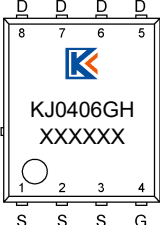
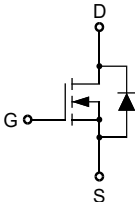


Product Information

V_{DS}	I_D	$R_{DS(ON)}, \text{ max}$	Pin Assignment and Marking
60 V	90 A	4.9 mΩ@ $V_{GS}=10V$	  PDFN 5x6-8L 1st Line: LOGO 2nd Line: Part number 3rd Line: LOT code G: Gate D: Drain S: Source 100% Avalanche Tested   
Features • Surface-mounted package • Advanced Trench Technology • Low on-resistance Applications • Load Switch • Power Management • Motor control and drive			

Package and Ordering Information

Part number	Package	Packaging	Quantity (pcs)	Reel size	Tape width
KJ0406GH	PDFN 5x6-8L	Tape & Reel	5000	13"	12 mm

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Value	Unit
Drain-Source Voltage	V_{DS}	$T_C=25^\circ\text{C}$	60	V
Gate-Source Voltage	V_{GS}	$T_C=25^\circ\text{C}$	±20	V
Continuous Drain Current (DC)	I_D	$T_C=25^\circ\text{C}, V_{GS}=10\text{ V}$	90	A
		$T_C=100^\circ\text{C}, V_{GS}=10\text{ V}$	57	A
Pulsed Drain Current	I_{DM}	$T_C=25^\circ\text{C}, V_{GS}=10\text{ V}$	360	A
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	69	W
Single Pulsed Avalanche Energy	E_{AS}	$L=0.3\text{ mH}, V_{DS}=30\text{ V}$	630	mJ

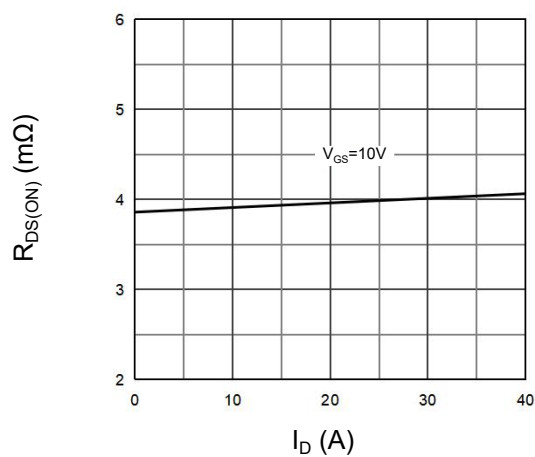
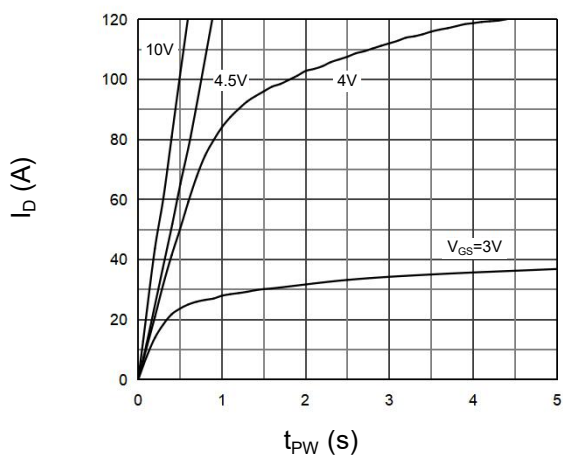
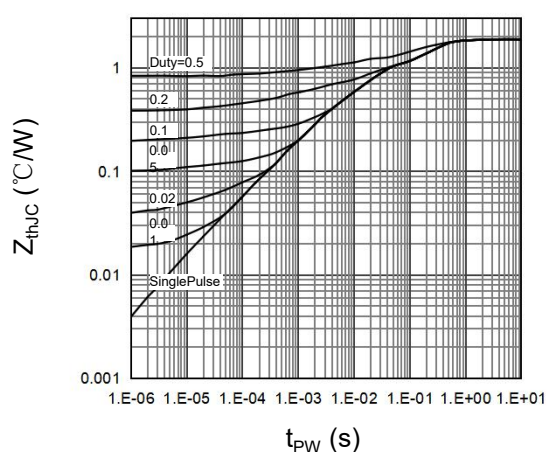
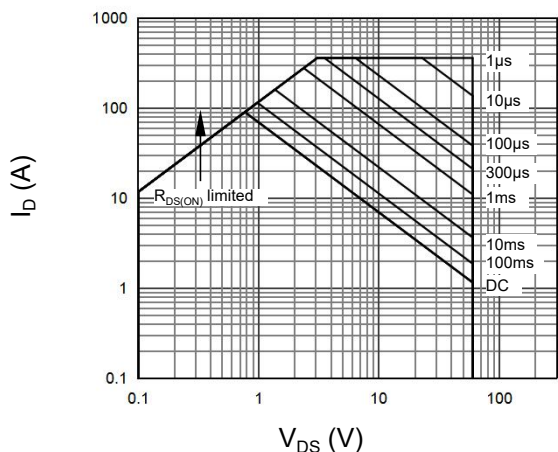
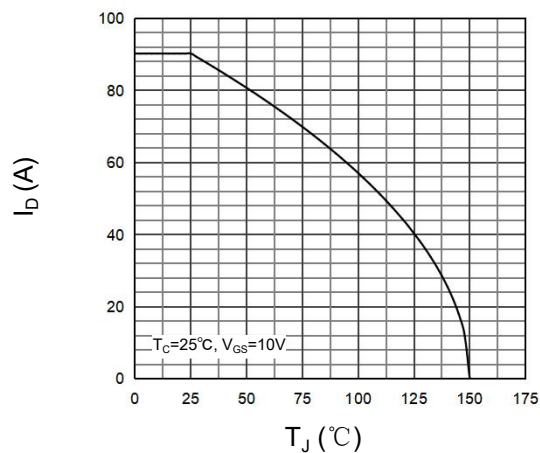
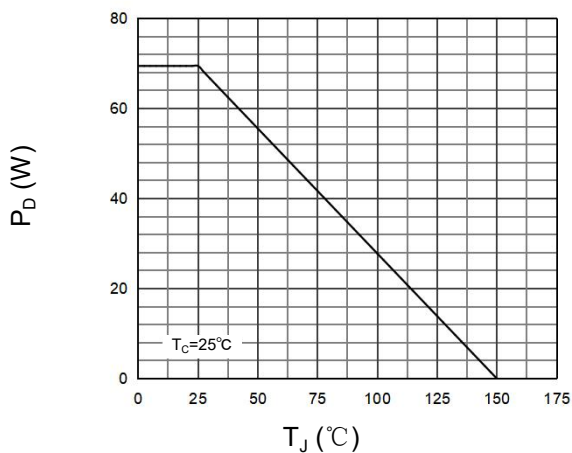
Package Values

Parameter	Symbol	Value	Unit
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 — +150	°C
Thermal Resistance, Junction to Ambient	R_{thJA}	60	°C/W
Thermal Resistance, Junction to Case	R_{thJC}	1.8	°C/W
Soldering temperature, wave and reflow soldering are allowed	T_{sold}	260	°C

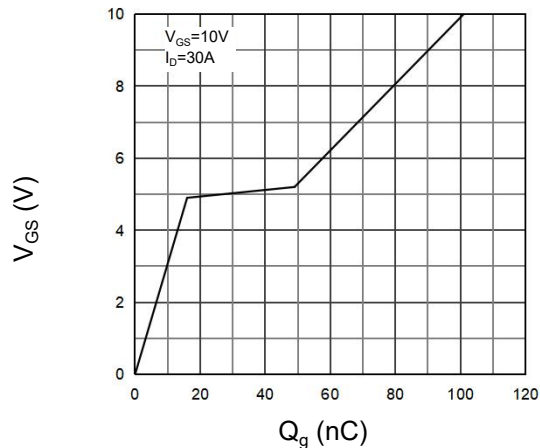
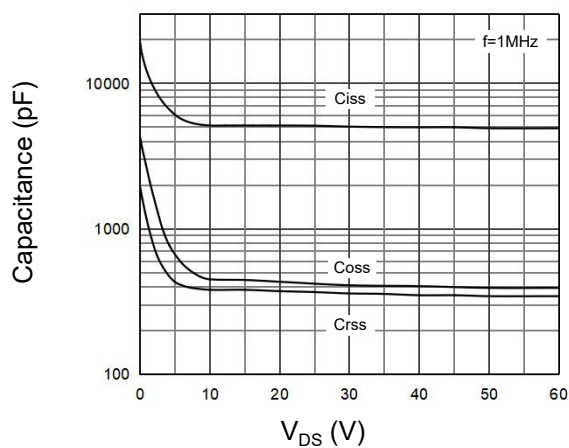
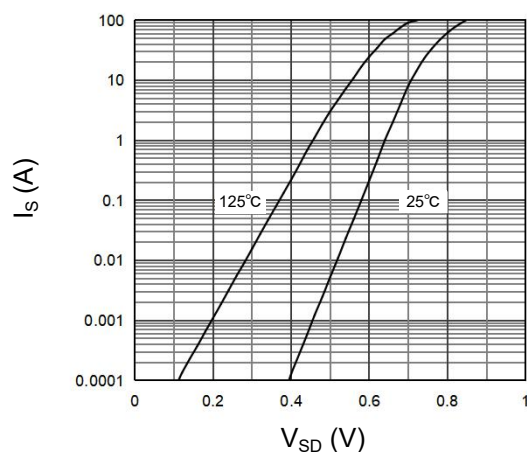
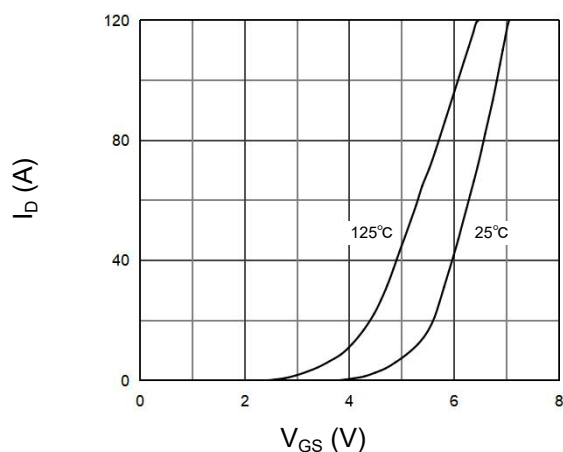
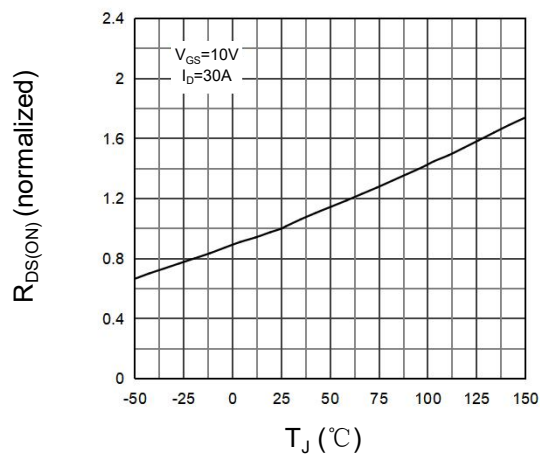
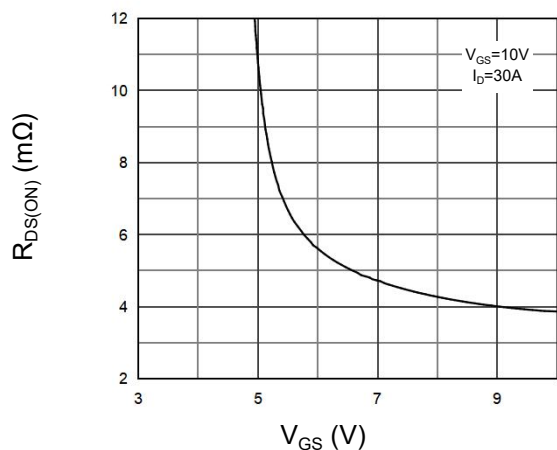
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristic						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_{DS}=250\mu A$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2		4	V
Drain-Source Leakage Current	I_{DSS}	$V_{GS}=0V, V_{DS}=60V, T_C=25^{\circ}C$			1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=30A, T_C=25^{\circ}C$		3.8	4.5	m Ω
Dynamic Characteristic						
Gate Resistance	R_G	Frequency=1MHz		1		Ω
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, \text{Frequency}=1\text{MHz}$		5050		pF
Output Capacitance	C_{oss}			410		pF
Reverse Transfer Capacitance	C_{rss}			360		pF
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_{DS}=30A$		101		nC
Gate to Source Charge	Q_{gs}			16		nC
Gate to Drain Charge	Q_{gd}			33		nC
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, V_{GS}=10V, R_G=2.7\Omega$		13		ns
Turn-on Rise Time	t_r			9		ns
Turn-off Delay Time	$t_{d(off)}$			48		ns
Turn-off Fall Time	t_f			15		ns
Body Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=30A$			1.2	V
Reverse Recovery Time	t_{rr}	$I_F=30A, di/dt=100A/\mu s$		29		ns
Reverse Recovery Charge	Q_{rr}			49		nC

Typical Characteristics

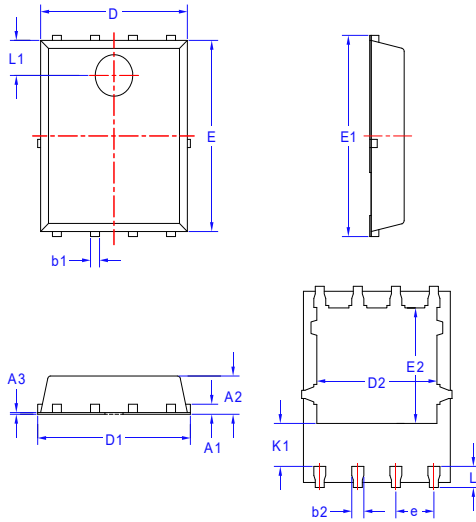


Typical Characteristics (cont.)



Package Dimensions

PDFN 5x6-8L package



Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX
A1		0.254BSC	
A2	1	1.1	1.2
A3	0.005		0.02
b1	0.25	0.3	0.35
b2	0.35	0.4	0.45
D	4.8	4.9	5
D1	5	5.1	5.2
D2	3.91	4.01	4.11
E	5.65	5.75	5.85
E1	5.95	6.05	6.15
E2	3.375	3.475	3.575
e		1.270TYP	
K		0.600REF	
K1		1.235REF	
L	0.53	0.63	0.73
L1		1.000REF	

Revision History

Date	Revision	Major change
2023.03.06	V0.1	Formal version released.
2026.09.07	V1.0	Modified the style of the datasheet, updated data and figures.

Disclaimer

- Unless otherwise specified in the datasheet, the product is designed and qualified as a standard commercial product and is not intended for use in applications that require extraordinary levels of quality and reliability, such as automotive, aviation/aerospace and life-support devices or systems.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- KJX Semi reserves the right to improve product design, function and reliability without notice.

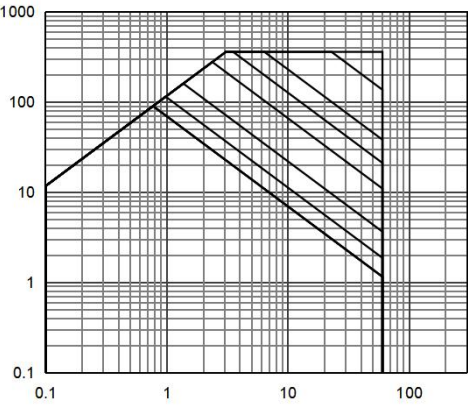
型号	KJ0406GH		ID计算			EAS		
项目	值	单位	项目	值	单位	项目	值	单位
VDS	60	V	ID(25℃)	90.2	A	IAS	65	A
Tj	150	℃	ID(100℃)	57.1	A	L	0.3	mH
RTHJA	60	℃/W	ID(25℃) 修正	90	A	VDD	30	V
RTHJC	1.8	℃/W	D(100℃) 修正	57	A	EAS	634	mJ
RDS(ON)	4.9	mΩ	IDM倍数	4	倍	实标	630.0	mJ
TJmax归一值	1.74	倍	IDM	360	A	测试条件	L=0.4 mH, V _{DS} =30 V	
RDS(ON) max	8.526	mΩ	PD	69.4	W			

VGS						其他		
VGS	±20	V	VGS(TH) 分档		一档	Tsold	260.0	℃
VGS(TH)	2	V			二档			
		V			三档			
	4	V			四档			

项目	值	归一值	时间μs	时间s	科学计数	单位	Zthjc原值	归一值
Zthjc	0.00373	0.00207272	1us	0.000001	1.E-06	W/℃	0.00391539	0.00217522
	0.01522	0.00845763	10us	0.00001	1.E-05	W/℃	0.01597656	0.00887586
	0.05448	0.03026944	100us	0.0001	1.E-04	W/℃	0.05717927	0.03176626
	0.18965	0.1053595	1ms	0.001	1.E-03	W/℃	0.19902514	0.11056952
	0.56987	0.31659316	10ms	0.01	1.E-02	W/℃	0.59804764	0.33224869
	1.11321	0.61844998	100ms	0.1	1.E-01	W/℃	1.16825819	0.64903233
	1.80000	1	1s	1	1.E+00	W/℃	1.88901	1.04945
	0.09864	0.05480039	300us	0.0003	3.E-04	W/℃	0.10351849	0.05751027
	1.80000	1	10s	10	1.E+01	W/℃	1.88901	1.04945
	1.80000	1	100s	100	1.E+02	W/℃	1.88901	1.04945
	1.80000	1	1000s	1000	1.E+03	W/℃	1.88901	1.04945

SOA坐标点	VDS	起点值V	终点值V	线段长mm		项目	原值	LOG线长
		0.1	300	60		BV	60	47.939
	ID	起点值A	终点值A	线段长mm		ID	90.2497671	36.943
PD线	VDS原值	LOG线长	ID值	LOG线长	VDS原值	LOG线长	ID值	LOG线长
		0.1	1000	50		IDM	360	44.454
1us	100	51.7669609	335.040	44.064	60	47.939	558.400	46.837
10us	100	51.7669609	82.109	36.430	60	47.939	136.848	39.203
100us	100	51.7669609	22.942	29.508	60	47.939	38.237	32.281
1ms	100	51.7669609	6.591	22.737	60	47.939	10.985	25.510
10ms	100	51.7669609	2.193	16.764	60	47.939	3.656	19.537
100ms	100	51.7669609	1.123	13.129	60	47.939	1.871	15.902
DC	100	51.7669609	0.694	10.520	60	47.939	1.157	13.294
300us	100	51.7669609	12.672	26.286	60	47.939	21.120	29.059
RD1	0.1	0	11.72883	25.866				
RD2	10	34.5113073	1172.88295	50.866				

点位	1us		10us		100us		300us	
	V	A	V	A	V	A	V	A
A	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
B	0.10000	11.729	0.10000	11.729	0.1	11.7288295	0.1	11.7288295
C	3.06936	360	3.06936	360.000	3.06936	360	3.06936	360
D	60	360	22.80794	360.000	6.37280541	360	3.52007037	360
E	60	360	60.00000	136.848	60	38.2368324	60	21.1204222
F	60	0.1	60.00000	0.100	60	0.1	60	0.1



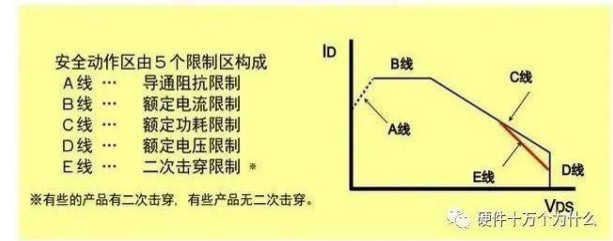
CISS/COSS/CRSS		
起点值	终点值	线段长
10	100000	50
项目	原值	线长
CISS	5050	33.791
COSS	410	20.160
CRSS	360	19.454
RG	1	Ω

通过对数图求原始值			
基本设置	起始值	终点值	总长
	0.0001	1	50
项目	线段长	反log	
1	4.573	0.000232188	
2	14.904	0.001557113	
3	25.575	0.011117317	
4	34.718	0.059901818	
5	39.436	0.14284992	
5	42.941	0.272445726	
6		0.3	
7		0.0001	

QG		
起止电压	0	10
平台起始	4.9	5.2
QGS	16	
QGD	33	
QG	101	
	QG	VGS
起点值	0	0
米勒开始	16	4.9
米勒结束	49	5.2
完成开启	101	10

SOA = Safe Operating Area 或 AOS = Area of Safe Operating

正偏压时的安全动作区



1ms		10ms		100ms		1s		10s
V	A	V	A	V	A	V	A	V
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0.1	11.72882946	0.1	11.72882946	0.1	11.72882946	0.1	11.72882946	0.1
2.370579779	278.0412596	1.367541943	160.3966623	0.978451108	114.7608619	0.769469514	90.24976709	0.769469514
2.370579779	278.0412596	1.367541943	160.3966623	0.978451108	114.7608619	0.769469514	90.24976709	0.769469514
60	10.98531646	60	3.655819387	60	1.871464875	60	1.157407407	60
60	0.1	60	0.1	60	0.1	60	0.1	60



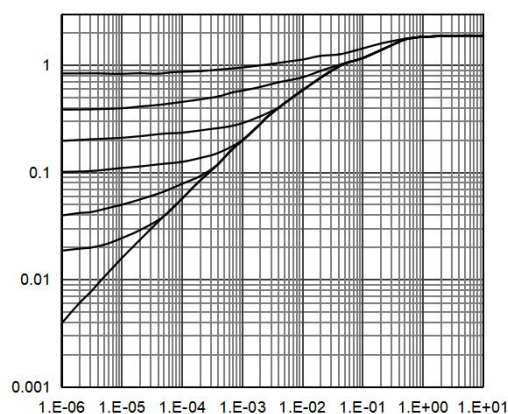
0s	100s		1000s		
A	V	A	V	A	
0.1	0.1	0.1	0.1	0.1	
11.72882946	0.1	11.72882946	60	11.72882946	
90.24976709	0.769469514	90.24976709	0.769469514	90.24976709	
90.24976709	0.769469514	90.24976709	0.769469514	90.24976709	
1.157407407	60	1.157407407	60	1.157407407	
0.1	60	0.1	60	0.1	

PD/ID

TJ	ID	PD
0	90.2497671	69.4444444
2.5	90.2497671	69.4444444
5	90.2497671	69.4444444
7.5	90.2497671	69.4444444
10	90.2497671	69.4444444
12.5	90.2497671	69.4444444
15	90.2497671	69.4444444
17.5	90.2497671	69.4444444
20	90.2497671	69.4444444
22.5	90.2497671	69.4444444
25	90.2497671	69.4444444
27.5	89.3427112	68.0555556
30	88.4263515	66.6666667
32.5	87.5003956	65.2777778
35	86.5645356	63.8888889
37.5	85.6184467	62.5
40	84.661786	61.1111111
42.5	83.6941909	59.7222222
45	82.7152778	58.3333333
47.5	81.72464	56.9444444
50	80.7218457	55.5555556
52.5	79.7064361	54.1666667
55	78.6779229	52.7777778
57.5	77.6357852	51.3888889
60	76.5794668	50
62.5	75.5083725	48.6111111
65	74.4218645	47.2222222
67.5	73.3192574	45.8333333
70	72.1998137	44.4444444
72.5	71.0627377	43.0555556
75	69.907169	41.6666667
77.5	68.7321749	40.2777778
80	67.5367415	38.8888889
82.5	66.3197636	37.5
85	65.0800326	36.1111111
87.5	63.8162223	34.7222222
90	62.5268728	33.3333333
92.5	61.2103701	31.9444444
95	59.864923	30.5555556
97.5	58.4885339	29.1666667
100	57.0789645	27.7777778
102.5	55.6336928	26.3888889
105	54.1498603	25
107.5	52.624205	23.6111111
110	51.0529778	22.2222222
112.5	49.4318332	20.8333333
115	47.7556879	19.4444444
120	44.2131758	16.6666667

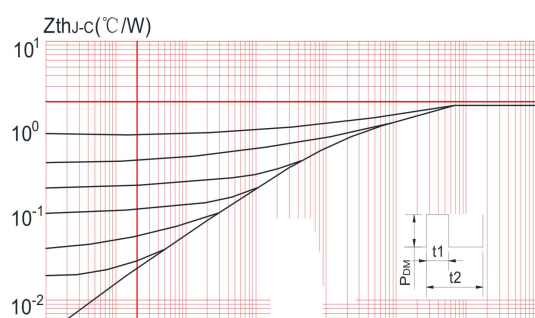
122.5	42.330893	15.2777778
127.5	38.2897334	12.5
130	36.0999068	11.1111111
132.5	33.7683708	9.72222222
135	31.2634364	8.33333333
137.5	28.5394822	6.94444444
140	25.5264889	5.55555556
142.5	22.1065879	4.16666667
145	18.0499534	2.77777778
147.5	12.7632445	1.38888889
150	0	0

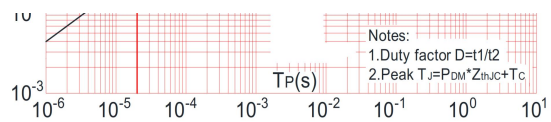
DC		0. 01		0. 02		0. 05	
0. 00000098	0. 003871	9. 9E-07	0. 0186274	0. 00000099	0. 03968221	0. 000001	0. 1013166
0. 00000197	0. 0060683	1. 98E-06	0. 019481	0. 00000199	0. 04194498	2. 99E-06	0. 1031033
0. 00000295	0. 0075842	2. 97E-06	0. 0198866	0. 00000298	0. 04259096	9. 97E-06	0. 1100891
0. 00000494	0. 01046	4. 96E-06	0. 0211273	0. 00000498	0. 04548965	1. 977E-05	0. 1137704
0. 00000692	0. 0127964	6. 94E-06	0. 0225043	0. 00000697	0. 04768651	0. 0000392	0. 1188339
0. 00000987	0. 0158423	9. 89E-06	0. 0243877	0. 00000993	0. 05005217	9. 724E-05	0. 1254904
0. 0000196	0. 0233492	1. 963E-05	0. 0288929	0. 0000197	0. 05592442	0. 0002021	0. 1367897
0. 000049	0. 0388786	0. 000049	0. 0388786	0. 00004914	0. 06622292	0. 0003962	0. 1523047
0. 00009797	0. 0564508	9. 797E-05	0. 0564508	0. 00009814	0. 07811999	0. 0010193	0. 2011638
0. 00017438	0. 0785293	0. 0001744	0. 0785293	0. 00019293	0. 0916574	0. 0019768	0. 283122
0. 00030141	0. 1037569	0. 0003014	0. 1037569	0. 00030146	0. 10655699	0. 0025941	0. 3305396
0. 00040036	0. 1204895	0. 0004004	0. 1204895	0. 00040036	0. 12048945	0. 0089875	0. 5614739
0. 00063015	0. 1581058	0. 0006302	0. 1581058	0. 00063015	0. 15810576	0. 0434664	0. 9991896
0. 00101933	0. 2011638	0. 0010193	0. 2011638	0. 00101933	0. 20116377	0. 097649	1. 1612272
0. 00197681	0. 283122	0. 0019768	0. 283122	0. 00197681	0. 28312203	0. 1960173	1. 3783096
0. 00259408	0. 3305396	0. 0025941	0. 3305396	0. 00259408	0. 33053961	0. 4964162	1. 737302
0. 00898746	0. 5614739	0. 0089875	0. 5614739	0. 00898746	0. 56147385	0. 6934694	1. 8019675
0. 04346642	0. 9991896	0. 0434664	0. 9991896	0. 04346642	0. 99918961	0. 9879946	1. 84166
0. 09764897	1. 1612272	0. 097649	1. 1612272	0. 09764897	1. 16122723	3. 8719517	1. 8890137
0. 19601731	1. 3783096	0. 1960173	1. 3783096	0. 19601731	1. 37830958	10	1. 88901
0. 49641621	1. 737302	0. 4964162	1. 737302	0. 49641621	1. 73730201		
0. 69346939	1. 8019675	0. 6934694	1. 8019675	0. 69346939	1. 80196745		
0. 98799457	1. 84166	0. 9879946	1. 84166	0. 98799457	1. 84166001		
3. 87195165	1. 88901	3. 8719517	1. 8890137	3. 87195165	1. 88901371		
10	1. 88901	10	1. 88901	10	1. 88901		



0.000001	0.0039154	0.0039154
0.00001	0.0159766	0.0159766
0.0001	0.0571793	0.0571793
0.001	0.1990251	0.1990251
0.01	0.5980476	0.5980476
0.1	1.1682582	1.1682582
1	1.843278	1.843278
0.0003	0.1035185	0.1035185
10	1.88901	1.88901
100	1.88901	1.88901
1000	1.88901	1.88901

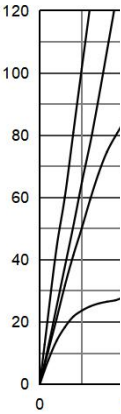
0.1		0.2		0.5	
1.01E-06	0.1971561	1.02E-06	0.3856967	1.02E-06	0.8393463
3.04E-06	0.2038642	3.05E-06	0.3883396	2.03E-06	0.8401335
9.89E-06	0.2108244	9.92E-06	0.397343	4.11E-06	0.8409487
1.984E-05	0.2178778	2.014E-05	0.4128361	7.16E-06	0.832671
4.922E-05	0.2300823	4.041E-05	0.426648	0.0000102	0.8330749
9.989E-05	0.2352645	9.907E-05	0.4553643	1.975E-05	0.8427585
0.0002889	0.2538457	0.0002011	0.4807397	4.008E-05	0.8346384
0.0005864	0.2679914	0.0004035	0.5129558	7.061E-05	0.8624088
0.0010093	0.2889518	0.0006944	0.5589983	0.0002041	0.8822606
0.0019786	0.3339459	0.0010746	0.583679	0.0004095	0.9117776
0.0029205	0.3677506	0.0020088	0.6294017	0.0009921	0.952619
0.003972	0.4027584	0.0039835	0.6933758	0.0030077	1.0279236
0.0089875	0.5614739	0.0100017	0.7722819	0.0067099	1.0969679
0.0434664	0.9991896	0.0200736	0.8878253	0.0102613	1.1332469
0.097649	1.1612272	0.0434713	1.0207041	0.0196389	1.2220595
0.1960173	1.3783096	0.0976517	1.1674282	0.0403338	1.2629857
0.4964162	1.737302	0.1960173	1.3783096	0.0710765	1.3618119
0.6934694	1.8019675	0.4964162	1.737302	0.1000931	1.4369793
0.9879946	1.84166	0.6934694	1.8019675	0.1961671	1.5914657
3.8719517	1.8890137	0.9879946	1.84166	0.2930254	1.6705242
10	1.88901	3.8719517	1.8890137	0.4964583	1.7652827
		10	1.8890137	0.6934694	1.8019675
				0.9879946	1.84166
				3.8719517	1.8890137
				10	1.8890137





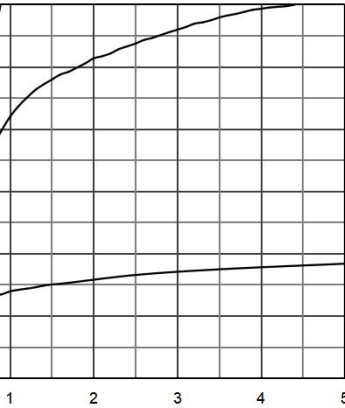
Test Condition:VGS=

3V		4V		5V	
0	0	0	0	0	0
0	7.66575	0	10.61085	0	11.89049
0	13.93029	0	20.88062	0	36.90058
0	18.37838	0	31.80289	0	51.81985
0	21.74877	0	41.41896	1	65.13838
0	23.64825	0	50.10864	1	80.91137
1	25.03588	1	59.30371	1	120
1	25.94246	1	67.67894		
1	26.53759	1	74.6433		
1	26.99088	1	79.68653		
1	27.92522	1	84.01749		
1	28.43555	1	87.39092		
1	28.80404	1	90.11219		
1	29.23068	1	92.57599		
1	29.76766	1	94.38915		
1	30.13615	2	95.97566		
2	30.36279	2	97.56218		
3	33.19509	2	98.46876		
4	35.00824	2	99.82862		
5	36.8214	2	101.18849		
		2	102.77348		
		2	103.45494		
		2	104.36152		
		2	105.72139		
		2	106.62796		
		3	107.53454		
		3	108.66777		
		3	109.3477		
		3	110.25428		
		3	111.16086		
		3	111.98263		
		3	112.83217		
		3	113.88059		
		3	114.33388		
		3	115.01382		
		4	115.88959		
		4	116.54176		
		4	117.05209		
		4	117.70427		
		4	118.35644		
		4	118.6987		
		4	119.09342		
		4	119.32007		
		4	119.54671		
		4	120		



10V

0	0
0	12.75491
0	43.65422
0	60.30765
0	80.8707
0	101.33796
1	120



0.01	3.8643988
5	3.888275
10	3.9122207
15	3.9307634
20	3.9503633
25	3.9805258
30	4.0074735
35	4.0481992
40	4.0677671

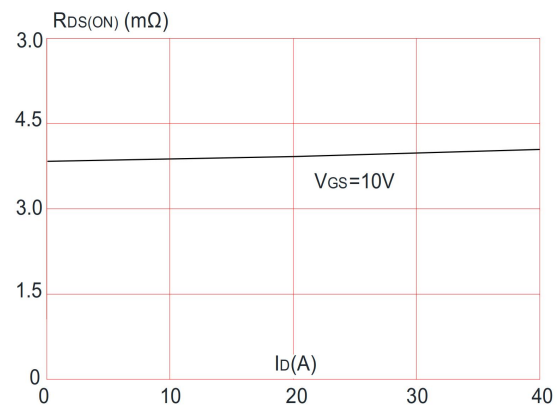
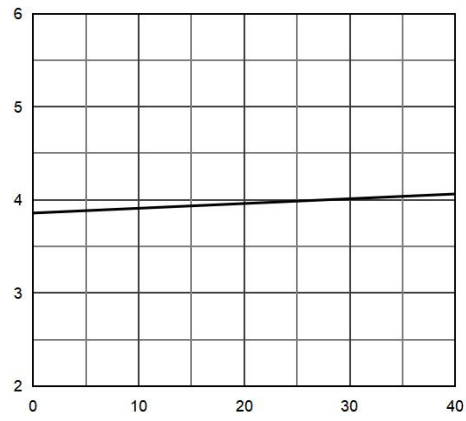
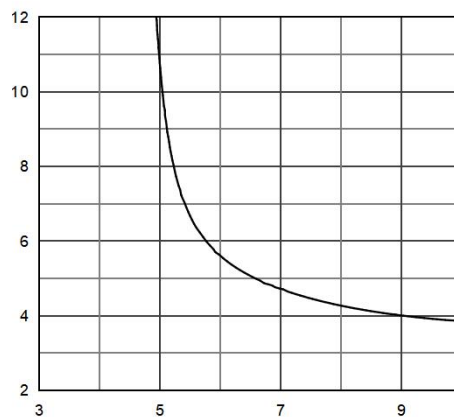


Figure 5: Gate Charge Characteristics

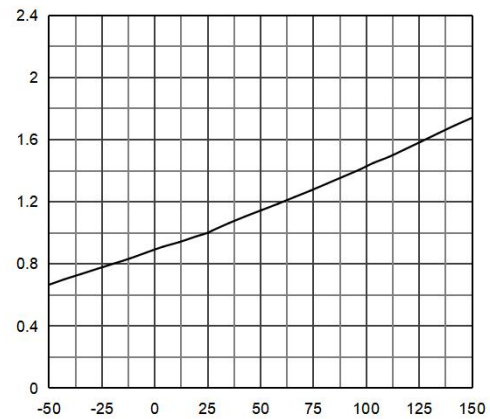
VGS	RD
4.93964	12.01908
4.949066	11.92243
4.954783	11.77535
4.956879	11.65103
4.963415	11.53244
4.969959	11.41027
4.978717	11.29336
4.978996	11.18332
4.988091	11.03914
4.995325	10.89089
5.000318	10.76596
5.009343	10.63157
5.015904	10.50297
5.02245	10.38009
5.028989	10.26007
5.035514	10.14577
5.044253	10.03647
5.052384	9.903329
5.061221	9.764768
5.070736	9.613875
5.08535	9.503918
5.088267	9.363525
5.104452	9.207741
5.117089	9.042471
5.125911	8.919917
5.140927	8.793847
5.15619	8.648565
5.16814	8.511957
5.180908	8.394455
5.195215	8.284906
5.210674	8.159909
5.231427	8.019349
5.251147	7.864854
5.271449	7.726922
5.292966	7.601385
5.312591	7.484527
5.337812	7.373936
5.356995	7.229498
5.40969	7.031523
5.438744	6.911564
5.470227	6.790112
5.501689	6.677161
5.535697	6.56581
5.568266	6.463138
5.608501	6.355183
5.664311	6.229462
5.72137	6.103327
5.774663	5.986629
5.83104	5.883416
5.89054	5.778434



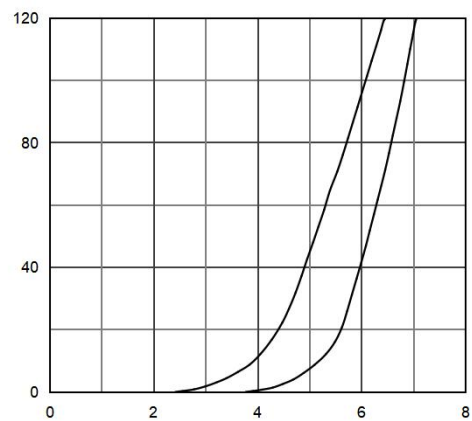
5.923778 5.7025
5.981304 5.63809
6.050134 5.541428
6.118944 5.45295
6.187737 5.371293
6.256513 5.296001
6.325277 5.225711
6.394026 5.161332
6.462769 5.099226
6.531501 5.041212
6.600226 4.986381
6.666443 4.936772
6.727291 4.87373
6.80012 4.83949
6.868796 4.80387
6.910274 4.764392
6.985156 4.728486
7.044016 4.705691
7.118592 4.648589
7.187269 4.6124
7.255945 4.576666
7.324614 4.543659
7.393281 4.511563
7.46195 4.479011
7.53061 4.449643
7.59927 4.420274
7.667929 4.39136
7.73658 4.365629
7.805227 4.341262
7.875445 4.312352
7.940446 4.291411
8.011174 4.266342
8.079814 4.244703
8.148456 4.222609
8.217098 4.200515
8.285731 4.181605
8.354367 4.161784
8.423002 4.142419
8.491634 4.123962
8.560262 4.107325
8.628892 4.089778
8.697522 4.072231
8.766145 4.057413
8.834772 4.04123
8.902342 4.03213
8.972018 4.011592
9.040636 3.999047
9.109254 3.986047
9.177875 3.972138
9.246491 3.960502
9.315106 3.948866

9.38372	3.937685
9.452335	3.926049
9.520948	3.915322
9.589557	3.90596
9.658168	3.896142
9.726778	3.886325
9.795386	3.877417
9.869802	3.873284
10	3.865032

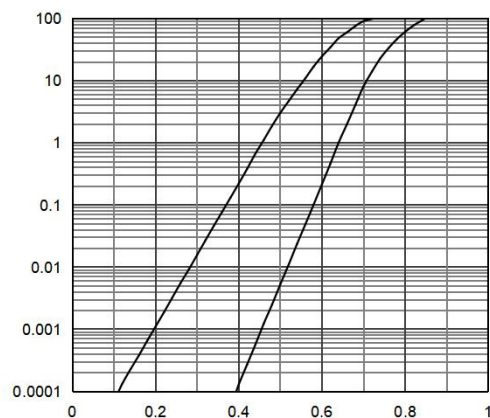
TC	RDSon	NORM-RD
-50	2.564639629	0.6659326
-42.841947	2.69739704	0.7004043
-35.065264	2.826273597	0.7338683
-27.288895	2.95773739	0.7680041
-19.512212	3.086613947	0.8014681
-11.735686	3.216784122	0.835268
-3.9612067	3.363771717	0.8734347
3.8139021	3.505584839	0.9102578
11.5888534	3.62173318	0.9404168
19.363175	3.758460793	0.9759194
25	3.8512	1
27.1384412	3.906682698	1.0144066
34.9124478	4.088360747	1.061581
42.6844075	4.256047002	1.1051223
50.4576268	4.413383927	1.1459763
58.2308461	4.570720851	1.1868303
66.0029632	4.737113488	1.2300357
73.7753953	4.900918503	1.2725692
81.5465676	5.075072848	1.31779
89.31774	5.249227578	1.3630109
97.0887549	5.424675541	1.4085676
103.287816	5.581536458	1.449298
110.511088	5.730427316	1.4879589
118.280213	5.921399466	1.5375466
126.048866	6.116252085	1.5881419
133.817204	6.313692711	1.6394092
141.586015	6.507251712	1.6896686
150	6.702505627	1.7403681



3.767606	0	2.41784	0
3.908451	0.294118	2.558685	0.294118
4.084027	0.731388	2.774258	0.820334
4.286564	1.391748	2.993683	1.79066
4.488349	2.599265	3.205362	3.052083
4.687121	4.03319	3.398112	4.410539
4.87987	6.070874	3.620978	6.448223
5.091442	8.712316	3.842338	8.768919
5.307532	12.10846	4.047887	12.10846
5.482211	16.05804	4.271506	16.86305
5.617738	20.78748	4.470278	22.22141
5.717124	25.96471	4.59677	26.631
5.807475	31.17212	4.723261	31.74138
5.897826	36.33425	4.840718	37.23989
5.988177	41.54167	4.949139	42.67371
6.078529	46.97549	5.062982	48.01697
6.151498	51.80685	5.165982	53.08854
6.232125	56.9941	5.274403	58.4469
6.304406	61.7487	5.387844	64.71089
6.376687	66.44669	5.527387	70.74847
6.448968	71.31449	5.635808	76.18229
6.521249	76.63511	5.735194	81.52555
6.59353	82.29534	5.825545	86.46127
6.665811	87.78577	5.915896	91.397
6.738092	93.3328	6.006248	96.378
6.810373	99.50245	6.096599	101.2684
6.873618	105.1627	6.18695	106.2494
6.927829	110.0682	6.277301	111.0946
6.98204	114.7473	6.367652	116.0756
7.027215	118.7472	6.421863	119.2001
7.053991	120	6.467136	120



0.393877	0	0.11112	0
0.4	0.0001302	0.12	0.000134
0.42	0.0002718	0.14	0.000229
0.44	0.0005699	0.16	0.000382
0.46	0.0012354	0.18	0.000656
0.48	0.0025064	0.2	0.001107
0.5	0.0053434	0.22	0.001873
0.52	0.0110448	0.24	0.003226
0.54	0.0236455	0.26	0.005546
0.56	0.048855	0.28	0.009221
0.58	0.101992	0.3	0.01582
0.6	0.2167089	0.32	0.02717
0.62	0.4608418	0.34	0.046371
0.64	1.0130926	0.36	0.077858
0.66	2.0027688	0.38	0.131451
0.68	4.0509986	0.4	0.22225
0.7	8.1745664	0.42	0.382857
0.72	14.040868	0.44	0.673277
0.74	22.866557	0.46	1.115272
0.76	33.560587	0.48	1.88241
0.78	46.742627	0.5	3.05702
0.8	61.474724	0.52	4.723015
0.82	77.553054	0.54	7.273474
0.8474295	100	0.56	10.981
		0.58	16.96963
		0.6	24.78514
		0.62	34.46442
		0.64	48.42537
		0.66	60.13964
		0.68	75.98142
		0.7	91.06657
	0.723043		100



ciss		co	ss	cr	ss
0	19095.21052	0	4245.803276	0	1938.485553
0.2448044	16022.18133	0.2828658	3589.901877	0.3027105	1611.343221
0.9720589	12032.36238	0.8297867	2757.268662	0.9110494	1171.440698
1.9988334	9261.011412	1.3769117	2102.390788	1.57874	876.2534164
3.2044988	7485.14119	1.9838537	1618.85278	2.4266183	654.3500204
4.5547492	6361.633571	2.5905042	1262.669186	3.5733333	516.0475813
5.8883212	5700.154161	3.1967467	1002.312404	4.8984988	434.8222129
7.6769139	5313.623793	4.1640185	772.2670532	6.2210708	405.5753327
9.9970845	5140.181587	5.7315487	599.0085634	7.4226149	392.6666766
12.1583644	5140.181587	6.935621	527.0835645	10.0649446	381.1839909
13.4791465	5140.181587	8.571619	470.0899174	14.8140403	381.41249
14.7999287	5140.181587	9.9415662	450.4532116	19.9684466	373.2263133
16.1207108	5140.181587	15.0418223	445.3425182	24.8918969	367.8708619
17.441493	5140.181587	19.965646	433.0738756	29.8924571	359.9876379
18.6422041	5140.181587	29.9671397	409.6195353	34.7387976	357.399285
19.9629862	5140.181587	40.0444361	403.9737517	40.04705	349.7503306
24.8616505	5124.122759	50	392.9344849	45.1239731	349.7503306
29.9874612	5050.163962	60	392.9344849	50	344.7463336
35.4527417	5008.236671			60	344.7463336
39.9006721	4997.628996				
45.0929798	4997.628996				
50	4920.313752				
60	4920.313752				

