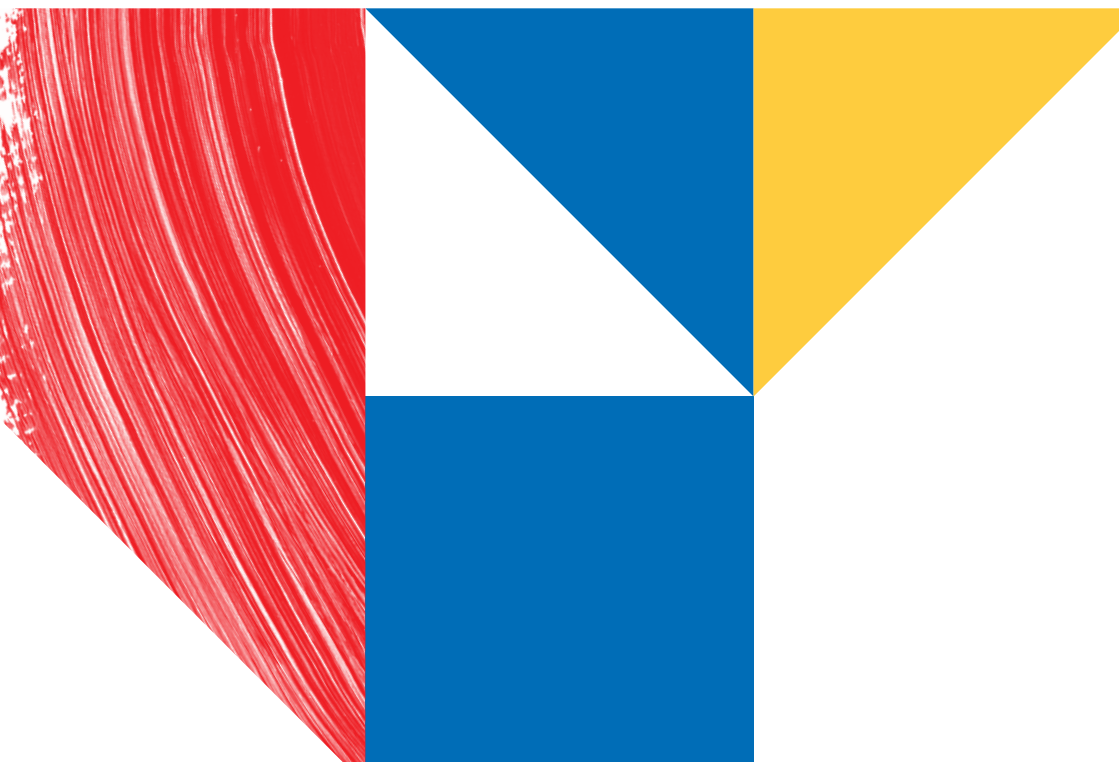


TOSHIBA

MOSFETs

Selection Guide 2021



Contents

I Small Signal MOSFETs	3 - 15
1. Over 500mA Series MOSFETs (Semi-Power Type)	3 - 7
2. Less than 500mA Series MOSFETs (Standard Type)	8 - 10
3. MOSFET with Diode	11
4. Part Naming Conventions	12
5. Device Packages	13 - 15
 II Power MOSFETs	 16 - 40
1. Low-Voltage MOSFET Series	16 - 22
2. Mid-High Voltage MOSFET Series	23 - 30
3. Automotive	31 - 32
4. Silicon Carbide (SiC) MOSFET Series	33
5. Part Naming Conventions	34
6. Device Packages	35 - 40

I Small Signal MOSFETs

1. Over 500mA Series MOSFETs (Semi-Power Type)

Package Dimensions (unit: mm)

CST3C	CST3 (SOT-883)	CST3B	VESM (SOT-723)	UFM (SOT-323F)	ES6 (SOT-563)	UF6 (SOT-363F)	WCSP6C
Bottom View	Bottom View	Bottom View					Bottom View
							
0.8x0.6	1.0x0.6	1.2x0.8	1.2x1.2	2.0x2.1	1.6x1.6	2.0x2.1	1.5x1.0

P-Channel Single MOSFET

Package	Part Number	V _{DSS} (V)	V _{GS} (V)	I _D (A)	R _{DS(ON)} max (mΩ)							Q _g typ. (nC)	C _{iss} typ. (pF)	Note
					V _{GS} =-1.2V	V _{GS} =-1.5V	V _{GS} =-1.8V	V _{GS} =-2.5V	V _{GS} =-4V	V _{GS} =-4.5V	V _{GS} =-10V			
CST3C	SSM3J64CTC	\$ -12	+/-10	-1.0	11300	1310	890	560	-	370	-	-	50	
	SSM3J65CTC	\$ -20	+/-10	-0.7	11300	1550	1070	700	-	500	-	-	48	
CST3	SSM3J56ACT	\$ -20	+/-8	-1.4	4000	900	660	480	-	390	-	1.6	100	
CST3B	SSM3J46CTB ●	\$ -20	+/-8	-2.0	-	250	178	133	-	103	-	4.7	290	⇒ SSM6J213FE
VESM	SSM3J66MFV #	\$ -20	+6/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
	SSM3J56MFV	\$ -20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
WCSP6C	SSM6J771G	\$ -20	+/-12	-5.0	-	-	-	47.5	-	35	34.7(@-8V) 31(@-8.5V)	9.8	870	
ES6	SSM6J216FE	\$ -12	+/-8	-4.8	-	88.1	56	39.3	-	32	-	12.7	1040	
	SSM6J213FE	\$ -20	+/-8	-2.6	-	250	178	133	-	103	-	4.7	290	
	SSM6J215FE	\$ -20	+/-8	-3.4	-	154	104	79	-	59	-	10.4	630	
	SSM6J212FE	\$ -20	+/-8	-4.0	-	94	65.4	49	-	40.7	-	14.1	970	
	SSM6J207FE	\$ -30	+/-20	-1.4	-	-	-	-	491	-	251	-	137	
	SSM6J214FE	\$ -30	+/-12	-3.6	-	-	149.6	77.6	-	57	50	7.9	560	
UFM	SSM3J132TU	\$ -12	+/-6	-5.4	94	39	29	21	-	17	-	33	2700	
	SSM3J135TU	\$ -20	+/-8	-3.0	-	260	180	132	-	103	-	4.6	270	
	SSM3J145TU #	\$ -20	+6/-8	-3.0	-	260	180	132	-	103	-	4.6	270	
	SSM3J134TU	\$ -20	+/-8	-3.2	-	240	168	123	-	93	-	4.7	290	
	SSM3J144TU #	\$ -20	+6/-8	-3.2	-	240	168	123	-	93	-	4.7	290	
	SSM3J120TU ●	\$ -20	+/-8	-4.0	-	140	78	49	38	-	-	22.3	1484	⇒ SSM3J133TU
	SSM3J130TU	\$ -20	+/-8	-4.4	-	63.2	41.1	31	-	25.8	-	24.8	1800	
	SSM3J140TU #	\$ -20	+6/-8	-4.4	-	63.2	41.1	31	-	25.8	-	24.8	1800	
	SSM3J133TU	\$ -20	+/-8	-5.5	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J143TU #	\$ -20	+6/-8	-5.5	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J112TU #	\$ -30	+/-20	-1.1	-	-	-	-	790	-	390	-	86	
	SSM3J118TU #	\$ -30	+/-20	-1.4	-	-	-	-	480	-	240	-	137	
UF6	SSM3J117TU #	\$ -30	+/-20	-2.0	-	-	-	-	225	-	117	-	280	
	SSM6J50TU	\$ -20	+/-10	-2.5	-	-	205(@-2V)	100	-	64	-	-	800	
	SSM6J422TU #	\$ -20	+6/-8	-4.0	-	99.6	67.8	51.4	-	42.7	-	12.8	840	
	SSM6J412TU	\$ -20	+/-8	-4.0	-	99.6	67.8	51.4	-	42.7	-	12.8	840	
	SSM6J424TU #	\$ -20	+6/-8	-6.0	-	54	36	26	-	22.5	-	23.1	1650	
	SSM6J414TU	\$ -20	+/-8	-6.0	-	54	36	26	-	22.5	-	23.1	1650	
	SSM6J402TU #	\$ -30	+/-20	-2.0	-	-	-	-	225	-	117	5.3	280	
	SSM6J410TU #	\$ -30	+/-20	-2.1	-	-	-	-	393	-	216	2.9	120	
	SSM6J401TU #	\$ -30	+/-20	-2.5	-	-	-	-	145	-	73	16	730	

● Recommend Another New Product
AEC-Q101 qualified, \$ With protection Zener diode between gate and source

UDFN6B (SOT-1220)	SOT-23F	S-Mini (SOT-346)	TSOP6F
Bottom View			
2.0x2.0	2.9x2.4	2.9x2.5	2.9x2.8

P-Channel Single MOSFET

Package	Part Number	V _{DSS} (V)	V _{GSS} (V)	I _D (A)	R _{DS(ON)} max (mΩ)							Q _g typ. (nC)	Ciss typ. (pF)	Note
					V _{GS} =-1.2V	V _{GS} =-1.5V	V _{GS} =-1.8V	V _{GS} =-2.5V	V _{GS} =-4V	V _{GS} =-4.5V	V _{GS} =-10V			
UDFN6B	SSM6J512NU	\$ -12	+/-10	-10.0	-	-	40.1	25.7	20.5(@-3.6V)	18.7	16.2(@-8V)	19.5	1400	
	SSM6J505NU	\$ -12	+/-6	-12.0	61	30	21	16	-	12	-	37.6	2700	
	SSM6J511NU	\$ -12	+/-10	-14.0	-	-	19.2	13.5	11.5(@-3.6V)	10	9.1(@-8V)	47	3350	
	SSM6J503NU	\$ -20	+/-8	-6.0	-	89.6	57.9	41.7	-	32.4	-	12.8	840	
	SSM6J502NU	\$ -20	+/-8	-6.0	-	60.5	38.4	28.3	-	23.1	-	24.8	1800	
	SSM6J501NU	\$ -20	+/-8	-10.0	-	43	26.5	19	-	15.3	-	29.9	2600	
	SSM6J507NU	\$ -30	+20/-25	-10.0	-	-	-	-	32	28	20	13.6	1150	
SOT-23F	SSM3J338R	\$ -12	+/-10	-6.0	-	-	45.3	27.9	21.9(@-3.6V)	20.2	17.6(@-8V)	19.5	1400	
	SSM3J327R	\$ -20	+/-8	-3.9	-	240	168	123	-	93	-	4.6	290	
	SSM3J377R	# \$ -20	+6/-8	-3.9	-	240	168	123	-	93	-	4.6	290	
	SSM3J331R	\$ -20	+/-8	-4.0	-	150	100	75	-	55	-	10.4	630	
	SSM3J371R	# \$ -20	+6/-8	-4.0	-	150	100	75	-	55	-	10.4	630	
	SSM3J328R	\$ -20	+/-8	-6.0	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J378R	# \$ -20	+6/-8	-6.0	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J355R	\$ -20	+/-10	-6.0	-	-	52.3	38.8	-	30.1	-	16.6	1030	
	SSM3J358R	\$ -20	+/-10	-6.0	-	-	49.3	32.8	27.7(@-3.6V)	25.3	22.1(@-8V)	38.5	1331	
	SSM3J334R	\$ -30	+/-20	-4.0	-	-	-	-	136	105	71	5.9	280	
	SSM3J374R	# \$ -30	+10/-20	-4.0	-	-	-	-	136	105	71	5.9	280	
	SSM3J340R	\$ -30	+20/-25	-4.0	-	-	-	-	86	73	45	6.2	492	
	SSM3J332R	\$ -30	+/-12	-6.0	-	-	144	72	-	50	42	8.2	560	
	SSM3J372R	# \$ -30	+6/-12	-6.0	-	-	144	72	-	50	42	8.2	560	
	SSM3J356R	# \$ -60	+10/-20	-2.0	-	-	-	-	400	360	300	8.3	330	
SSM3J351R	# \$ -60	+10/-20	-3.5	-	-	-	-	184	164	134	15.1	660		
S-Mini	SSM3J325F	\$ -20	+/-8	-2.0	-	311	231	179	-	150	-	4.6	270	
	SSM3J375F	# \$ -20	+6/-8	-2.0	-	311	231	179	-	150	-	4.6	270	
	SSM3J352F	\$ -20	+/-12	-2.0	-	-	443	199	-	136	110	5.1	210	
	SSM3J353F	\$ -30	+20/-25	-2.0	-	-	-	-	274	232	150	3.4	159	
TSOP6F	SSM6J801R	\$ -20	+6/-8	-6.0	-	88.4	56	39.7	-	32.5	-	12.8	840	
	SSM6J808R ☆ #	-40	+10/-20	-7.0	-	-	-	-	52	48	35	24.2	1020	

☆ New Products
AEC-Q101 qualified, \$ With protection Zener diode between gate and source

CST3 (SOT-883)	CST3B	VESM (SOT-723)	SSM (SOT-416)	UFM (SOT-323F)	ES6 (SOT-563)	UF6 (SOT-363F)	UDFN6B (SOT-1220)	WCSP6C
Bottom View	Bottom View						Bottom View	Bottom View
1.0x0.6	1.2x0.8	1.2x1.2	1.6x1.6	2.0x2.1	1.6x1.6	2.0x2.1	2.0x2.0	1.5x1.0

N-Channel Single MOSFET

Package	Part Number		V _{DSS} (V)	V _{GS} (V)	I _D (A)	R _{DS(ON)} max (mΩ)							Q _g typ. (nC)	Ciss typ. (pF)	Note
						V _{GS} =1.2V	V _{GS} =1.5V	V _{GS} =1.8V	V _{GS} =2.5V	V _{GS} =4V	V _{GS} =4.5V	V _{GS} =10V			
CST3	SSM3K56CT	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55		
	SSM3K56ACT	\$ 20	+/-8	1.4	-	840	480	300	-	235	-	1.0	55		
CST3B	SSM3K59CTB ●	\$ 40	+/-12	2.0	-	-	420	268	238(@3.6V) 231(@4.2V)	228	215(@8V)	1.1	130	⇒ SSM6K217FE	
VESM	SSM3K36MFV #	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46		
	SSM3K56MFV	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55		
WCSP6C	SSM6K781G	12	+/-8	7.0	-	124	47.4	23.2	-	18	-	5.4	600		
SSM	SSM3K36FS #	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46		
	SSM3K43FS ●	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46	⇒ SSM3K56FS	
	SSM3K56FS	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55		
ES6	SSM6K204FE	\$ 20	+/-10	2.0	-	307	214	164	126	-	-	3.4	195		
	SSM6K211FE	\$ 20	+/-10	3.2	-	118	82	59	-	47	-	10.8	510		
	SSM6K24FE	\$ 30	+/-12	0.5	-	-	-	180	-	145	-	-	245		
	SSM6K208FE	\$ 30	+/-12	1.9	-	-	296	177	133	-	-	1.9	123		
	SSM6K202FE	\$ 30	+/-12	2.3	-	-	145	101	85	-	-	-	270		
	SSM6K217FE	\$ 40	+/-12	1.8	-	-	400	248	218(@3.6V) 211(@4.2V)	208	195(@8V)	1.1	130		
UFM	SSM3K36TU #	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46		
	SSM3K62TU #	\$ 20	+/-8	0.8	432	139	89	68	-	57	-	2.0	177		
	SSM3K122TU #	\$ 20	+/-10	2.0	-	304	211	161	123	-	-	3.4	195		
	SSM3K121TU #	\$ 20	+/-10	3.2	-	140	93	63	48	-	-	5.9	400		
	SSM3K123TU #	\$ 20	+/-10	4.2	-	66	43	32	28	-	-	13.6	1010		
	SSM3K127TU #	\$ 30	+/-12	2.0	-	-	286	167	123	-	-	1.5	123		
	SSM3K116TU #	\$ 30	+/-12	2.2	-	-	-	135	-	100	-	-	245		
	SSM3K131TU #	\$ 30	+/-20	6.0	-	-	-	-	-	41.5	27.6	10.1	450		
	SSM3H137TU #	\$ 34	+/-20	2.0	-	-	-	-	295	280	240	3.0	119	Built-in Active Clamp Zener	
	SSM3K2615TU #	\$ 60	+/-20	2.0	-	-	-	580(@3.3V)	440	-	300	6.0	150		
UF6	SSM3K341TU #	\$ 60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	Tch=175°C	
	SSM3K361TU #	\$ 100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	Tch=175°C	
	SSM6K405TU	\$ 20	+/-10	2.0	-	307	214	164	126	-	-	3.4	195		
	SSM6K404TU #	\$ 20	+/-10	3.0	-	147	100	70	55	-	-	5.9	400		
	SSM6K403TU #	\$ 20	+/-10	4.2	-	66	43	32	28	-	-	16.8	1050		
UDFN6B	SSM6K406TU #	\$ 30	+/-20	4.4	-	-	-	-	-	38.5	25	12.4	490		
	SSM6K407TU #	\$ 60	+/-20	2.0	-	-	-	-	440	-	300	6.0	150		
	SSM6K518NU ☆	20	+/-8	6.0	-	108	74	45	-	33	-	3.6	410		
UDFN6B	SSM6K517NU ☆	30	+12/-8	6.0	-	-	82	53	-	39.1	-	3.2	310		
	SSM6K504NU #	\$ 30	+/-20	9.0	-	-	-	-	-	26	19.5	4.8	620		
	SSM6K513NU	30	+/-20	15.0	-	-	-	-	-	12	8.9	7.5	1130		
	SSM6K516NU ☆	30	+20/-12	6.0	-	-	-	-	-	64	46	2.5	280		
	SSM6K514NU	40	+/-20	12.0	-	-	-	-	-	17.3	11.6	7.5	1110		
	SSM6K341NU	\$ 60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550		
	SSM6K361NU	\$ 100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430		

☆ New Products, ● Recommend Another New Product

AEC-Q101 qualified, \$ With protection Zener diode between gate and source

SOT-23F	TSOP6F
	
2.9x2.4	2.9x2.8

N-Channel Single MOSFET

Package	Part Number	V _{DSS} (V)	V _{GSS} (V)	I _D (A)	R _{DS(ON)} max (mΩ)							Q _g typ. (nC)	C _{iss} typ. (pF)	Note
					V _{GS} =1.2V	V _{GS} =1.5V	V _{GS} =1.8V	V _{GS} =2.5V	V _{GS} =4V	V _{GS} =4.5V	V _{GS} =10V			
SOT-23F	SSM3K344R	\$ 20	+/-8	3.0	-	232	139	91	-	71	-	2.0	153	
	SSM3K345R	\$ 20	+/-8	4.0	-	108	74	45	-	33	-	3.6	410	
	SSM3K329R	\$ 30	+/-12	3.5	-	-	289	170	126	-	-	1.5	123	
	SSM3K324R	\$ 30	+/-12	4.0	-	-	109	72	-	56	-	2.2	200	
	SSM3K376R	# \$ 30	+12/-8	4.0			109	72	-	56	-	2.2	200	
	SSM3K336R	# \$ 30	+/-20	3.0	-	-	-	-	-	140	95	1.7	126	
	SSM3K333R	# 30	+/-20	6.0	-	-	-	-	-	42	28	3.4	436	
	SSM3K335R	# \$ 30	+/-20	6.0	-	-	-	-	-	56	38	2.7	340	
	SSM3K347R	# \$ 38	+/-20	2.0	-	-	-	-	480	410	340	2.5	86	Built-in Active Clamp Zener
	SSM3K337R	# 38	+/-20	2.0	-	-	-	-	200	176	150	3.0	120	Built-in Active Clamp Zener
	SSM3K339R	\$ 40	+/-12	2.0	-	-	390	238	208(@3.6V) 201(@4.2V)	198	185(@8V)	1.1	130	
	SSM3K357R ☆ # \$	60	+/-12	0.65	-	-	-	2400(@3V)	-	1800(@5V)	-	1.5	43	Built-in Gate-Drain Zener
	SSM3K2615R	# \$ 60	+/-20	2.0	-	-	-	580(@3.3V)	440	-	300	6.0	150	
	SSM3K318R	# \$ 60	+/-20	2.5	-	-	-	-	-	145	107	7.0	235	
TSOP6F	SSM3K341R	# \$ 60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	Tch=175°C
	SSM3K361R	# \$ 100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	Tch=175°C
	SSM6K818R ★	30	+/-20	15.0	-	-	-	-	-	12	8.9	7.5	1130	
	SSM6K804R ★	40	+/-20	12.0	-	-	-	-	-	18	12	7.5	1110	
	SSM6K809R ☆ # \$	60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	Tch=175°C
	SSM6K810R ☆ # \$	100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	Tch=175°C
	SSM6K819R ☆ # \$	100	+/-20	10.0	-	-	-	-	-	36.4	25.8	8.5	1110	Tch=175°C

☆ New Products, ★ Under Development (The specification is subject to change without notice.)
AEC-Q101 qualified, \$ With protection Zener diode between gate and source

ES6 (SOT-563)	UF6 (SOT-363F)	US6 (SOT-363)	UDFN6 (SOT-1118)	TSOP6F	TCSP6A	TCSPAC- 153001
			Bottom View 		Bottom View 	Bottom View 
1.6x1.6	2.0x2.1	2.0x2.1	2.0x2.0	2.9x2.8	2.14x1.67	2.98x1.49

Dual MOSFET

Package	Polarity	Part Number	V _{DSS} (V)	V _{GSS} (V)	I _D (A)	R _{DS(ON)} max (mΩ)							Q _g typ. (nC)	C _{iss} typ. (pF)	Note
						V _{GS} = 1.2V	V _{GS} = 1.5V	V _{GS} = 1.8V	V _{GS} = 2.5V	V _{GS} = 4V	V _{GS} = 4.5V	V _{GS} = 10V			
ES6	P-ch x2	SSM6P41FE	\$ -20	+/-8	-0.72	-	1040	670	440	-	300	-	1.76	110	
		SSM6P56FE ☆	\$ -20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
	N-ch x2	SSM6N36FE #	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46	
		SSM6N56FE	\$ 20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55	
	N-ch + P-ch	SSM6L14FE	\$ 20	+/-10	0.8	-	600	450	330	-	240	-	2.0	90	
			\$ -20	+/-8	-0.72	-	1040	670	440	-	300	-	1.76	110	
		SSM6L36FE #	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46	
			\$ -20	+/-8	-0.33	-	3600	2700	1600(@-2.8V)	-	1310	-	1.2	43	
UDFN6	P-ch x2	SSM6P47NU	\$ -20	+/-8	-0.8	-	242	170	125	-	95	-	4.6	290	
		SSM6P69NU ☆ #	\$ -20	+6/-12	-4.0	-	-	157	76	-	56	45	6.74	480	
		SSM6P49NU	\$ -20	+/-12	-4.0	-	-	157	76	-	56	45	6.74	480	
	N-ch x2	SSM6N61NU #	\$ 20	+/-8	4.0	-	108	74	45	-	33	-	3.6	410	
		SSM6N55NU	\$ 30	+/-20	4.0	-	-	-	-	-	64	46	2.5	280	
		SSM6N67NU #	\$ 30	+12/-8	4.0	-	-	82	53	-	39.1	-	3.2	310	
		SSM6N68NU #	\$ 30	+12/-8	4.0	-	-	180	117	-	84	-	1.8	129	
		SSM6N57NU	\$ 30	+/-12	4.0	-	-	82	53	-	39.1	-	3.2	310	
		SSM6N58NU	\$ 30	+/-12	4.0	-	-	180	117	-	84	-	1.8	129	
	N-ch + P-ch	SSM6L61NU	\$ 20	+/-8	4.0	-	108	74	45	-	33	-	3.6	410	
			\$ -20	+/-12	-4.0	-	-	157	76	-	56	45	6.74	480	
UF6	P-ch x2	SSM6P54TU	\$ -20	+/-8	-1.2	-	555	350	228	-	-	-	7.7	331	
		SSM6P39TU #	\$ -20	+/-8	-1.5	-	-	430	294	213	-	-	6.4	250	
		SSM6P40TU #	\$ -30	+/-20	-1.4	-	-	-	-	403	-	226	2.9	120	
	N-ch x2	SSM6N36TU #	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46	
		SSM6N62TU #	\$ 20	+/-8	0.8	456	173	120	98	-	85	-	2.0	177	
		SSM6N39TU #	\$ 20	+/-10	1.6	-	247	190	139	119	-	-	7.5	260	
		SSM6N24TU #	\$ 30	+/-12	0.5	-	-	-	180	-	145	-	-	245	
		SSM6N40TU #	\$ 30	+/-20	1.6	-	-	-	-	182	-	122	5.1	180	
	N-ch + P-ch	SSM6L36TU #	\$ 20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46	
			\$ -20	+/-8	-0.33	-	3600	2700	1600(@-2.8V)	-	1310	-	1.2	43	
		SSM6L39TU #	\$ 20	+/-10	1.6	-	247	190	139	119	-	-	7.5	260	
			\$ -20	+/-8	-1.5	-	-	430	294	213	-	-	6.4	250	
		SSM6L12TU #	\$ 30	+/-12	0.5	-	-	-	180	-	145	-	-	245	
TSOP6F	P-ch x2	SSM6N43FU #	\$ -20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46	
		SSM6N357R ☆ #	\$ 60	+/-12	0.65	-	-	-	2400 (@3V)	-	1800 (@5V)	-	1.5	43	Built-in Active Clamp Zener
		SSM6N815R	\$ 100	+/-20	2.0	-	-	-	-	180	142	103	3.1	290	T _J =175°C
	N-ch x2	SSM6N813R ☆ #	\$ 100	+/-20	3.5	-	-	-	-	-	154	112	3.6	242	
		SSM6P816R ☆	\$ -20	+/-10	-6.0	-	-	52.3	38.8	-	30.1	-	16.6	1030	
			\$ 30	+/-12	4	-	-	82	53	-	39.1	-	3.2	310	
	N-ch + P-ch	SSM6L807R ☆	\$ -20	+/-12	-4	-	-	157	76	-	56	45	6.74	480	
			\$ 30	+12/-8	4	-	-	82	53	-	39.1	-	3.2	310	
		SSM6L820R ☆ #	\$ -20	+6/-12	-4	-	-	157	76	-	56	45	6.74	480	
TCSP6A	N-ch x2	SSM6N951L ☆	\$ 12	+/-8	8	-	-	-	10	5.5(@3.8V)	5.1	-	26	-	Drain common
TCSPAC- 153001	N-ch x2	SSM10N954L ☆	\$ 12	+/-8	13.5	-	-	-	6.1	2.85 (@3.8V)	2.75	-	25	-	Drain common

☆ New Products, # AEC-Q101 qualified, \$ With protection Zener diode between gate and source

2. Less than 500mA Series MOSFETs (Standard Type)

Package Dimensions (unit: mm)

CST3C	CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	UFM (SOT-323F)	USM (SOT-323)	S-Mini (SOT-346)
Bottom View	Bottom View					
0.8x0.6	1.0x0.6	1.2x1.2	1.6x1.6	2.0x2.1	2.0x2.1	2.9x2.5

P-Channel Single MOSFET

Package	Part Number	V _{DSS} (V)	V _{GSS} (V)	I _D (A)	R _{DS(ON)} max (Ω)							Note
					V _{GS} =-1.2V	V _{GS} =-1.5V	V _{GS} =-1.8V	V _{GS} =-2.5V	V _{GS} =-4V	V _{GS} =-4.5V	V _{GS} =-10V	
CST3C	SSM3J35CTC	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
CST3	SSM3J35CT	\$ -20	+/-10	-0.1	44	22	-	11	8	-	-	
	SSM3J16CT ●	\$ -20	+/-10	-0.1	-	45	-	12	8	-	-	⇒ SSM3J35CT
	SSM3J15CT	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	
VESM	SSM3J35MFV ● #	\$ -20	+/-10	-0.1	44	22	-	11	8	-	-	⇒ SSM3J35AMFV
	SSM3J36MFV ●	\$ -20	+/-8	-0.33	-	3.6	2.7	1.6	-	1.36	-	⇒ SSM3J56MFV
	SSM3J16FV ●	\$ -20	+/-10	-0.1	-	45	-	12	8	-	-	⇒ SSM3J35AMFV
	SSM3J35AMFV	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
	SSM3J15FV #	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	
SSM	SSM3J35FS #	\$ -20	+/-10	-0.1	44	22	-	11	8	-	-	
	SSM3J35AFS	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
	SSM3J36FS #	\$ -20	+/-8	-0.33	-	3.6	2.7	1.6(@-2.8V)	-	1.31	-	
	SSM3J16FS ●	\$ -20	+/-10	-0.1	-	45	-	12	8	-	-	⇒ SSM3J35FS
	SSM3J15FS #	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	
UFM	SSM3J36TU #	\$ -20	+/-8	-0.33	-	3.6	2.7	1.6(@-2.8V)	-	1.31	-	
USM	SSM3J16FU #	\$ -20	+/-10	-0.1	-	45	-	12	8	-	-	
	SSM3J15FU #	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	
	SSM3J09FU	\$ -30	+/-20	-0.2	-	-	-	6(@-3.3V)	4.2	-	2.7	
S-Mini	SSM3J15F #	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	
	2SJ305	\$ -30	+/-20	-0.2	-	-	-	4	-	-	-	
	2SJ168 ●	\$ -60	+/-20	-0.2	-	-	-	-	-	-	2	⇒ SSM3J168F
	SSM3J168F #	\$ -60	+10/-20	-0.4	-	-	-	-	2	1.9	1.55	

● Recommend Another New Product, # AEC-Q101 qualified, \$ With protection Zener diode between gate and source

CST3C	CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	USM (SOT-323)	SOT23 (SOT-23)	S-Mini (SOT-346)
Bottom View 	Bottom View 					
0.8x0.6	1.0x0.6	1.2x1.2	1.6x1.6	2.0x2.1	2.9x2.4	2.9x2.5

N-Channel Single MOSFET

Package	Part Number	V _{DSS} (V)	V _{GSS} (V)	I _D (A)	R _{DS(ON)} max (Ω)								Note
					V _{GS} =1.2V	V _{GS} =1.5V	V _{GS} =1.8V	V _{GS} =2.5V	V _{GS} =4V	V _{GS} =4.5V	V _{GS} =5V	V _{GS} =10V	
CST3C	SSM3K16CTC	\$ 20	+/-10	0.2	-	5.6	4	3	-	2.2	-	-	
	SSM3K35CTC	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
	SSM3K15ACTC	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K72CTC	\$ 60	+/-20	0.15	-	-	-	5.7(typ.)	-	4.7	4.4	3.9	
CST3	SSM3K16CT	● \$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	⇒ SSM3K37CT
	SSM3K35CT	\$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	
	SSM3K37CT	\$ 20	+/-10	0.2	-	5.6	4.05	3.02	-	2.2	-	-	
	SSM3K15CT	● \$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM3K15ACT
	SSM3K15ACT	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K72KCT	\$ 60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	
VESM	SSM3K16FV	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
	SSM3K35MFV	# \$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	
	SSM3K37MFV	\$ 20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-	
	SSM3K35AMFV	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
	SSM3K15AMFV	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K44MFV	# \$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
SSM	SSM3K16FS	# \$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
	SSM3K35FS	● # \$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM3K35AFS
	SSM3K37FS	\$ 20	+/-10	0.2	-	5.6	4.05	3.02	-	2.2	-	-	
	SSM3K35AFS	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
	SSM3K15FS	● \$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM3K15AFS
	SSM3K44FS	# \$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
	SSM3K15AFS	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K72CFS	\$ 60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9	
USM	SSM3K72KFS	# \$ 60	+/-20	0.3	-	-	-	-	-	1.75	1.65	1.5	
	SSM3K16FU	# \$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
	SSM3K15FU	● # \$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM3K15AFU
	SSM3K15AFU	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K48FU	\$ 30	+/-20	0.1	-	-	-	5.4	3.2	-	-	-	
	SSM3K09FU	\$ 30	+/-20	0.4	-	-	-	1.7(@3.3V)	1.2	-	-	0.7	
	SSM3K17FU	# \$ 50	+/-7	0.1	-	-	-	40	20	-	-	-	
	SSM3K7002CFU	\$ 60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9	
SOT23	SSM3K7002KFU	# \$ 60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	
	T2N7002AK	\$ 60	+/-20	0.2	-	-	-	-	-	4.7	4.4	3.9	
S-Mini	T2N7002BK	\$ 60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	
	SSM3K15F	# \$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
	2SK2009	\$ 30	+/-20	0.2	-	-	-	2	-	-	-	-	
	SSM3K7002KF	# \$ 60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	

● Recommend Another New Product, # AEC-Q101 qualified, \$ With protection Zener diode between gate and source

ESV (SOT-553)	ES6 (SOT-563)	USV (SOT-353)	UF6 (SOT-363F)	US6 (SOT-363)
				
1.6x1.6	1.6x1.6	2.0x2.1	2.0x2.1	2.0x2.1

Dual MOSFET

Package	Polarity	Part Number	V _{DSS} (V)	V _{GSS} (V)	I _D (A)	R _{DS(ON)} max (Ω)								Note
						V _{GS} = 1.2V	V _{GS} = 1.5V	V _{GS} = 1.8V	V _{GS} = 2.5V	V _{GS} = 4V	V _{GS} = 4.5V	V _{GS} = 5V	V _{GS} = 10V	
ESV	P-ch x 2	SSM5P16FE	\$ -20	+/-10	-0.1	-	45	-	12	8	-	-	-	
	N-ch x 2	SSM5N16FE	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM5N15FE	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
ES6	P-ch x 2	SSM6P35FE	# \$ -20	+/-10	-0.1	44	22	-	11	8	-	-	-	
		SSM6P35AFE	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	-	
		SSM6P36FE	# \$ -20	+/-8	-0.33	-	3.6	2.7	1.6(@-2.8V)	-	1.31	-	-	
		SSM6P16FE	● \$ -20	+/-10	-0.1	-	45	-	12	8	-	-	-	⇒ SSM6P35FE
		SSM6P15FE	# \$ -30	+/-20	-0.1	-	-	-	32	12	-	-	-	
	N-ch x 2	SSM6N16FE	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM6N35FE	● # \$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM6N35AFE
		SSM6N37FE	\$ 20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-	
		SSM6N35AFE	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
		SSM6N44FE	# \$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
		SSM6N15AFE	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
		SSM6N7002BFE	\$ 60	+/-20	0.2	-	-	-	-	-	3.3	2.6	2.1	
	N-ch + P-ch	SSM6L35FE	# \$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	
				-20	+/-10	-0.1	44	22	-	11	8	-	-	
USV	P-ch x 2	SSM5P15FU	\$ -30	+/-20	-0.1	-	-	-	32	12	-	-	-	
	N-ch x 2	SSM5N16FU	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM5N15FU	\$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
UF6	P-ch x 2	SSM6P36TU	# \$ -20	+/-8	-0.33	-	3.6	2.7	1.6(@-2.8V)	-	1.31	-	-	
US6	P-ch x 2	SSM6P35FU	● # \$ -20	+/-10	-0.1	44	22	-	11	8	-	-	-	⇒ SSM6P35AFU
		SSM6P35AFU	\$ -20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	-	
		SSM6P16FU	● \$ -20	+/-10	-0.1	-	45	-	12	8	-	-	-	⇒ SSM6P35AFU
		SSM6P15FU	# \$ -30	+/-20	-0.1	-	-	-	32	12	-	-	-	
	N-ch x 2	SSM6N16FU	\$ 20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM6N35FU	● # \$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM6N35AFU
		SSM6N35AFU	\$ 20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
		SSM6N37FU	\$ 20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-	
		SSM6N48FU	\$ 30	+/-20	0.1	-	-	-	5.4	3.2	-	-	-	
		SSM6N44FU	# \$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	
		SSM6N15FU	● \$ 30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM6N15AFU
		SSM6N15AFU	\$ 30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
		SSM6N09FU	\$ 30	+/-20	0.4	-	-	-	1.7(@3.3V)	1.2	-	-	0.7	
		SSM6N17FU	# \$ 50	+/-7	0.1	-	-	-	40	20	-	-	-	
		SSM6N7002CFU	\$ 60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9	
		SSM6N7002KFU	# \$ 60	+/-20	0.3	-	-	-	-	-	1.75	1.65	1.5	
	N-ch + P-ch	SSM6L35FU	# \$ 20	+/-10	0.18	20	8	-	4	3	-	-	-	
				-20	+/-10	-0.1	44	22	-	11	8	-	-	
		SSM6L09FU	\$ 30	+/-20	0.4	-	-	-	1.7(@3.3V)	1.2	-	-	0.7	
			\$ -30	+/-20	-0.2	-	-	-	6(@-3.3V)	4.2	-	-	2.7	

● Recommend Another New Product, # AEC-Q101 qualified, \$ With protection Zener diode between gate and source

3. MOSFET with Diode

Package Dimensions (unit: mm)

ESV (SOT-553)	UFV (SOT-353F)	UDFN6 (SOT-1118)
		
1.6x1.6	2.0x2.1	2.0x2.0

Package	Polarity	Part Number		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	MOSFET							Diode				Note	
							R _{DS(ON)} max (mΩ)						C _{iss} typ. (pF)	V _R (V)	I _O (A)	V _F max (V) @I _F (A)			
							V _{GS} =1.5V	V _{GS} =1.8V	V _{GS} =2.5V	V _{GS} =4V	V _{GS} =4.5V	V _{GS} =5V							V _{GS} =10V
ESV	P-ch + SBD	SSM5G06FE	\$	-20	+/-10	-0.1	45000	-	12000	8000	-	-	-	11	12	0.1	0.5	0.1	
	N-ch + SBD	SSM5H06FE	\$	20	+/-10	0.1	15000	-	4000	3000	-	-	-	9.3	12	0.1	0.5	0.1	
UFV	P-ch + SBD	SSM5G02TU	\$	-12	+/-12	-1.0	-	-	240	160	-	-	-	310	12	0.5	0.43	0.5	
		SSM5G09TU	\$	-12	+/-8	-1.5	-	-	200	130	-	-	-	550	12	0.5	0.43	0.5	
		SSM5G11TU	\$	-30	+/-20	-1.4	-	-	-	403	-	-	226	120	30 (¥)	0.7 (¥¥)	0.44	0.7 (¥¥)	
	N-ch + SBD	SSM5H08TU	\$	20	+/-12	1.5	-	-	220	160	-	-	-	125	20	0.5	0.43 (typ.)	0.5	
		SSM5H01TU	\$	30	+/-20	1.4	-	-	-	450	-	-	200	106	20	0.5	0.43 (typ.)	0.5	
		SSM5H11TU	\$	30	+/-20	1.6	-	-	-	182	-	-	122	180	30 (¥)	0.7 (¥¥)	0.44	0.7	
		SSM5H16TU	\$	30	+/-12	1.9	-	296	177	133	-	-	-	123	30	0.8	0.55	0.8	
	N-ch + Switching Diode	SSM5H90ATU	\$	20	+/-10	2.4	-	-	89	65	-	-	-	200	80	0.1	1.2	0.1	
UDFN6	P-ch + SBD	SSM6G18NU	\$	-20	+/-8	-2.0	261	185	143	-	112	-	-	270	30	1	0.58	1	
	N-ch + SBD	SSM6H19NU	\$	40	+/-12	2.0	-	390	238	208 (@3.6V) 201 (@4.2V)	198	-	185 (@8V)	130	40	0.5	0.57	0.5	

\$ With protection Zener diode between gate and source, ¥ V_{RRM}, ¥¥ I_{F(AV)}

4. Part Naming Conventions

Small Signal MOSFET SSM Series

Ex) SSM 3 K 329 R
① ② ③ ④ ⑤ ⑥

- ① Small-Signal MOSFET

② Pin count

③ Polarity and internal configuration

 - K: N-channel, single
 - J: P-channel, single
 - N: N-channel, dual
 - P: P-channel, dual
 - L: N-channel and P-channel (dual)
 - E: N-channel and P-channel (pre-wired as a load switch)
 - H: N-channel and SBD (or Switching diode)
 - G: P-channel and SBD
- ④ Serial number of the products

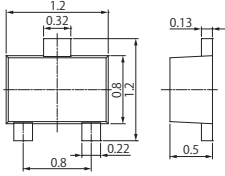
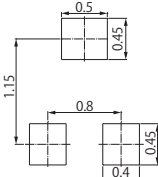
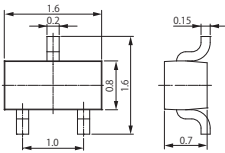
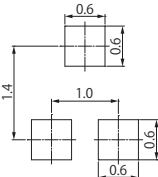
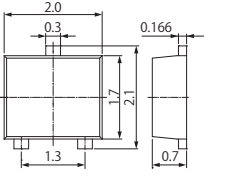
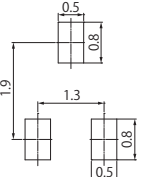
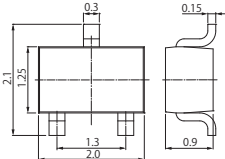
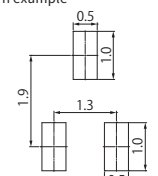
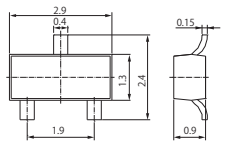
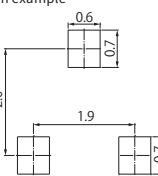
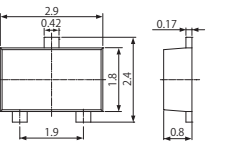
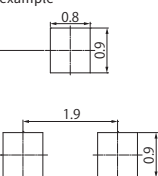
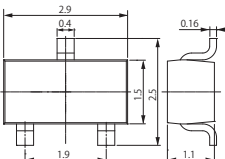
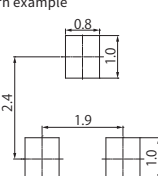
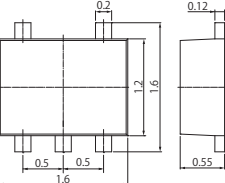
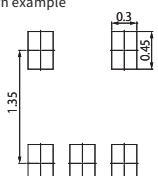
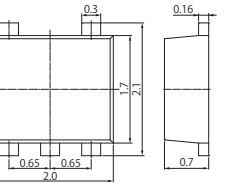
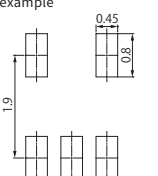
⑤ There may be a symbol that indicates chip change etc.

⑥ Package

3-pin	F: S-Mini	5-pin	F: SMV
	FU: USM		FU: USV
	FS: SSM		FE: ESV
	FV: VESM		TU: UFV
	TU: UFM	6-pin	G: WCSP6C
	CT: CST3		L: Chip LGA (TCSP6A)
	CTB: CST3B		R: TSOP6F
	CTC: CST3C		FU: US6
	R: SOT-23F		FE: ES6
			TU: UF6
			NU: UDFN6/UDFN6B
		10-pin	L: Chip LGA (TCSPAC-153001)

5. Device Packages

Dimensional Outline

VESM (SOT-723) Package dimension unit : mm  Land pattern example unit : mm 	SSM (SOT-416) Package dimension unit : mm  Land pattern example unit : mm 	UFM (SOT-323F) Package dimension unit : mm  Land pattern example unit : mm 
USM (SOT-323) Package dimension unit : mm  Land pattern example unit : mm 	SOT23 (SOT-23) Package dimension unit : mm  Land pattern example unit : mm 	SOT-23F Package dimension unit : mm  Land pattern example unit : mm 
S-Mini (SOT-346) Package dimension unit : mm  Land pattern example unit : mm 	ESV (SOT-553) Package dimension unit : mm  Land pattern example unit : mm 	UFV (SOT-353F) Package dimension unit : mm  Land pattern example unit : mm 

USV (SOT-353)	SMV (SOT-25)	ES6 (SOT-563)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm
UF6 (SOT-363F)	US6 (SOT-363)	TSOP6F
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm

Leadless packages

CST3 (SOT-883)	CST3B	CST3C
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm

UDFN6 (SOT-1118)	UDFN6B (SOT-1220)	WCSP6C
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm

TCSP6A	TCSPAC-153001
Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm

II Power MOSFETs

1. Low-Voltage MOSFET Series

TSOn Advance (3.3x3.3)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)								Q _g typ.(nC)		C _{iss} typ.(pF)	Remark
		V _{oss} (V)	V _{ess} (V)	I _o (A)	V _{GS} =10V	V _{GS} =6.5V	V _{GS} =6V	V _{GS} =4.5V	V _{GS} =4V	V _{GS} =2.5V	V _{GS} =2V	V _{GS} =1.8V	V _{GS} =10V	V _{GS} =4.5V		
N-ch Note(1)	TPN11003NL	30	+/-20	31 ^{SL}	11	-	-	16	-	-	-	-	7.5	3.3	510	U-MOSVIII-H
	TPN8R903NL	30	+/-20	37 ^{SL}	8.9	-	-	12.7	-	-	-	-	9.8	4.4	630	U-MOSVIII-H
	TPN6R003NL	30	+/-20	56 ^{SL}	6	-	-	8.3	-	-	-	-	17	8.2	1050	U-MOSVIII-H
	TPN5R203PL	30	+/-20	76 ^{SL}	5.2	-	-	6.4	-	-	-	-	22	10	1520	U-MOSIX-H
	TPN4R303NL	30	+/-20	63 ^{SL}	4.3	-	-	6.3	-	-	-	-	14.8	6.8	1110	U-MOSVIII-H
	TPN2R703NL	30	+/-20	90 ^{SL}	2.7	-	-	4.1	-	-	-	-	21	9.5	1600	U-MOSVIII-H
	TPN2R903PL	30	+/-20	122 ^{SL}	2.9	-	-	4.1	-	-	-	-	26	12	1780	U-MOSIX-H
	TPN1R603PL	30	+/-20	188 ^{SL}	1.6	-	-	2.5	-	-	-	-	41	20	2970	U-MOSIX-H
	TPN7R504PL	40	+/-20	68 ^{SL}	7.5	-	-	10	-	-	-	-	24	12	1570	U-MOSIX-H
	TPN3R704PL	40	+/-20	92 ^{SL}	3.7	-	-	6	-	-	-	-	27	13.3	1910	U-MOSIX-H
	TPN2R304PL	40	+/-20	100 ^{SL}	2.3	-	-	4	-	-	-	-	41	19.4	2750	U-MOSIX-H
	TPN2R805PL	45	+/-20	139 ^{SL}	2.8	-	-	5	-	-	-	-	39	19	2450	U-MOSIX-H
	TPN22006NH	60	+/-20	21 ^{SL}	22	64	-	-	-	-	-	-	12	-	710	U-MOSVIII-H
	TPN14006NH	60	+/-20	33 ^{SL}	14	41	-	-	-	-	-	-	15	-	1000	U-MOSVIII-H
	TPN11006NL	60	+/-20	37 ^{SL}	11.4	-	-	17	-	-	-	-	23	11.2	1500	U-MOSVIII-H
	TPN7R506NH	60	+/-20	53 ^{SL}	7.5	16	-	-	-	-	-	-	22	-	1410	U-MOSVIII-H
	TPN11006PL	60	+/-20	54 ^{SL}	11.4	-	-	18.1	-	-	-	-	17	9	1250	U-MOSIX-H
	TPN7R006PL	60	+/-20	76 ^{SL}	7	-	-	13.5	-	-	-	-	20	9.8	1440	U-MOSIX-H
	TPN4R806PL	60	+/-20	105 ^{SL}	4.8	-	-	9.1	-	-	-	-	29	14	2130	U-MOSIX-H
	TPN30008NH	80	+/-20	22 ^{SL}	30	-	-	-	-	-	-	-	11	-	710	U-MOSVIII-H
	TPN19008QM☆	80	+/-20	38 ^{SL}	19	-	28	-	-	-	-	-	16	9.7(@6V)	1020	U-MOSX-H
	TPN13008NH	80	+/-20	40 ^{SL}	13.3	-	-	-	-	-	-	-	18	-	1230	U-MOSVIII-H
	TPN12008QM☆	80	+/-20	60 ^{SL}	12.3	-	17.7	-	-	-	-	-	22	13.9(@6V)	1280	U-MOSX-H
	TPN8R408QM☆	80	+/-20	77 ^{SL}	8.4	-	12.4	-	-	-	-	-	28	17(@6V)	1750	U-MOSX-H
N-ch	TPN3300ANH	100	+/-20	21 ^{SL}	33	-	-	-	-	-	-	-	11	-	680	U-MOSVIII-H
	TPN1600ANH	100	+/-20	36 ^{SL}	16	-	-	-	-	-	-	-	19	-	1230	U-MOSVIII-H
	TPN1200APL \$	100	+/-20	66 ^{SL}	11.5	-	-	20	-	-	-	-	24	12	1425	U-MOSIX-H
	TPN5900CNH	150	+/-20	18 ^{SL}	59	-	-	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPN1110ENH	200	+/-20	13 ^{SL}	114	-	-	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPN2010FNH	250	+/-20	9.9 ^{SL}	198	-	-	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPN6R303NC	30	+/-20	43 ^{SL}	6.3	-	-	8.4	-	-	-	-	24	-	1370	U-MOSVIII
	TPN4R203NC	30	+/-20	53 ^{SL}	4.2	-	-	6.4	-	-	-	-	24	-	1370	U-MOSVIII
	TPN2R203NC	30	+/-20	100 ^{SL}	2.2	-	-	3.6	-	-	-	-	34	-	2230	U-MOSVIII
P-ch	TPCC8136	-20	+/-12	-9.4	-	-	-	16	-	22	37	60	-	36(@5V)	2350	U-MOSVI
	TPCC8137	-20	+/-12	-13	-	-	-	10	-	16	30	52	-	43(@5V)	2990	U-MOSVI
	TPCC8138	-20	+/-12	-18	-	-	-	7.5	-	11	21	42	-	63(@5V)	4165	U-MOSVI
	TPN4R712MD	-20	+/-12	-36	-	-	-	4.7	-	8.1	-	-	-	65(@5V)	4300	U-MOSVI
	TPCC8131	-30	+20/-25	-10	17.6	-	-	23	-	-	-	-	40	-	1700	U-MOSVI
	TPCC8104	-30	+20/-25	-20	8.8	-	-	12.4	-	-	-	-	58	-	2260	U-MOSVI
	TPCC8105	-30	+20/-25	-23	7.8	-	-	10.4	-	-	-	-	76	-	3240	U-MOSVI

☆ New Products, \$ With protection Zener diode between gate and source, ^{SL} I_D(DC) (Silicon Limit)
 Note(1) : High-speed switching type



SOP-8 (SO-8) (5x6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)		Q _g typ.(nC)		C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =4.5V	V _{GS} =10V	V _{GS} =4.5V		
N-ch Note(1)	TP89R103NL	30	+/-20	15 ^{SL}	9.1	12.9	9.8	4.4	630	U-MOSVIII-H
	TP86R203NL	30	+/-20	19 ^{SL}	6.2	8.5	17	8.2	1050	U-MOSVIII-H
P-ch	TPC8129	-30	+20/-25	-9	22	28	39	-	1650	U-MOSVI
	TPC8125	-30	+20/-25	-10	13	17	64	-	2580	U-MOSVI
	TPC8134	-40	+20/-25	-5	52	66	20	-	890	U-MOSVI
	TPC8132	-40	+20/-25	-7	25	33	34	-	1580	U-MOSVI
	TPC8133	-40	+20/-25	-9	15	18	64	-	2900	U-MOSVI
N-ch + P-ch	TPC8408	40	+/-20	6.1	32	36	14	-	850	U-MOSVI-H
		-40	+/-20	-5.3	43	53	24	-	1105	U-MOSVI



SOP Advance (5x6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)						Q _g typ.(nC)		C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =8V	V _{GS} =6.5V	V _{GS} =6V	V _{GS} =4.5V	V _{GS} =2.5V	V _{GS} =10V	V _{GS} =4.5V		
N-ch Note(1)	TPH11003NL	30	+/-20	32 ^{SL}	11	-	-	-	16	-	7.5	3.3	510	U-MOSVIII-H
	TPH8R903NL	30	+/-20	38 ^{SL}	8.9	-	-	-	12.7	-	9.8	4.4	630	U-MOSVIII-H
	TPH6R003NL	30	+/-20	57 ^{SL}	6	-	-	-	8.3	-	17	8.2	1050	U-MOSVIII-H
	TPH4R003NL	30	+/-20	68 ^{SL}	4	-	-	-	6.2	-	14.8	6.8	1110	U-MOSVIII-H
	TPH3R203NL	30	+/-20	84 ^{SL}	3.2	-	-	-	4.7	-	21	9.5	1600	U-MOSVIII-H
	TPH4R803PL	30	+/-20	90 ^{SL}	4.8	-	-	-	6.2	-	22	10	1520	U-MOSIX-H
	TPH2R903PL	30	+/-20	124 ^{SL}	2.9	-	-	-	4.1	-	26	12	1780	U-MOSIX-H
	TPH3R003PL	30	+/-20	134 ^{SL}	3	-	-	-	4.2	-	50	24	2940	U-MOSIX-H
	TPH1R403NL ¥	30	+/-20	150 ^{SL}	1.4	-	-	-	2.1	-	46	20	3400	U-MOSVIII-H
	TPH2R003PL	30	+/-20	180 ^{SL}	2	-	-	-	2.6	-	86	41	4930	U-MOSIX-H
	TPHR9003NL ¥	30	+/-20	220 ^{SL}	0.9	-	-	-	1.4	-	74	32	5300	U-MOSVIII-H
	TPHR9203PL ¥	30	+/-20	280 ^{SL}	0.92	-	-	-	1.29	-	81	38	5800	U-MOSIX-H
	TPHR6503PL ¥	30	+/-20	393 ^{SL}	0.65	-	-	-	0.89	-	110	52	7700	U-MOSIX-H
	TPH7R204PL	40	+/-20	72 ^{SL}	7.2	-	-	-	9.7	-	24	12	1570	U-MOSIX-H
	TPH6R004PL	40	+/-20	87 ^{SL}	6	-	-	-	8.4	-	30	15	2100	U-MOSIX-H
	TPH3R704PL	40	+/-20	92	3.7	-	-	-	6	-	27	13.3	1910	U-MOSIX-H
	TPH3R704PC	40	+/-20	118 ^{SL}	3.7	-	-	-	5.8	-	47	23	2780	U-MOSIX-H
	TPH2R104PL	40	+/-20	180 ^{SL}	2.1	-	-	-	3.1	-	78	37	4790	U-MOSIX-H
	TPH1R204PB	40	+/-20	240 ^{SL}	1.2	-	-	1.96	-	-	62	-	4400	U-MOSIX-H (Low Spike)
	TPH1R204PL ¥	40	+/-20	246 ^{SL}	1.24	-	-	-	2.1	-	74	34	5500	U-MOSIX-H
	TPHR8504PL ¥	40	+/-20	340 ^{SL}	0.85	-	-	-	1.4	-	103	49	7370	U-MOSIX-H
	TPHR7404PU ☆	40	+/-20	400 ^{SL}	0.74	-	-	1.17	-	-	98	62(@6V)	6960	U-MOSIX-H
	TPH2R805PL	45	+/-20	150 ^{SL}	2.8	-	-	-	3.9	-	73	37	3980	U-MOSIX-H
	TPH1R405PL	45	+/-20	232 ^{SL}	1.4	-	-	-	2.3	-	74	36	4830	U-MOSIX-H
	TPH1R005PL ¥	45	+/-20	280 ^{SL}	1.04	-	-	-	1.7	-	122	59	7700	U-MOSIX-H
	TPH14006NH	60	+/-20	34 ^{SL}	14	-	33	-	-	-	16	-	1000	U-MOSVIII-H
	TPH11006NL	60	+/-20	40 ^{SL}	11.4	-	-	-	17	-	23	11.2	1500	U-MOSVIII-H
	TPH7R506NH	60	+/-20	55 ^{SL}	7.5	-	19	-	-	-	31	-	1785	U-MOSVIII-H

^{SL} I_D(DC) (Silicon Limit)

¥ The package can be selected according to your preference. For details, please contact your TOSHIBA sales representative.

Note(1): High-speed switching type

SOP Advance (5x6)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)						Q _g typ.(nC)		C _{iss} typ.(pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =8V	V _{GS} =6.5V	V _{GS} =6V	V _{GS} =4.5V	V _{GS} =2.5V	V _{GS} =10V	V _{GS} =4.5V		
N-ch Note(1)	TPH9R506PL	60	+/-20	68 ^{SL}	9.5	-	-	-	15	-	21	11	1470	U-MOSIX-H
	TPH5R906NH	60	+/-20	71 ^{SL}	5.9	-	14	-	-	-	38	-	2340	U-MOSVIII-H
	TPH7R006PL	60	+/-20	79 ^{SL}	7	-	-	-	13.5	-	22	11	1440	U-MOSIX-H
	TPH4R606NH	60	+/-20	85 ^{SL}	4.6	-	11	-	-	-	49	-	3050	U-MOSVIII-H
	TPH2R306NH ¥	60	+/-20	130 ^{SL}	2.3	-	4.7	-	-	-	72	-	4700	U-MOSVIII-H
	TPH3R506PL	60	+/-20	135 ^{SL}	3.5	-	-	-	6.7	-	55	27	3400	U-MOSIX-H
	TPH2R506PL ¥	60	+/-20	160 ^{SL}	2.5	-	-	-	4.4	-	60	32	4180	U-MOSIX-H
	TPH1R306PL ¥	60	+/-20	260 ^{SL}	1.34	-	-	-	2.3	-	91	44	6250	U-MOSIX-H
	TPH1R306P1 ☆	60	+/-20	260 ^{SL}	1.28	-	-	-	2.3	-	91	44	6250	U-MOSIX-H (Low Spike)
	TPH2R608NH	75	+/-20	168 ^{SL}	2.6	-	-	-	-	-	72	-	4600	U-MOSVIII-H
	TPH12008NH	80	+/-20	44 ^{SL}	12.3	-	-	-	-	-	22	-	1490	U-MOSVIII-H
	TPH8R008NH	80	+/-20	63 ^{SL}	8	-	-	-	-	-	35	-	2300	U-MOSVIII-H
	TPH4R008NH ¥	80	+/-20	100 ^{SL}	4	-	-	-	-	-	59	-	4100	U-MOSVIII-H
	TPH2R408QM☆¥	80	+/-20	200 ^{SL}	2.43	-	-	3.5	-	-	87	55(@6V)	5870	U-MOSX-H
	TPH1400ANH	100	+/-20	42 ^{SL}	13.6	-	-	-	-	-	22	-	1440	U-MOSVIII-H
	TPH8R80ANH	100	+/-20	59 ^{SL}	8.8	-	-	-	-	-	33	-	2180	U-MOSVIII-H
	TPH6R30ANL \$	100	+/-20	66 ^{SL}	6.3	-	-	-	10.3	-	55	27	3300	U-MOSVIII-H
	TPH4R10ANL	100	+/-20	92 ^{SL}	4.1	-	-	-	6.6	-	75	37	4850	U-MOSVIII-H
	TPH4R50ANH ¥	100	+/-20	93 ^{SL}	4.5	-	-	-	-	-	58	-	4000	U-MOSVIII-H
	TPH5R60APL	100	+/-20	110 ^{SL}	5.6	-	-	-	9.5	-	52	26	3300	U-MOSIX-H
	TPH3R70APL ¥	100	+/-20	150 ^{SL}	3.7	-	-	-	6.2	-	67	33	4850	U-MOSIX-H
	TPH5900CNH	150	+/-20	18 ^{SL}	59	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPH3300CNH	150	+/-20	29 ^{SL}	33	-	-	-	-	-	10.6	-	810	U-MOSVIII-H
	TPH1500CNH ¥	150	+/-20	50 ^{SL}	15.4	-	-	-	-	-	22	-	1700	U-MOSVIII-H
	TPH9R00CQH ☆ ¥	150	+/-20	108 ^{SL}	9	11	-	-	-	-	44	36(@8V)	3500	U-MOSX-H
	TPH1110ENH	200	+/-20	13 ^{SL}	114	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPH6400ENH	200	+/-20	21 ^{SL}	64	-	-	-	-	-	11.2	-	810	U-MOSVIII-H
	TPH2900ENH	200	+/-20	36 ^{SL}	29	-	-	-	-	-	22	-	1700	U-MOSVIII-H
	TPH2010FNH	250	+/-20	10 ^{SL}	198	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPH1110FNH	250	+/-20	15 ^{SL}	112	-	-	-	-	-	11	-	810	U-MOSVIII-H
	TPH5200FNH	250	+/-20	27 ^{SL}	52	-	-	-	-	-	22	-	1700	U-MOSVIII-H
N-ch	TPHR9003NC	30	+/-20	220 ^{SL}	0.9	-	-	-	1.4	-	75	32	5300	U-MOSVIII
P-ch	TPH1R712MD	-20	+/-12	-60	-	-	-	-	1.7	2.7	-	182(@-5V)	10900	U-MOSVI
	TPCA8131	-30	+20/-25	-13	17	-	-	-	22	-	40	-	1700	U-MOSVI
	TPCA8109	-30	+20/-25	-24	9	-	-	-	13	-	56	-	2400	U-MOSVI
	TPCA8128	-30	+20/-25	-34	4.8	-	-	-	6.7	-	115	-	4800	U-MOSVI
	TPCA8120	-30	+20/-25	-45	3	-	-	-	4	-	190	-	7420	U-MOSVI

☆ New Products, ^{SL} I_D(pC) (Silicon Limit)
 \$ With protection Zener diode between gate and source,
 ¥ The package can be selected according to your preference. For details, please contact your TOSHIBA sales representative.
 Note(1) : High-speed switching type



SOP Advance (N) (4.9x6.1)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)						Q _g typ.(nC)		C _{iss} typ.(pF)	R _{th} (ch-c) max (°C/W)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _O (A)	V _{GS} =10V	V _{GS} =8V	V _{GS} =6.5V	V _{GS} =6V	V _{GS} =4.5V	V _{GS} =2.5V	V _{GS} =10V	V _{GS} =4.5V			
N-ch Note(1)	TPH1R403NL ¥	30	+/-20	150 ^{SL}	1.4	-	-	-	2.1	-	46	20	3400	1.95	U-MOSVIII-H
	TPHR9003NL ¥	30	+/-20	220 ^{SL}	0.9	-	-	-	1.4	-	74	32	5300	1.6	U-MOSVIII-H
	TPH1R403NL1 ☆	30	+/-20	230 ^{SL}	1.4	-	-	-	2.1	-	46	20	3400	0.88	U-MOSVIII-H
	TPHR9203PL ¥	30	+/-20	280 ^{SL}	0.92	-	-	-	1.29	-	81	38	5800	1.13	U-MOSIX-H
	TPHR9203PL1 ☆	30	+/-20	320 ^{SL}	0.92	-	-	-	1.29	-	81	38	5800	0.88	U-MOSIX-H
	TPHR9003NL1 ☆	30	+/-20	320 ^{SL}	0.9	-	-	-	1.4	-	74	32	5300	0.71	U-MOSVIII-H
	TPHR6503PL ¥	30	+/-20	393 ^{SL}	0.65	-	-	-	0.89	-	110	52	7700	0.88	U-MOSIX-H
	TPHR6503PL1 ☆	30	+/-20	430 ^{SL}	0.65	-	-	-	0.89	-	110	52	7700	0.71	U-MOSIX-H
	TPH1R204PL ¥	40	+/-20	246 ^{SL}	1.24	-	-	-	2.1	-	74	34	5500	1.13	U-MOSIX-H
	TPH1R204PL1 ☆	40	+/-20	270 ^{SL}	1.24	-	-	-	2.1	-	74	34	5500	0.88	U-MOSIX-H
	TPHR8504PL ¥	40	+/-20	340 ^{SL}	0.85	-	-	-	1.4	-	103	49	7370	0.88	U-MOSIX-H
	TPHR8504PL1 ☆	40	+/-20	370 ^{SL}	0.85	-	-	-	1.4	-	103	49	7370	0.71	U-MOSIX-H
	TPH1R005PL ¥	45	+/-20	280 ^{SL}	1.04	-	-	-	1.7	-	122	59	7700	0.88	U-MOSIX-H
	TPH2R306NH ¥	60	+/-20	130 ^{SL}	2.3	-	4.7	-	-	-	72	-	4700	1.6	U-MOSVIII-H
	TPH2R506PL ¥	60	+/-20	160 ^{SL}	2.5	-	-	-	4.4	-	60	32	4180	1.13	U-MOSIX-H
	TPH2R306PL1 ☆	60	+/-20	180 ^{SL}	2.3	-	-	-	4.2	-	60	32	4180	0.88	U-MOSIX-H
	TPH2R306NH1 ☆	60	+/-20	190 ^{SL}	2.3	-	4.7	-	-	-	72	-	4700	0.71	U-MOSVIII-H
	TPH1R306PL ¥	60	+/-20	260 ^{SL}	1.34	-	-	-	2.3	-	91	44	6250	0.88	U-MOSIX-H
	TPH1R306PL1 ☆	60	+/-20	280 ^{SL}	1.34	-	-	-	2.3	-	91	44	6250	0.71	U-MOSIX-H
	TPH4R008NH ¥	80	+/-20	100 ^{SL}	4	-	-	-	-	-	59	-	4100	1.6	U-MOSVIII-H
	TPH4R008QM ☆	80	+/-20	140 ^{SL}	4	-	-	5.6	-	-	57	35(@6V)	3750	0.88	U-MOSX-H
	TPH4R008NH1 ☆	80	+/-20	147 ^{SL}	4	-	-	-	-	-	59	-	4100	0.71	U-MOSVIII-H
	TPH2R408QM ☆ ¥	80	+/-20	200 ^{SL}	2.43	-	-	3.5	-	-	87	55(@6V)	5870	0.71	U-MOSX-H
	TPH4R50ANH ¥	100	+/-20	93 ^{SL}	4.5	-	-	-	-	-	58	-	4000	1.6	U-MOSVIII-H
	TPH4R50ANH1 ☆	100	+/-20	138 ^{SL}	4.5	-	-	-	-	-	58	-	4000	0.71	U-MOSVIII-H
	TPH3R70APL ¥	100	+/-20	150 ^{SL}	3.7	-	-	-	6.2	-	67	33	4850	0.88	U-MOSIX-H
	TPH3R70APL1 ☆	100	+/-20	170 ^{SL}	3.7	-	-	-	6.2	-	67	33	4850	0.71	U-MOSIX-H
	TPH1500CNH ¥	150	+/-20	50 ^{SL}	15.4	-	-	-	-	-	22	-	1700	1.6	U-MOSVIII-H
	TPH1500CNH1 ☆	150	+/-20	74 ^{SL}	15.4	-	-	-	-	-	22	-	1700	0.71	U-MOSVIII-H
	TPH9R00CQH ☆ ¥	150	+/-20	108 ^{SL}	9	11	-	-	-	-	44	36(@8V)	3500	0.71	U-MOSX-H

☆ New Products, ^{SL} I_O(pC) (Silicon Limit)

¥ The package can be selected according to your preference. For details, please contact your TOSHIBA sales representative.

Note(1) : High-speed switching type



DSOP Advance (5x6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)		Q _g typ.(nC)		C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =4.5V	V _{GS} =10V	V _{GS} =4.5V		
N-ch Note(1)	TPWR8503NL	30	+/-20	300 ^{SL}	0.85	1.3	74	32	5300	U-MOSVIII-H
	TPWR6003PL	30	+/-20	412 ^{SL}	0.6	0.84	110	52	7700	U-MOSIX-H
	TPWR8004PL	40	+/-20	340 ^{SL}	0.8	1.35	103	49	7370	U-MOSIX-H
	TPW1R005PL	45	+/-20	300 ^{SL}	0.99	1.65	122	59	7700	U-MOSIX-H
	TPW1R306PL	60	+/-20	260 ^{SL}	1.29	2.3	91	44	6250	U-MOSIX-H
	TPW2R508NH	75	+/-20	170 ^{SL}	2.5	-	72	-	4600	U-MOSVIII-H
	TPW4R008NH	80	+/-20	116	4	-	59	-	4100	U-MOSVIII-H
	TPW4R50ANH	100	+/-20	92	4.5	-	58	-	4000	U-MOSVIII-H
	TPW3R70APL ☆	100	+/-20	150 ^{SL}	3.7	6.2	67	33	4850	U-MOSIX-H
	TPW1500CNH	150	+/-20	50 ^{SL}	15.4	-	22	-	1700	U-MOSVIII-H
	TPW2900ENH	200	+/-20	36 ^{SL}	29	-	22	-	1700	U-MOSVIII-H
	TPW5200FNH	250	+/-20	27 ^{SL}	52	-	22	-	1700	U-MOSVIII-H



DPAK (TO-252) / New PW-Mold

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)			Q _g typ.(nC)		C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _o (A)	V _{GS} =10V	V _{GS} =6V	V _{GS} =4.5V	V _{GS} =10V	V _{GS} =4.5V		
N-ch Note(1)	TK3R1P04PL	40	+/-20	130 ^{SL}	3.1	-	4.3	60	30	4670	U-MOSIX-H
	TK6R7P06PL	60	+/-20	74 ^{SL}	6.7	-	11.1	26	13	1990	U-MOSIX-H
	TK4R4P06PL	60	+/-20	106 ^{SL}	4.4	-	7.1	48.2	23.9	3280	U-MOSIX-H
	TK6R9P08QM ☆	80	+/-20	83 ^{SL}	6.9	9.6	-	39	24(@6V)	2700	U-MOSX-H
	TK5R1P08QM ☆	80	+/-20	105 ^{SL}	5.1	7	-	56	34(@6V)	3980	U-MOSX-H
	TK110P10PL ☆	100	+/-20	60 ^{SL}	10.6	-	16	33	17	2040	U-MOSIX-H
	TK7R7P10PL ☆	100	+/-20	79 ^{SL}	7.7	-	11.5	44	21	2800	U-MOSIX-H
P-ch	TJ15P04M3	-40	+/-20	-15	36	-	48	26	-	1100	U-MOSVI

☆ New Products, ^{SL} I_D(pC) (Silicon Limit)

Note(1) : High-speed switching type



TO-220

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)			Q _g typ.(nC)		C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _O (A)	V _{GS} =10V	V _{GS} =6V	V _{GS} =4.5V	V _{GS} =10V	V _{GS} =4.5V		
N-ch Note(1)	TK3R1E04PL	40	+/-20	128 ^{SL}	3.1	-	3.8	63.4	29.7	4670	U-MOSIX-H
	TK30E06N1	60	+/-20	43 ^{SL}	15	-	-	16	-	1050	U-MOSVIII-H
	TK40E06N1	60	+/-20	60 ^{SL}	10.4	-	-	23	-	1700	U-MOSVIII-H
	TK8R2E06PL	60	+/-20	75 ^{SL}	8.2	-	11.4	28	15	1990	U-MOSIX-H
	TK5R1E06PL	60	+/-20	98 ^{SL}	5.1	-	8.8	36	18	2380	U-MOSIX-H
	TK58E06N1	60	+/-20	105 ^{SL}	5.4	-	-	46	-	3400	U-MOSVIII-H
	TK4R3E06PL	60	+/-20	106 ^{SL}	4.3	-	7.2	48.2	23.9	3280	U-MOSIX-H
	TK3R2E06PL	60	+/-20	160 ^{SL}	3.2	-	4.7	71	35	5000	U-MOSIX-H
	TK100E06N1	60	+/-20	263 ^{SL}	2.3	-	-	140	-	10500	U-MOSVIII-H
	TK35E08N1	80	+/-20	55	12.2	-	-	25	-	1700	U-MOSVIII-H
	TK46E08N1	80	+/-20	80	8.4	-	-	37	-	2500	U-MOSVIII-H
	TK7R0E08QM ☆	80	+/-20	82 ^{SL}	7	9.7	-	39	24(@6V)	2700	U-MOSX-H
	TK5R3E08QM ☆	80	+/-20	126 ^{SL}	5.3	7.3	-	55	33(@6V)	3980	U-MOSX-H
	TK72E08N1	80	+/-20	157 ^{SL}	4.3	-	-	81	-	5500	U-MOSVIII-H
	TK3R3E08QM ☆	80	+/-20	200 ^{SL}	3.3	4.2	-	110	67(@6V)	7670	U-MOSX-H
	TK100E08N1	80	+/-20	214 ^{SL}	3.2	-	-	130	-	9000	U-MOSVIII-H
	TK2R4E08QM ☆	80	+/-20	290 ^{SL}	2.44	3.2	-	178	109(@6V)	13000	U-MOSX-H
	TK22E10N1	100	+/-20	52	13.8	-	-	28	-	1800	U-MOSVIII-H
	TK110E10PL ☆	100	+/-20	64 ^{SL}	10.7	-	16	33	17	2040	U-MOSIX-H
	TK34E10N1	100	+/-20	75	9.5	-	-	38	-	2600	U-MOSVIII-H
	TK40E10N1	100	+/-20	90	8.2	-	-	49	-	3000	U-MOSVIII-H
	TK7R2E10PL ☆	100	+/-20	94 ^{SL}	7.2	-	11	44	21	2800	U-MOSIX-H
	TK6R4E10PL ☆	100	+/-20	112 ^{SL}	6.4	-	9.7	58	30	3455	U-MOSIX-H
	TK65E10N1	100	+/-20	148 ^{SL}	4.8	-	-	81	-	5400	U-MOSVIII-H
	TK3R9E10PL ☆	100	+/-20	180 ^{SL}	3.9	-	5.8	96	49	6320	U-MOSIX-H
	TK100E10N1	100	+/-20	207 ^{SL}	3.4	-	-	140	-	8800	U-MOSVIII-H
	TK2R9E10PL ☆	100	+/-20	240 ^{SL}	2.9	-	4.1	161	83	9500	U-MOSIX-H
	TK32E12N1	120	+/-20	60	13.8	-	-	34	-	2000	U-MOSVIII-H
	TK42E12N1	120	+/-20	88	9.4	-	-	52	-	3100	U-MOSVIII-H
	TK56E12N1	120	+/-20	112 ^{SL}	7	-	-	69	-	4200	U-MOSVIII-H
	TK72E12N1	120	+/-20	179 ^{SL}	4.4	-	-	130	-	8100	U-MOSVIII-H

☆ New Products, ^{SL} I_D(DC) (Silicon Limit)
Note(1) : High-speed switching type

TO-220SIS



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)			Q _g typ.(nC)		C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =6V	V _{GS} =4.5V	V _{GS} =10V	V _{GS} =4.5V		
N-ch Note(1)	TK3R1A04PL	40	+/-20	82	3.1	-	3.8	63.4	29.7	4670	U-MOSIX-H
	TK30A06N1	60	+/-20	43 ^{SL}	15	-	-	16	-	1050	U-MOSVIII-H
	TK40A06N1	60	+/-20	60 ^{SL}	10.4	-	-	23	-	1700	U-MOSVIII-H
	TK8R2A06PL	60	+/-20	50	8.2	-	11.4	28	15	1990	U-MOSIX-H
	TK58A06N1	60	+/-20	105 ^{SL}	5.4	-	-	46	-	3400	U-MOSVIII-H
	TK5R3A06PL	60	+/-20	62 ^{SL}	5.3	-	9.3	36	18	2380	U-MOSIX-H
	TK4R3A06PL	60	+/-20	68	4.3	-	7.2	48.2	23.9	3280	U-MOSIX-H
	TK3R3A06PL	60	+/-20	88 ^{SL}	3.3	-	4.9	71	35	5000	U-MOSIX-H
	TK100A06N1	60	+/-20	263 ^{SL}	2.7	-	-	140	-	10500	U-MOSVIII-H
	TK35A08N1	80	+/-20	55 ^{SL}	12.2	-	-	25	-	1700	U-MOSVIII-H
	TK46A08N1	80	+/-20	80 ^{SL}	8.4	-	-	37	-	2500	U-MOSVIII-H
	TK6R8A08QM ★	80	+/-20	58	6.8	9.5	-	39	23(@6V)	2700	U-MOSX-H
	TK5R1A08QM ★	80	+/-20	71 ^{SL}	5.1	7.1	-	54	32(@6V)	3980	U-MOSX-H
	TK72A08N1	80	+/-20	157 ^{SL}	4.5	-	-	81	-	5500	U-MOSVIII-H
	TK3R2A08QM ★	80	+/-20	92	3.2	4.1	-	102	58(@6V)	7670	U-MOSX-H
	TK100A08N1	80	+/-20	214 ^{SL}	3.2	-	-	130	-	9000	U-MOSVIII-H
	TK2R4A08QM ★	80	+/-20	116 ^{SL}	2.44	3.1	-	179	102(@6V)	13000	U-MOSX-H
	TK110A10PL ☆	100	+/-20	41 ^{SL}	10.8	-	16	33	17	2040	U-MOSIX-H
	TK22A10N1	100	+/-20	52 ^{SL}	13.8	-	-	28	-	1800	U-MOSVIII-H
	TK34A10N1	100	+/-20	75 ^{SL}	9.5	-	-	38	-	2600	U-MOSVIII-H
	TK40A10N1	100	+/-20	90 ^{SL}	8.2	-	-	49	-	3000	U-MOSVIII-H
	TK7R4A10PL ☆	100	+/-20	50	7.4	-	11.2	44	21	2800	U-MOSIX-H
	TK6R7A10PL ☆	100	+/-20	56	6.7	-	10.1	58	30	3455	U-MOSIX-H
	TK4R1A10PL ☆	100	+/-20	85 ^{SL}	4.1	-	5.9	104	53	6320	U-MOSIX-H
	TK3R2A10PL ☆	100	+/-20	106 ^{SL}	3.2	-	4.3	161	83	9500	U-MOSIX-H
	TK65A10N1	100	+/-20	148 ^{SL}	4.8	-	-	81	-	5400	U-MOSVIII-H
	TK100A10N1	100	+/-20	207 ^{SL}	3.8	-	-	140	-	8800	U-MOSVIII-H
	TK32A12N1	120	+/-20	60 ^{SL}	13.8	-	-	34	-	2000	U-MOSVIII-H
	TK42A12N1	120	+/-20	88 ^{SL}	9.4	-	-	52	-	3100	U-MOSVIII-H
	TK56A12N1	120	+/-20	112 ^{SL}	7.5	-	-	69	-	4200	U-MOSVIII-H
	TK72A12N1	120	+/-20	179 ^{SL}	4.5	-	-	130	-	8100	U-MOSVIII-H

☆ New Products, ★ Under Development (The specification is subject to change without notice.), ^{SL} I_D(DC) (Silicon Limit)
 Note(1) : High-speed switching type

2. Mid-High Voltage MOSFET Series



DPAK(TO-252)/New PW-Mold

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(Ω) V _{GS} =10V	Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)				
N-ch	TK10P50W	500	+/-30	9.7	0.43	20	700	DTMOSIV
	TK12P50W	500	+/-30	11.5	0.34	25	890	DTMOSIV
	TK6P60W	600	+/-30	6.2	0.82	12	390	DTMOSIV
	TK560P60Y	600	+/-30	7	0.56	14.5	380	DTMOSV
	TK7P60W	600	+/-30	7	0.6	15	490	DTMOSIV
	TK7P60W5 &	600	+/-30	7	0.67	16	490	DTMOSIV(HSD)
	TK8P60W5 &	600	+/-30	8	0.56	22	590	DTMOSIV(HSD)
	TK8P60W	600	+/-30	8	0.5	18.5	570	DTMOSIV
	TK10P60W	600	+/-30	9.7	0.43	20	700	DTMOSIV
	TK380P60Y	600	+/-30	9.7	0.38	20	590	DTMOSV
	TK12P60W	600	+/-30	11.5	0.34	25	890	DTMOSIV
	TK290P60Y	600	+/-30	11.5	0.29	25	730	DTMOSV
	TK6P65W	650	+/-30	5.8	1.05	11	390	DTMOSIV
	TK7P65W	650	+/-30	6.8	0.8	15	490	DTMOSIV
	TK560P65Y	650	+/-30	7	0.56	14.5	380	DTMOSV
	TK8P65W	650	+/-30	7.8	0.67	16	570	DTMOSIV
	TK9P65W	650	+/-30	9.3	0.56	20	700	DTMOSIV
	TK380P65Y	650	+/-30	9.7	0.38	20	590	DTMOSV
	TK11P65W	650	+/-30	11.1	0.44	25	890	DTMOSIV
	TK290P65Y	650	+/-30	11.5	0.29	25	730	DTMOSV
N-ch	TK8P25DA	250	+/-20	7.5	0.5	16	550	π-MOSVII
	TK13P25D	250	+/-20	13	0.25	25	1100	π-MOSVII
	TK3P50D	500	+/-30	3	3	7	280	π-MOSVII
	TK4P50D	500	+/-30	4	2	9	380	π-MOSVII
	TK5P50D	500	+/-30	5	1.5	11	490	π-MOSVII
	TK7P50D	500	+/-30	7	1.22	12	600	π-MOSVII
	TK5P53D	525	+/-30	5	1.5	11	540	π-MOSVII
	TK6P53D	525	+/-30	6	1.3	12	600	π-MOSVII
	TK4P55DA	550	+/-30	3.5	2.45	9	380	π-MOSVII
	TK4P55D	550	+/-30	4	1.88	11	490	π-MOSVII
	TK2P60D	600	+/-30	2	4.3	7	280	π-MOSVII
	TK4P60DA	600	+/-30	3.5	2.2	11	490	π-MOSVII
	TK4P60DB	600	+/-30	3.7	2	11	540	π-MOSVII
	TK4P60D	600	+/-30	4	1.7	12	600	π-MOSVII
	TK3P80E	800	+/-30	3	4.9	12	500	π-MOSVIII
	TK2P90E	900	+/-30	2	5.9	12	500	π-MOSVIII

& High Speed Diode type

DFN 8x8

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max(Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		$V_{DSS}(V)$	$V_{GSS}(V)$	$I_D(A)$	$V_{GS}=10V$			
N-ch	TK10V60W	600	+/-30	9.7	0.38	20	700	DTMOSIV
	TK12V60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK16V60W5 &	600	+/-30	15.8	0.245	43	1350	DTMOSIV(HSD)
	TK16V60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20V60W5 &	600	+/-30	20	0.19	55	1800	DTMOSIV(HSD)
	TK20V60W	600	+/-30	20	0.17	48	1680	DTMOSIV
	TK25V60X5 &	600	+/-30	25	0.15	60	2400	DTMOSIV-H(HSD)
	TK25V60X	600	+/-30	25	0.135	40	2400	DTMOSIV-H
	TK31V60W5 &	600	+/-30	30.8	0.109	105	3000	DTMOSIV(HSD)
	TK31V60W	600	+/-30	30.8	0.098	86	3000	DTMOSIV
	TK31V60X	600	+/-30	30.8	0.098	65	3000	DTMOSIV-H
	TK14V65W	650	+/-30	13.7	0.28	35	1300	DTMOSIV
	TK210V65Z ☆	650	+/-30	15	0.21	25	1370	DTMOSVI
	TK17V65W	650	+/-30	17.3	0.21	45	1800	DTMOSIV
	TK170V65Z ☆	650	+/-30	18	0.17	29	1635	DTMOSVI
	TK22V65X5 &	650	+/-30	22	0.17	50	2400	DTMOSIV-H(HSD)
	TK125V65Z ☆	650	+/-30	24	0.125	40	2250	DTMOSVI
	TK28V65W5 &	650	+/-30	27.6	0.14	90	3000	DTMOSIV(HSD)
	TK28V65W	650	+/-30	27.6	0.12	75	3000	DTMOSIV
	TK099V65Z ☆	650	+/-30	30	0.099	47	2780	DTMOSVI
	TK(072)V65Z ★	650	+/-30	(38)	(0.072)	(62)	(3650)	DTMOSVI

D2PAK

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max(Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		$V_{DSS}(V)$	$V_{GSS}(V)$	$I_D(A)$	$V_{GS}=10V$			
N-ch	TK16G60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16G60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20G60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK14G65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK14G65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV

TOLL

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max(Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		$V_{DSS}(V)$	$V_{GSS}(V)$	$I_D(A)$	$V_{GS}=10V$			
N-ch	TK190U65Z ☆	650	+/-28	15	0.19	25	1370	DTMOSVI
	TK155U65Z ☆	650	+/-29	18	0.155	29	1635	DTMOSVI
	TK110U65Z ☆	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK090U65Z ☆	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK065U65Z ☆	650	+/-30	38	0.065	62	3650	DTMOSVI

★ Under Development, ☆ New Products, & High Speed Diode type



IPAK/New PW-Mold2

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(Ω)	Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V			
N-ch	TK6Q60W	600	+/-30	6.2	0.82	12	390	DTMOSIV
	TK7Q60W	600	+/-30	7	0.6	15	490	DTMOSIV
	TK8Q60W	600	+/-30	8	0.5	18.5	570	DTMOSIV
	TK10Q60W	600	+/-30	9.7	0.43	20	700	DTMOSIV
	TK12Q60W	600	+/-30	11.5	0.34	25	890	DTMOSIV
	TK6Q65W	650	+/-30	5.8	1.05	11	390	DTMOSIV
	TK7Q65W	650	+/-30	6.8	0.8	15	490	DTMOSIV
	TK8Q65W	650	+/-30	7.8	0.67	16	570	DTMOSIV
	TK9Q65W	650	+/-30	9.3	0.56	20	700	DTMOSIV
	TK11Q65W	650	+/-30	11.1	0.44	25	890	DTMOSIV
N-ch	TK2Q60D	600	+/-30	2	4.3	7	280	π-MOSVII
	TK4Q60DA	600	+/-30	3.5	2.2	11	490	π-MOSVII
	TK1Q90A \$	900	+/-30	1	9	13	320	π-MOSIV



TO-220

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(Ω)	Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V			
N-ch	TK10E60W	600	+/-30	9.7	0.38	20	700	DTMOSIV
	TK12E60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK16E60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16E60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20E60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK20E60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK25E60X5 &	600	+/-30	25	0.14	60	2400	DTMOSIV-H(HSD)
	TK25E60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H
	TK31E60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK31E60X	600	+/-30	30.8	0.088	65	3000	DTMOSIV-H
	TK14E65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK14E65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV
	TK190E65Z ★	650	+/-30	15	0.19	25	1370	DTMOSVI
	TK17E65W	650	+/-30	17.3	0.2	45	1800	DTMOSIV
	TK155E65Z ★	650	+/-30	18	0.155	29	1635	DTMOSVI
	TK110E65Z ★	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK28E65W	650	+/-30	27.6	0.11	75	3000	DTMOSIV
	TK090E65Z ★	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK7E80W	800	+/-20	6.5	0.95	13	700	DTMOSIV
	TK10E80W	800	+/-20	9.5	0.55	19	1150	DTMOSIV
	TK12E80W	800	+/-20	11.5	0.45	23	1400	DTMOSIV
	TK17E80W	800	+/-20	17	0.29	32	2050	DTMOSIV
N-ch	TK13E25D	250	+/-20	13	0.25	25	1100	π-MOSVII

★ Under Development, & High Speed Diode type
 \$ With protection Zener diode between gate and source

TO-220SIS



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(Ω) V _{GS} =10V	Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _O (A)				
N-ch	TK10A50W	500	+/-30	9.7	0.38	20	700	DTMOSIV
	TK12A50W	500	+/-30	11.5	0.3	25	890	DTMOSIV
	TK19A50W	500	+/-30	18.5	0.19	38	1350	DTMOSIV
	TK6A60W	600	+/-30	6.2	0.75	12	390	DTMOSIV
	TK7A60W5 &	600	+/-30	7	0.65	16	490	DTMOSIV(HSD)
	TK7A60W	600	+/-30	7	0.6	15	490	DTMOSIV
	TK560A60Y	600	+/-30	7	0.56	14.5	380	DTMOSV
	TK8A60W5 &	600	+/-30	8	0.54	22	590	DTMOSIV(HSD)
	TK8A60W	600	+/-30	8	0.5	18.5	570	DTMOSIV
	TK10A60W5 &	600	+/-30	9.7	0.45	25	720	DTMOSIV(HSD)
	TK10A60W	600	+/-30	9.7	0.38	20	700	DTMOSIV
	TK380A60Y	600	+/-30	9.7	0.38	20	590	DTMOSV
	TK12A60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK290A60Y	600	+/-30	11.5	0.29	25	730	DTMOSV
	TK16A60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16A60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20A60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK20A60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK25A60X5 &	600	+/-30	25	0.14	60	2400	DTMOSIV-H(HSD)
	TK25A60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H
	TK31A60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK39A60W	600	+/-30	38.8	0.065	110	4100	DTMOSIV
	TK6A65W	650	+/-30	5.8	1	11	390	DTMOSIV
	TK7A65W	650	+/-30	6.8	0.78	15	490	DTMOSIV
	TK560A65Y	650	+/-30	7	0.56	14.5	380	DTMOSV
	TK8A65W	650	+/-30	7.8	0.65	16	570	DTMOSIV
	TK9A65W	650	+/-30	9.3	0.5	20	700	DTMOSIV
	TK380A65Y	650	+/-30	9.7	0.38	20	590	DTMOSV
	TK11A65W	650	+/-30	11.1	0.39	25	890	DTMOSIV
	TK290A65Y	650	+/-30	11.5	0.29	25	730	DTMOSV
	TK14A65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK14A65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV
	TK190A65Z ☆	650	+/-30	15	0.19	25	1370	DTMOSVI
	TK17A65W5 &	650	+/-30	17.3	0.23	50	1800	DTMOSIV(HSD)
	TK17A65W	650	+/-30	17.3	0.2	45	1800	DTMOSIV
	TK155A65Z ☆	650	+/-30	18	0.155	29	1635	DTMOSVI
	TK22A65X5 &	650	+/-30	22	0.16	50	2400	DTMOSIV-H(HSD)
	TK22A65X	650	+/-30	22	0.15	50	2400	DTMOSIV-H
	TK110A65Z ☆	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK28A65W	650	+/-30	27.6	0.11	75	3000	DTMOSIV
	TK090A65Z ☆	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK35A65W5 &	650	+/-30	35	0.095	115	4100	DTMOSIV(HSD)
	TK35A65W	650	+/-30	35	0.08	100	4100	DTMOSIV
	TK7A80W	800	+/-20	6.5	0.95	13	700	DTMOSIV
	TK10A80W	800	+/-20	9.5	0.55	19	1150	DTMOSIV
	TK12A80W	800	+/-20	11.5	0.45	23	1400	DTMOSIV
	TK17A80W	800	+/-20	17	0.29	32	2050	DTMOSIV

☆ New products, & High Speed Diode type



TO-220SIS

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(Ω) V _{GS} =10V	Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)				
N-ch	TK9A20DA	200	+/-20	8.5	0.4	14	550	π-MOSVII
	TK15A20D	200	+/-20	15	0.18	26	1050	π-MOSVII
	TK20A20D	200	+/-20	20	0.109	43	1650	π-MOSVII
	TK25A20D	200	+/-20	25	0.07	60	2550	π-MOSVII
	TK8A25DA	250	+/-20	7.5	0.5	16	550	π-MOSVII
	TK13A25D	250	+/-20	13	0.25	25	1100	π-MOSVII
	TK17A25D	250	+/-20	17	0.15	43	1650	π-MOSVII
	TK20A25D	250	+/-20	20	0.1	55	2550	π-MOSVII
	TK18A30D	300	+/-20	18	0.139	60	2600	π-MOSVII
	TK5A45DA	450	+/-30	4.5	1.75	9	380	π-MOSVII
	TK6A45DA	450	+/-30	5.5	1.35	11	490	π-MOSVII
	TK7A45DA	450	+/-30	6.5	1.2	11	540	π-MOSVII
	TK8A45D	450	+/-30	8	0.9	16	700	π-MOSVII
	TK9A45D	450	+/-30	9	0.77	16	800	π-MOSVII
	TK11A45D	450	+/-30	11	0.62	20	1050	π-MOSVII
	TK12A45D	450	+/-30	12	0.52	24	1200	π-MOSVII
	TK13A45D	450	+/-30	13	0.46	25	1350	π-MOSVII
	TK19A45D	450	+/-30	19	0.25	45	2600	π-MOSVII
	TK4A50D	500	+/-30	4	2	9	380	π-MOSVII
	TK5A50D	500	+/-30	5	1.5	11	490	π-MOSVII
	TK6A50D	500	+/-30	6	1.4	11	540	π-MOSVII
	TK7A50D	500	+/-30	7	1.22	12	600	π-MOSVII
	TK8A50DA	500	+/-30	7.5	1.04	16	700	π-MOSVII
	TK8A50D	500	+/-30	8	0.85	16	800	π-MOSVII
	TK10A50D	500	+/-30	10	0.72	20	1050	π-MOSVII
	TK11A50D	500	+/-30	11	0.6	24	1200	π-MOSVII
	TK12A50D	500	+/-30	12	0.52	25	1350	π-MOSVII
	TK13A50DA	500	+/-30	12.5	0.47	28	1550	π-MOSVII
	TK13A50D	500	+/-30	13	0.4	38	1800	π-MOSVII
	TK15A50D	500	+/-30	15	0.3	40	2300	π-MOSVII
	TK18A50D	500	+/-30	18	0.27	45	2600	π-MOSVII
	TK4A53D	525	+/-30	4	1.7	11	490	π-MOSVII
	TK5A53D	525	+/-30	5	1.5	11	540	π-MOSVII
	TK6A53D	525	+/-30	6	1.3	12	600	π-MOSVII
	TK12A53D	525	+/-30	12	0.58	25	1350	π-MOSVII
	TK4A55DA	550	+/-30	3.5	2.45	9	380	π-MOSVII
	TK4A55D	550	+/-30	4	1.88	11	490	π-MOSVII
	TK5A55D	550	+/-30	5	1.7	11	540	π-MOSVII
	TK6A55DA	550	+/-30	5.5	1.48	12	600	π-MOSVII
	TK7A55D	550	+/-30	7	1.25	16	700	π-MOSVII
	TK8A55DA	550	+/-30	7.5	1.07	16	800	π-MOSVII
	TK9A55DA	550	+/-30	8.5	0.86	20	1050	π-MOSVII
	TK10A55D	550	+/-30	10	0.72	24	1200	π-MOSVII
	TK11A55D	550	+/-30	11	0.63	25	1350	π-MOSVII
	TK12A55D	550	+/-30	12	0.57	28	1550	π-MOSVII

TO-220SIS



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(Ω)	Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V			
N-ch	TK13A55DA	550	+/-30	12.5	0.48	38	1800	π-MOSVII
	TK14A55D	550	+/-30	14	0.37	40	2300	π-MOSVII
	TK16A55D	550	+/-30	16	0.33	45	2600	π-MOSVII
	TK4K1A60F ☆	600	+/-30	2	4.1	8	270	π-MOSIX
	TK3A60DA	600	+/-30	2.5	2.8	9	380	π-MOSVII
	TK2K2A60F ☆	600	+/-30	3.5	2.2	13	450	π-MOSIX
	TK1K9A60F ☆	600	+/-30	3.7	1.9	14	490	π-MOSIX
	TK1K7A60F ☆	600	+/-30	4	1.7	16	560	π-MOSIX
	TK5A60D	600	+/-30	5	1.43	16	700	π-MOSVII
	TK1K2A60F ☆	600	+/-30	6	1.2	21	740	π-MOSIX
	TK1K0A60F ☆	600	+/-30	7.5	1	24	890	π-MOSIX
	TK9A60D	600	+/-30	9	0.83	24	1200	π-MOSVII
	TK750A60F ☆	600	+/-30	10	0.75	30	1130	π-MOSIX
	TK650A60F ☆	600	+/-30	11	0.65	34	1320	π-MOSIX
	TK12A60D	600	+/-30	12	0.55	38	1800	π-MOSVII
	TK430A60F ☆	600	+/-30	13	0.43	49	1900	π-MOSIX
	TK370A60F ☆	600	+/-30	15	0.37	56	2200	π-MOSIX
	TK2A65D	650	+/-30	2	3.26	9	380	π-MOSVII
	TK3A65DA	650	+/-30	2.5	2.51	11	490	π-MOSVII
	TK3A65D	650	+/-30	3	2.25	11	540	π-MOSVII
	TK4A65DA	650	+/-30	3.5	1.9	12	600	π-MOSVII
	TK5A65DA	650	+/-30	4.5	1.67	16	700	π-MOSVII
	TK5A65D	650	+/-30	5	1.43	16	800	π-MOSVII
	TK6A65D	650	+/-30	6	1.11	20	1050	π-MOSVII
	TK7A65D	650	+/-30	7	0.98	24	1200	π-MOSVII
	TK8A65D	650	+/-30	8	0.84	25	1350	π-MOSVII
	TK11A65D	650	+/-30	11	0.7	30	1700	π-MOSVII
	TK12A65D	650	+/-30	12	0.54	40	2300	π-MOSVII
	TK13A65D	650	+/-30	13	0.47	45	2600	π-MOSVII
	TK4A80E	800	+/-30	4	3.5	15	650	π-MOSVIII
	TK5A80E	800	+/-30	5	2.4	20	950	π-MOSVIII
	TK6A80E	800	+/-30	6	1.7	32	1350	π-MOSVIII
	2SK4013	800	+/-30	6	1.7	45	1400	π-MOSIV
	TK10A80E	800	+/-30	10	1	46	2000	π-MOSVIII
	2SK3566	900	+/-30	2.5	6.4	12	470	π-MOSIV
	TK3A90E	900	+/-30	2.5	4.6	15	650	π-MOSVIII
	2SK3564	900	+/-30	3	4.3	17	700	π-MOSIV
	2SK3798	900	+/-30	4	3.5	26	800	π-MOSIV
	TK5A90E	900	+/-30	4.5	3.1	20	950	π-MOSVIII
	2SK3565	900	+/-30	5	2.5	28	1150	π-MOSIV
	2SK3742	900	+/-30	5	2.5	25	1150	π-MOSIV
	2SK4014	900	+/-30	6	2	45	1400	π-MOSIV
	TK7A90E	900	+/-30	7	2	32	1350	π-MOSVIII
	2SK3799	900	+/-30	8	1.3	60	2200	π-MOSIV
	TK9A90E	900	+/-30	9	1.3	46	2000	π-MOSVIII

☆ New products



TO-3P(N)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(Ω) V _{GS} =10V	Q _s typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)				
N-ch	TK12J60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK16J60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16J60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20J60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK20J60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK31J60W5 &	600	+/-30	30.8	0.099	105	3000	DTMOSIV(HSD)
	TK31J60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK39J60W5 &	600	+/-30	38.8	0.074	135	4100	DTMOSIV(HSD)
	TK39J60W	600	+/-30	38.8	0.065	110	4100	DTMOSIV
	TK62J60W5 &	600	+/-30	61.8	0.045	205	6500	DTMOSIV(HSD)
N-ch	TK62J60W	600	+/-30	61.8	0.04	180	6500	DTMOSIV
	TK40J20D	200	+/-20	40	0.044	100	4300	π-MOSVII
	TK70J20D	200	+/-20	70	0.027	160	6950	π-MOSVII
	TK30J25D	250	+/-20	30	0.06	100	4300	π-MOSVII
	TK60J25D	250	+/-20	60	0.038	160	7000	π-MOSVII
	TK50J30D	300	+/-20	50	0.052	160	7000	π-MOSVII
	TK15J50D	500	+/-30	15	0.4	38	1800	π-MOSVII
	TK20J50D	500	+/-30	20	0.27	45	2600	π-MOSVII
	TK12J55D	550	+/-30	12	0.57	28	1550	π-MOSVII
	TK16J55D	550	+/-30	16	0.37	40	2300	π-MOSVII
	TK19J55D	550	+/-30	19	0.33	45	2600	π-MOSVII
	2SK3633	800	+/-30	7	1.7	35	1500	π-MOSIV
	TK10J80E	800	+/-30	10	1	46	2000	π-MOSVIII
	2SK3700	900	+/-30	5	2.5	28	1150	π-MOSIV
	2SK4115	900	+/-30	7	2	45	1650	π-MOSIV
	TK7J90E	900	+/-30	7	2	32	1350	π-MOSVIII
	TK9J90E	900	+/-30	9	1.3	46	2000	π-MOSVIII
	2SK4207	900	+/-30	13	0.95	45	2790	π-MOSIV

& High Speed Diode type

TO-247



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(Ω)	Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V			
N-ch	TK16N60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16N60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20N60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK20N60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK25N60X5 &	600	+/-30	25	0.14	60	2400	DTMOSIV-H(HSD)
	TK25N60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H
	TK31N60W5 &	600	+/-30	30.8	0.099	105	3000	DTMOSIV(HSD)
	TK31N60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK31N60X	600	+/-30	30.8	0.088	65	3000	DTMOSIV-H
	TK39N60W5 &	600	+/-30	38.8	0.074	135	4100	DTMOSIV(HSD)
	TK39N60W	600	+/-30	38.8	0.065	110	4100	DTMOSIV
	TK39N60X	600	+/-30	38.8	0.065	85	4100	DTMOSIV-H
	TK62N60W5 &	600	+/-30	61.8	0.045	205	6500	DTMOSIV(HSD)
	TK62N60W	600	+/-30	61.8	0.04	180	6500	DTMOSIV
	TK62N60X	600	+/-30	61.8	0.04	135	6500	DTMOSIV-H
	TK14N65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK14N65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV
	TK17N65W	650	+/-30	17.3	0.2	45	1800	DTMOSIV
	TK110N65Z ☆	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK28N65W5 &	650	+/-30	27.6	0.13	90	3000	DTMOSIV(HSD)
	TK28N65W	650	+/-30	27.6	0.11	75	3000	DTMOSIV
	TK090N65Z ☆	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK35N65W5 &	650	+/-30	35	0.095	115	4100	DTMOSIV(HSD)
	TK35N65W	650	+/-30	35	0.08	100	4100	DTMOSIV
	TK065N65Z ☆	650	+/-30	38	0.065	62	3650	DTMOSVI
	TK49N65W5 &	650	+/-30	49.2	0.057	185	6500	DTMOSIV(HSD)
	TK49N65W	650	+/-30	49.2	0.055	160	6500	DTMOSIV
	TK040N65Z ☆	650	+/-30	57	0.04	105	6250	DTMOSVI
	TK(027)N65Z ★	650	+/-30	(80)	(0.027)	(143)	(7950)	DTMOSVI

TO-247-4L



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(Ω)	Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V			
N-ch	TK25Z60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H
	TK31Z60X	600	+/-30	30.8	0.088	65	3000	DTMOSIV-H
	TK39Z60X	600	+/-30	38.8	0.065	85	4100	DTMOSIV-H
	TK62Z60X	600	+/-30	61.8	0.04	135	6500	DTMOSIV-H
	TK110Z65Z ☆	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK090Z65Z ☆	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK065Z65Z ☆	650	+/-30	38	0.065	62	3650	DTMOSVI
	TK040Z65Z ☆	650	+/-30	57	0.04	105	6250	DTMOSVI

TO-3P(L)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(Ω)	Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V			
N-ch	TK100L60W	600	+/-30	100	0.018	360	15000	DTMOSIV

☆ New products, & High Speed Diode type
★ Under Development (The specification is subject to change without notice.)

3. Automotive

PS-8 (2.9x2.8)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)		Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =6V			
N-ch	TPCP8011 # \$	40	+/-20	5	31.8	51.2	11.8	505	U-MOSIV
	TPCP8010 # \$	40	+/-20	6	23.8	38.4	13.1	600	U-MOSIV
	TPCP8009 # \$	40	+/-20	10	11.8	19.5	25.1	1250	U-MOSIV
	TPCP8013 # \$	60	+/-20	4	51.8	77.9	12	515	U-MOSIV
	TPCP8012 # \$	60	+/-20	8	20.2	29.1	26.6	1160	U-MOSIV
P-ch	TPCP8109 # \$	-40	+10/-20	-4.5	52.3	76.8	18	810	U-MOSVI
	TPCP8107 # \$	-40	+10/-20	-8	18	26.8	44.6	2160	U-MOSVI
	TPCP8111 # \$	-60	+10/-20	-3	117	158.4	17	760	U-MOSVI
	TPCP8110 # \$	-60	+10/-20	-5	39.5	53.2	45	2075	U-MOSVI
N-ch x 2	TPCP8207 # \$	40	+/-20	5	36.3	62.8	11.8	505	U-MOSIV
N-ch + P-ch	TPCP8407 # \$	40	+/-20	5	36.3	62.8	11.8	505	U-MOSIV
		-40	+10/-20	-4	56.8	82.2	18	810	U-MOSVI

DPAK+

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)			Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =6.0V	V _{GS} =4.5V			
N-ch	TK15S04N1L # \$	40	+/-20	15	17.8	-	37	10	610	U-MOSVIII-H
	TK65S04N1L # \$	40	+/-20	65	4.3	-	7.8	39	2550	U-MOSVIII-H
	TK100S04N1L # \$	40	+/-20	100	2.3	-	4.5	76	5490	U-MOSVIII-H
	TK1R4S04PB #	40	+/-20	120	1.35	1.9	-	103	5500	U-MOSIX-H
	TK25S06N1L # \$	60	+/-20	25	18.5	-	36.8	15	855	U-MOSVIII-H
	TK40S06N1L # \$	60	+/-20	40	10.5	-	18	26	1650	U-MOSVIII-H
	TK90S06N1L #	60	+/-20	90	3.3	-	5.2	81	5400	U-MOSVIII-H
	TK7S10N1Z # \$	100	+/-20	7	48	-	-	7.1	470	U-MOSVIII-H
	TK11S10N1L # \$	100	+/-20	11	28	-	50	15	850	U-MOSVIII-H
	TK33S10N1L # \$	100	+/-20	33	9.7	-	16.2	33	2250	U-MOSVIII-H
	TK33S10N1Z # \$	100	+/-20	33	9.7	-	-	28	2050	U-MOSVIII-H
P-ch	TK55S10N1 #	100	+/-20	55	6.5	-	-	49	3280	U-MOSVIII-H
	TK60S10N1L ☆ #	100	+/-20	60	6.11	9.25	-	60	4320	U-MOSVIII-H
	TJ10S04M3L # \$	-40	+10/-20	-10	44	62	-	19	930	U-MOSVI
	TJ20S04M3L # \$	-40	+10/-20	-20	22.2	32	-	37	1850	U-MOSVI
	TJ40S04M3L # \$	-40	+10/-20	-40	9.1	13	-	83	4140	U-MOSVI
	TJ60S04M3L # \$	-40	+10/-20	-60	6.3	9.4	-	125	6510	U-MOSVI
	TJ80S04M3L # \$	-40	+10/-20	-80	5.2	7.9	-	158	7770	U-MOSVI
	TJ90S04M3L #	-40	+10/-20	-90	4.3	-	6	172	7700	U-MOSVI
	TJ8S06M3L # \$	-60	+10/-20	-8	104	130	-	19	890	U-MOSVI
	TJ15S06M3L # \$	-60	+10/-20	-15	50	63	-	36	1770	U-MOSVI
	TJ30S06M3L # \$	-60	+10/-20	-30	21.8	28	-	80	3950	U-MOSVI
	TJ50S06M3L # \$	-60	+10/-20	-50	13.8	17.4	-	124	6290	U-MOSVI
	TJ60S06M3L # \$	-60	+10/-20	-60	11.2	14.5	-	156	7760	U-MOSVI
	TJ15S10M3	-100	+10/-20	-15	130	-	-	69	3200	U-MOSVI

☆ New Products, # AEC-Q101 qualified, \$ With protection Zener diode between gate and source

TSON Advance(WF) (3.1x3.6)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)			Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =6V	V _{GS} =4.5V			
N-ch	XPN7R104NC ☆◆# \$	40	+/-20	20	7.1	-	14.2	21	1290	U-MOSVIII-H
	XPN3R804NC ☆◆# \$	40	+/-20	40	3.8	-	7.8	35	2230	U-MOSVIII-H
	XPN12006NC ☆◆# \$	60	+/-20	20	12	-	23.7	23	1100	U-MOSVIII-H
	XPN6R706NC ☆◆# \$	60	+/-20	40	6.7	-	13.3	35	2000	U-MOSVIII-H
	XPN2400ANC ☆◆# \$	100	+/-20	20	23.5	-	42.7	20	920	U-MOSVIII-H
	XPN1300ANC ☆◆# \$	100	+/-20	30	13.3	-	24.2	28	1470	U-MOSVIII-H
P-ch	XPN9R614MC ◆#	-40	+10/-20	-40	9.6	-	13.4	64	3000	U-MOSVI

SOP Advance(WF) (5x6)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)			Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =6V	V _{GS} =4.5V			
N-ch	XPH3R304PS ☆◆#	40	+/-20	60	3.3	6.3	-	30	1660	U-MOSIX-H
	XPH2R404PS ☆◆#	40	+/-20	90	2.4	4.1	-	40	2500	U-MOSIX-H
	XPH1R104PS ☆◆#	40	+/-20	120	1.14	1.96	-	55	4560	U-MOSIX-H
	XPHR7904PS ☆◆#	40	+/-20	150	0.79	1.3	-	85	6650	U-MOSIX-H
	XPH3R206NC ☆◆# \$	60	+/-20	70	3.2	-	6.2	65	4180	U-MOSVIII-H
	XPH2R106NC ☆◆#	60	+/-20	110	2.1	-	4.1	104	6900	U-MOSVIII-H
	XPH6R30ANB ☆◆# \$	100	+/-20	45	6.3	9.5	-	52	3240	U-MOSVIII-H
	XPH4R10ANB ☆◆#	100	+/-20	70	4.1	6.2	-	75	4970	U-MOSVIII-H
P-ch	XPH4R714MC ☆◆#	-40	+10/-20	-60	4.7	-	6.9	160	5640	U-MOSVI
	XPH3R114MC ☆◆#	-40	+10/-20	-100	3.1	-	4.7	230	9500	U-MOSVI

DSOP Advance(WF) (5x6)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)			Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =6V	V _{GS} =4.5V			
N-ch	TPW1R104PB * ☆◆#	40	+/-20	120	1.14	1.96	-	55	4560	U-MOSIX-H
	TPWR7904PB ** ☆◆#	40	+/-20	150	0.79	1.3	-	85	6650	U-MOSIX-H
	XPW6R30ANB * ☆◆# \$	100	+/-20	45	6.3	9.5	-	52	3240	U-MOSVIII-H
	XPW4R10ANB ** ☆◆#	100	+/-20	70	4.1	6.2	-	75	4970	U-MOSVIII-H

D2PAK+



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)		Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =6V			
N-ch	TK1R5R04PB #	40	+/-20	160	1.5	2.05	103	5500	U-MOSIX-H

TO-220SM(W)



Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)		Q _g typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =10V	V _{GS} =6V			
N-ch	TK1R4F04PB ☆ #	40	+/-20	160	1.35	1.9	103	5500	U-MOSIX-H
	TK200F04N1L ☆ #	40	+/-20	200	0.9	1.37	214	14920	U-MOSVIII-H
	TKR74F04PB ☆ #	40	+/-20	250	0.74	0.98	227	14200	U-MOSIX-H
	TK60F10N1L ☆ #	100	+/-20	60	6.11	9.25	60	4320	U-MOSVIII-H
	TK160F10N1L #	100	+/-20	160	2.4	3.7	122	10100	U-MOSVIII-H
	XK1R9F10QB ☆ #	100	+/-20	160	1.92	3.31	184	11500	U-MOSX-H
P-ch	TJ200F04M3L #	-40	+10/-20	-200	1.8	2.6	460	12800	U-MOSVI

☆ New Products, # AEC-Q101 qualified, \$ With protection Zener diode between gate and source, ◆ Wettable Flank Lead Terminal
* DSOP Advance(WF)M, ** DSOP Advance(WF)L

4. Silicon Carbide (SiC) MOSFET Series



TO-3P(N)

Circuit Configuration	Part Number	Absolute Maximum Ratings			R _{DS(ON)} max(mΩ)	Q _s typ. (nC)	C _{iss} typ. (pF)	Remark
		V _{DSS} (V)	V _{GSS} (V)	I _D (A)	V _{GS} =20V			
N-ch	TW070J120B ☆	1200	+25/-10	36	0.09	70	1680	

☆ New Products

5. Part Naming Conventions

Conventional Multi-Pin Series

- Ex) TPC8 0 67 -H
① ② ③ ④
- ① Package
TPC8: PS-8 Series TPC8: SOP-8 Series
TPC8: TSON Advance Series TPCA8: SOP Advance Series
- ② Polarity / Configuration
0: N-channel, single 3: P-channel, dual
1: P-channel, single 4: N-channel and P-channel, dual
2: N-channel, dual J: P-channel and NPN
- ③ Serial number of the products
- ④ Additional information
H: High-speed type None: Low-on-resistance type

New Multi-Pin Series

- Ex) TPH 4R3 0 4 N C
① ② ③ ④ ⑤ ⑥
- ① Package
TPP: PS-8 Series TPH / XPH: SOP Advance Series
TPN / XPN: TSON Advance Series TP8: SOP-8 Series
TPW / XPW: DSOP Advance Series
- ② Max. on-resistance (at max drive conditions)
R79 = 0.79 mΩ 100 = $10 \times 10^0 = 10$ mΩ
4R3 = 4.3 mΩ 101 = $10 \times 10^1 = 100$ mΩ
- ③ Polarity / Configuration
0: Single N-ch 1: Single P-ch
- ④ Drain-source voltage (V_{DSS})
2: 15 to 24V 7: 65 to 74V D: 180 to 199V
3: 25 to 34V 8: 75 to 84V E: 200 to 249V
4: 35 to 44V A: 95 to 124V F: 250 to 299V
5: 45 to 54V B: 125 to 149V
6: 55 to 64V C: 150 to 179V
- ⑤ Series
M: U-MOSⅥ N: U-MOSⅦ/U-MOSⅧ-H P: U-MOSⅨ-H
Q: U-MOSⅩ-H
- ⑥ Additional information
1 to 5: Serial number of the products
A: V_{GS} = 10V (Drive)
B: V_{GS} = 6V (Drive)
C: V_{GS} = 4.5V (Drive)
D: V_{GS} = 2.5V (Drive)
E: V_{GS} = 2.0V (Drive)
F: V_{GS} = 1.8V (Drive)
H: Low-rg, V_{GS} = 10 V (Drive)
M: Low-rg, V_{GS} = 6 V (Drive)
L: Low-rg, V_{GS} = 4.5 V (Drive)
Q: T_{ch(max)} = Guaranteed up to 175°C + ZD
R: T_{ch(max)} = Guaranteed up to 150°C + ZD
S: T_{ch(max)} = Guaranteed up to 175°C
T: T_{ch(max)} = Guaranteed up to 150°C
U: Low spike

Silicon carbide (SiC) Series

- Ex) TW 070 J 120 B
① ② ③ ④ ⑤
- ① Polarity
TW: N-channel
- ② Typ. on-resistance (at max drive conditions)
070 = 70 mΩ
- ③ Package
A: TO-220SIS N: TO-247
E: TO-220 V: DFN8x8
J: TO-3P(N) Z: TO-247-4L
- ④ Drain-source voltage V_{DSS}: Display value ×10 times = V_{DSS}
120: V_{DSS} = 1200V
- ⑤ Generation
B: 2nd Generation

3-Pin Series

- Ex) TK 40 S 10 K 3 Z
① ② ③ ④ ⑤ ⑥ ⑦
- ① Polarity
TK: N-channel TJ: P-channel
- ② Drain current (I_b)
- ③ Package
A: TO-220SIS N: TO-247
E: TO-220 P: DPAK/New PW-Mold
F: TO-220SM(W) Q: IPAK/New PW-Mold2
G: D2PAK S: DPAK +
J: TO-3P(N) V: DFN8 x 8
L: TO-3P(L) Z: TO-247-4L
- ④ Drain-source voltage(V_{DSS}): Display value ×10 = V_{DSS}
06: V_{DSS} = 60 V 10: V_{DSS} = 100 V
- ⑤ Series
A: π-MOSⅣ J: U-MOSⅢ U: DTMOSⅡ
C: π-MOSⅥ K: U-MOSⅣ V: DTMOSⅢ
D: π-MOSⅦ M: U-MOSⅥ W: DTMOSⅣ
E: π-MOSⅧ N: U-MOSⅧ X: DTMOSⅣ-H
- ⑥ Additional information (1)
1: Low-capacitance type 5: Fast body diode type
3: Low-on-resistance type
- ⑦ Additional information (2)
L: V_{GS} = 4.5V (Drive) S: V_{GS} = 4.5V (Drive)
H: V_{GS} = 10 V(Drive) Z: With protection Zener diode
M: V_{GS} = 6 V (Drive) between gate and source

New 3-Pin Series

- Ex) TK R74 F 04 P B
① ② ③ ④ ⑤ ⑥
- ① Polarity
TK / XK: N-channel TJ / XJ: P-channel
- ② Max. on-resistanceV_{DSS}= 400 V less than the product (at max drive conditions)
R74 = 0.74 mΩ 100 = $10 \times 10^0 = 10$ mΩ
8R2 = 8.2 mΩ 101 = $10 \times 10^1 = 100$ mΩ
Max. on-resistance V_{DSS} = 400 V or more products (at max drive conditions)
047 = 0.047 Ω 410 = 0.41 Ω 4K7 = 4.7 Ω
- ③ Package
A: TO-220SIS N: TO-247 V: DFN8 x 8
E: TO-220 P: DPAK/New PW-Mold Z: TO-247-4L
F: TO-220SM(W) Q: IPAK/New PW-Mold 2
G: D2PAK R: D2PAK +
J: TO-3P(N) S: DPAK +
L: TO-3P(L) U: TOLL
- ④ Drain-source voltage V_{DSS}: Display value ×10 times = V_{DSS}
04: V_{DSS} = 40V 10: V_{DSS} = 100V
- ⑤ Series
F: π-MOSⅨ N: U-MOSⅧ-H Y: DTMOSⅤ
M: U-MOSⅥ P: U-MOSⅨ-H Z: DTMOSⅦ
- ⑥ Additional information
A: V_{GS} = 10 V (Drive) H: Low-rg, V_{GS} = 10 V (Drive)
B: V_{GS} = 6 V (Drive) M: Low-rg, V_{GS} = 6 V (Drive)
C: V_{GS} = 4.5 V (Drive) L: Low-rg, V_{GS} = 4.5 V (Drive)

JEITA registration Item Series

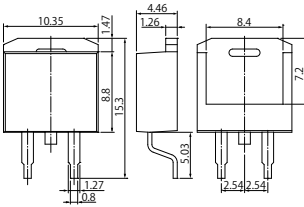
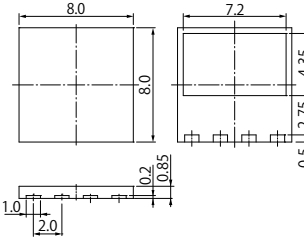
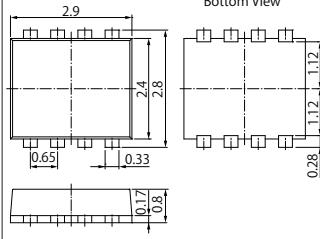
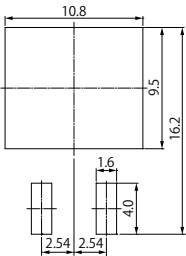
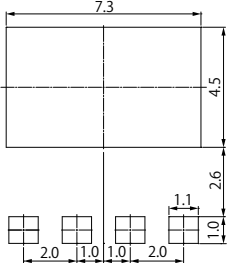
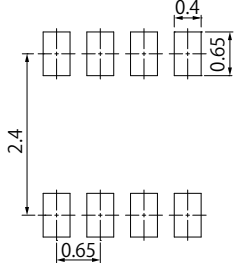
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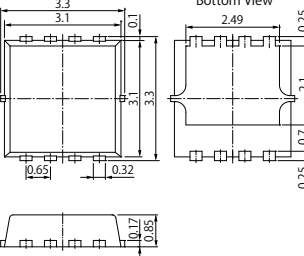
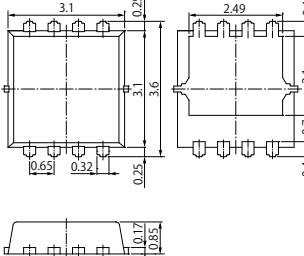
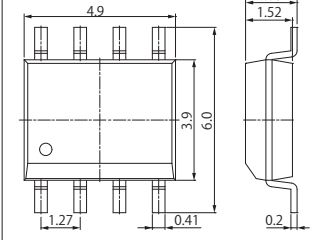
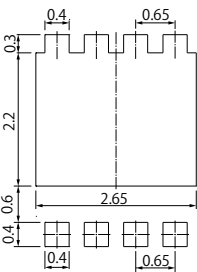
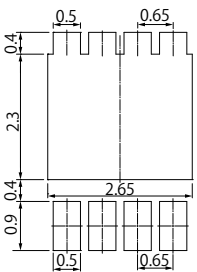
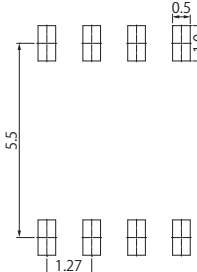
6. Device Packages Dimensional Out Line

DPAK+ (6.5x9.5)	New PW-Mold (6.5x9.5)	DPAK 2-7K1S (TO-252) (6.6x10.0)
Package dimension unit : mm	Package dimension unit : mm	Package dimension unit : mm
Land pattern example unit : mm	Land pattern example unit : mm	Land pattern example unit : mm

DPAK 2-7N1S (TO-252)	TO-220SM(W) (10.0x13.0)	D2PAK+ (10.0x15.0)
Package dimension unit : mm	Package dimension unit : mm	Package dimension unit : mm
Land pattern example unit : mm	Land pattern example unit : mm	Land pattern example unit : mm

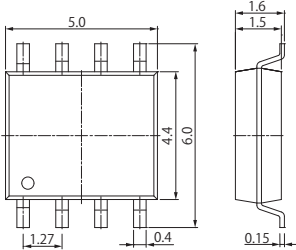
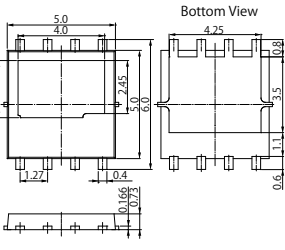
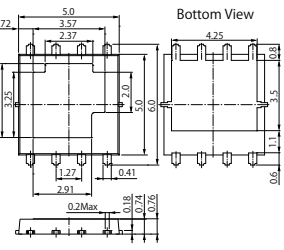
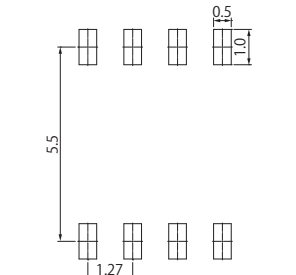
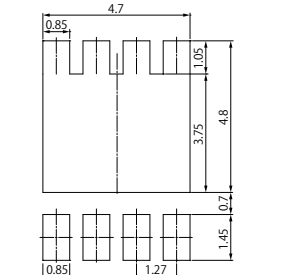
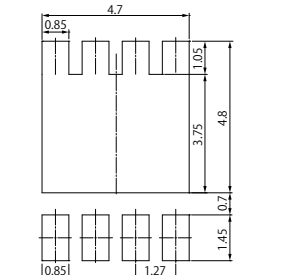
Dimensional Out Line

D2PAK (10.35x15.3)	DFN8X8 (8.0x8.0)	PS-8 (2.9x2.8)
Package dimension unit : mm Bottom View 	Package dimension unit : mm Bottom View 	Package dimension unit : mm Bottom View 
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm 

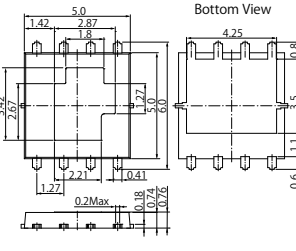
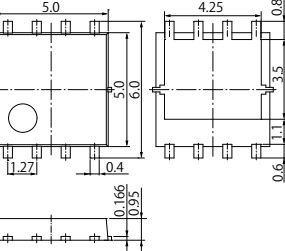
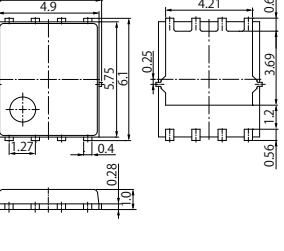
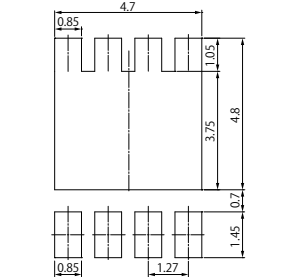
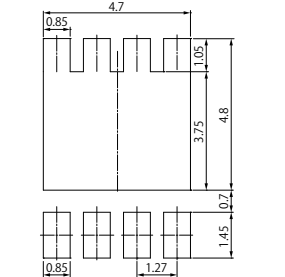
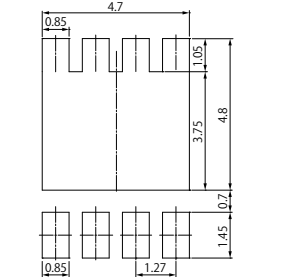
TSON Advance (3.1x3.3)	TSON Advance (WF) (3.1x3.6) ★	SOP-8 2-5R1S (4.9x6.0)
Package dimension unit : mm Bottom View 	Package dimension unit : mm Bottom View 	Package dimension unit : mm 
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm 

★ Wettable Flank Lead Terminal

Dimensional Out Line

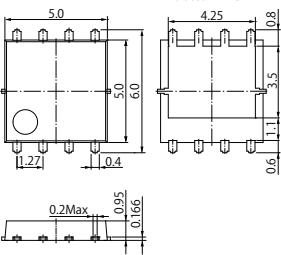
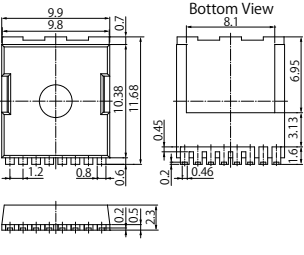
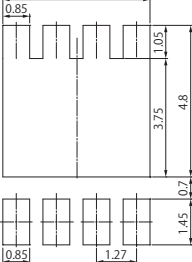
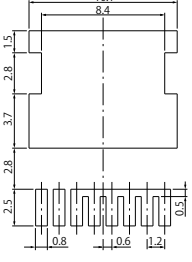
SOP-8 2-6J1S	DSOP Advance (5.0x6.0)	DSOP Advance (WF)L (5.0x6.0) ★
Package dimension unit : mm 	Package dimension unit : mm Bottom View 	Package dimension unit : mm Bottom View 
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm 

★ Wettable Flank Lead Terminal

DSOP Advance (WF)M (5.0x6.0) ★	SOP Advance (5.0x6.0)	SOP Advance(N) (4.9x6.1)
Package dimension unit : mm Bottom View 	Package dimension unit : mm Bottom View 	Package dimension unit : mm Bottom View 
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm 

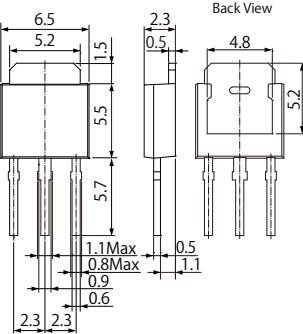
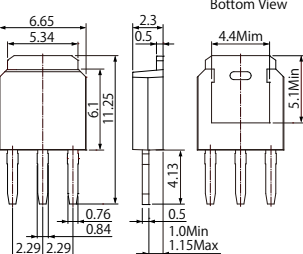
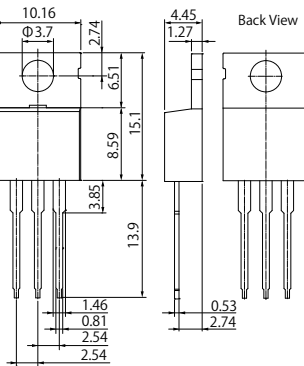
★ Wettable Flank Lead Terminal

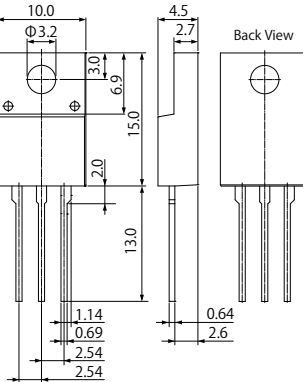
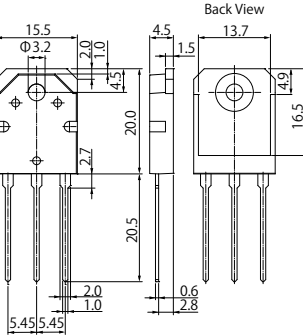
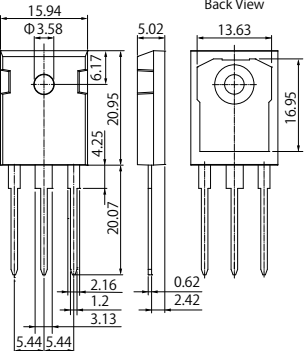
Dimensional Out Line

SOP Advance(WF) (5.0x6.0) ★	TOLL (9.9x11.68)
Package dimension unit : mm 	Package dimension unit : mm 
Land pattern example unit : mm 	Land pattern example unit : mm 

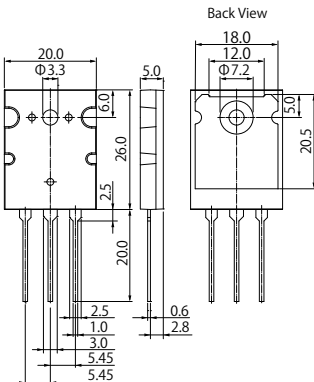
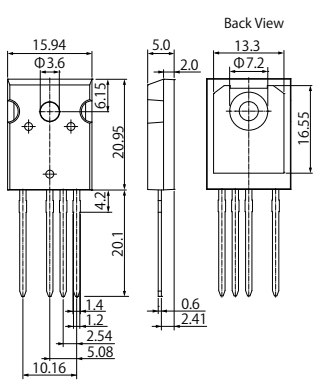
★ Wetttable Flank Lead Terminal

Dimensional Out Line

New PW-Mold2 (6.5x5.5)	IPAK (6.65x6.1)	TO-220 (10.16x15.1)
Package dimension unit : mm	Package dimension unit : mm	Package dimension unit : mm
		

TO-220SIS (SC-67) (10.0x15.0)	TO-3P(N) (SC-65) (15.5x20.0)	TO-247 (15.94x20.95)
Package dimension unit : mm	Package dimension unit : mm	Package dimension unit : mm
		

Dimensional Out Line

TO-3P(L) (20.0x26.0)		TO-247-4L (15.94x20.95)	
Package dimension		Package dimension	
unit : mm		unit : mm	
			

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