30		US6K2 (N+N)								TUMT6
					TT8J2 (P+P) TT8J3 (P+P)	TT8K11 (N+N)						TSST8
					TT8M11 (N+P)							
					QS8K11 (N+N)	QS8J4 (P+P) QS8K12 (N+N)	QS8J5 (P+P)	QS8K13 (N+N)				
45		20 / 30			QS8M12 (N+P)		QS8M13 (N+P)					
						QS8K21 (N+N)						
					QS8M31 (N+P)							
60	20 / 30			QS8K51 (N+N)							TSMT8	
				QS8M51 (N+P)								
4.5	30						☆QH8JA3 (P+P) ☆QH8KA2 (N+N) ☆QH8KA1 (N+N)	☆QH8MA3 (N+P)	☆QH8KA3 (N+N)		☆QH8KA6 (N+N)	
							☆QH8MA2 (N+P)					

•Character "N", "P" in parentheses indicates "N-channel", "P-channel" respectively. ☆:Under development

MOSFETs

■ Middle Power MOSFET Series

● Product Lineup

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _a =25°C)	R _{DS(on)} Typ. (mΩ)					Q _g (nC) (V _{GS} =4.5V)	Drive Voltage (V)	
							V _{GS} (V)							
							1.5	2.5	4	4.5	10			
WEMT6 (1616)		RW1C020UN	N	20	2	0.7	170	95	—	75	—	2	1.5	
		RW1C015UN		20	1.5	0.7	300	170	—	130	—	1.8		
		RW1A030AP		-12	-3	0.7	75	40	—	30	—	22		
		RW1A025AP	P	-12	-2.5	0.7	90	55	—	44	—	16		
		RW1A020ZP		-12	-2	0.7	200	105	—	75	—	6.5		
		RW1A013ZP		-12	-1.3	0.7	530	280	—	190	—	2.4		
		RW1C025ZP		-20	-2.5	0.7	120	65	—	48	—	21		
		RW1C026ZP	-20	-2.5	0.7	100	65	—	50	—	10			
		RW1E014SN	N	30	1.4	0.7	—	—	270	250	170	1.4 ²		4
		RW1E025RP		-30	-2.5	0.7	—	—	95	85	55	5.2 ²		
TUMT3 (2021)	Load switch Switching	RW1E015RP	P	-30	-1.5	0.7	—	—	190	170	115	3.2 ²	1.5	
		☆RW1E025AT		-30	-2.5	0.7	—	—	—	80	55	4.3		
		☆RW1E015AT		-30	-1.5	0.7	—	—	—	130	85	2.3		
		RUF025N02	N	20	2.5	0.8	80	49	—	39	—	5		
		RUF020N02		20	2	0.8	170	95	—	75	—	2		
		RAF040P01	P	-12	-4	0.8	40	27	—	22	—	37		
		RZF030P01		-12	-3	0.8	72	39	—	28	—	18		
		RZF020P01		-12	-2	0.8	200	105	—	75	—	6.5		
		RZF013P01		-12	-1.3	0.8	530	280	—	190	—	2.4		
		RUF015N02	N	20	1.5	0.8	220 ¹	170	—	130	—	1.8		
☆RF5E030AJ	30	3		0.8	—	55	—	40	—	2				
☆RF5E020AJ	30	2		0.8	—	110	—	80	—	1				
RTF025N03	N	30	2.5	0.8	—	70	50	48	—	3.7				
RTF015N03		30	1.5	0.8	—	240	180	170	—	1.6				
☆RF5E065BN		30	6.5	0.8	—	—	—	20	17	3.3				
☆RF5E015BN		30	1.5	0.8	—	—	—	100	80	0.7				
RTF016N05		45	1.6	0.8	—	200	150	140	—	2.3				
RSF014N03		30	1.4	0.8	—	—	—	270	250	170	1.4 ²			
RSF015N06	60	1.5	0.8	—	—	—	255	240	210	2 ²				
RRF015P03	P	-30	-1.5	0.8	—	—	190	170	115	3.2 ²				
☆RF5E030AT		-30	-3	0.8	—	—	—	55	35	4.3				
☆RF5E020AT		-30	-2	0.8	—	—	—	130	85	2.3				
RSF010P05		-45	-1	0.8	—	—	—	490	450	325	2.4 ²			
RUL035N02	N	20	3.5	1	66	38	—	31	—	5.7				
RAL045P01	P	-12	-4.5	1	50	28	—	22	—	40				
RAL035P01		-12	-3.5	1	75	40	—	30	—	22				
RAL025P01		-12	-2.5	1	90	55	—	44	—	16				
US6J12	P+P	-12	-2	1	200	105	—	75	—	7.6				
US6J11	N+N	-12	-1.3	1	530	280	—	190	—	2.4				
US6K4		20	1.5	1	220 ¹	170	—	130	—	1.8				
RTL035N03	N	30	3.5	1	—	56	42	40	—	4.6				
☆RF6E045AJ		30	4.5	1	—	21	—	15	—	5.3				
☆RF6E070BN		30	7	1	—	—	—	20	17	3.4				
☆RF6E035BN		30	3.5	1	—	—	—	100	80	0.7				
US6K1	N+N	30	1.5	1	—	240	180	170	—	1.6				
US6M2	N	30	1.5	1	—	240	180	170	—	1.6				
		-20	-1	1	—	570	310	280	—	2.1				
RRL035P03	P	-30	-3.5	1	—	—	60	55	40	8.0 ²				
RRL025P03		-30	-2.5	1	—	—	95	85	55	5.2 ²				
☆RF6E035AT		-30	-3.5	1	—	—	—	60	40	4.9				
☆RF6E025AT		-30	-2.5	1	—	—	—	95	60	3.1				
US6K2	N+N	30	1.4	1	—	—	270	250	170	1.4 ²				
US6M1	N	30	1.4	1	—	—	270	250	170	1.4 ²				
		-20	-1	1	—	570	310	280	—	2.1				
US6M11	P	20	1.5	1	300	170	—	130	—	1.8				
		-12	-1.3	1	530	280	—	190	—	2.4				
TSST8 (3019)		RT1C060UN	N	20	6	1.25	33	24	—	20	—	11	4	
		RT1E060XN		30	6	1.25	—	—	23	21	16	6.8 ²		
		TT8K1	N+N	20	2.5	1.25	100	65	—	52	—	3.6		
		TT8K2		30	2.5	1.25	—	95	70	65	—	3.2		
		TT8K11		30	3	1.25	—	—	78	67	51	2.5 ²		
		RT1A060AP	P	-12	-6	1.25	27	17	—	14	—	80		
		RT1A050ZP		-12	-5	1.25	48	26	—	19	—	34		
		RT1A045AP		-12	-4.5	1.25	50	28	—	22	—	40		
		RT1E050RP		-30	-5	1.25	—	—	—	40	36	26	13 ²	
		RT1E040RP		-30	-4	1.25	—	—	—	52	45	32	10.5	
		TT8J11	P+P	-12	-3.5	1.25	75	41	—	31	—	22		
		TT8J13		-12	-2.5	1.25	90	55	—	44	—	16		
		TT8J21		-20	-2.5	1.25	140	68	—	49	—	12		
		TT8M1		N	20	2.5	1.25	100	65	—	52	—	3.6	
		TT8M3	P	-20	-2.5	1.25	140	68	—	49	—	12		
				-20	-2.4	1.25	180	105	—	80	—	6.7		
		TT8M2	N	30	2.5	1.25	—	95	70	65	—	3.2		
				-20	-2.5	1.25	140	68	—	49	—	12		
		TT8M11	P	30	3	1.25	—	—	78	67	51	2.5 ²		
				-30	-2.5	1.25	—	—	115	95	60	4.8 ²		
TT8J2	P+P	-30	-2.5	1.25	—	—	115	95	60	4.8 ²				
TT8J3		-30	-2.5	1.25	—	—	120	100	65	4.8 ²				

*1 : V_{GS}=1.8V *2 : V_{GS}=5V ☆ : Under development

■ Middle Power MOSFET Series

● Product Lineup

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (Ta=25°C)	R _{Ds} (on) Typ. (mΩ)					Q _g (nC) (V _{Gs} =4.5V)	Drive Voltage (V)
							V _{Gs} (V)						
							1.5	2.5	4	4.5	10		
TSMT3 (2928)	Load switch Switching	RUR040N02	N	20	4	1	55	33	—	25	—	8	1.5
		RUR020N02		20	2	1	170	95	—	75	—	2	
		☆RQ5E040AJ		30	4	1	—	40	—	28	—	2.9	
		☆RQ5E035AJ		30	3.5	1	—	55	—	40	—	2.0	
		☆RQ5E025AJ		30	2.5	1	—	110	—	80	—	1.0	
		RZR040P01		-12	-4	1	55	30	—	22	—	30	
		RZR025P01	-12	-2.5	1	110	60	—	44	—	13	1.5	
		RZR020P01	-12	-2	1	200	105	—	75	—	6.5		
		RTR040N03	30	4	1	—	47	36	34	—	5.9		
		RTR025N03	30	2.5	1	—	95	70	66	—	3.3	2.5	
		☆RQ5E090BN	30	9	1	—	—	—	15	13	4.4		
		☆RQ5E055BN	30	5.5	1	—	—	—	19	17	3.4		
		☆RQ5E035BN	30	3.5	1	—	—	—	46	38	1.5	4.5	
		☆RQ5E020BN	30	2	1	—	—	—	85	70	0.8		
		RTR030N05	45	3	1	—	68	53	48	—	6.2		
		RTR025N05	45	2.5	1	—	125	100	95	—	3.2	2.5	
		RTR020N05	45	2	1	—	180	135	130	—	2.9		
		RXR035N03	30	3.5	1	—	—	50	45	35	3.3*		
		RSR025N03	30	2.5	1	—	—	83	74	50	2.9*	4	
		RSR025N05	45	2.5	1	—	—	105	95	70	3.6		
		RSR030N06	60	3	1	—	—	75	70	60	5*		
		RSR020N06	60	2	1	—	—	150	140	120	2.7*		
		☆RGR040N06	60	4	1	—	—	—	63	43	3.9		
		RRR040P03	-30	-4	1	—	—	52	45	32	10.5*		
		RRR030P03	-30	-3	1	—	—	95	85	55	5.2*	4	
		RRR015P03	-30	-1.5	1	—	—	190	170	115	3.2*		
		☆RQ5E045AT	-30	-4.5	1	—	—	—	30	20	10		
		☆RQ5E035AT	-30	-3.5	1	—	—	—	60	40	4.9	4.5	
		☆RQ5E020AT	-30	-2	1	—	—	—	130	85	2.3		
		RSR020P05	-45	-2	1	—	—	200	180	130	5		
		RSR015P06	-60	-1.5	1	—	—	255	240	200	5	4	
		RSR010N10	100	1	1	—	—	470	460	440	34*		
RDR005N25	250	0.5	1	—	—	7.4Ω	7.2Ω	6.8Ω	3.5				
TSMT5 (2928)		QS5K2	N+N	30	2	1.25	—	110	76	71	—	2.8	2.5
TSMT6 (2928)		RUQ050N02	N	20	5	1.25	40	27	—	22	—	12	1.5
		RZQ050P01	P	-12	-5	1.25	44	26	—	19	—	35	
		RAQ045P01	P	-12	-4.5	1.25	50	28	—	22	—	40	
		QS6J11	P+P	-12	-2	1.25	200	105	—	75	—	6.5	2.5
		☆RQ6E055AJ	30	5.5	1.25	—	21	—	15	—	5.3		
		☆RQ6E040AJ	30	4	1.25	—	55	—	40	—	2.0		
		RTQ045N03	30	4.5	1.25	—	42	32	30	—	7.6		
		RTQ035N03	30	3.5	1.25	—	55	40	38	—	4.6		
		RTQ020N03	30	2	1.25	—	138	94	89	—	2.4		
		☆RQ6E085BN	30	8.5	1.25	—	—	—	12	10.5	5.4	4.5	
		☆RQ6E045BN	30	4.5	1.25	—	—	—	35	21	2		
		☆RQ6E035BN	30	3.5	1.25	—	—	—	45	40	1.5		
		☆RQ6E020BN	30	2	1.25	—	—	—	95	80	0.7		
		RTQ020N05	45	2	1.25	—	200	150	140	—	2.3		
		QS6K1	30	1	1.25	—	260	180	170	—	1.7		
		☆QH6KA1	30	2	1.25	—	—	170	120	—	0.7	2.5	
		QS6K21	45	1	1.25	—	415	—	310	300	1.5		
		QS6M4	30	1.5	1.25	—	260	180	170	—	1.6		
		RSQ040N03	-20	-1.5	1.25	—	310	170	155	—	3	4	
		RXQ040N03	30	4	1.25	—	—	50	45	35	3.3*		
		RSQ045N03	30	4.5	1.25	—	—	40	36	27	6.8*		
		RSQ020N03	30	2	1.25	—	—	168	148	96	2.2*		
		RVQ040N05	45	4	1.25	—	—	53	47	38	6.3		
		RSQ015N06	60	1.5	1.25	—	—	255	240	210	2*		
		RRQ045P03	-30	-4.5	1.25	—	—	38	34	25	14*		
		RRQ030P03	-30	-3	1.25	—	—	95	85	55	5.2*		
		RRQ020P03	-30	-2	1.25	—	—	190	170	115	3.2*		
		☆RQ6E055AT	-30	-5.5	1.25	—	—	—	25	18	12.8		4.5
		☆RQ6E050AT	-30	-5	1.25	—	—	—	30	20	10		
		☆RQ6E035AT	-30	-3.5	1.25	—	—	—	60	40	4.9		
		☆RQ6E025AT	-30	-2.5	1.25	—	—	—	130	85	2.3		
		RSQ015P10	-100	-1.5	1.25	—	—	400	380	350	17*		
										4			

* : V_{Gs}=5V ☆ : Under development

MOSFETs

■ Middle Power MOSFET Series

● Product Lineup

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _a =25°C)	R _{DS(on)} Typ. (mΩ)					Q _g (nC) (V _{GS} =4.5V)	Drive Voltage (V)	
							V _{GS} (V)							
							1.5	2.5	4	4.5	10			
TSMT8 (3028)	Load switch Switching Moter Drive	RQ1C075UN	N	20	7.5	1.5	20	14	—	11	—	18	1.5	
		RQ1C065UN		20	6.5	1.5	29	19	—	16	—	11		
		RQ1A070ZP	P	-12	-7	1.5	19	11	—	8	—	58		
		RQ1A060ZP		-12	-6	1.5	39	22	—	16	—	34		
		QS8J13	P+P	-12	-5.5	1.5	29	19	—	15	—	60		
		QS8J12		-12	-4.5	1.5	49	27	—	21	—	40		
		QS8J11		-12	-3.5	1.5	75	41	—	31	—	22		
		QS8J2		-12	-4	1.5	66	36	—	26	—	20		
		RQ1E100XN	N	30	10	1.5	—	—	10	9.5	7.5	12.7*		4
		RQ1A070AP	P	-12	-7	1.5	24	13	—	10	—	80		1.5
		RQ1E075XN	N	30	7.5	1.5	—	—	19	17	12	6.8*		4
		☆RQ7E150BN		30	15	1.5	—	—	—	4.7	4	14.5		4.5
		☆RQ7E100BN		30	10	1.5	—	—	—	7.1	6	9.5		
		☆RQ7E075BN		30	7.5	1.5	—	—	—	14	12	4.8		
		QS8J5	P+P	-30	-5	1.5	—	—	45	40	28	10*	4	
		QS8J4		-30	-4	1.5	—	—	60	55	40	8.4*		
		☆QH8JA3		-30	-5.5	1.5	—	—	—	30	20	10		
		QS8K13		30	6	1.5	—	—	28	25	20	5.5*		
		QS8K12	N+N	30	4	1.5	—	—	45	40	30	3.4*	4	
		QS8K11		30	3.5	1.5	—	—	50	45	35	3.3*		
		☆QH8KA6		30	9	1.5	—	—	—	15	13	4.4		
		☆QH8KA3		30	7	1.5	—	—	—	20	17	3.4		
		☆QH8KA2	N+N	30	5	1.5	—	—	—	40	25	2	4.5	
		☆QH8KA1		30	5	1.5	—	—	—	80	75	1.5		
		QS8K21		45	4	1.5	—	—	53	48	38	5.4*		
		QS8K51		100	2	1.5	—	—	260	250	240	4.7*		
		QS8K2	N+N	30	3.5	1.5	—	55	40	38	—	4.6	2.5	
		☆QH8KA4		30	8	1.5	—	17	—	13	—	6.2		
		☆QH8KA5		30	7	1.5	—	21	—	15	—	5.3		
		RQ1E050RP		P	-30	-5	1.5	—	—	36	32	22		13*
		RQ1E070RP	-30		-7	1.5	—	—	19	17	12	26*		
		☆RQ7E095AT	-30		-9.5	1.5	—	—	—	11	7.5	20.3		
		☆RQ7E080AT	-30		-8	1.5	—	—	—	17	12	12.9		
		☆RQ7E055AT	P	-30	-5.5	1.5	—	—	—	30	20	10	4.5	
		QS8M13		N	30	6	1.5	—	—	28	25	20		5.5*
		QS8M12		P	-30	-5	1.5	—	—	45	40	28		10*
		QS8M12		N	30	4	1.5	—	—	45	40	30		3.4*
		☆QH8MA3	P	-30	-3.5	1.5	—	—	60	55	40	8.4*	4	
		☆QH8MA3		N	30	6	1.5	—	—	34.2	28.6	2		
		☆QH8MA2	P	-30	-4	1.5	—	—	60	40	40	3.7	4.5	
☆QH8MA2	N	30		5	1.5	—	—	40	25	4.7				
QS8M31	P	-30	-4	1.5	—	—	80	55	4.3	4				
QS8M31		N	60	3	1.5	—	—	98	93		80	4*		
QS8M51	P	-60	-2	1.5	—	—	190	180	150	7.2*	4			
QS8M51		N	100	2	1.5	—	—	260	250	240		4.6*		
QS8M51	P	-100	-1.5	1.5	—	—	400	380	350	17*				

* : V_{GS}=5V ☆ : Under development

Multiple Schottky Barrier Diodes Middle Power MOSFET Series

<WEMT • TUMT • TSST • TSMT>

Quick Reference

	Drive Voltage (V)	V _{DSS} (V)	I _D (A)					Package
			0.7	1	1.3 / 1.4 / 1.5	2	2.4 / 2.5	
Built-in Diode	1.5	12			ES6U1(P)			WEMT6
					ES6U2(N)			WEMT6
		20					TT8U1(P)	TSST8
							TT8U2(P)	TSMT5
						QS5U36(N)	TSMT5	
	1.8	20			QS5U34(N)			TSMT5
				ES6U42(P)				WEMT6
	2.5	20		US5U30(P)				TUMT5
				US5U38(P)				TUMT5
					QS5U21(P)			TSMT5
					QS5U23(P)			
						QS5U26(P)		
						QS5U27(P)		
							QS5U28(P)	
						QS6U22(P)		TSMT6
	30				ES6U41(N)			WEMT6
					US5U1(N)			TUMT5
					US5U3(N)			TUMT5
				US6U37(N)			TUMT6	
					QS5U12(N)	TSMT5		
					QS5U13(N)			
					QS5U16(N)			
4	30			ES6U3(N)			WEMT6	
				US5U2(N)			TUMT5	
							QS5U33(P)	TSMT5
					QS6U24(P)			TSMT6
				US5U35(P)				TUMT5

*Character "N", "P" in parentheses indicates "N-channel", "P-channel" respectively.

Product Lineup

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (Ta=25°C)	R _{DS(on)} Typ. (mΩ)					Q _g (nC) (V _{GS} =4.5V)	Drive Voltage (V)
							V _{GS} (V)						
							1.5	2.5	4	4.5	10		
WEMT6 (1616)	Load switch	ES6U2	N+SBD (0.5A)	20	1.5	0.8	300	170	—	130	—	1.8	1.5
		ES6U3	N+SBD (0.5A)	30	1.4	0.8	—	—	270	250	170	1.4 ⁻¹	4
		ES6U1	P+SBD (0.5A)	-12	-1.3	0.8	530	280	—	190	—	2.4	1.5
		ES6U41	N+SBD (0.5A)	30	1.5	0.8	—	240	180	170	—	1.6	2.5
		ES6U42	P+SBD (0.5A)	-20	-1	0.8	—	570	310	280	—	2.1	
TUMT5 (2021)	Load switch	US5U1	N+SBD (0.5A)	30	1.5	1	—	240	180	170	—	1.6	2.5
		US5U3	N+SBD (0.7A)	30	1.5	1	—	240	180	170	—	1.6	
		US5U30	P+SBD (0.5A)	-20	-1	1	—	570	310	280	—	2.1	4
		US5U38	P+SBD (0.7A)	-20	-1	1	—	570	310	280	—	2.1	
TUMT6 (2021)	Load switch	US5U2	N+SBD (0.5A)	30	1.4	1	—	—	270	250	170	1.4 ⁻¹	4
TUMT6 (2021)	Load switch	US5U35	P+SBD (0.1A)	-45	-0.7	1	—	—	1000	900	600	1.7	4
TSMT5 (2928)	Load switch	US6U37	N+SBD (0.7A)	30	1.5	1	—	240	180	170	—	1.6	2.5
		TT8U1	P+SBD (1A)	-20	-2.4	1.25	180	105	—	80	—	6.7	1.5
		TT8U2		-20	-2.4	1.25	180	105	—	80	—	6.7	
		QS5U36	N+SBD (0.7A)	20	2.5	1.25	120	74	—	58	—	3.5	2.5
		QS5U34	N+SBD (0.5A)	20	1.5	1.25	220 ^{*6}	170	—	130	—	1.8	
		QS5U13 ^{*2}	N+SBD (0.5A)	30	2	1.25	—	110	76	71	—	2.8	
		QS5U16 ^{*2}		30	2	1.25	—	110	76	71	—	2.8	
		QS5U12 ^{*3}	N+SBD (1A)	30	2	1.25	—	110	76	71	—	2.8	
		QS5U17 ^{*3}		30	2	1.25	—	110	76	71	—	2.8	
		QS5U28	P+SBD (1A)	-20	-2	1.25	—	175	97	90	—	4.8	
		QS5U26 ^{*5}	P+SBD (0.5A)	-20	-1.5	1.25	—	260	180	160	—	4.2	
		QS5U21 ^{*4}	P+SBD (1A)	-20	-1.5	1.25	—	260	180	160	—	4.2	
		QS5U27 ^{*4}		-20	-1.5	1.25	—	260	180	160	—	4.2	
		QS5U23 ^{*5}	P+SBD (0.5A)	-20	-1.5	1.25	—	260	180	160	—	4.2	
QS5U33	P+SBD (1A)	-30	-2	1.25	—	—	160	145	95	3.4 ⁻¹	4		
TSMT6 (2928)	Load switch	QS6U22	P+SBD (0.7A)	-20	-1.5	1.25	—	310	170	155	—	3	2.5
		QS6U24	P+SBD (0.7A)	-30	-1	1.25	—	—	600	500	300	1.7 ⁻¹	4

*1 : V_{GS}=5V *2,*3,*4,*5 : Please note that, although the internal circuit configuration may differ between part numbers, the electrical specifications remain the same. *6 : V_{GS}=1.8V

MOSFETs

■ Middle Power MOSFET Series

<MPT3>

● Quick Reference

Single Type	Drive Voltage (V)	V _{DSS} (V)	I _D (A)		Package
			2	3	
Single Type	2.5	60	RJP020N06 (N)		MPT3
			RHP030N03 (N)		
	4	60	RHP020N06 (N)		

*Character "N" in parentheses indicates "N-channel" respectively.

<HUML2020L8>

● Quick Reference

Single Type	Drive Voltage (V)	V _{DSS} (V)	I _D (A)								Package	
			3/3.5	4	5/5.5	6/6.5	7	8	9	11		
Single Type	1.5	12	☆RF4A035AP (P)			☆RF4A060AP (P)						HUML2020L8
			☆RF4C030AP (P)		New RF4C050AP (P)							
	2.5	30							☆RF4E090AJ (N)			
Dual Type	1.5	20	☆UT6J3 (P+P)									HUML2020L8
			1.5/2.5	20/30	☆UT6M1 (N+P)							
	2.5	30		☆UT6K1 (N+N)	☆UT6K3 (N+N)							
Dual Type	4.5	30	☆UT6KA6 (N+N)		☆UT6KA4 (N+N)							HUML2020L8
			☆UT6MA1 (P)		☆UT6KA5 (N+N)							
				☆UT6MA2 (N+P)								

*Character "N", "P" in parentheses indicates "N-channel", "P-channel" respectively. ☆:Under development

<HSMT8>

● Quick Reference

Single Type	Drive Voltage (V)	V _{DSS} (V)	I _D (A)								Package	
			4	7/7.5	8/8.5	9/10	11/12	13	15/16	18		
Single Type	1.5	12	☆RQ3A070AP (P)	☆RQ3A085AP (P)	☆RQ3A100AP (P)							HSMT8
				RQ3E070BN (N)	RQ3E080BN (N)	☆RQ3E090AT (P)	☆RQ3E110AT (P)	RQ3E130BN (N)	New RQ3E160AD (N)	RQ3E180BN (N)		
	4.5	30	☆RQ3E075AT (P)	RQ3E080GN (N)	RQ3E100BN (N)	RQ3E120BN (N)		RQ3E150BN (N)	RQ3E180GN (N)			
					RQ3E100GN (N)	RQ3E120GN (N)	New RQ3E120AT (P)	RQ3E150GN (N)				
Dual Type	4.5	60	☆RQ3L040GN (N)	☆RQ3L070GN (N)	☆RQ3G080GN (N)	☆RQ3G100GN (N)		RQ3G130MN (N)	☆RQ3G150GN (N)			
						☆RQ3L090GN (N)						

*Character "N", "P" in parentheses indicates "N-channel", "P-channel" respectively. ☆:Under development

<HSML3030L10>

● Quick Reference

Dual Type	Drive Voltage (V)	V _{DSS} (V)	I _D (A)			Package
			5	9	11	
Dual Type	4.5	30			New HS8K1 (N+N) ☆ HS8K2 (N+N)	HSML3030L10
				☆ HS8K21 (N+N) ☆ HS8K22 (N+N)		
	60	☆ HS8K31 (N+N)				

*Character "N" in parentheses indicates "N-channel" respectively. ☆:Under development

■ Middle Power MOSFET Series

<MPT3·HUML2020L8·HSMT8·HSML3030L10>

● Product Lineup

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _a =25°C)	R _{DS} (on) Typ. (mΩ)				Q _g (nC) (V _{GS} =5V)	Drive Voltage (V)	
							V _{GS} (V)						
							1.5	2.5	4	4.5	10		
MPT3 (4540) (SC-63) (SOT-428)	DC-DC Converter Motor Drive	RJP020N06	N	60	2	2	—	210	170	165	—	—	2.5
		RHP030N03		30	3	2	—	—	160	—	90	—	4
		RHP020N06		60	2	2	—	—	240	200	150	—	
HUML2020L8 (Single) (2020)	Load switch Switching	RF4E110BN	N	30	11	2	—	—	—	11.8	8.5	12*1	4.5
		RF4E080BN		30	8	2	—	—	—	18.9	13.5	7.2*1	
		RF4E070BN		30	7	2	—	—	—	30.8	22	4.6*1	
		☆RF4E090AJ	P	30	9	2	—	13	—	10	—	8*1	2.5
		☆RF4C050AP		−20	−5	2	32	22	18	—	—	22	
		☆RF4C030AP		−20	−3	2	75	55	45	—	—	9	
		☆RF4A060AP		−12	−6	2	23	19	15	—	—	27	
	☆RF4A035AP	−12		−3.5	2	50	41	31	—	—	13		
	☆RF4E070AT	−30		−7	2	—	—	—	28	19	7.8*1		
	DC-DC Converter	N	RF4E065AT	−30	−6.5	2	—	—	—	34	23	6.6*1	4.5
			☆RF4E050AT	−30	−5	2	—	—	—	60	40	3.7*1	
			RF4E110GN	30	11	2	—	—	—	11.7	8.7	4.8*1	
			RF4E080GN	30	8	2	—	—	—	17.6	13.5	2.8*1	
RF4E070GN			30	7	2	—	—	—	23	16.4	2.3*1		
☆UT6J3			P+P	−20	−3	2	85	70	60	—	—	6.7	
☆UT6KA4	N+N	30	5.5	2	—	—	—	37	31	1.9*1			
HUML2020L8 (Dual) (2020)	DC-DC Converter Switching	☆UT6KA5	N+N	30	5	2	—	—	—	46	38	1.5*1	4.5
		☆UT6KA6	N+N	30	3.5	2	—	—	—	92	77	0.7*1	
		☆UT6K1	N+N	30	4	2	—	85	—	60	—	1.3*1	2.5
		☆UT6K3	N+N	30	5.5	2	—	45	—	32	—	2.5*1	
		☆UT6M1	N	30	4	2	—	85	—	60	—	1.3	1.5
			P	−20	−3	2	85	70	60	—	—	6.7	
		☆UT6MA2	N	30	5.5	2	—	—	—	40	25	1.9*1	4.5
			P	−30	−4	2	—	—	—	80	55	2.5*1	
		☆UT6MA1	N	30	5	2	—	—	—	80	75	0.8*1	4.5
			P	−30	−3.5	2	—	—	—	130	85	1.8*1	
HSMT8 (3333)	Load switch Switching	☆RQ3E160AD	N	30	16	2	—	—	—	5	3.5	26	4.5
		RQ3E180BN		30	18	2	—	—	—	3.7	2.8	37*1	
		RQ3E150BN		30	15	2	—	—	—	5.3	3.8	23*1	
		RQ3E130BN		30	13	2	—	—	—	6.7	4.4	16*1	
		RQ3E120BN		30	12	2	—	—	—	8.6	6.6	14*1	
		RQ3E100BN		30	10	2	—	—	—	11	7.7	10.5*1	
		RQ3E080BN		30	8	2	—	—	—	16	11	7.2*1	
		RQ3E070BN	30	7	2	—	—	—	29	20	4.6*1		
		☆RQ3A100AP	P	−12	−10	2	8.7	6.8	—	—	—	59	1.5
		☆RQ3A085AP		−12	−8.5	2	13	10	—	—	—	40	
		☆RQ3A070AP		−12	−7	2	19	15	—	—	—	27	
		☆RQ3E120AT		−30	−12	2	—	—	—	8.7	6.1	33*1	
		☆RQ3E110AT		−30	−11	2	—	—	—	11.3	7.4	25*1	
	☆RQ3E090AT	−30		−9	2	—	—	—	17	11.6	19*1		
	☆RQ3E075AT	−30	−7.5	2	—	—	—	24	16	13*1			
	DC-DC Converter Switching	N	RQ3E180GN	30	18	2	—	—	—	4.3	3.3	11.6*1	4.5
			RQ3E150GN	30	15	2	—	—	—	6.2	4.7	7.4*1	
			RQ3E120GN	30	12	2	—	—	—	9.1	6.7	4.8*1	
			RQ3E100GN	30	10	2	—	—	—	12	8.9	3.9*1	
			RQ3E080GN	30	8	2	—	—	—	17.5	12.9	2.8*1	
			☆RQ3G150GN	40	15	2	—	—	—	6	4.8	9.5*1	
			☆RQ3G130MN	40	13	2	—	—	—	7.9	6	8.5*1	
			☆RQ3G100GN	40	10	2	—	—	—	14.1	11	5.6*1	
☆RQ3G080GN			40	8	2	—	—	—	18.5	14.5	3.4*1		
☆RQ3L090GN			60	9	2	—	—	—	16.9	11.6	14.5*1		
☆RQ3L070GN	60	7	2	—	—	—	24.7	17	9.9*1				
☆RQ3L040GN	60	4	2	—	—	—	66	43	3.9*1				
HSML3030L10 (3030)	DC-DC	☆HS8K1	N+N	30	10	2	—	—	—	14.7	11.2	2.7	4.5
		☆HS8K2		30	11	2	—	—	—	11.9	9.1	3.3	
		☆HS8K21		30	8	2	—	—	—	22.8	17.2	1.3	
		☆HS8K22		30	11	2	—	—	—	11.9	9.1	3.3	
		☆HS8K31		40	8	2	—	—	—	22.1	17.3	3.2*1	
		☆HS8K32		40	9	2	—	—	—	18	14.1	4*1	
		☆HS8K33		40	6	2	—	—	—	35.1	27.3	2*1	
		☆HS8K34		40	9	2	—	—	—	18	14.1	4*1	
		☆HS8K35		60	5	2	—	—	—	49.3	34	4.9*1	
☆HS8K36	60	5	2	—	—	—	49.3	34	4.9*1				

*1 : V_{GS}=4.5V ☆ : Under development

MOSFETs

■ Middle Power MOSFET Series

<SOP8> (Single Type)

● Quick Reference

Single Type	Drive Voltage (V)	V _{DSS} (V)	I _D (A)						Package	
			4	5	6.5	7 / 7.5	9 / 9.5	10		11
Single Type	1.5	20						RUS100N02 (N)	SOP8	
	4	30	RRH040P03 (P)	RRH050P03 (P)		RRH075P03 (P) RXH070N03 (N)	RRH090P03 (P) RXH090N03 (N)	RRH100P03 (P) RXH100N03 (N)		
		45				RSH070N05 (N) RSH070P05 (P)				
		60			RSH065N06 (N)					
	4.5	30	☆RS3E040AT (P)	☆RS3E050AT (P)		☆RS3E070BN (N) ☆RS3E075AT (P)	☆RS3E090BN (N) ☆RS3E090AT (P)	☆RS3E100BN (N)		☆RS3E110AT (P)
		40					RMH090N04 (N)			RMH110N04 (N)
60							☆RGH100N06 (N)			

Single Type	Drive Voltage (V)	V _{DSS} (V)	I _D (A)					Package	
			12.5 / 13	14	15	17	18		20
Single Type	4	30	RXH125N03 (N)	RRH140P03 (P)					SOP8
	4.5	30	☆RS3E125BN (N)	☆RS3E140AT (P)	☆RS3E150BN (N)		☆RS3E180BN (N) ☆RS3E180AT (P)		
		40				RMH170N04 (N)		☆RGH200N04 (P)	
		60	☆RGH130N06 (N)						

• Character "N", "P" in parentheses indicates "N-channel", "P-channel" respectively. ☆ : Under development

<SOP8> (Dual Type)

● Quick Reference


Dual Type	Polarity	Drive Voltage (V)	V _{DSS} (V)	I _D (A)						Package		
				2.5 / 2.6	3 / 3.4 / 3.5	4 / 4.5	5 / 5.5	6	7		9	10/11/13
Dual Type	Nch + Nch or Pch + Pch	4	30		SH8K11 (N+N)	SH8J62 (P+P)	SH8K12 (N+N)	SH8K13 (N+N)	SH8J65 (P+P) SH8K14 (N+N)	SH8J66 (P+P) SH8K15 (N+N)		SOP8
			40			SH8K25 (N+N)		SH8K26 (N+N)				
			45			SH8K22 (N+N)						
			60			SH8K32 (N+N) SH8J31 (P+P)						
			80		SH8K41 (N+N)							
	Nch + Pch	4.5	30			☆SH8KA2 (N+N) ☆SH8KA1 (N+N)	☆SH8JA3 (P+P)	☆SH8KA4 (N+N)	☆SH8KA5 (N+N) ☆SH8JA4 (P+P)	☆SH8KA6 (N+N)		
			60			☆SP8K61 (N+N)						
		4	30		SH8M11 (N+P)	SH8M12 (N+P)		SH8M13 (N+P)				
			45		SH8M24 (N+P)				SH8M14 (N+P)			
			80		SH8M41 (N+P)							
100			SP8M51 (N+P)									
4.5	30			☆SH8MA3 (N+P) ☆SH8MA2 (N+P)								
	60			SH8M32 (N)								
10	250		SP8M70 (N+P)									

• Character "N", "P" in parentheses indicates "N-channel", "P-channel" respectively. ☆ : Under development

■ Middle Power MOSFET Series

<SOP8> (Single Type)


● Product Lineup

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (Ta=25°C)	R _{DS} (on) Typ. (mΩ)					Q _g (nC) (V _{GS} =5V)	Drive Voltage (V)		
							V _{GS} (V)								
							1.5	2.5	4	4.5	10				
SOP8 	Switching	RUS100N02	N	20	10	2	13	11	9	8	—	24 ⁻¹	1.5		
		RXH125N03		30	12.5	2	—	—	10	9.5	7.5	12.7			
		RXH100N03		30	10	2	—	—	13	12	9.5	11			
		RXH090N03		30	9	2	—	—	19	17	12	6.8			
		RXH070N03		30	7	2	—	—	28	25	20	5.8			
		☆RS3E180BN		30	18	2	—	—	—	—	4.7	4		15 ⁻¹	
		☆RS3E150BN		30	15	2	—	—	—	—	6.7	5.6		10 ⁻¹	
		☆RS3E125BN		30	12.5	2	—	—	—	—	8.9	7.6		8 ⁻¹	
		☆RS3E100BN		30	10	2	—	—	—	—	10.9	9.4		6 ⁻¹	
		☆RS3E090BN		30	9	2	—	—	—	—	13.1	11.2		5 ⁻¹	
		☆RS3E070BN		30	7	2	—	—	—	—	19.5	16.7		3 ⁻¹	
		☆RGH200N04		40	20	2	—	—	—	—	3.7	3		18	
		RMH170N04		40	17	2	—	—	—	—	5.1	4		38 ⁻²	
		RMH110N04		40	11	2	—	—	—	—	11	8.4		15.7 ⁻²	
		RMH090N04		40	9	2	—	—	—	—	16.5	12.5		10.1 ⁻²	
	RSH070N05	45	7	2	—	—	—	25	23	18	12				
	RSH065N06	60	6.5	2	—	—	—	31	28	24	11				
	☆RGH130N06	60	13	2	—	—	—	—	7.9	5.5	31				
	☆RGH100N06	60	10	2	—	—	—	—	11.9	8.2	20				
	Load switch Switching	RRH140P03	P	-30	-14	2	—	—	7.3	6.7	5	80	4		
		RRH100P03		-30	-10	2	—	—	14	12.5	9	39			
		RRH090P03		-30	-9	2	—	—	17	15	11	30			
		RRH075P03		-30	-7.5	2	—	—	25	22	15	21			
		RRH050P03		-30	-5	2	—	—	58	52	36	9.2			
		RRH040P03		-30	-4	2	—	—	95	85	55	5.2			
		☆RS3E180AT		-30	-18	2	—	—	—	—	4.1	2.8		77 ⁻¹	
		☆RS3E140AT		-30	-14	2	—	—	—	—	6.9	4.6		44 ⁻¹	
		☆RS3E110AT		-30	-11	2	—	—	—	—	11.3	7.4		25 ⁻¹	
		☆RS3E090AT		-30	-9	2	—	—	—	—	17	11.6		19 ⁻¹	
		New☆RS3E075AT		-30	-7.5	2	—	—	—	—	23.3	15.4		5.4 ⁻¹	
		☆RS3E050AT		-30	-5	2	—	—	—	—	60	40		5 ⁻¹	
		☆RS3E040AT		-30	-4	2	—	—	—	—	80	55		3 ⁻¹	
		RSH070P05		-45	-7	2	—	—	—	28	25	19		34	4

*1 : V_{GS}=4.5V *2 : V_{GS}=10V ☆ : Under development

<SOP8> (Dual Type)

● Product Lineup

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (Ta=25°C)	R _{BS} (on) Typ. (mΩ)			Q _g (nC) (V _{GS} =5V)	Drive Voltage (V)						
							V _{GS} (V)										
							4	4.5	10								
SOP8 	DC-DC Converter Switching	SH8K15	N+N	30	9	2	19	18	15	8.5	4						
		SH8K14		30	7	2	28	25	20	5.8							
		SH8K13		30	6	2	35	30	22	5							
		SH8K12		30	5	2	45	40	30	4							
		SH8K11		30	3.5	2	100	90	70	1.9							
		☆SH8KA6		30	10	2	—	10	8.7	6.6 ⁻¹							
		☆SH8KA5		30	9	2	—	13.1	11.2	5.1 ⁻¹							
		☆SH8KA4		30	7	2	—	19.5	16.7	3.4 ⁻¹							
		☆SH8KA2		30	5.5	2	—	40	25	1.9 ⁻¹							
		☆SH8KA1		30	5	2	—	80	70	0.8 ⁻¹							
		SH8K26		40	6	2	—	35	27	2.9							
		SH8K25		40	4	2	—	80	60	1.7							
		SH8K22		45	4.5	2	—	46	41	33		6.8					
		SH8K32		60	4.5	2	—	55	52	46		7					
		☆SP8K61		60	5	2	—	66	43	3.9							
		SH8K41		80	3.4	2	120	110	90	6.6							
		DC-DC Converter Switching Moter Drive		SH8J66	P+P	-30	-9	2	19	17.5		13.5	35	4			
				SH8J65		-30	-7	2	31	29		21.5	18				
				SH8J62		-30	-4.5	2	60	55		40	8				
				☆SH8JA4		-30	-9	2	—	17		11.6	19 ⁻¹				
				☆SH8JA3		-30	-6	2	—	30		20	10 ⁻¹				
				SH8J31		-60	-4.5	2	60	55		50	21				
				Load switch Switching Moter Drive		SH8M14	N	30	9	2		19	18		15	8.5	4
						SH8M13		-30	-7	2		31	29		21.5	18	
						SH8M13		30	6	2		35	30		22	5	
	SH8M12		P			-30	-7	2	31	29	21.5	18					
		30			5	2	45	40	30	4							
		-30			-4.5	2	60	55	40	8							
	SH8M11	N	30		3.5	2	100	90	70	1.9							
			30		-3.5	2	120	100	65	4.2							
			-30		-5.5	2	—	37	31	1.9 ⁻¹							
	☆SH8MA3	P	-30		-4.5	2	—	60	40	3.7 ⁻¹							
	☆SH8MA2		N		30	5.5	2	—	40	25	4.7 ⁻¹						
	P		-30		-4	2	—	80	55	4.3 ⁻¹							
	SH8M24	P	N		45	4.5	2	46	41	33	6.8						
P			-45		-3.5	2	66	60	45	13							
N			60		4.5	2	55	52	46	7							
P			-60	-4	2	135	125	100	8								
N			80	3.4	2	120	110	90	6.6								
P			-80	-2.6	2	230	220	165	8.2								
N			100	3	2	135	130	120	8.5 ⁻²								
SP8M51	P	-100	-2.5	2	240	230	210	12.5 ⁻²									
		N	250	3	—	—	1.25Ω	5.2 ⁻²									
		P	-250	-2.5	2	—	—	2.2Ω	8 ⁻²								

*1 : V_{GS}=4.5V *2 : V_{GS}=10V ☆ : Under development

MOSFETs

<HSOP8> (Single Type)

● Quick Reference

Single Type	Drive Voltage (V)	V _{DSS} (V)	I _D (A)								Package
			11 / 12 / 13	14 / 15	16 / 17 / 18	20 / 22	24 / 26	28	30 / 32	35	
4.5	30		RS1E130GN (N) ☆RS1E130AT (P)	RS1E150GN (N) ☆RS1E150AT (P)	RS1E180BN (N) RS1E170GN (N) ☆RS1E170AT (P)	RS1E200BN (N) RS1E200GN (N)	RS1E240BN (N) RS1E240GN (N) ☆RS1E240AT (P)	RS1E280BN (N) RS1E280GN (N)	RS1E300GN (N) RS1E320GN (N)	RS1E350BN (N) RS1E350GN (N)	HSOP8
	40		RS1G120MN (N)	RS1G150MN (N)	RS1G180MN (N)		☆RS1G240GN (N) RS1G260MN (N)		☆RS1G300GN (N)		
	60		☆RS1L110GN (N)	☆RS1L140GN (N)	☆RS1L160GN (N) ☆RS1L180GN (N)	☆RS1L220GN (N)					

*Character "N", "P" in parentheses indicates "N-channel", "P-channel" respectively. ☆ : Under development

<HSOP8> (Dual Type)


● Quick Reference

Dual Type	Drive Voltage (V)	V _{DSS} (V)	I _D (A)					Package		
			9	14	20 / 12	20 / 14	24 / 12		25 / 14	32 / 12
4.5	30				☆HP8K22 (N+N)		☆HP8K23 (N+N)		☆HP8K24 (N+N) ☆HP8S36 (N+N+SBD)	HSOP8
	40			☆HP8K31 (N+N)		☆HP8K33 (N+N)		☆HP8K32 (N+N)		
	60		☆HP8K61 (N+N)							

*Character "N", "SBD" in parentheses indicates "N-channel", "Schottky Barrier Diodes" respectively. ☆ : Under development

<HSOP8> (Single Type)


● Product Lineup

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (Ta=25°C)	R _{DS} (on) Typ. (mΩ)		Q _G (nC) (V _{GS} =4.5V)	Drive Voltage (V)
							V _{GS} (V)			
HSOP8 	Load switch Switching	RS1E350BN	N	30	35	3	4.5	10	95	4.5
		RS1E280BN		30	28		1.8	1.2	50	
		RS1E240BN		30	24		2.3	1.7	35	
		RS1E200BN		30	20		3.3	2.3	29	
		RS1E180BN		30	18		3.8	2.8	23	
		☆RS1E240AT		-30	-24		4.9	3.5	84	
		☆RS1E170AT	-30	-17	3.7		2.5	44		
		☆RS1E150AT	-30	-15	6.9		4.6	33		
		☆RS1E130AT	-30	-13	8.9		5.9	25		
		RS1E350GN	30	35	11.3		7.4	28.6		
		RS1E320GN	30	32	1.5		1.2	19.6		
		RS1E300GN	30	30	1.8		1.4	18.5		
	RS1E280GN	30	28	2.2	1.7		17.1			
	RS1E240GN	30	24	2.6	2		11.2			
	RS1E200GN	30	20	3.3	2.6		7.8			
	RS1E170GN	30	17	4.7	3.6		5.9			
	RS1E150GN	30	15	6.7	5.1		4.8			
	RS1E130GN	30	13	8.8	6.7		3.9			
	☆RS1G300GN	40	30	11.7	8.9		26			
	☆RS1G260MN	40	26	2.7	2.1		54.3*			
	☆RS1G240GN	40	24	3.2	2.4		16			
	RS1G180MN	40	18	3.9	3.1		24.4*			
	RS1G150MN	40	15	6.7	5		15.8*			
	RS1G120MN	40	12	10.2	7.6		10.1*			
	☆RS1L220GN	60	22	15.6	11.6		56			
	☆RS1L180GN	60	18	4.4	3		42			
	☆RS1L160GN	60	16	5.8	4		31			
	☆RS1L140GN	60	14	8	5.5		24			
☆RS1L110GN	60	11	10.5	6.9	15					
			16	11						

* : V_{GS}=10V ☆ : Under development

<HSOP8> (Dual Type)

● Product Lineup

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (Ta=25°C)	R _{DS} (on) Typ. (mΩ)		Q _G (nC) (V _{GS} =4.5V)	Drive Voltage (V)
							V _{GS} (V)			
HSOP8 	DC-DC Converter Switching	New HP8K22	N+N	30	20	3	4.5	10	7.8	4.5
		HP8K23		30	12		9.1	6.7	4.8	
		☆HP8K23	30	24	3.3		2.6	11.2		
		☆HP8K24	30	12	9.1		6.7	4.8		
			30	32	2.4		1.9	16.9		
		New HP8S36	N	30	12		9.1	6.7	4.8	
				30	32		2.3	2	47	
			N+SBD	30	12		9.1	6.7	4.8	
		☆HP8K31		40	14		10.8	8.4	6.6	
			N+N	40	14		11.3	8.9	6.6	
		☆HP8K32		40	25		3.6	2.9	21.2	
			N+N	40	14		11.3	8.9	6.6	
		☆HP8K33		40	20		5.6	4.4	27.2	
			N+N	40	14		11.3	8.9	6.6	
		☆HP8K61		60	9		26.1	18	9.3	
				60	9		26.1	18	9.3	

☆ : Under development

Power MOSFET Series

Quick Reference



Drive Voltage (V)	V _{DS} (V)	I _D (A)								Package	
		0.5 to 5	6 to 9	10 / 11	12 / 13 / 14	15 to 19	20 to 25	30 / 33 / 35 / 40	45 to 120		
4	45	RSD046P05 (P)	RSD080P05 (P)			RSD160P05 (P)	RSD200N05 (N)			CPT3	
	60	RSD050N06 (N)	RSD080N06 (N)		RSD140P06 (P)	RSD150N06 (N)	RSD221N06 (N)			CPT3	
	100	RSD050N10 (N)		RSD100N10 (N)	RSD131P10 (P)	RSD175N10 (N)	RSD201N10 (N)			CPT3	
	190		RCD075N19 (N)	RCD100N19 (N)		RSJ151P10 (P)	RSJ250P10 (P)	RSJ300N10 (N) RSJ400N10 (N)	RSJ550N10 (N) RSJ650N10 (N)	LPT	
	500	RDD023N50 (N)		☆RMD100N04 (N)						CPT3	
4.5	40							☆RD3G400GN (N)	☆RD3G450GN (N) ☆RD3G500GN (N) ☆RD3G600GN (N) ☆RD3G750GN (N)	TO-252	
									☆RX1G650GN (N) ☆RX1G750GN (N) ☆RX1G800GN (N) ☆RX1G10HGN (N) ☆RX1G12HGN (N)	TO-220AB	
	60			☆RD3L100GN (N)		☆RD3L150GN (N)	☆RD3L200GN (N)	☆RD3L300GN (N) ☆RD3L350GN (N) ☆RD3L400GN (N)	☆RD3L500GN (N)	TO-252	
								☆RX1L350GN (N)	☆RX2L600GN (N) ☆RX2L750GN (N) ☆RX2L800GN (N)	TO-220FM	
									☆RX1L450GN (N) ☆RX1L550GN (N) ☆RX1L700GN (N) ☆RX1L800GN (N) ☆RX1L10HGN (N) ☆RX1L11HGN (N)	TO-220AB	
10	200	RND030N20 (N) RCD051N20 (N)	RCD075N20 (N)	RCD100N20 (N)						CPT3	
			RCJ081N20 (N)		RCJ120N20 (N)	RCJ160N20 (N)	RCJ200N20 (N)	RCJ300N20 (N)	RCJ450N20 (N) RCJ700N20 (N)	LPT	
	250		RCX081N20 (N)		RCX120N20 (N)	RCX160N20 (N)	RCX200N20 (N)	RCX300N20 (N)	RCX450N20 (N) RCX700N20 (N)	TO-220FM	
		RCD041N25 (N)	RCD060N25 (N) RCD080N25 (N)		RCJ100N25 (N)	RCJ120N25 (N)		RCJ220N25 (N)	RCJ330N25 (N)	RCJ510N25 (N)	LPT
		RCX051N25 (N)	RCX080N25 (N)	RCX100N25 (N)	RCX120N25 (N)		RCX220N25 (N)	RCX330N25 (N)	RCX511N25 (N)	TO-220FM	
400	R4008AND (N)								CPT3		
500	RDD022N50 (N)									CPT3	
	☆RD3W030AC (N) ☆RD3W050AB (N)	☆RD3W070AB (N)								TO-252	
	R5005CNJ (N)	R5007ANJ (N) R5009FNJ (N) R5009ANJ (N)	New R5011FNJ (N) R5011ANJ (N)	R5013ANJ (N)	New R5016FNJ (N) R5016ANJ (N) R5019ANJ (N)	R5021ANJ (N)				LPT	
	ZDX050N50 (N) R5005CNX (N)	New R5007FNX (N) R5007ANX (N) ZDX080N50 (N) New RX2W090AB (N) R5009FNX (N) R5009ANX (N)	R5011FNX (N) R5011ANX (N)	New RX2W130AB (N) ZDX130N50 (N) R5013ANX (N)	New RX2W150AB (N) R5016FNX (N) R5016ANX (N) R5019ANX (N)	R5021ANX (N)				TO-220FM	
									R5050DNZ0 (N) (No avalanche guarantee)	TO-247PLUS	
600	525	R5205CND (N)	R5207AND (N)							CPT3	
		ZDS020N60 (N)								SOP8	
		☆R6002END (N) RDD022N60 (N) New R6004END (N) R6004CND (N)	R6006AND (N)							CPT3	
		☆RD3X020AC (N) ☆RD3X040AB (N)	☆R6007END3 (N) ☆R6009END3 (N) ☆R6008FND3 (N)	☆R6011END3 (N)						TO-252	
		New R6004ENJ (N)	New R6007ENJ (N) R6008FNJ (N) New R6009ENJ (N)	New R6011ENJ (N)	R6012FNJ (N) R6012ANJ (N)	New R6015ENJ (N) New R6015FNJ (N) R6015ANJ (N) R6018ANJ (N)	New R6020ENJ (N) New R6020FNJ (N) R6020ANJ (N) New R6024ENJ (N)			LPT	
800		R6004ENX (N)	New RX2X060AB (N) R6006ANX (N) R6007ENX (N) R6008FNX (N) R6008ANX (N) R6009ENX (N)	New RX2X100AB (N) R6010ANX (N) R6011ENX (N)	ZDX120N60 (N) New RX2X120AB (N) R6012FNX (N) R6012ANX (N)	R6015ENX (N) R6015FNX (N) R6015ANX (N) R6018ANX (N)	R6020ENX (N) R6020FNX (N) R6024ENX (N)	R6030ENX (N)		TO-220FM	
						New R6015ENZ (N) R6015ANZ (N)	New R6020ENZ (N) R6020ANZ (N) New R6024ENZ (N) R6025FNZ (N) R6025ANZ (N)	New R6030ENZ (N) New R6035ENZ (N)	R6046FNZ (N) R6046ANZ (N)	TO-3PF	
							New R6020ENZ1 (N) New R6024ENZ1 (N) R6025FNZ1 (N)	New R6030ENZ1 (N) New R6035ENZ1 (N)	R6046FNZ1 (N) R6046ANZ1 (N) New R6047ENZ1 (N) New R6076ENZ1 (N)	TO-247	
		New R8001CND (N)								CPT3	
		☆R8002ANJ (N) ☆R8005ANJ (N)	☆R8008ANJ (N)							LPT	
Dual Type	10	500	SP8K80 (N+N)							TO-220FM	

Character "N", "P" in parentheses indicates "N-channel", "P-channel" respectively. ☆ : Under development

MOSFETs

Power MOSFET Series

● **Product Lineup**

Package	Application	Part No.	Polarity (ch)	V _{bss} (V)	I _D (A)	P _D (W) (T _C =25°C)	R _{bs} (on) Typ. (mΩ)			Q _g (nC) (V _{GS} =4.5V)	Drive Voltage (V)
							V _{GS} (V)				
							4	4.5	10		
SOP8 	Switching	ZDS020N60	N	600	0.63	2	—	—	4.4Ω	—	10
		☆RMD100N04		40	10	20	—	27	22	3.5	4.5
		RSD200N05		45	20	20	28	25	20	12 ^{*1}	4
		RSD050N06		60	5	15	100	—	78	—	
		RSD080N06		60	8	20	78	70	57	9.5	
		RSD150N06		60	15	20	48	—	37	—	
		RSD221N06		60	22	20	23	21	18	16	
		RSD050N10		100	5	15	145	—	135	—	
		RSD100N10		100	10	20	105	100	95	18	
		RSD175N10		100	17.5	20	85	80	75	24	
		RSD201N10		100	20	20	36	—	33	20	
		RCD075N19		190	7.5	20	248	245	240	30 ^{*2}	
		RCD100N19		190	10	20	136	135	130	52 ^{*2}	
		RND030N20		200	3	20	—	—	740	7 ^{*2}	10
		RCD051N20		200	5	20	—	—	470	9 ^{*2}	
		RCD075N20		200	7.5	20	—	—	250	15 ^{*2}	
		RCD100N20		200	10	20	—	—	140	26 ^{*2}	
		RCD041N25		250	4	20	—	—	780	9 ^{*2}	
		RCD060N25		250	6	20	—	—	410	15 ^{*2}	
		RCD080N25		250	8	20	—	—	225	25 ^{*2}	
		RDD022N50		500	2	20	—	—	4.1Ω	6.7 ^{*2}	
		RDD023N50		500	2	20	4.1Ω	—	4Ω	11 ^{*2}	4
		RDD022N60		600	2	20	—	—	5.2Ω	7 ^{*2}	10
RSD046P05	—45	—4.5	15	185	160	110	6	4			
RSD080P05	—45	—8	15	105	95	65	9 ^{*1}				
RSD160P05	—45	—16	20	50	45	35	16 ^{*1}				
RSD140P06	—60	—14	20	77	73	60	27				
RSD131P10	—100	—13	20	155	150	135	18				
TO-252 	Switching	☆RD3G400GN	N	40	40	20	—	9.2	7	7.5	4.5
		☆RD3G450GN		40	45	20	—	6.6	5	10.5	
		☆RD3G500GN		40	50	20	—	5.2	4	13.1	
		☆RD3G600GN		40	60	20	—	3.9	3	17.4	
		☆RD3G750GN		40	75	20	—	2.5	1.9	27.5	
		☆RD3L100GN		60	10	20	—	79.8	55	3.1	
		☆RD3L150GN		60	15	20	—	52	35	4.8	
		☆RD3L200GN		60	20	20	—	26.1	18	9.3	
		☆RD3L300GN		60	30	20	—	16	11	15.3	
		☆RD3L350GN		60	35	20	—	11	7	24	
		☆RD3L400GN		60	40	20	—	7.3	5	33.6	
		☆RD3L500GN		60	50	20	—	5.8	4	42	
		☆RD3W030AC		500	3	20	—	—	2.3	—	10
		☆RD3W050AB		500	5	20	—	—	1.3	13.5 ^{*2}	
		☆RD3W070AB		500	7	20	—	—	1.0	15.5 ^{*2}	
		☆RD3X020AC		600	2	20	—	—	3.3	8.5 ^{*2}	
		☆RD3X040AB		600	4	20	—	—	1.4	11 ^{*2}	

*1 : V_{GS}=5V *2 : V_{GS}=10V ☆ : Under development

Power MOSFET Series

Product Lineup







Package	Application	Part No.	Polarity (ch)	V _{BSS} (V)	I _D (A)	P _D (W) (T _c =25°C)	R _{DS(on)} Typ. (mΩ)			Q _g (nC) (V _{GS} =10V)	Drive Voltage (V)
							V _{GS} (V)				
							4	4.5	10		
TO-220FM	Switching	☆RX2L600GN	N	60	60	40	—	8.7	6	28	4.5
		☆RX2L750GN		60	75	40	—	5.1	3.5	48	
		☆RX2L800GN		60	80	40	—	2.6	1.8	93	
		RCX081N20		200	8	40	—	—	470	9	10
		RCX120N20		200	12	40	—	—	250	15	
		RCX160N20		200	16	40	—	—	135	26	
		RCX200N20		200	20	40	—	—	100	40	
		RCX300N20		200	30	40	—	—	60	60	
		RCX450N20		200	45	40	—	—	42	80	
		RCX700N20		200	70	40	—	—	30.5	125	
		RCX051N25		250	5	30	—	—	850	9	
		RCX080N25		250	8	35	—	—	460	15	
		RCX100N25		250	10	40	—	—	245	26.5	
		RCX120N25		250	12	40	—	—	180	35	
		RCX220N25		250	22	40	—	—	105	60	
		RCX330N25		250	33	40	—	—	77	80	
		RCX511N25		250	51	40	—	—	48	120	
		ZDX050N50		500	5	40	—	—	1.2Ω	12	
		ZDX080N50		500	8	40	—	—	650	28	
		New RX2W090AB		500	9	35	—	—	750	22	
		New RX2W130AB		500	13	40	—	—	450	34	
		ZDX130N50		500	13	40	—	—	400	40	
		New RX2W150AB		500	15	45	—	—	290	46	
		New RX2X060AB		600	6	35	—	—	1Ω	22	
		New RX2X100AB		600	10	40	—	—	600	31	
		New RX2X120AB		600	12	45	—	—	450	46	
ZDX120N60	600	12	50	—	—	470	47				
TO-220AB	Switching	☆RX1G650GN	N	40	65	50	—	6.5	5	12 ⁻²	4.5
		☆RX1G750GN		40	75	50	—	4.6	3.5	18 ⁻²	
		☆RX1G800GN		40	80	50	—	3.3	2.5	24 ⁻²	
		☆RX1G10HMN		40	100	50	—	2	1.5	58 ⁻²	
		☆RX1G12HGN		40	120	50	—	1.4	1.1	63 ⁻²	
		☆RX1L350GN		60	35	50	—	29	20	8 ⁻²	
		☆RX1L450GN		60	45	50	—	14.5	10	17 ⁻²	
		☆RX1L550GN		60	55	50	—	11.6	8	21 ⁻²	
		☆RX1L700GN		60	70	50	—	7.3	5	34 ⁻²	
		☆RX1L800GN		60	80	50	—	5.1	3.5	48 ⁻²	
		☆RX1L11HGN		60	110	50	—	3.6	2.5	67 ⁻²	
		☆RX1L12HGN		60	120	50	—	2.6	1.8	93 ⁻²	
		☆RGJ650N04		40	65	50	—	6.6	5	12 ⁻²	
		RMJ700N04		40	70	50	—	6	4.5	13 ⁻²	
		RMJ800N04		40	80	50	—	3.5	2.5	30 ⁻²	
		RMJ10HN04		40	100	50	—	2	1.5	60 ⁻²	
☆RGJ12HN04	40	120	50	—	1.3	1.1	63 ⁻²				
☆RGJ450N06	60	45	50	—	14.5	10	17 ⁻²				
☆RGJ550N06	60	55	50	—	11.6	8	21 ⁻²				
☆RGJ700N06	60	70	50	—	7.3	5	34 ⁻²				
☆RGJ750N06	60	75	50	—	5.8	4	42 ⁻²				
☆RGJ10HN06	60	100	50	—	5	3.5	48 ⁻²				
☆RGJ11HN06	60	110	50	—	3.6	2.5	67 ⁻²				
☆RGJ12HN06	60	120	50	—	2.8	1.9	88 ⁻²				
LPT	Switching	RSJ300N10	P	100	30	50	38	36	33	50	4
		RSJ400N10		100	40	50	21	—	19	90	
		RSJ550N10		100	55	50	13.5	—	12	143	
		RSJ650N10	100	65	50	7	—	6.5	260	10	
		RSJ151P10	—100	—15	50	100	95	85	64		
		RSJ250P10	—100	—25	50	50	48	48	60 ⁻¹		
		RCJ081N20	200	8	40	—	—	470	9		
		RCJ120N20	200	12	40	—	—	250	15		
		RCJ160N20	200	16	40	—	—	135	26		
		RCJ200N20	200	20	40	—	—	100	40		
		RCJ300N20	200	30	40	—	—	60	60		
		RCJ450N20	200	45	40	—	—	42	80		
		RCJ700N20	200	70	40	—	—	30.5	125		
		RCJ050N25	250	5	30	—	—	850	9		
		RCJ080N25	250	8	35	—	—	460	15		
		RCJ100N25	250	10	40	—	—	245	26.5		
RCJ120N25	250	12	40	—	—	180	35				
RCJ220N25	250	22	40	—	—	105	60				
RCJ330N25	250	33	40	—	—	77	80				
RCJ510N25	250	51	40	—	—	48	120				

☆ : Under development *1 : V_{GS}=4.5V *2 : V_{GS}=5V

MOSFETs






Power MOSFET Series

•High speed switching and Low noise type

Package	Application	Part No.	Polarity (ch)	V _{bss} (V)	I _D (A)	P _D (W) (T _c =25°C)	R _{DS(on)}	Q _g	Drive Voltage (V)
							Typ. (Ω) V _{GS} =10V	Typ. (nC) V _{GS} =10V	
CPT3 		☆R6002END		600	1.7	20	2.8	6.5	
		New R6004END		600	4	40	0.9	15	
TO-252 		☆R6007END3		500	7	20	0.57	20	
		☆R6009END3		500	9	20	0.5	23	
LPT 		☆R6011END3		500	11	20	0.34	32	
		New R6004ENJ		600	4	40	0.9	15	
		New R6007ENJ		600	7	40	0.57	20	
		New R6009ENJ		600	9	40	0.5	23	
		New R6011ENJ		600	11	40	0.34	32	
		New R6015ENJ		600	15	40	0.26	40	
		New R6020ENJ		600	20	40	0.17	60	
TO-220FM 	Switching	New R6024ENJ	N	600	24	40	0.15	70	10
		R6004ENX		600	4	40	0.9	15	
		R6007ENX		600	7	40	0.57	20	
		R6009ENX		600	9	40	0.5	23	
		R6011ENX		600	11	40	0.34	32	
		R6015ENX		600	15	40	0.26	40	
		R6020ENX		600	20	50	0.17	60	
		R6024ENX		600	24	40	0.15	70	
		R6030ENX		600	30	40	0.115	85	
		TO-3PF 			New R6015ENZ		600	15	
New R6020ENZ	600		20		120		0.17	60	
New R6024ENZ	600		24		120		0.15	70	
New R6030ENZ	600		30		120		0.115	85	
TO-247 		New R6035ENZ		600	35	120	0.095	200	
		New R6020ENZ1		600	20	120	0.17	60	
		New R6024ENZ1		600	24	120	0.15	70	
		New R6030ENZ1		600	30	120	0.115	85	
		New R6035ENZ1		600	35	120	0.095	200	
		New R6047ENZ1		600	47	120	0.07	270	
		New R6076ENZ1		600	76	120	0.04	460	

☆ : Under development

•Fast Recovery Body Diode type (PrestoMOS™)



Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _c =25°C)	R _{DS(on)}	Q _g	trr (Typ.)	Drive Voltage (V)
							Typ. (Ω) V _{GS} =10V	Typ. (nC) V _{GS} =10V	(ns)	
TO-252 		☆R6008FND3		600	8	20	0.73	22	77	
LPT 		New R5009FNJ		500	9	50	0.65	18	78	
	New R5011FNJ	500	11	50	0.4	30	85			
	New R5016FNJ	500	16	50	0.25	46	100			
	R6008FNJ	600	8	50	0.73	20	67			
	R6012FNJ	600	12	50	0.39	35	75			
	New R6015FNJ	600	15	50	0.27	42	90			
	New R6020FNJ	600	20	50	0.22	60	105			
TO-220FM 	Switching	New R5007FNX	N	500	7	40	1	15	70	10
		R5009FNX		500	9	50	0.65	18	78	
		R5011FNX		500	11	50	0.4	30	85	
		R5016FNX		500	16	50	0.22	45	100	
		R6008FNX		600	8	50	0.73	20	67	
		R6012FNX		600	12	50	0.39	35	75	
		R6015FNX		600	15	50	0.27	42	90	
		R6020FNX		600	20	50	0.19	65	105	
TO-3PF 		R6025FNZ		600	25	150	0.14	85	120	
		R6046FNZ		600	46	120	0.075	150	145	
TO-247 		R6025FNZ1		600	25	150	0.14	85	120	
		R6046FNZ1		600	46	120	0.075	150	143	

☆ : Under development

•High speed switching type

Package	Application	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _c =25°C)	R _{DS(on)}	Q _g	Drive Voltage (V)
							Typ. (Ω) V _{GS} =10V	Typ. (nC) V _{GS} =10V	
SOP8	Switching	SP8K80	N+N	500	0.5	2	9	3.8	10
CPT3		R4008AND	N	400	8	20	0.73	15	
		R5205CND		525	5	40	1.3	10.8	
		R5207AND		525	7	40	0.78	13	
		R6004CND		600	4	40	1.4	11	
		R6006AND		600	6	40	0.9	15	
		New R8001CND		800	1	20	6.7	7.2	
LPT		R5005CNJ		500	5	40	1.3	10.8	
		R5007ANJ		500	7	40	0.8	13	
		R5009ANJ		500	9	50	0.55	21	
		R5011ANJ		500	11	75	0.38	30	
		R5013ANJ		500	13	100	0.29	35	
		R5016ANJ		500	16	100	0.21	50	
		R5019ANJ		500	19	100	0.18	55	
		R5021ANJ		500	21	100	0.17	64	
		R6012ANJ		600	12	100	0.32	35	
		R6015ANJ		600	15	100	0.23	60	
		R6018ANJ		600	18	100	0.21	55	
		R6020ANJ		600	20	100	0.19	65	
		☆R8002ANJ		800	2	40	3.3	12.7	
		☆R8005ANJ		800	5	40	1.6	21	
		☆R8008ANJ		800	8	40	0.79	39	
TO-220FM		R5005CNX		500	5	40	1.3	10.8	
		R5007ANX		500	7	40	0.8	13	
		R5009ANX		500	9	50	0.55	21	
	R5011ANX	500		11	50	0.38	30		
	R5013ANX	500	13	50	0.29	35			
	R5016ANX	500	16	50	0.21	50			
	R5019ANX	500	19	50	0.18	55			
	R5021ANX	500	21	50	0.16	64			
	R6006ANX	600	6	40	0.9	15			
	R6008ANX	600	8	50	0.6	21			
	R6010ANX	600	10	50	0.43	25			
	R6012ANX	600	12	50	0.32	35			
	R6015ANX	600	15	50	0.23	60			
	R6018ANX	600	18	50	0.21	63			
	R8002ANX	800	2	35	3.3	12.7			
	R8005ANX	800	5	40	1.6	21			
	R8008ANX	800	8	50	0.79	39			
	R8010ANX	800	10	40	0.43	62			
	TO-3PF	R6015ANZ	600	15	110	0.23	50		
		R6020ANZ	600	20	120	0.17	65		
R6025ANZ		600	25	150	0.12	88			
R6046ANZ		600	46	120	0.065	150			
TO-247		R6046ANZ1	600	46	120	0.069	150		
	TO-247PLUS		R5050DNZ0 (No avalanche guarantee)	500	50	125	0.034	80	

Selector Guide for Automotive MOSFETs (AEC-Q101)

Package (Dimension:mm)	Part No.			Config	Polarity (ch)	Maximum Rating						V _{GS} (th) (V)		Q _G typ. V _{GS} =10V (nC)	C _{iss} typ. V _{GS} =10V (pF)									
						V _{DS} (V)	I _D (A)	V _{GS} (V)	R _{DS} (on)				Min			Max								
									mΩ typ.															
						V _{GS} =10V	V _{GS} =4.5V	V _{GS} =2.5V	V _{GS} =1.5V															
 CPT3 (SC-63 / SOT-428) 9.5 × 6.5 × 2.3	RSJ451N04 FRA TL			Single	N	40	45	±20	9.5	—	—	—	1.2	3.0	43	2400 ⁻¹								
	RSJ400N06 FRA TL					60	40	±20	11	—	—	—	1.0	3.0	52	2400								
	RSD200N05 FRA TL					P	N	45	20	±20	20	25	—	—	1.0	2.5	12 ⁻²	950						
	RSD046P05 FRA TL							-45	-5	±20	110	185	—	—	-1.0	-3.0	12 ⁻²	550						
	RSD080P05 FRA TL							-45	-8	±20	65	95	—	—	-1.0	-3.0	9 ⁻²	1000						
	RSD160P05 FRA TL							-45	-16	±20	35	45	—	—	-1.0	-3.0	16 ⁻²	2000						
	RSD050N06 FRA TL							N	P	60	5	±20	78	94	—	—	1.0	3.0	8	290				
	RSD080N06 FRA TL									60	8	±20	57	70	—	—	1.0	2.5	9.5	380				
	RSD150N06 FRA TL									60	15	±20	28	33	—	—	1.0	3.0	18	930				
	RSD221N06 FRA TL									60	22	±20	18	23	—	—	1.0	3.0	30	1500				
	RSD140P06 FRA TL									P	N	-60	-14	±20	60	73	—	—	-1.0	-3.0	27	1900		
	RSD050N10 FRA TL											100	5	±20	135	142	—	—	1.0	2.5	14	530 ⁻¹		
	RSD100N10 FRA TL											100	10	±20	95	100	—	—	1.0	2.5	18	700 ⁻¹		
	RSD175N10 FRA TL											100	18	±20	75	80	—	—	1.0	2.5	24	950 ⁻¹		
	RSD201N10 FRA TL											100	20	±20	33	36	—	—	1.0	2.5	22	2100 ⁻¹		
RSD131P10 FRA TL			N	P	-100							-13	±20	135	155	—	—	1.0	2.5	40	2400 ⁻¹			
R5205PND FRA TL					525							5	±30	1300	—	—	—	2.5	4.5	10.8	320 ⁻¹			
R6006PND FRA TL					600	6	±30					900	—	—	—	2.5	4.5	15	460 ⁻¹					
 SOP8 (SOP) 6.0 × 5.0 × 1.75	RSS065N03 FRA TB				Single	N	30					7	±20	19	27	—	—	1.0	2.5	6.1 ⁻²	430			
	RSS090N03 FRA TB						30					9	±20	11	15	—	—	1.0	2.5	11 ⁻²	810			
	RSS100N03 FRA TB						30					10	±20	9.5	12.5	—	—	1.0	2.5	14 ⁻²	1070			
	RSS040P03 FRA TB						P	N	-30			-4	±20	42	68	—	—	-1.0	-2.5	8 ⁻²	800			
	RSS050P03 FRA TB								-30			-5	±20	30	47	—	—	-1.0	-2.5	13 ⁻²	1200			
	RSS075P03 FRA TB								-30			-8	±20	15	22	—	—	-1.0	-2.5	30 ⁻²	2900			
	RSS090P03 FRA TB								-30			-9	±20	10	15	—	—	-1.0	-2.5	39 ⁻²	4000			
	RSS070N05 FRA TB								45	7	±20	18	23	—	—	1.0	2.5	12 ⁻²	1000					
	RSS085N05 FRA TB								45	9	±20	13	16	—	—	1.0	2.5	15.3 ⁻²	1500					
	RSS095N05 FRA TB								45	10	±20	11	14	—	—	1.0	2.5	18.9 ⁻²	1830					
	RSS060P05 FRA TB								P	N	-45	-6	±20	26	35	—	—	-1.0	-2.5	23 ⁻²	2700			
	RSS070P05 FRA TB										-45	-7	±20	19	25	—	—	-1.0	-2.5	34 ⁻²	4100			
	SP8K5 FRA TB			N+N							P	30	3.5	±20	59	93	—	—	1.0	2.5	2.5 ⁻²	140		
	SP8K1 FRA TB											30	5	±20	36	52	—	—	1.0	2.5	3.9 ⁻²	230		
	SP8K2 FRA TB											30	6	±20	21	30	—	—	1.0	2.5	7.2 ⁻²	520		
	SP8K3 FRA TB											30	7	±20	17	23	—	—	1.0	2.5	8.4 ⁻²	600		
	SP8K4 FRA TB											30	9	±20	12	16	—	—	1.0	2.5	15 ⁻²	1190		
	SP8K52 FRA TB											100	3	±20	120	130	—	—	1.0	2.5	8.5 ⁻²	610		
	SP8J2 FRA TB						P+P	N				-30	-4.5	±20	40	57	—	—	-1.0	-2.5	8.5 ⁻²	850		
	SP8J1 FRA TB											-30	-5	±20	30	40	—	—	-1.0	-2.5	16 ⁻²	1400		
	SP8J5 FRA TB											-30	-7	±20	20	25	—	—	-1.0	-2.5	25 ⁻²	2600		
	SP8M8 FRA TB											Dual	N	30	6	±20	21	30	—	—	1.0	2.5	7.2 ⁻²	520
	SP8M5 FRA TB													30	4.5	±20	40	57	—	—	-1.0	-2.5	8.5 ⁻²	850
	SP8M4 FRA TB													30	3	±20	21	30	—	—	1.0	2.5	7.2 ⁻²	520
	SP8M3 FRA TB													30	6	±20	20	25	—	—	-1.0	-2.5	25 ⁻²	2600
	SP8K22 FRA TB								N+N	P				-30	-7	±20	20	25	—	—	-1.0	-2.5	25 ⁻²	2600
	SP8K24 FRA TB													45	4.5	±20	12	16	—	—	1.0	2.5	15 ⁻²	1190
	SP8M24 FRA TB			45							6			±20	20	25	—	—	-1.0	-2.5	25 ⁻²	2600		
	SP8M21 FRA TB			45							4.5			±20	33	41	—	—	1.0	2.5	3.9 ⁻²	230		
	SP8M21 FRA TB			45							6			±20	18	24	—	—	-1.0	-2.5	8.5 ⁻²	850		
SP8M21 FRA TB			45	4.5	±20	33					41			—	—	1.0	2.5	15.4 ⁻²	1400					
SP8M21 FRA TB			45	6	±20	18					24			—	—	1.0	2.5	15.4 ⁻²	1400					
SP8M21 FRA TB			45	4.5	±20	33					41			—	—	1.0	2.5	6.8 ⁻²	550					
SP8M21 FRA TB			45	6	±20	18	24	—			—			1.0	2.5	15.4 ⁻²	1400							
SP8M21 FRA TB			45	4.5	±20	33	41	—			—			1.0	2.5	6.8 ⁻²	550							
SP8M21 FRA TB			45	6	±20	18	24	—			—			1.0	2.5	15.4 ⁻²	1400							
SP8M21 FRA TB			45	4.5	±20	33	41	—			—	1.0	2.5	6.8 ⁻²	550									
SP8M21 FRA TB			45	6	±20	18	24	—			—	1.0	2.5	15.4 ⁻²	1400									
SP8M21 FRA TB			45	4.5	±20	33	41	—			—	1.0	2.5	6.8 ⁻²	550									
SP8M21 FRA TB			45	6	±20	18	24	—			—	1.0	2.5	15.4 ⁻²	1400									
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5	15.4 ⁻²	1400											
SP8M21 FRA TB			45	4.5	±20	33	41	—	—	1.0	2.5	6.8 ⁻²	550											
SP8M21 FRA TB			45	6	±20	18	24	—	—	1.0	2.5													

Bipolar Transistors (Surface mount type)

● Product Lineup

Package Polarity Application	VMT3 (1212)		EMT3F (1616)		EMT3 (1616) (SC-75A) (SOT-416)		V _{CEO} (V)	I _C (A)	h _{FE} *2	Automotive Grade Available
	^{*1} P _D =0.15W		^{*1} P _D =0.15W		^{*1} P _D =0.15W					
	PNP	NPN	PNP	NPN	PNP	NPN				
General Purpose Amplification	2SAR522M	2SCR522M	2SAR522EB	2SCR522EB	—	—	20	0.2	120 to 560	—
	2SAR523M	2SCR523M	2SAR523EB	2SCR523EB	—	—	50	0.1	120 to 560	—
	2SA2029	2SC5658	2SA1774EB	2SC4617EB	2SA1774	2SC4617	50	0.15	120 to 390	Yes
Low V _{CE} (sat)	2SA2030	2SC5663	—	—	2SA2018	2SC5585	12	0.5	270 to 680	—
	—	2SD2696	—	—	—	—	30	0.4	270 to 680	—
Driver	—	—	2SAR502EB	2SCR502EB	—	—	30	0.5	200 or more	—
High h _{FE} muting	—	2SD2707	—	—	—	2SD2654	50	0.15	820 to 2700	—
High Frequency	—	2SC5659	—	—	—	2SC4618	25	0.05	82 to 180 (f _T =300MHz)	—
	—	2SC5661	—	—	—	2SC4725	20	0.05	82 to 180 (f _T =1500MHz)	—
	—	2SC5662	—	—	—	2SC4726	11	0.05	56 to 180 (f _T =3200MHz)	—

Notes: 1. *1 With reference land installed 2. *2 For h_{FE}, please see the technical specifications. 3. PNP (-) symbol omitted.

Package Polarity Application	UMT3 (2012)		SMT3 / SST3 (2916) (2913)		V _{CEO} (V)	I _C (A)	UMT3 SMT3 SST3	h _{FE} *1	Automotive Grade Available
	PNP	NPN	PNP	NPN			P _C (W) (T _a =25°C)		
General Purpose Amplification & Pre Amp	BC858BW	BC848BW	BC858B ⁻²	BC848B ⁻²	30	0.1	0.2	200 to 800	—
	—	—	BCX71H ⁻²	BCX70J,K ⁻²	45	0.2	0.2	140 to 630	—
	—	—	BC857B ⁻²	BC847B ⁻²	45	0.1	0.2	200 to 800	—
	—	—	SST6839 ⁻²	SST6838 ⁻²	40	0.2	0.2	100 or more	—
Driver	—	—	BCX17 ⁻²	BCX19 ⁻²	45	0.5	0.2	100 to 600	—
	—	—	SSTA56 ⁻² MMSTA56	SSTA06 ⁻² MMSTA06	80	0.5	0.2	100 or more	—
Switching	UMT3906	UMT3904	SST3906 MMST3906	SST3904 ⁻² MMST3904	40	0.2	0.2	100 to 300	—
	—	—	SST4403 ⁻² MMST4403	SST4401 ⁻² MMST4401	40	0.6	0.2	100 to 300	—
	—	UMT2222A	—	SST2222A ⁻² MMST2222A	40	0.6	0.2	100 to 300	—
	UMT2907A	—	SST2907A ⁻² MMST2907A	—	60	0.6	0.2	100 to 300	—
Darlington*3	—	—	—	SSTA13 ⁻² MMSTA13	30 (V _{CEs})	0.5	0.2	5k or more	—
	—	—	—	SSTA28 ⁻² MMSTA28	80 (V _{CEs})	0.3	0.2	10k or more	—

Notes: 1. *1 For h_{FE}, please see the technical specifications. 2. *2 SST3 package will be shipped to any country other than Japan. 3. *3 For internal circuit, please see the technical specifications. 4. PNP (-) symbol omitted.

Bipolar Transistors (Surface mount type)

Product Lineup

Package	UMT3F (2021)		UMT3 (2021) (SC-70) (SOT-323)		SMT3 (2928) (SC-59) (SOT-346)		V _{CEO} (V)	I _c (A)	h _{FE} *2	Automotive Grade Available
	P _D =0.2W *1		P _D =0.2W *1		P _D =0.2W *1					
Application	PNP	NPN	PNP	NPN	PNP	NPN				
General Purpose Amplification	2SAR522UB	2SCR522UB	—	—	—	—	20	0.2	120 to 560	—
	2SAR523UB	2SCR523UB	—	—	—	—	50	0.1	120 to 560	—
	2SA1576UB	2SC4081UB	2SA1576A	2SC4081	2SA1037AK	2SC2412K	50	0.15	120 to 390	Yes
	—	—	2SA1579	2SC4102	2SA1514K	2SC3906K	120	0.05	180 to 560	Yes
Low V _{CE} (sat)	—	—	—	—	2SA2119K	—	12	0.5	270 to 680	—
	—	—	—	—	—	2SD1757K	15	0.5	120 to 560	—
	—	—	—	—	2SB1590K	2SD2444K	15	1	120 to 270 180 to 390	—
	—	—	2SB1689	2SD2652	—	—	12	1.5	270 to 680	—
	—	—	—	—	2SB1690K	2SD2653K	12	2	270 to 680	—
	—	—	2SB1694	2SD2656	—	—	30	1	270 to 680	Yes
	—	—	—	—	2SB1695K	2SD2657K	30	1.5	270 to 680	—
Driver	2SAR502UB	2SCR502UB	—	—	—	—	30	0.5	200 to 500	—
	—	—	2SA1577	2SC4097	2SA1036K	2SC2411K	32	0.5	120 to 390	Only SMT3 Yes
	—	—	—	—	2SB1197K	2SD1781K	32	0.8	120 to 390	Yes
	—	—	—	2SD1949	—	2SD1484K	50	0.5	120 to 390	Yes
	—	—	—	—	2SB1198K	2SD1782K	80	0.5	120 to 390	Yes
High speed SW	—	—	2SA2088	2SC5876	—	—	60	0.5	120 to 270 120 to 390	Yes
High h _{FE} Muting	—	—	—	—	—	2SD2704K	25 (V _{EB0})	0.3	820 to 2700	—
	—	—	—	—	—	2SD2114K	20	0.5	820 to 2700	—
	—	—	—	2SD2351	—	2SD2226K	50	0.15	820 to 2700	—
High Voltage	—	—	—	—	—	2SC4061K	300	0.1	56 to 120	—
High Frequency	—	—	—	2SC4098	—	2SC2413K	25	0.05	82 to 180 (f _T =300MHz)	—
	—	—	—	2SC4774	—	2SC4713K	6	0.05	180 to 560 (f _T =800MHz)	—
	—	—	—	2SC4082	—	2SC3837K	20	0.05	82 to 180 (f _T =1500MHz)	—
	—	—	—	2SC4083	—	2SC3838K	11	0.05	56 to 180 (f _T =3200MHz)	—
Darlington*3	—	—	—	—	—	2SD2142K	30	0.3	5k or more	—
	—	—	—	—	2SB852K	2SD1383K	32 (V _{CE} S)	0.3	5k or more	—

Notes : 1.*1 With reference land installed 2.*2 For h_{FE}, please see the technical specifications. 3.*3 For internal circuit, please see the technical specifications. 4.PNP (-)symbol omitted.

● Product Lineup

Package Polarity Application	TUMT3 (2021)		TUMT6 (2021)		TSMT3 (2928)		TSMT6 (2928)		V _{CEO} (V)	I _c (A)	h _{FE} *2	Automotive Grade Available
	*1 P _D =0.4W		*1 P _D =0.4W		*1 P _D =0.5W		*1 P _D =0.5W					
	PNP	NPN	PNP	NPN	PNP	NPN	PNP	NPN				
Low V _{CE} (sat)	2SB1732	2SD2702	—	—	2SB1709	2SD2674	—	—	12	1.5	270 to 680	—
	2SB1730	2SD2700	—	—	2SB1690	2SD2653	—	—	12	2	270 to 680	—
	—	—	US6T4	US6X3	2SB1705	2SD2670	—	—	12	3	270 to 680	—
	—	—	—	—	2SB1707	2SD2672	—	—	12	4	270 to 680	—
	—	—	—	—	—	—	QST2	QSX1	12	6	270 to 680	—
	2SB1733	2SD2703	—	—	2SB1710	2SD2675	—	—	30	1	270 to 680	—
	2SB1731	2SD2701	—	—	2SB1695	2SD2657	—	—	30	1.5	270 to 680	—
	—	—	US6T5	US6X4	2SB1706	2SD2671	—	—	30	2	270 to 680	—
Driver	—	—	—	—	2SAR512R	2SCR512R	—	—	30	2	200 to 500	—
	—	—	—	—	2SAR513R	2SCR513R	—	—	50	1	180 to 450	—
	—	—	—	—	2SAR553R	2SCR553R	—	—	50	2	180 to 450	—
	—	—	—	—	2SAR543R	2SCR543R	—	—	50	3	180 to 450	—
	—	—	—	—	2SAR514R	2SCR514R	—	—	80	0.7	120 to 390	—
	—	—	—	—	2SAR554R	2SCR554R	—	—	80	1.5	120 to 390	—
	—	—	—	—	2SAR544R	2SCR544R	—	—	80	2.5	120 to 390	—
High speed SW	—	—	—	—	2SA2094	2SC5866	—	—	60	2	120 to 270/ 120 to 390	—

Notes : 1.*1 With reference land installed
 2.*2 For h_{FE}, please see the technical specifications.
 3.PNP (-)symbol omitted.

Package Polarity Application	HUML2020L3 (2020)		MPT3 (4540) (SC-62) (SOT-89)		CPT3 (SC-63) (SOT-428)		LPT (SC-83)		V _{CEO} (V)	I _c (A)	h _{FE} *2	Automotive Grade Available
	*1 P _D =0.5W		*1 P _D =0.5W		*1 P _D =1W		*4 P _D =30W					
	PNP	NPN	PNP	NPN	PNP	NPN	PNP	NPN				
Low V _{CE} (sat)	—	—	2SB1697	2SD2661	—	—	—	—	12	2	270 to 680	—
	—	—	—	—	2SA1834	2SC5001	—	—	20	10	180 to 560/ 120 to 390	—
Driver	—	—	2SB1698	2SD2662	—	—	—	—	30	1.5	270 to 680	—
	—	—	2SAR293P	2SCR293P	—	—	—	—	30	1	270 to 680	Yes
	—	—	2SAR512P	2SCR512P	—	—	—	—	30	2	200 to 500	Yes
	—	—	2SAR552P	2SCR552P	—	—	—	—	30	3	200 to 500	Yes
	New 2SAR542F3	New 2SCR542F3	—	—	—	—	—	—	30	3	200 to 500	—
	—	—	2SAR542P	2SCR542P	New 2SAR572D	New 2SCR572D	—	—	30	5	200 to 500	Yes
	New 2SAR562F3	New 2SCR562F3	—	—	—	—	—	—	30	6	200 to 500	—
	—	—	2SAR513P	2SCR513P	—	—	—	—	50	1	180 to 450	Yes
	—	—	2SAR553P	2SCR553P	—	—	—	—	50	2	180 to 450	Yes
	—	—	2SAR533P	2SCR533P	New 2SAR573D	New 2SCR573D	—	—	50	3	180 to 450	Yes
	—	—	2SB1561	2SD2391	—	—	—	—	60	2	120 to 270	—
	—	—	—	—	2SA1952	2SC5103	—	—	60	5	120 to 270	—
	—	—	2SAR514P	2SCR514P	—	—	—	—	80	0.7	120 to 390	Yes
	—	—	2SB1260	2SD1898	2SB1181	2SD1733	—	—	80	1	120 to 390	Only MPT3 Yes
	—	—	2SAR554P	2SCR554P	—	—	—	—	80	1.5	120 to 390	Yes
	—	—	—	—	New 2SAR574D	New 2SCR574D	—	—	80	2	120 to 390	Yes
—	—	2SAR544P	2SCR544P	—	—	—	—	80	2.5	120 to 390	Yes	
—	—	—	—	—	—	—	2SB1644J	80	4	100 to 320	Yes	
—	—	—	—	2SCR372P	—	—	—	120	0.7	120 to 390	Yes	
—	—	—	—	2SCR375P	—	—	—	120	1.5	120 to 390	Yes	
—	—	—	—	2SB1275	2SD1918	—	—	160	1.5	82 to 180/ 120 to 270	—	
High speed SW	—	—	2SA2071	2SC5824	2SA2072	—	—	60	3	120 to 270/ 120 to 390	—	
High h _{FE}	—	—	—	2SD2537	—	—	—	25	1.2	820 to 1800	—	
	—	—	2SB1427	—	—	—	—	20	2	390 to 820	—	
Darlington*3	—	—	—	2SD2153	—	—	—	25	2	820 to 1800	—	
	—	—	—	2SD1834	—	—	—	60 (V _{CEs})	1	2k or more	—	
	—	—	—	—	—	2SD2143	—	60±10	2	1k to 10k	—	
—	—	—	—	2SB1316	2SD1980	—	—	100	2	1k to 10k	—	

Notes : 1.*1 With reference land installed
 2.*2 For h_{FE}, please see the technical specifications.
 3.*3 For internal circuit, please see the technical specifications.
 4.*4 T_C=25°C
 5.PNP (-)symbol omitted.

IC Transistor Array

*The following products are belonging to ICs. (Refer P.29) Please ask IC product group for inquiry.

● **Product Lineup**

Part No.	Number of bit	Output Withstand Voltage (V)	Output Saturation Voltage(V)	Output Current (mA)	Input Resistance (kΩ)	Input/output relation	Input Active Level	Input/output relation	Circuit Construction	Features	Package
BA12003B	7	60	1.46*	500	2.7	Inverting type	H	Sink	Darlington	Built-in surge absorbing diode	DIP16
BA12003BF	7	60	1.46*	500	2.7	Inverting type	H	Sink	Darlington	Built-in surge absorbing diode	SOP16
BA12004B	7	60	1.46*	500	10.5	Inverting type	H	Sink	Darlington	Built-in surge absorbing diode	DIP16
BA12004BF	7	60	1.46*	500	10.5	Inverting type	H	Sink	Darlington	Built-in surge absorbing diode	SOP16

* Output Current=350mA

Complex Bipolar Transistors

● Product Lineup

Configuration	Package	Item	VMT6	EMT5 / EMT6	UMT5 / UMT6	SMT5 / SMT6	TUMT5 / TUMT6	TSMT5 / TSMT6	Equivalent element transistors	V _{CEO} (V)	I _c (mA)	h _{FE}	Automotive Grade Available	
			(1212)	(1616) (1616)	(2021) (2021) (SC-88A) (SC-88) (SOT-353) (SOT-363)	(2928) (2928) (SC-88A) (SC-74) (SOT-353) (SOT-457)	(2021) (2021)	(2928) (2928)						
Application	Equivalent circuit diagram(TOP View)		Part No.											
PNP×2	Pre Amp.		—	New EMT51	—	—	—	—	—	2SAR522EB×2	-20	-200	120 to 560	—
			—	New EMT52	—	—	—	—	—	2SAR523EB×2	-50	-100	120 to 560	—
			—	EMT1	UMT1N	IMT1A	—	—	—	2SA1037AK×2	-50	-150	120 or more	Yes
			—	EMT18	UMT18N	IMT18	—	—	—	2SA2018×2	-12	-500	270 to 680	—
			VT6T1	—	—	—	—	—	2SAR522M×2	-20	-200	120 to 560	—	
			VT6T2	—	—	—	—	—	—	2SAR523M×2	-50	-100	120 to 560	—
	Driver		—	EMT2	UMT2N	IMT2A	—	—	2SA1037AK×2	-50	-150	120 to 560	—	
			—	EMT3	—	IMT3A	—	—	2SA1037AK×2	-50	-150	120 to 560	—	
			—	—	—	IMT4	—	—	2SA1514K×2	-120	-50	180 or more	—	
			—	—	—	—	US6T8	QST8	2SB1709×2	-12	-1.5(A)	270 to 680	—	
			—	—	—	—	US6T9	QST9	2SB1710×2	-30	-1(A)	270 to 680	—	
			Suitable for current mirror circuit		VT6T11	—	—	—	—	2SAR522M×2	-20	-200	120 to 560	—
NPN×2	Pre Amp.		—	New EMX51	—	—	—	—	2SCR522EB×2	20	200	120 to 560	—	
			—	New EMX52	—	—	—	—	2SCR523EB×2	50	100	120 to 560	—	
			—	EMX1	UMX1N	IMX1	—	—	—	2SC2412K×2	50	150	120 or more	Yes
			—	EMX26	—	—	—	—	—	2SD2654×2	50	150	820 to 2700	—
			—	EMX18	UMX18N	—	—	—	—	2SC5585×2	12	500	270 to 680	—
			—	—	—	IMX25	—	—	—	2SD2704K×2	20	300	820 to 2700	—
	High Frequency		VT6X1	—	—	—	—	—	2SCR522M×2	20	200	120 to 560	—	
			VT6X2	—	—	—	—	—	2SCR523M×2	50	100	120 to 560	—	
			—	EMX2	UMX2N	IMX2	—	—	—	2SC2412K×2	50	150	120 to 560	—
			—	EMX3	UMX3N	IMX3	—	—	—	2SC2412K×2	50	150	120 to 560	—
			—	—	—	IMX8	—	—	—	2SC3906K×2	120	50	180 or more	—
			—	—	UMX21N	—	—	—	—	2SC4713K×2	6	50	180 to 560	—
Driver		—	—	—	—	—	—	2SC3837K×2	20	50	56 to 180	—		
		—	—	—	—	—	—	2SC3838K×2	11	50	56 to 120	—		
Suitable for current mirror circuit		VT6X11	—	—	—	—	—	2SD2674×2	12	1.5(A)	270 to 680	—		
		VT6X12	—	—	—	—	—	2SD2675×2	30	1(A)	270 to 680	—		
DC-DC Converter		—	—	—	—	—	—	—	QS5W1	30	3(A)	200 to 500	—	
		—	—	—	—	—	—	—	QS5W2	50	3(A)	180 to 450	—	
PNP + NPN	Amplifier		—	EMY1	UMY1N	FMY1A	—	—	2SA1037AK	-50	-150	120 or more	—	
			—	—	—	—	—	—	2SC2412K	50	150	120 or more	—	
	Inverter Driver		—	—	—	FMY4A	—	—	2SA1037AK	-50	-150	120 to 560	—	
			—	—	—	—	—	—	2SC2412K	50	150	120 to 560	—	
	Pre Amp.		—	New EMZ51	—	—	—	—	2SAR522EB	-20	-200	120 to 560	—	
			—	New EMZ52	—	—	—	—	2SCR522EB	20	200	120 to 560	—	
			—	EMZ1	UMZ1N	IMZ1A	—	—	—	2SCR523EB	-50	-100	120 to 560	—
			—	EMZ7	—	—	—	—	—	2SA1037AK	-50	-150	120 or more	Yes
			—	—	—	—	—	—	—	2SC2412K	50	150	120 or more	—
			—	—	—	—	—	—	—	2SA2018	-12	-500	270 to 680	—
			—	—	—	—	—	—	—	2SC5585	12	500	270 to 680	—
			—	—	—	—	—	—	—	2SAR513P	-50	-1(A)	180 to 450	—
—	—	—	—	—	—	—	2SCR513P	50	1(A)	180 to 450	—			
VT6Z		—	EMZ2	UMZ2N	IMZ2A	—	—	—	2SA1037AK	-50	-150	120 to 560	—	
		—	EMZ8	—	—	—	—	—	2SC2412K	50	150	120 to 560	—	
		VT6Z1	—	—	—	—	—	—	2SAR522M	-20	-200	120 to 560	—	
		VT6Z2	—	—	—	—	—	—	2SCR522M	20	200	120 to 560	—	
—	—	—	—	—	—	—	—	2SCR523M	-50	-100	120 to 560	—		
—	—	—	—	—	—	—	—	2SCR523M	50	100	120 to 560	—		

•No.1 Pin is located on the upper right of equivalent circuit diagram for VMT6, EMT5, EMT6, UMT5, UMT6, TUMT5, TUMT6, TSMT5 and TSMT6 packages.
 •No.1 Pin is located on the lower right of equivalent circuit diagram for SMT5 and SMT6 packages.

Complex Bipolar Transistors

Configuration	Package	Item	Equivalent circuit diagram (TOP View)	VMT6	EMT5 / EMT6	UMT5 / UMT6	SMT5 / SMT6	TUMT5 / TUMT6	TSMT5 / TSMT6	Equivalent element transistors	V _{CEO} (V)	I _c (mA)	h _{FE}	Automotive Grade Available			
				(1212)	(1616) (1616)	(2021) (2021) (SC-88A) (SC-88) (SOT-353) (SOT-363)	(2928) (2928) (SC-88A) (SC-74) (SOT-353) (SOT-457)	(2021) (2021)	(2928) (2928)								
PNP + NPN	DC-DC Converter		Part No.	—	—	—	—	—	—	QSZ1	2SB1690 2SD2653	-12 12	-2 (A) 2 (A)	270 to 680 270 to 680	—		
				—	—	—	—	—	—	—	QSZ2	2SB1695 2SD2657	-30 30	-1.5 (A) 1.5 (A)	270 to 680 270 to 680	—	
				—	—	—	—	—	—	—	—	QS5Y1	—	-30 30	-3 (A) 3 (A)	200 to 500 200 to 500	—
				—	—	—	—	—	—	—	—	QSZ3	2SB1705 2SD2670	-12 12	-3 (A) 3 (A)	270 to 680 270 to 680	—
				—	—	—	—	—	—	—	—	QSZ4	2SB1706 2SD2671	-30 30	-2 (A) 2 (A)	270 to 680 270 to 680	—
—	—	—	—	—	—	—	—	—	QS5Y2	2SAR533P 2SCR533P	-50 50	-3 (A) 3 (A)	180 to 450 180 to 450	—			

•No.1 Pin is located on the upper right of equivalent circuit diagram for VMT6, EMT5, EMT6, UMT5, UMT6, TUMT5, TUMT6, TSMT5 and TSMT6 packages.
 •No.1 Pin is located on the lower right of equivalent circuit diagram for SMT5 and SMT6 packages.

Configuration	Package	Item	Equivalent circuit diagram (Top view)	EMT5 / EMT6	UMT5 / UMT6	Equivalent element transistors	V _{CEO} (V)	I _c (mA)	h _{FE}	Automotive Grade Available
				(1616) (1616)	(2021) (2021) (SC-88A) (SC-88) (SOT-353) (SOT-363)					
PNP + DTR	Power Management		Part No.	EMF5	UMF5N	2SA2018 DTC144E	-12 50	-500 100	270 to 680 68 or more	—
				—	UMF28N	2SA1774 DTC124X	-50 50	-150 100	180 to 390 68 or more	—
NPN + DTR				EMF8	UMF8N	2SC5585 DTC144E	12 50	500 100	270 to 680 68 or more	—
PNP + Di	DC-DC Converter		Part No.	—	UML1N	2SA1774 DAN202K	-50 80	-150 100	120 or more —	—
—				UML4N	2SA2018 RB521S-30	-12 30	-500 200	270 to 680 —	—	
NPN + Di				—	UML2N	2SC4617 DAN202K	50 80	150 100	120 or more —	—
				—	UML6N	2SC5585 RB521S-30	12 30	500 200	270 to 680 —	—
NPN + Di	Shunt Regulator			EML22	UML23N	2SC2412K VDZ6.8B	50 Vz=6.8	150 Iz=5	120 to 270 —	—

•No.1 Pin is located on the upper right of equivalent circuit diagram for EMT5, EMT6, UMT5 and UMT6 packages.

Digital Transistors

● Product Lineup

Item	Part No.		R1 (k Ω)	R2 (k Ω)	Type							V _{CC} (V _{CE0}) (V)	I _o (I _c) (mA)	G _I (h _{FE})	Automotive Grade Available			
	PNP	NPN			VMT3 (1212)	EMT3F (1616)	EMT3 (1616) (SC-75A) (SOT-416)	UMT3F (2021)	UMT3 (2021)	SMT3 (2928)	MPT3 (4540)							
R1=R2 Potential Divider Type	100mA	DTA123ExA	DTC123ExA	2.2	2.2	●	—	●	—	●	—	—	—	50	100	20 or more	Yes	
		DTA023Ex	DTC023Ex	2.2	2.2	●	●	—	—	—	—	—	—	—	50	100	20 or more	—
		DTA143ExA	DTC143ExA	4.7	4.7	●	●	—	—	—	—	—	—	—	50	100	20 or more	Yes
		DTA043Ex	DTC043Ex	4.7	4.7	●	●	—	—	—	—	—	—	—	50	100	20 or more	—
		DTA114ExA	DTC114ExA	10	10	●	●	—	—	—	—	—	—	—	50	50	30 or more	Yes
		DTA014Ex	DTC014Ex	10	10	●	●	—	—	—	—	—	—	—	50	50	30 or more	—
		DTA124ExA	DTC124ExA	22	22	●	●	—	—	—	—	—	—	—	50	30	56 or more	Yes
		DTA024Ex	DTC024Ex	22	22	●	●	—	—	—	—	—	—	—	50	30	56 or more	—
	500mA	DTA144ExA	DTC144ExA	47	47	●	●	—	—	—	—	—	—	—	50	30	68 or more	Yes
		DTA044Ex	DTC044Ex	47	47	●	●	—	—	—	—	—	—	—	50	30	80 or more	—
		DTA115ExA	DTC115ExA	100	100	●	—	—	—	—	—	—	—	—	50	20	82 or more	—
		DTA015Ex	DTC015Ex	100	100	●	—	—	—	—	—	—	—	—	50	20	80 or more	—
		DTB543Ex	DTD543Ex	4.7	4.7	●	—	—	—	—	—	—	—	—	12	500	115 or more	—
		DTB113Ex	DTD113Ex	1	1	—	—	—	—	—	—	—	●	—	50	500	33 or more	—
		DTB123Ex	DTD123Ex	2.2	2.2	—	—	—	—	—	—	—	●	—	50	500	39 or more	—
		DTB143Ex	DTD143Ex	4.7	4.7	—	—	—	—	—	—	—	●	—	50	500	47 or more	—
R1 \neq R2 Leak Absorption Type	100mA	DTA113ZxA	DTC113ZxA	1	10	—	—	DTA only	—	●	—	—	—	50	100	33 or more	Yes	
		DTA013Zx	DTC013Zx	1	10	●	●	—	—	—	—	—	—	—	50	100	30 or more	—
		DTA123YxA	DTC123YxA	2.2	10	—	—	—	—	—	—	—	—	—	50	100	33 or more	Yes
		DTA023Yx	DTC023Yx	2.2	10	●	●	—	—	—	—	—	—	—	50	100	33 or more	—
		DTA123JxA	DTC123JxA	2.2	47	●	●	—	—	—	—	—	—	—	50	100	80 or more	Yes
		DTA023Jx	DTC023Jx	2.2	47	●	●	—	—	—	—	—	—	—	50	100	80 or more	—
		DTA143XxA	DTC143XxA	4.7	10	●	●	—	—	—	—	—	—	—	50	100	30 or more	Yes
		DTA043Xx	DTC043Xx	4.7	10	●	●	—	—	—	—	—	—	—	50	100	35 or more	—
		DTA143ZxA	DTC143ZxA	4.7	47	●	●	—	—	—	—	—	—	—	50	100	80 or more	Yes
		DTA043Zx	DTC043Zx	4.7	47	●	●	—	—	—	—	—	—	—	50	100	80 or more	—
		DTA114WxA	DTC114WxA	10	4.7	—	—	—	—	—	—	—	—	—	50	100	24 or more	—
		DTA014Yx	DTC014Yx	10	47	●	●	—	—	—	—	—	—	—	50	70	68 or more	Yes
	500mA	DTA124XxA	DTC124XxA	22	47	●	—	—	—	—	—	—	—	—	50	50	68 or more	Yes
		DTA024Xx	DTC024Xx	22	47	●	●	—	—	—	—	—	—	—	50	50	80 or more	—
		DTA144VxA	DTC144VxA	47	10	—	—	—	—	DTC only	●	—	—	—	50	100	33 or more	—
		DTA044Vx	DTC044Vx	47	22	—	—	—	—	—	●	—	—	—	50	30	56 or more	—
		DTB513Zx	DTD513Zx	1	10	●	—	—	—	—	—	—	—	—	12	500	140 or more	—
		DTB523Yx	DTD523Yx	2.2	10	●	—	—	—	—	—	—	—	—	12	500	140 or more	—
		DTB543Xx	DTD543Xx	4.7	10	●	—	—	—	—	—	—	—	—	12	500	140 or more	—
		DTB543Zx	DTD543Zx	4.7	47	●	—	—	—	—	—	—	—	—	12	500	140 or more	—
1A	DTB113Zx	DTD113Zx	1	10	—	—	—	—	—	—	—	—	—	50	500	56 or more	—	
	DTB123Yx	DTD123Yx	2.2	10	—	—	—	—	—	—	—	—	—	50	500	56 or more	—	
	DTD623Yx*	DTD623Yx*	2.2	10	—	—	—	—	—	—	—	—	—	—	—	—	—	
	DTD623Yp*	DTD623Yp*	2.2	10	—	—	—	—	—	—	—	—	—	—	—	—	—	
	DTD623Yz*	DTD623Yz*	2.2	10	—	—	—	—	—	—	—	—	—	—	—	—	—	
	DTD623Yx*	DTD623Yx*	2.2	10	—	—	—	—	—	—	—	—	—	—	—	—	—	
	DTD623Yy*	DTD623Yy*	2.2	10	—	—	—	—	—	—	—	—	—	—	—	—	—	
	DTD623Yz*	DTD623Yz*	2.2	10	—	—	—	—	—	—	—	—	—	—	—	—	—	
	DTD623Yx*	DTD623Yx*	2.2	10	—	—	—	—	—	—	—	—	—	—	—	—	—	
	DTD623Yy*	DTD623Yy*	2.2	10	—	—	—	—	—	—	—	—	—	—	—	—	—	
	DTD623Yz*	DTD623Yz*	2.2	10	—	—	—	—	—	—	—	—	—	—	—	—	—	
	DTD623Yx*	DTD623Yx*	2.2	10	—	—	—	—	—	—	—	—	—	—	—	—	—	
Type using R1 alone as input Resistor	100mA	DTA113TKA	—	1	None	—	—	—	—	—	—	—	—	50	100	100 to 600	—	
		—	DTC123TKA	2.2	None	—	—	—	—	—	—	—	—	—	50	100	100 to 600	—
		DTA143TxA	DTC143TxA	4.7	None	●	●	—	—	—	—	—	—	—	50	100	100 to 600	Yes
		DTA043Tx	DTC043Tx	4.7	None	●	●	—	—	—	—	—	—	—	50	100	100 to 600	—
		DTA114TxA	DTC114TxA	10	None	●	●	—	—	—	—	—	—	—	50	100	100 to 600	Yes
		DTA014Tx	DTC014Tx	10	None	●	●	—	—	—	—	—	—	—	50	100	100 to 600	—
		DTA124TxA	DTC124TxA	22	None	●	—	—	—	—	—	—	—	—	50	100	100 to 600	Yes
		DTA044Tx	DTC044Tx	47	None	●	—	—	—	—	—	—	—	—	50	100	100 to 600	—
	500mA	DTA044Tx	DTC044Tx	47	None	●	—	—	—	—	—	—	—	—	50	60	100 to 600	—
		DTA115TxA	DTC115TxA	100	None	●	—	—	—	—	—	—	—	—	50	100	100 to 600	—
		DTA015Tx	DTC015Tx	100	None	●	—	—	—	—	—	—	—	—	50	100	100 to 600	—
		DTA125TxA	DTC125TxA	200	None	—	—	—	—	—	—	—	—	—	50	100	100 to 600	—
		DTB123TK	DTD123TK	2.2	None	—	—	—	—	—	—	—	—	—	40	500	100 to 600	—
		DTB143TK	DTD143TK	4.7	None	—	—	—	—	—	—	—	—	—	40	500	100 to 600	—
		DTB114TK	—	10	None	—	—	—	—	—	—	—	—	—	40	500	100 to 600	—
		—	DTC614Tx	10	None	—	—	—	—	—	—	—	—	—	20	600	820 to 2700	—
For muting	—	DTC623Tx	2.2	None	—	—	—	—	—	—	—	—	—	20	600	820 to 2700	—	
	—	DTC643Tx	4.7	None	—	—	—	—	—	—	—	—	—	20	600	820 to 2700	—	
	—	DTC923TUB	2.2	None	—	—	—	●	—	—	—	—	—	40 (V _{EB0})	400	820 to 2700	—	
	—	DTC943TUB	4.7	None	—	—	—	●	—	—	—	—	—	40 (V _{EB0})	400	820 to 2700	—	
Type using R2 alone as Bleeder Resistor	100mA	DTA114GxA	DTC114GxA	None	10	—	—	—	—	—	—	—	—	50	100	30 or more	—	
		DTA124GxA	DTC124GxA	None	22	—	—	—	—	DTC only	●	—	—	—	50	100	68 or more	—
		DTA144GxA	DTC144GxA	None	47	—	—	—	DTC only	●	—	—	—	—	50	100	68 or more	—
	500mA	DTA115GxA	DTC115GxA	None	100	—	—	—	—	—	—	—	—	—	50	100	68 or more	—
		DTB114GK	DTD114GK	None	10	—	—	—	—	—	—	—	—	—	—	500	56 or more	—
1A	—	DTDG14GP*	None	10	—	—	—	—	—	—	—	—	—	—	—	—	Yes	

Notes : 1.*For internal circuit, please see the technical specifications. 2. VMT3, EMT3F, EMT3 and UMT3F without suffix A. 3. PNP (-) symbol omitted.

Complex Digital Transistors

● Product Lineup

Configuration	Equivalent circuit diagram (TOP View)	EMT5 / 6 (1616)	UMT5 / 6 (2021) (SC-88A) (SC-88) (SOT-353) (SOT-363)	SMT5 / 6 (2928) (SC-74A) (SC-74) (SOT-457)	TUMT5 / 6 (2021)	TSMT6 (2928)	Equivalent element transistors	R1 (kΩ)	R2 (kΩ)	Automotive Grade Available
Part No.										
PNP ×2 (100mA)		EMA5	UMA5N	FMA5A	—	—	DTA123J×2	2.2	47	—
		—	UMA9N	FMA9A	—	—	DTA114E×2	10	10	—
		—	UMA1N	FMA1A	—	—	DTA124E×2	22	22	—
		EMA2	UMA2N	FMA2A	—	—	DTA144E×2	47	47	—
		EMA3	UMA3N	FMA3A	—	—	DTA143T×2	4.7	—	—
		EMA4	UMA4N	FMA4A	—	—	DTA114T×2	10	—	—
		EMB10	UMB10N	IMB10A	—	—	DTA123J×2	2.2	47	Yes
		<i>New</i> EMB60	—	—	—	—	DTA023J×2	2.2	47	—
		<i>New</i> EMB75	—	—	—	—	DTA043Z×2	4.7	47	—
		<i>New</i> EMB59	—	—	—	—	DTA014Y×2	10	4.7	—
		EMB11	UMB11N	IMB11A	—	—	DTA114E×2	10	10	Yes
		<i>New</i> EMB61	—	—	—	—	DTA014E×2	10	10	—
		<i>New</i> EMB51	—	—	—	—	DTA024E×2	22	22	—
		EMB2	UMB2N	IMB2A	—	—	DTA144E×2	47	47	Yes
		<i>New</i> EMB52	—	—	—	—	DTA044E×2	47	47	—
		EMB6	UMB6N	—	—	—	DTA144E×2	47	47	—
		EMB3	UMB3N	IMB3A	—	—	DTA143T×2	4.7	—	Yes
		<i>New</i> EMB53	—	—	—	—	DTA043T×2	4.7	—	—
NPN ×2 (100mA)		EMG11	UMG11N	—	—	—	DTC123J×2	2.2	47	—
		EMG8	UMG8N	—	—	—	DTC143Z×2	4.7	47	—
		EMG9	UMG9N	FMG9A	—	—	DTC114E×2	10	10	—
		EMG5	UMG5N	—	—	—	DTC114Y×2	10	47	—
		EMG1	UMG1N	FMG1A	—	—	DTC124E×2	22	22	—
		EMG2	UMG2N	FMG2A	—	—	DTC144E×2	47	47	—
		EMG3	UMG3N	FMG3A	—	—	DTC143T×2	4.7	—	—
		EMG4	UMG4N	FMG4A	—	—	DTC114T×2	10	—	—
		EMG6	UMG6N	FMG6A	—	—	DTC144T×2	47	—	—
		EMH10	UMH10N	—	—	—	DTC123J×2	2.2	47	Yes
		<i>New</i> EMH60	—	—	—	—	DTC023J×2	2.2	47	—
		EMH25	—	—	—	—	DTC143Z×2	4.7	47	Yes
		<i>New</i> EMH75	—	—	—	—	DTC043Z×2	4.7	47	—
		EMH11	UMH11N	IMH11A	—	—	DTC114E×2	10	10	Yes
		<i>New</i> EMH61	—	—	—	—	DTC014E×2	10	10	—
		EMH9	UMH9N	IMH9A	—	—	DTC114Y×2	10	47	Yes
		<i>New</i> EMH59	—	—	—	—	DTC014Y×2	10	47	—
		EMH1	UMH1N	IMH1A	—	—	DTC124E×2	22	22	Yes
		<i>New</i> EMH51	—	—	—	—	DTC024E×2	22	22	—
		EMH2	UMH2N	IMH2A	—	—	DTC144E×2	47	47	Yes
		<i>New</i> EMH52	—	—	—	—	DTC044E×2	47	47	—
		—	UMH5N	IMH5A	—	—	DTC124E×2	22	22	—
		EMH6	UMH6N	IMH6A	—	—	DTC144E×2	47	47	—
		EMH3	UMH3N	IMH3A	—	—	DTC143T×2	4.7	—	Yes
<i>New</i> EMH53		—	—	—	—	DTC043T×2	4.7	—	—	
EMH4		UMH4N	IMH4A	—	—	DTC114T×2	10	—	Yes	
EMH15		—	IMH15A	—	—	DTC144T×2	47	—	Yes	
		—	UMH8N	IMH8A	—	—	DTC114T×2	10	—	—
		—	UMH14N	IMH14A	—	—	DTC144T×2	47	—	—
NPN ×2 muting		—	UMH33N	—	—	—	DTC923TUB×2	2.2	—	—
		—	—	IMH23	US6H23	—	DTC643T×2	4.7	—	—
		—	UMH32N	—	—	—	DTC943TUB×2	4.7	—	—
		—	—	IMH21	—	—	DTC614T×2	10	—	—
NPN ×2 Driver		—	UMH37N	—	—	—	DTC914TUB×2	10	—	—
		—	—	—	—	QSH29	60±10V/500mA ×2	—	10	—

Configuration	Equivalent circuit diagram (TOP View)	EMT5 / 6 (1616)	UMT5 / 6 (2021) (SC-88A) (SC-88) (SOT-353) (SOT-363)	SMT5 / 6 (2928) (SC-74A) (SC-74) (SOT-457)	Equivalent element transistors	R1 (kΩ)	R2 (kΩ)	Automotive Grade Available
		Part No.						
PNP+NPN (100mA) complimentary		EMD22	UMD22N	—	DTA143Z DTC143Z	4.7 4.7	47 47	Yes
		New EMD72	—	—	DTA043Z DTC043Z	4.7 4.7	47 47	—
		EMD3	UMD3N	IMD3A	DTA114E DTC114E	10 10	10 10	Yes
		New EMD53	—	—	DTA014E DTC014E	10 10	10 10	—
		EMD9	UMD9N	IMD9A	DTA114Y DTC114Y	10 10	47 47	Yes
		New EMD59	—	—	DTA014Y DTC014Y	10 10	47 47	—
		EMD2	UMD2N	IMD2A	DTA124E DTC124E	22 22	22 22	Yes
		New EMD52	—	—	DTA024E DTC024E	22 22	22 22	—
		EMD12	UMD12N	—	DTA144E DTC144E	47 47	47 47	Yes
		New EMD62	—	—	DTA044E DTC044E	47 47	47 47	—
PNP+NPN (100mA) different type		EMD38	—	—	DTA113Z DTC114Y	1 10	10 47	—
		EMD5	UMD5N	—	DTA143X DTC144E	4.7 47	10 47	—
		EMD4	UMD4N	—	DTA114Y DTC144E	10 47	47 47	—
PNP+NPN Power management		EMD29	—	—	DTB513Z DTC114E	1 10	10 10	—
		EMD30	—	—	DTB713Z DTC114E	1 10	10 10	—
		—	—	IMD10A	—50V/—0.5A DTC114T	0.1 10	10 —	—
		—	—	IMD16A	—50V/—0.5A DTC115T	2.2 100	10 —	—

- No.1 Pin is located on the upper right of equivalent circuit diagram for EMT5, EMT6, UMT5 and UMT6 packages.
- No.1 Pin is located on the lower right of equivalent circuit diagram for SMT5 and SMT6 packages.

Packages

Dimensions (Unit : mm)

VML0806 	VML1006 	VMT3 (SC-105AA) 	VMT6 	EMT3F (SC-89) 	EMT3 (SC-75A) (SOT-416) 	EMT5 (SC-107BB) 	EMT6 (SC-107C)
UMT3F (SC-85) 	UMT3 (SC-70) (SOT-323) 	UMT5 (SC-88A) (SOT-353) 	UMT6 (SC-88) (SOT-363) 	SST3 (SOT-23) 			
SMT3 (SC-59) (SOT-346) 	SMT5 (SC-74A) 	SMT6 (SC-74) (SOT-457) 	TSST8 	TUMT3 			
TUMT5 	TUMT6 	WEMT6 	TSMT3 (SC-96) 	TSMT5 	TSMT6 (SC-95) 		
TSMT8 	HUML2020L3 	HUML2020L8 (Single) 		HUML2020L8 (Dual) 		HSMT8 	
HSML3030L10 	MPT3 (SC-62) (SOT-89) 	SOP8 	HSOP8 (Single) 		HSOP8 (Dual) 		
CPT3 (D-PAK) (SC-63) (SOT-428) 	TO-252 		LPT(S) (D2-PAK) (SC-83) 		LPT(L) (TO-263AB) 		
TO-220AB 	TO-220FM 	TO-3PF 		TO-247 		TO-247PLUS 	

Notes: 1. Characters in () under package designation denotes JEITA No. Characters in < > under package designation denotes JEDEC No. 2. For details of dimensions, please refer to the technical specifications.

Part No. Explanation

• MOSFET Part No. Explanation

<Single-Chip Type>

Example: **R T Q 0 3 5 P 0 2 T R**

ROHM | Drive Voltage | I_D (Unit: 100mA)
ex.) 035=3500mA (3.5A) | Polarity | Package | V_{DSS}

Type of MOSFET	Drive Voltage (V)				
	0.9/1.2/1.5/1.8	2.5	4	4.5	10
Low loss type	—	—	—	C	—
General use type	Z,U,Y	F, T	D,R,S,X	—	D,N
Low capacitance type	—	—	E, Q	M, G	—
High ESD resistance type	—	J	H	—	—
Stripe	A	—	—	—	—
Gen.1	—	S	—	—	—
Low IGSS	—	—	—	—	C

Symbol	Package
M	VMT3
E	EMT3
U	UMT3
F	TUMT3
L	TUMT6
C	SST3
K	SMT3
R	TSMT3
Q	TSMT6
P	MPT3
H	SOP8
S	SOP8
D	CPT3
J	LPTS
X	TO-220FM

Symbol	V_{DSS} (V)
01	12
02	20
03	30
04	40
05	45
06	60
10	100
15	150
19	190
20	200
25	250
50	500
60	600

<Single-Chip Type>

Example: **R 5 0 0 7 A N J**

ROHM | V_{DSS} (V)
50=500V | I_D (A)
07=7A | Polarity
N=Nch | Package

Symbol	Package
D	CPT3
J	LPT
X	TO-220FM
Z	TO-3PF
Z0	TO-247PLUS
D3	TO-252

A=does not contain G-S protection diode
C=Contains G-S protection diode
E=Low noise
F=High speed trr

<Single-Chip Type>

Example: **R T 1 A 0 4 0 Z P T L**

ROHM | Package | V_{DSS} (V)
A=12V
C=20V
E=30V
G=40V
J=50V
L=60V
W=500V
X=600V | I_D (A)
ex.) 040=4A
013=1.3A | Drive Voltage

Symbol	Package
V1	VML0806
V2	VML1006
M1	VMT3
EB	EMT3F
UB	UMT3F
W1	WEMT6
T1	TSST8
Q5	TSMT3
Q6	TSMT6
Q1	TSMT8
Q7	TSMT8
F4	HUML2020L8
Q3	HSMT8
S3	SOP8
S1	HSOP8
D3	TO-252
X1	TO-220AB
X2	TO-220FM

Symbol	Process	Pol.	Drive Voltage	comment
SN	Gen.1	Nch	2.5V/4.0V	—
UN	Gen.1	Nch	1.2V/1.5V	—
YN	Gen.1	Nch	0.9V	—
XN	Gen.3	Nch	4.0V	—
MN	Gen.3	Nch	4.5V	High Performance
BN	Gen.4	Nch	4.5V	—
AD	Gen.4	Nch	4.5V	Built-in ESD protection
GN	Gen.4	Nch	4.5V	High Performance
AJ	Gen.5	Nch	2.5V	—
SP	Gen.1	Pch	2.5V/4.0V	—
RP	Gen.2	Pch	4.0V	—
ZP	Gen.2	Pch	1.2V/1.5V	—
AP	Gen.4	Pch	1.5V	—
AT	Gen.4	Pch	4.5V	—
AB	Planar	Nch	10V	Low IGSS
AC	Planar	Nch	10V	—

<Dual-Chip Type>

Example: **S H 8 M 3 () T B**

Package | Polarity | Serial No.
Note) "N" is put to UMT5 & UMT6 packages

Symbol	Package
VT6	VMT6
EM6	EMT6
UM5	UMT5
UM6	UMT6
ES6	WEMT6
US5	TUMT5
US6	TUMT6
TT8	TSST8
SM6	SMT6
QS5	TSMT5
QS6	TSMT6
QH6	TSMT6
QS8	TSMT8
QH8	TSMT8
UT6	HUML2020L8
HS8	HSML3030L10
SH8	SOP8
SP8	SOP8
HP8	HSOP8

Symbol	Package
K	Nch+Nch
J	Pch+Pch
M	Nch+Pch
U	MOS+SBD
S	Nch+Nch+SBD

Part No. Explanation

• Bipolar Transistor Part No. Explanation

Part No. Tape code

Example:

2	S	C	2	4	1	2	K		T	1	4	6	R
2	S	C	R	5	2	3	E	B	T	L			

hFE Ranking code

Code	hFE Range
A	16 to 32
B	25 to 50
C	40 to 80
D	60 to 120
E	100 to 200
F	160 to 320
M	39 to 82
N	56 to 120
P	82 to 180
Q	120 to 270
R	180 to 390
S	270 to 560
E	390 to 820
U	560 to 1200
V	820 to 1800
W	1200 to 2700

• Digital Transistor Part No. Explanation

Example : DT Digital Transistor

0	General use
1	General use
5	Low Vce(sat) 12V
6	Muting 20V
9	Muting Vce 40V

3	10 ³
4	10 ⁴
5	10 ⁵

M	VMT3
EB	EMT3F
E	EMT3
UB	UMT3F
U	UMT3
K	SMT3
P	MPT3

Exponent Specification Exponent of R₁ resistance value Package Tape code

D T A 1 2 4 E K A T 1 4 6

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Polarity	Basic R ₁ resistance value
A	1 1.0
B	2 2.2
C	4 4.7
D	6 6.8

Resistance Ratio R ₁ /R ₂	
E	R ₁ /R ₂ = 1/1
X	R ₁ /R ₂ = 1/2
Y	R ₁ /R ₂ = 1/5
Z	R ₁ /R ₂ = 1/10
J	R ₁ /R ₂ = 1/20
W	R ₁ /R ₂ = 2/1
V	R ₁ /R ₂ = 5/1
T	R ₁ only
G	R ₂ only

Suffix (except VMT3, EMT3F, EMT3, UMT3F)

Note: ④ and ⑤ together represent the R₁ resistance value

Example

24	2.2 × 10 ⁴ Ω = 22kΩ
43	4.7 × 10 ³ Ω = 4.7kΩ

Packaging type

Package	Code	Packaging style	Direction	Basic ordering unit (pcs)
VML0806	T2L,T2CL	Embossed tape	Terminal No.1 on opposite side from sprocket hole side	8,000
VML1006	T2L,T2CL	Embossed tape	Terminal No.1 on opposite side from sprocket hole side	8,000
VMT3	T2L,T2CL	Embossed tape	One terminal on sprocket hole side	8,000
VMT6	T2R,T2CR	Embossed tape	Terminal No.1 on sprocket hole side	8,000
EMT3F	TL,TCL	Embossed tape	One terminal on sprocket hole side	3,000
EMT3	TL,TCL	Embossed tape	One terminal on sprocket hole side	3,000
EMT5	T2R,T2CR	Embossed tape	Three terminals on sprocket hole side	8,000
EMT6	T2R,T2CR	Embossed tape	Terminal No.1 on sprocket hole side	8,000
UMT3F	TL,TCL	Embossed tape	One terminal on sprocket hole side	3,000
UMT3	T106,T306	Embossed tape	One terminal on sprocket hole side	3,000
UMT5	TR,TCR	Embossed tape	Three terminals on sprocket hole side	3,000
UMT6	TR,TCR	Embossed tape	Terminal No.1 on sprocket hole side	3,000
	TN,TCN	Embossed tape	Non-direction	3,000
WEMT6	T2R,T2CR	Embossed tape	Terminal No.1 on sprocket hole side	8,000
TUMT3	TL,TCL	Embossed tape	One terminal on sprocket hole side	3,000
TUMT5	TR,TCR	Embossed tape	Terminal No.1 on sprocket hole side	3,000
TUMT6	TR,TCR	Embossed tape	Terminal No.1 on sprocket hole side	3,000
SST3	T116,T316	Embossed tape	One terminal on sprocket hole side	3,000
SMT3	T146	Embossed tape	One terminal on sprocket hole side	3,000
SMT5	T148	Embossed tape	Three terminals on sprocket hole side	3,000
SMT6	T108	Embossed tape	Terminal No.1 on opposite side from sprocket hole side	3,000
	T110	Embossed tape	Non-direction	3,000
TSST8	TR,TCR	Embossed tape	Terminal No.1 on sprocket hole side	3,000
TSMT3	TL,TCL	Embossed tape	One terminal on sprocket hole side	3,000
TSMT5	TR,TCR	Embossed tape	Terminal No.1 on sprocket hole side	3,000
TSMT6	TR,TCR	Embossed tape	Terminal No.1 on sprocket hole side	3,000
TSMT8	TR,TCR	Embossed tape	Terminal No.1 on sprocket hole side	3,000
HUML2020L3	TL,TCL	Embossed tape	Terminal No.1 on opposite side from sprocket hole side	3,000
HUML2020L8	TR,TCR	Embossed tape	Terminal No.1 on sprocket hole side	3,000
HSMT8	TB,TCB	Embossed tape	Terminal No.1 on sprocket hole side	3,000
HSML3030L10	TB	Embossed tape	Terminal No.1 on sprocket hole side	3,000
SOP8	TB	Embossed tape	Terminal No.1 on sprocket hole side	2,500
HSOP8	TB	Embossed tape	Three terminals on sprocket hole side	3,000
PSOP8	TB	Embossed tape	Three terminals on sprocket hole side	2,500
MPT3	T100	Embossed tape	Three terminals on sprocket hole side	1,000
CPT3	TL	Embossed tape	Fin on sprocket hole side	2,500
TO-252	TL	Embossed tape	Fin on sprocket hole side	2,500
LPT	TL	Embossed tape	Fin on sprocket hole side	1,000
TO-220FM	—	bulk	Box	500
TO-220AB	C10	bulk	Tube	500
TO-3PF	C8	bulk	Tube	360
TO-247	C9	bulk	Tube	450
TO-247 Plus	C9	bulk	Tube	450

Notes

- 1) The information contained in this document is provided as of 1st. October, 2013.
- 2) The information contained herein is subject to change without notice. Before you use our Products, please contact our sales representative (as listed below) and verify the latest specifications.
- 3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors. Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Products beyond the rating specified by ROHM.
- 4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.
- 5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.
- 6) The Products are intended for use in general electronic equipment (i.e. AV/OA devices, communication, consumer systems, gaming/entertainment sets) as well as the applications indicated in this document.
- 7) The Products specified in this document are not designed to be radiation tolerant.
- 8) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative: transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.
- 9) Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.
- 10) ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.
- 11) ROHM has used reasonable care to ensure the accuracy of the information contained in this document. However, ROHM does not warrant that such information is error-free and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.
- 12) Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive. For more details, including RoHS compatibility, please contact a ROHM sales office as listed below. ROHM shall have no responsibility for any damages or losses resulting non-compliance with any applicable laws or regulations.
- 13) When providing our Products and technologies contained in this document to other countries, you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.
- 14) This document, in part or in whole, may not be reprinted or reproduced without prior consent of ROHM.

[Compliance to RoHS Directive]

All of the products comply with the RoHS Directive.
With the exception of specific exemptions granted under the RoHS Directive and naturally occurring impurities, the products conforms to control limits on the six substances regulated by the RoHS Directive (lead, cadmium, mercury, hexavalent chromium, PBB, and PBDE). Indicates that the product's terminals and electrodes contain no lead. The products internal components other than those specifically exempted under the RoHS Directive. It should not be construed as guarantee of compliance with laws and regulations enacted by EU member states in response to the RoHS Directive.

[Viewing the catalog]

■ **New** indicates new product.

■ ☆ indicates product under development.