华润微电子(重庆)有限公司

CRTS360N20N

Trench N-MOSFET 200V, 30mΩ, 50A

Features

- Uses CRM(CQ) advanced Trench technology
- Extremely low on-resistance $R_{DS(on)}$
- Excellent Q_gx$R_{DS(on)}$ product(FOM)
- Qualified according to JEDEC criteria

Applications

- Motor control and drive
- Battery management
- UPS (Uninterrupible Power Supplies)

Product Summary

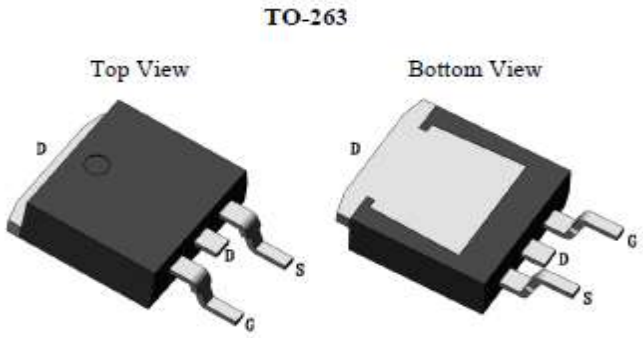
V_{DS}	200V
$R_{DS(on)\ typ.}$	30mΩ
I_D	50A

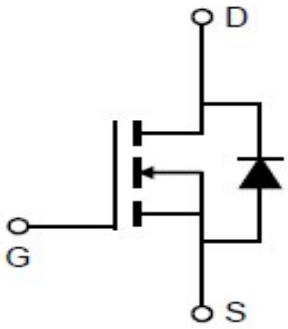
100% DVDS Tested

100% Avalanche Tested

RoHS

H F





Package Marking and Ordering Information

Part #	Marking	Package	Packing	Reel Size	Tape Width	Qty
CRTS360N20N	CRTS360N20N	TO-263	Reel	N/A	N/A	1000pcs

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	200	V
Continuous drain current T_C = 25°C (Silicon limit) T_C = 25°C (Package limit) T_C = 100°C (Silicon limit)	I_D	 50 120 32	A
Pulsed drain current (T_C = 25°C, t_p limited by T_{jmax})	$I_{D\ pulse}$	200	A
Avalanche energy, single pulse (L=0.5mH, Rg=25Ω)	E_{AS}	72	mJ
Gate-Source voltage	V_{GS}	±25	V
Power dissipation (T_C = 25°C)	P_{tot}	236	W
Operating junction and storage temperature	T_j , T_{stg}	-55...+150	°C
Soldering temperature, wave soldering only allowed at leads (1.6mm from case for 10s)	T_{sold}	260	°C

Thermal Resistance

Parameter	Symbol	Max	Unit
Thermal resistance, junction – case.	R_{thJC}	0.53	°C/W
Thermal resistance, junction – ambient(min. footprint)	R_{thJA}*	84	

Electrical Characteristic (at Tj = 25 °C, unless otherwise specified)

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Static Characteristic						
Drain-source breakdown voltage	BV_{DSS}	200	-	-	V	V_{GS}=0V, I_D=250uA
Gate threshold voltage	$V_{GS(th)}$	2	3	4	V	V_{DS}=V_{GS},I_D=250uA
Zero gate voltage drain current	I_{DSS}	- -	- -	1 100	μA	V_{DS}=200V,V_{GS}=0V T_j=25°C T_j=150°C
Gate-source leakage current	I_{GSS}	-	±10	±100	nA	V_{GS}=±25V,V_{DS}=0V
Drain-source on-state resistance	$R_{DS(on)}$	- -	30 77	36 93	mΩ	V_{GS}=10V, I_D=30A, T_j=25°C T_j=150°C
Transconductance	g_{fs}	-	74	-	S	V_{DS}=10V,I_D=30A
Dynamic Characteristic						
Input Capacitance	C_{iss}	-	2575	-	pF	V_{GS}=0V, V_{DS}=100V, f=1MHz
Output Capacitance	C_{oss}	-	176	-		
Reverse Transfer Capacitance	C_{rss}	-	47	-		
Gate Total Charge	Q_G	-	54	-	nC	V_{GS}=10V, V_{DS}=100V, I_D=30A, f=1MHz
Gate-Source charge	Q_{gs}	-	17	-		
Gate-Drain charge	Q_{gd}	-	18	-		
Turn-on delay time	$t_{d(on)}$	-	14	-	ns	V_{GS}=10V, V_{DD}=100V, R_{G_ext}=2.7Ω,ID=30A
Rise time	t_r	-	56	-		
Turn-off delay time	$t_{d(off)}$	-	35	-		
Fall time	t_f	-	51	-		
Gate resistance	R_G	-	1.8	-	Ω	V_{GS}=0V, V_{DS}=0V, f=1MHz

Body Diode Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Body Diode Forward Voltage	V_{SD}	-	0.8	1.3	V	V_{GS}=0V,I_{SD}=30A
Body Diode Continuous Forward Current	I_S			50	A	T_C = 25°C
Body Diode Reverse Recovery Time	t_{rr}	-	103	-	ns	I_F=30A, dI/dt=100A/μs
Body Diode Reverse Recovery Charge	Q_{rr}	-	519	-	nC	

*The value of R_{thJA} is measured by placing the device in a still air box which is one cubic foot.

Typical Performance Characteristics

Fig 1: Output Characteristics

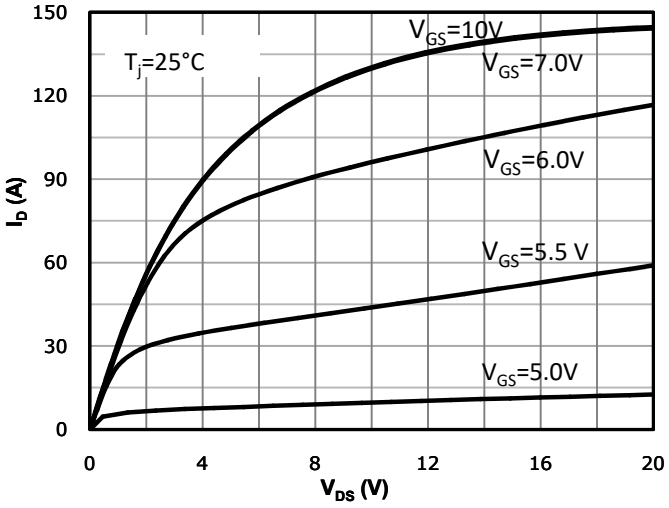


Fig 2: Transfer Characteristics

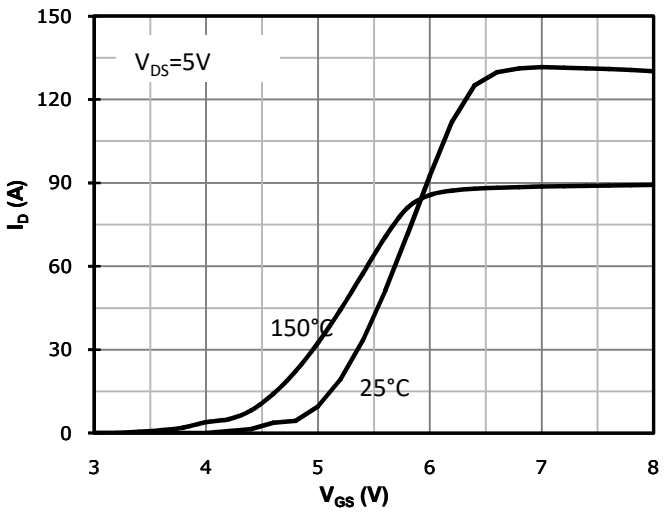


Fig 3: Rds(on) vs Drain Current and Gate Voltage

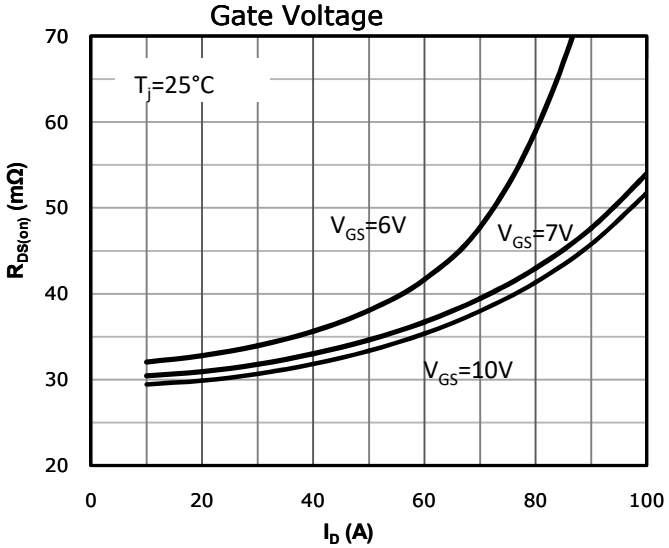


Fig 4: Rds(on) vs Gate Voltage

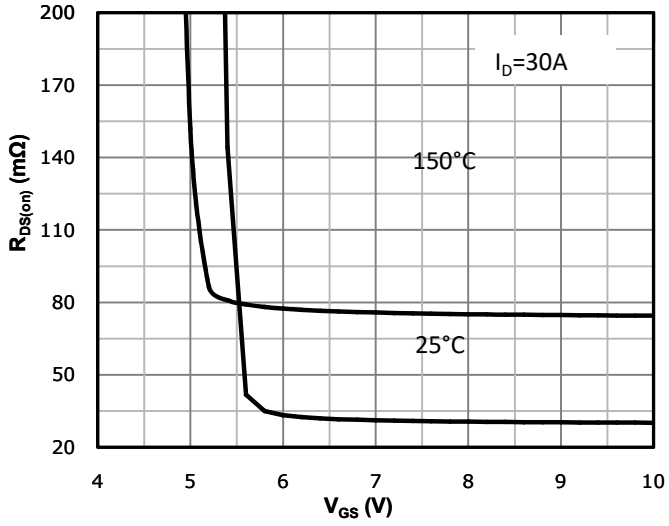


Fig 5: Rds(on) vs. Temperature

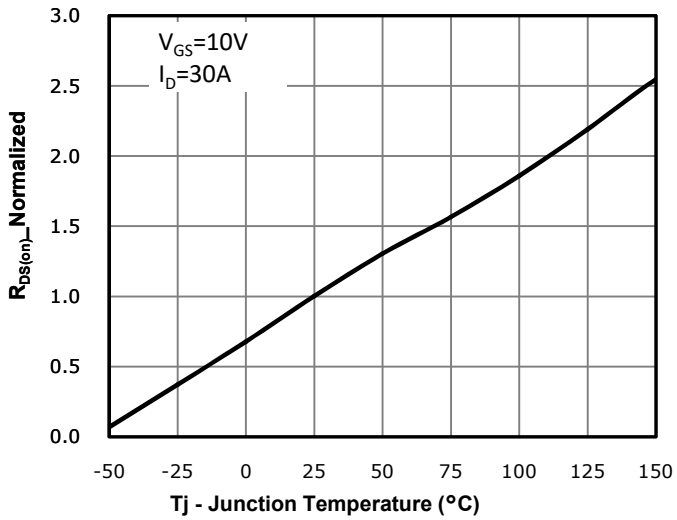


Fig 6: Capacitance Characteristics

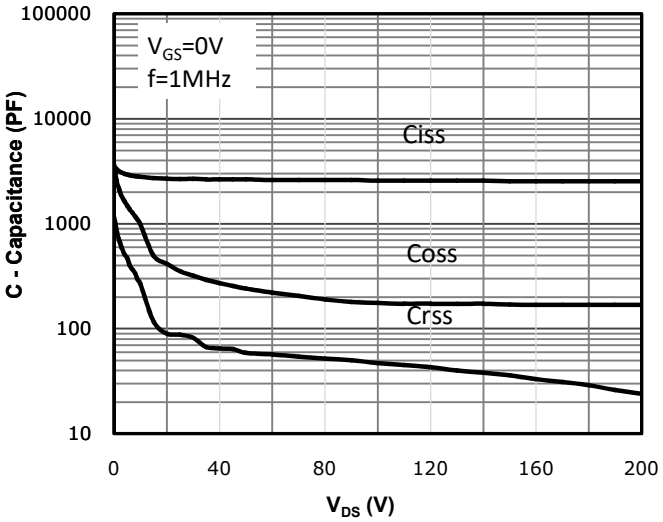


Fig 7: Gate Charge Characteristics

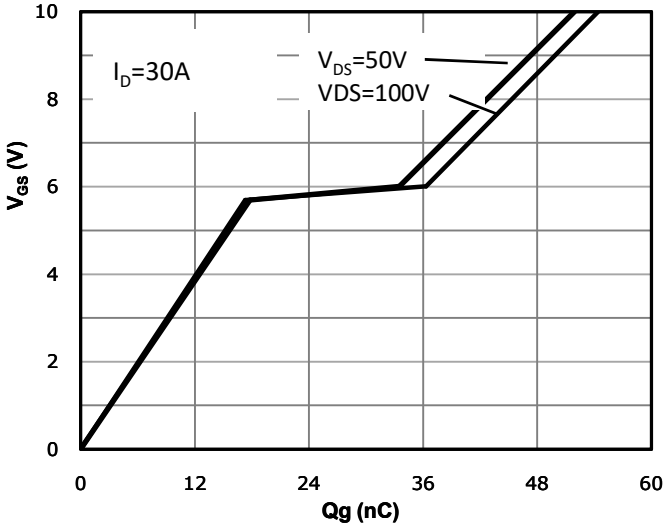


Fig 8: Body-diode Forward Characteristics

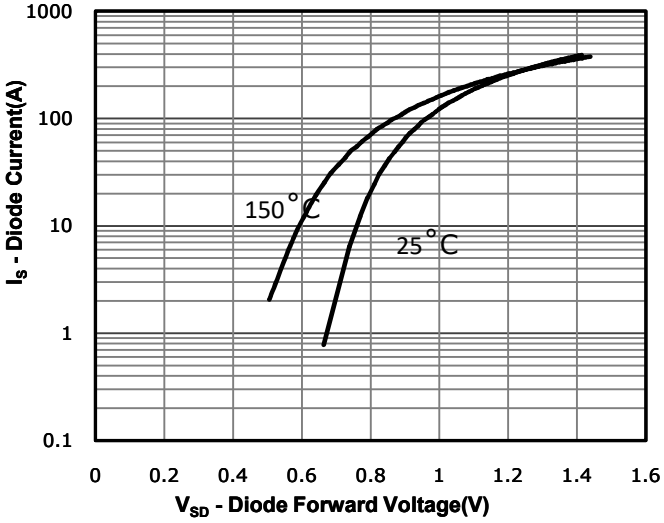


Fig 9: Power Dissipation

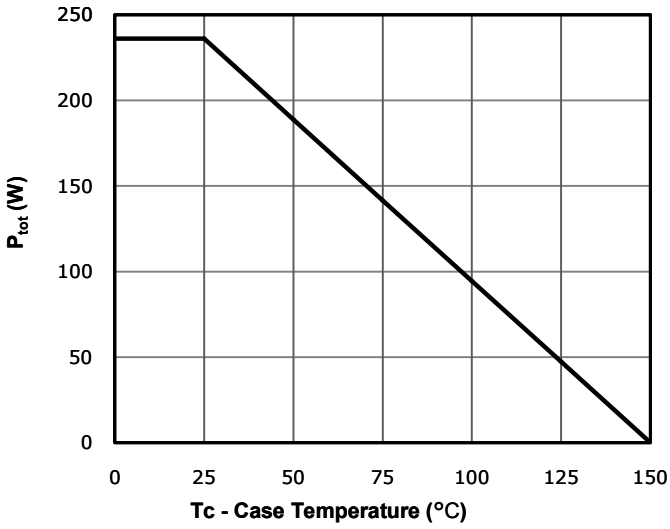


Fig 10: Drain Current Derating

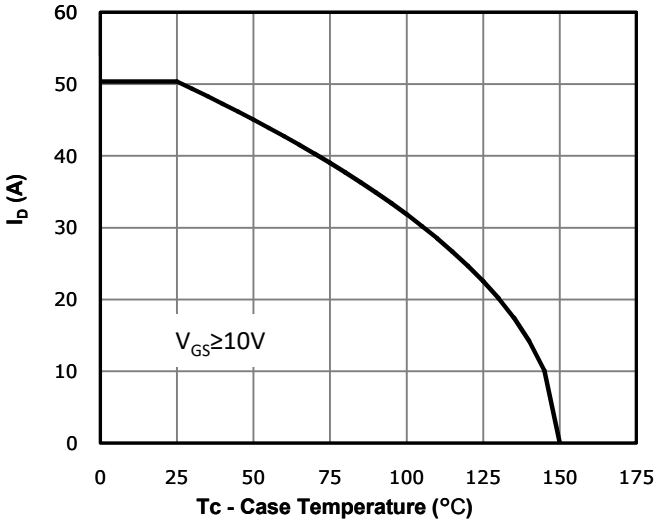


Fig 11: Safe Operating Area

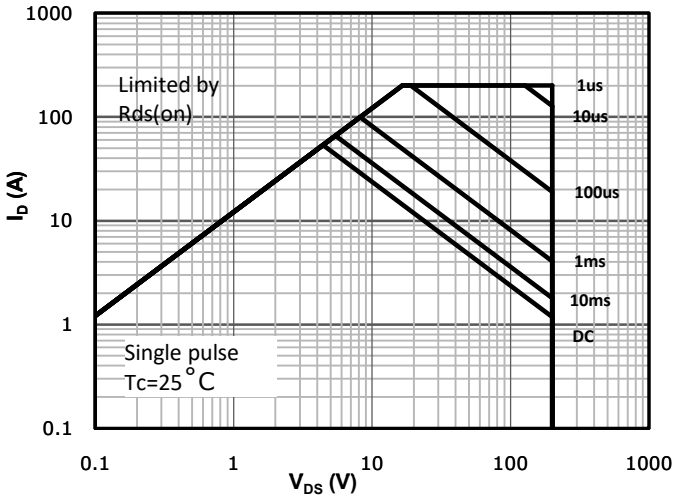
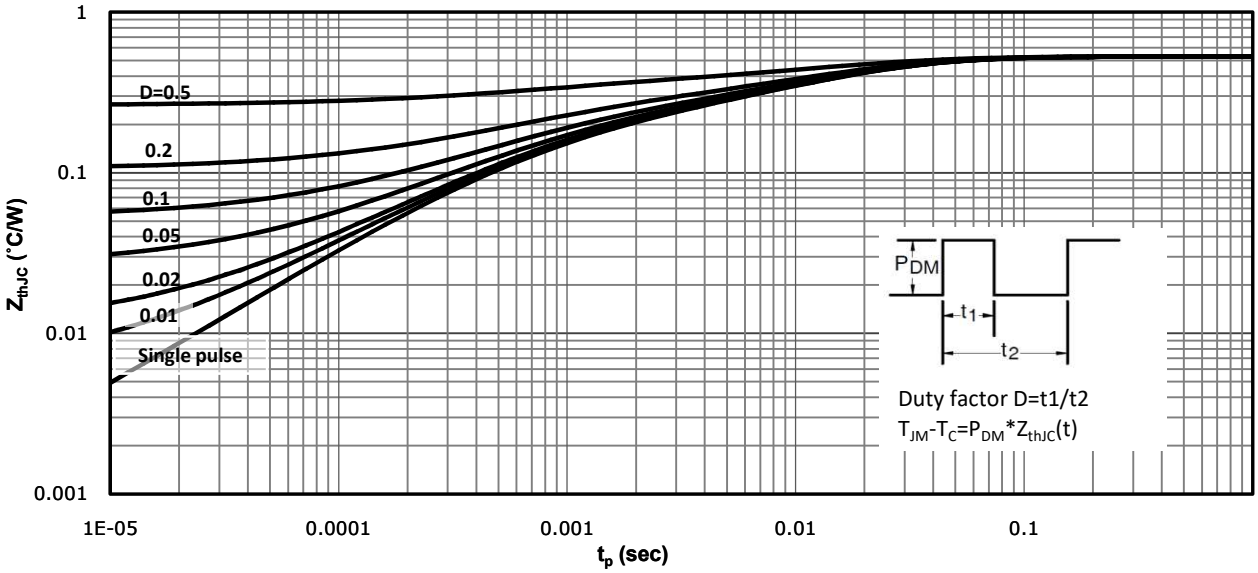
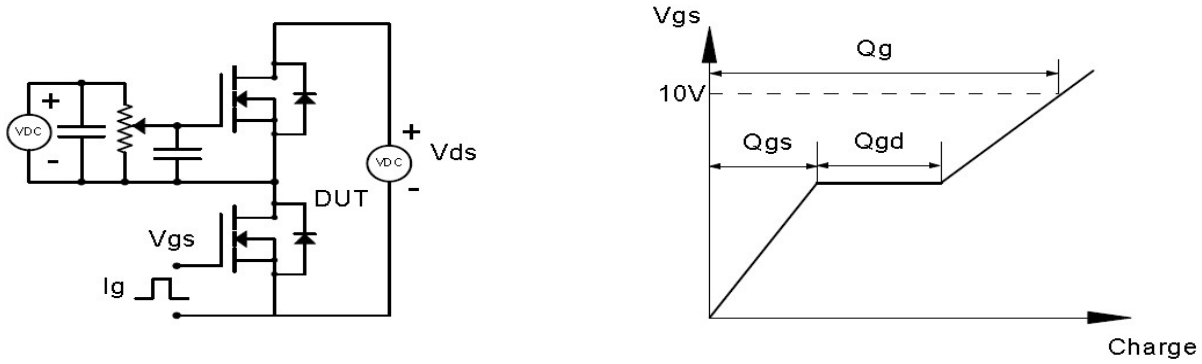


Fig 12: Max. Transient Thermal Impedance

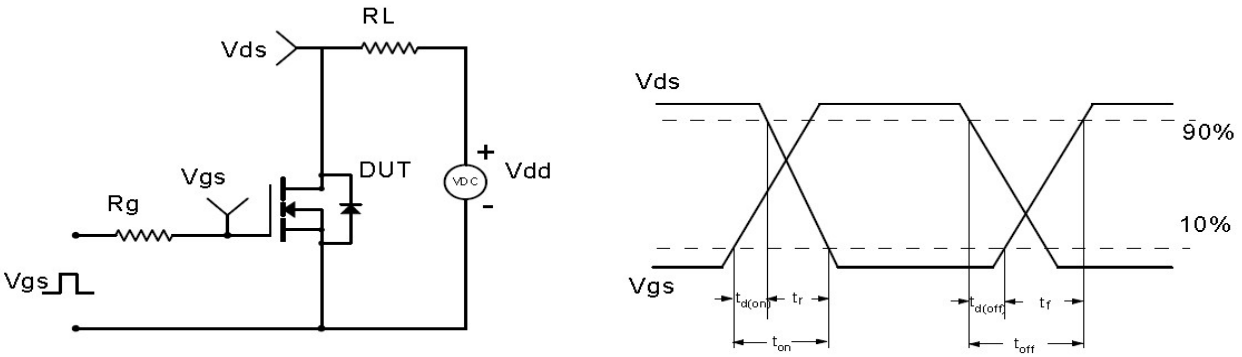


Test Circuit & Waveform

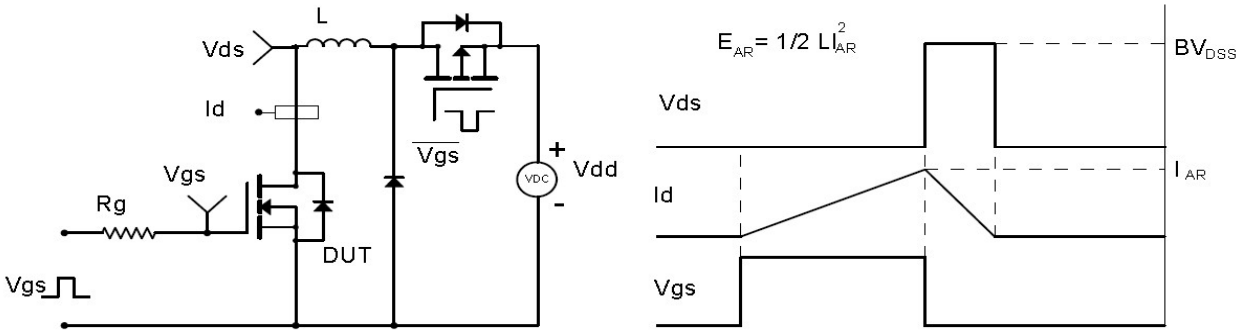
Gate Charge Test Circuit & Waveform



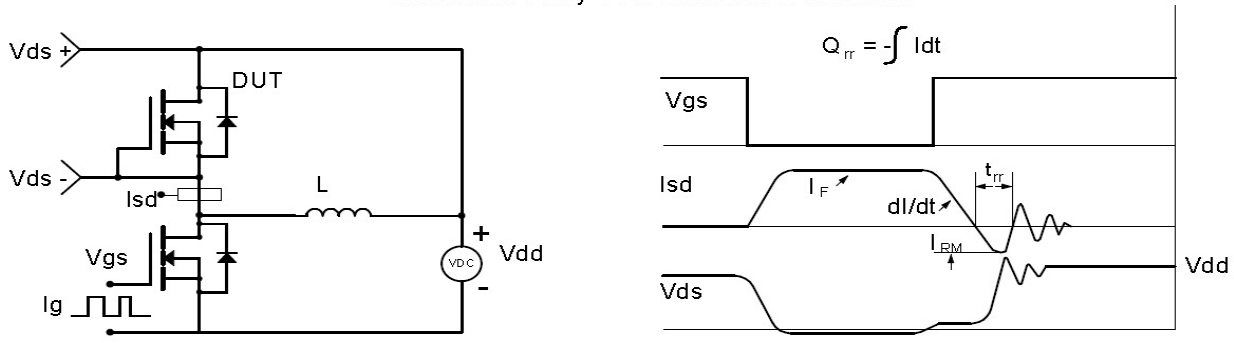
Resistive Switching Test Circuit & Waveforms



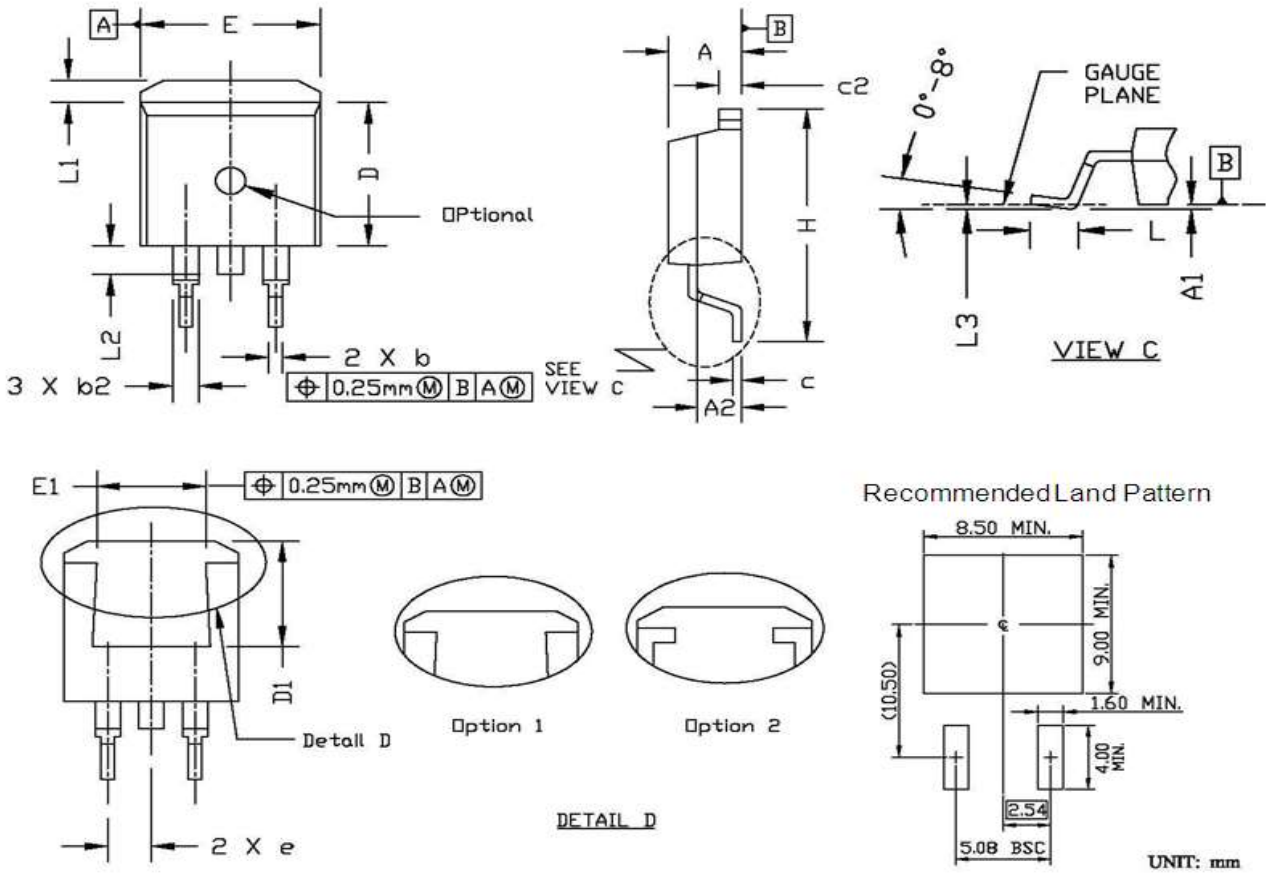
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Package Outline: TO-263



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.86	0.169	0.191
A1	0.00	0.25	0.000	0.010
A2	2.34	2.79	0.092	0.110
b	0.68	0.94	0.027	0.037
b2	1.15	1.35	0.045	0.053
c	0.33	0.65	0.013	0.026
c2	1.17	1.40	0.046	0.055
D	8.38	9.45	0.330	0.372
D1	6.90	8.17	0.272	0.322
e	2.54 BSC.		0.100 BSC.	
E	9.78	10.50	0.385	0.413
E1	6.50	8.60	0.256	0.339
H	14.61	15.88	0.575	0.625
L	2.24	3.00	0.088	0.118
L1	0.70	1.60	0.028	0.063
L2	1.00	1.78	0.039	0.070
L3	0.00	0.25	0.000	0.010

Revison	Date	Major changes
1.0	2021/12/8	Release of formal version

Disclaimer

Unless otherwise specified in the datasheet, the product is designed and qulified 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 semicondutor 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.

CRM(CQ) reserves the right to improve product design, function and reliability without notice.

VGS=5V		VGS=5.5V		VGS=6V		VGS=7V		VGS=8V
Vd	Id	Vd	Id	Vd	Id	Vd	Id	Vd
0.01	0.02	0.01	0.00	0.01	0.02	0.01	0.00	0.01
0.45	4.56	0.26	7.26	0.35	10.65	0.38	11.92	0.37
1.34	6.04	0.59	15.61	0.71	21.20	0.76	23.74	0.75
2.34	6.78	1.04	23.32	1.11	31.88	1.17	35.42	1.16
3.37	7.31	1.78	28.72	1.55	42.53	1.62	47.03	1.61
4.41	7.70	2.76	32.08	2.05	52.77	2.13	58.43	2.12
5.46	8.07	3.86	34.54	2.64	62.26	2.69	69.45	2.68
6.50	8.43	5.02	36.51	3.39	70.51	3.32	79.89	3.31
7.55	8.78	6.20	38.29	4.34	77.10	4.03	89.66	4.03
8.61	9.15	7.38	40.03	5.44	82.38	4.84	98.72	4.83
9.65	9.48	8.56	41.75	6.65	86.79	5.74	106.97	5.74
10.71	9.83	9.74	43.48	7.91	90.69	6.74	114.40	6.75
11.76	10.18	10.93	45.20	9.23	94.20	7.86	120.91	7.87
12.81	10.53	12.11	46.96	10.57	97.52	9.10	126.54	9.11
13.86	10.87	13.29	48.73	11.94	100.67	10.45	131.29	10.46
14.92	11.15	14.46	50.52	13.33	103.69	11.91	135.15	11.91
15.98	11.47	15.64	52.27	14.71	106.67	13.46	138.22	13.45
17.05	11.73	16.81	54.08	16.12	109.46	15.11	140.60	15.09
18.11	12.01	17.98	55.90	17.53	112.22	16.81	142.37	16.79
19.17	12.30	19.16	57.70	18.95	114.86	18.59	143.61	18.56
20.22	12.61	20.32	59.57	20.40	117.43	20.41	144.39	20.38

	VGS=10V			
Id	Vd	Id		
0.01	0.0071	0.015		
11.68	0.3674	11.665		
23.41	0.7395	23.3125		
35.39	1.151	35.2925		
47.12	1.6083	47.1985		
58.57	2.114	58.791		
69.60	2.6782	69.8985		
80.14	3.312	80.4305		
89.99	4.0255	90.2865		
99.14	4.8317	99.4155		
107.45	5.7362	107.731		
114.89	6.7469	115.153		
121.41	7.8682	121.6705		
127.05	9.1032	127.2645		
131.75	10.4472	131.982		
135.60	11.8987	135.8235		
138.64	13.4446	138.8895		
141.03	15.0747	141.2615		
142.80	16.7798	143.0205		
144.04	18.5444	144.293		
144.84	20.3638	145.116		

TJ=25℃		TJ=125℃	
VDS = 5.000V		VDS = 5.000V	
IDON	VGS	IDON	VGS
0.01	0.00	0.01	0.00
0.02	0.20	0.01	0.20
0.01	0.40	0.01	0.40
0.01	0.60	0.01	0.60
0.02	0.80	0.01	0.80
0.02	1.00	0.01	1.00
0.01	1.20	0.01	1.20
0.01	1.40	0.01	1.40
0.00	1.60	0.01	1.60
0.01	1.80	0.01	1.80
0.01	2.00	0.01	2.00
0.02	2.20	0.01	2.20
0.01	2.40	0.01	2.40
0.01	2.60	0.01	2.60
0.01	2.80	0.01	2.80
0.01	3.00	0.03	3.00
0.00	3.20	0.05	3.20
0.00	3.40	0.51	3.40
0.01	3.60	1.05	3.60
0.01	3.80	2.01	3.80
0.03	4.00	3.89	4.00
0.70	4.20	5.01	4.20
1.39	4.40	8.12	4.40
3.71	4.60	14.13	4.60
4.41	4.80	22.29	4.80
9.59	5.00	32.55	5.00
19.28	5.20	44.40	5.20
33.28	5.40	57.38	5.40
51.15	5.60	70.47	5.60
71.30	5.80	80.94	5.80
92.45	6.00	85.55	6.00
112.05	6.20	87.17	6.20
125.12	6.40	87.85	6.40
129.78	6.60	88.23	6.60
131.21	6.80	88.51	6.80
131.66	7.00	88.65	7.00
131.46	7.20	88.86	7.20
131.19	7.40	88.98	7.40
131.02	7.60	89.08	7.60
130.61	7.80	89.18	7.80
130.22	8.00	89.25	8.00
129.77	8.20	89.32	8.20
129.32	8.40	89.38	8.40
129.26	8.60	89.46	8.60
129.30	8.80	89.52	8.80
128.92	9.00	89.59	9.00
128.52	9.20	89.59	9.20
128.11	9.40	89.61	9.40
127.85	9.60	89.69	9.60
127.79	9.80	89.72	9.80
127.55	10.00	89.78	10.00
	10.20		10.20
	10.40		10.40
	10.60		10.60

10.80
11.00
11.20
11.40
11.60
11.80
12.00

10.80
11.00
11.20
11.40
11.60
11.80
12.00

VGS = 10.00V

RDSON	ID		
8.78	20		
8.78	40		
8.85	60		
9.01	80	8.3764	
9.24	100	8.5977	
9.54	120	8.8767	
9.94	140	9.2473	
10.45	160	9.7165	
11.11	180	10.333	
11.97	200	11.136	
13.14	220	12.216	
14.76	240	13.723	0.1491
17.18	260	15.974	
21.17	280	19.692	
29.13	299	27.093	
52.73	314	49.037	

IDS(A)	RDS(ON) (mΩ) VGS=10V	RDS(ON) (mΩ) VGS=8V	RDS(ON) (mΩ) VGS=7V	RDS(ON) (mΩ) VGS=6V
10	29.44	29.86	30.44	32.07
20	29.91	30.34	30.95	32.78
30	30.69	31.17	31.79	33.96
40	31.84	32.33	33.01	35.65
50	33.38	33.89	34.62	38.07
60	35.39	35.92	36.72	41.66
70	37.99	38.56	39.45	47.72
80	41.35	41.98	42.99	58.92
90	45.78	46.49	47.65	76.47
100	51.73	52.56	53.97	99.73

RDS(ON) (mΩ) VGS=5.5 V
35.75
40.29
65.66
158.23

Notes:	25℃
MOSFET N-CHANNEL RDSON vs VGS	
VGS	RDSON(25℃)
4.4	39997400.00
4.6	1538210.26
4.8	378381.07
5.0	108157.22
5.2	36835.87
5.4	13693.23
5.6	5646.42
5.8	2667.30
6.0	1505.76
6.2	880.38
6.4	489.55
6.6	220.49
6.8	75.14
7.0	19.78
7.2	13.21
7.4	11.61
7.6	10.79
7.8	10.34
8.0	10.06
8.2	9.82
8.4	9.65
8.6	9.55
8.8	9.43
9.0	9.34
9.2	9.28
9.4	9.19
9.6	9.18
9.8	9.12
10.0	9.08

VGS	RDSON(25℃)	RDSON(175℃)
0.0	28279.41	21725.53
0.2	27213.62	20833.85
0.4	26147.82	19942.17
0.6	25082.03	19050.49
0.8	24016.23	18158.82
1.0	22950.44	17267.14
1.2	21884.64	16375.46
1.4	20818.85	15483.78
1.6	19753.06	14592.10
1.8	18687.26	13700.43
2.0	17621.47	12808.75
2.2	16555.67	11917.07
2.4	15489.88	11025.39
2.6	14424.08	10133.72
2.8	13358.29	9242.04
3.0	12292.50	8350.36
3.2	11226.70	7458.68
3.4	10160.91	6567.00
3.6	9095.11	5675.33
3.8	8029.32	4783.65
4.0	6963.53	3891.97
4.2	5897.73	3000.29
4.4	4831.94	2214.87
4.6	3766.14	1004.42
4.8	2700.35	431.51
5.0	1634.55	152.04
5.2	568.76	86.49
5.4	144.27	80.93
5.6	41.81	79.08
5.8	34.94	78.04
6.0	33.25	77.36
6.2	32.43	76.90
6.4	31.94	76.50
6.6	31.59	76.21
6.8	31.34	75.98
7.0	31.14	75.77
7.2	30.99	75.60
7.4	30.86	75.48
7.6	30.75	75.31
7.8	30.66	75.20
8.0	30.58	75.08
8.2	30.51	75.01
8.4	30.45	74.90
8.6	30.39	74.87
8.8	30.34	74.78
9.0	30.28	74.71
9.2	30.26	74.65
9.4	30.22	74.58
9.6	30.18	74.53
9.8	30.15	74.51

10.0	30.11	74.47

#REF!

28278.41	21724.53
27212.62	20832.85
26146.82	19941.17
25081.03	19049.49
24015.23	18157.82
22949.44	17266.14
21883.64	16374.46
20817.85	15482.78
19752.06	14591.10
18686.26	13699.43
17620.47	12807.75
16554.67	11916.07
15488.88	11024.39
14423.08	10132.72
13357.29	9241.04
12291.50	8349.36
11225.70	7457.68
10159.91	6566.00
9094.11	5674.33
8028.32	4782.65
6962.53	3890.97
5896.73	2999.29
4830.94	2213.87
3765.14	1003.42
2699.35	430.51
1633.55	151.04
567.76	85.49
143.27	79.93
40.81	78.08
33.94	77.04
32.25	76.36
31.43	75.90
30.94	75.50
30.59	75.21
30.34	74.98
30.14	74.77
29.99	74.60
29.86	74.48
29.75	74.31
29.66	74.20
29.58	74.08
29.51	74.01
29.45	73.90
29.39	73.87
29.34	73.78
29.28	73.71
29.26	73.65
29.22	73.58
29.18	73.53
29.15	73.51

29.11 73.47

Temperature	RDSON VGS = 10.0 V ID = 20.00 A	Ron_Nomalized
-50	2.03	0.07
-25	11.28	0.37
0	20.53	0.68
25	30.37	1.00
50	39.63	1.30
75	47.51	1.56
100	56.43	1.86
125	66.49	2.19
150	77.32	2.55
175	85.28	2.81

NO.	53#		
Voltage[V]	Ciss[pF]	Coss[pF]	Crss[pF]
0	4748	5000	1372
0.5	4634	3956	1223
1	4470	3354	1032
2	4252	2677	801
3	4146	2270	661
4	4043	2002	519
5	3997	1716	479
6	3947	1498	376
7	3905	1303	334
8	3895	1159	275
9	3862	1056	248
10	3850	978	236
15	3806	770	209
20	3763	659	178
25	3745	577	167
30	3711	524	143
35	3704	486	135
40	3680	451	117
45	3651	429	110
50	3655	406	105
60	3618	369	100
70	3611	341	95
75	3594	331	93
80	3576	321	90
90	3576	304	80
100	3537	293	71
110	3531	287	71
120	3523	279	70
130	3516	280	68
140	3487	278	65
150	3482	277	63

Voltage[V]	Ciss[pF]	Coss[pF]
0	3533	3681
1	3413	2961
1	3309	2568
2	3148	2109
3	3061	1832
4	2985	1632
5	2949	1490
6	2911	1369
7	2871	1272
8	2834	1173
9	2821	1085
10	2796	993
15	2718	499
20	2686	415
25	2676	354
30	2678	320
35	2640	293
40	2642	272
45	2643	256
50	2644	241
60	2611	221
70	2610	205
80	2605	190
90	2608	180
100	2575	176
110	2574	173
120	2570	173
130	2571	172
140	2570	173
150	2542	170
160	2537	169
170	2538	169
180	2536	169
190	2536	169
200	2537	169

Crss[pF]
1145
1002
855
692
591
510
473
401
367
336
291
269
118
90
88
82
67
65
64
59
57
54
52
50
47
45
43
40
38
36
33
31
29
26
24

Vgs	Q
0	0
5.69	17.3
6.01	36.3
10	54.4

Vgs	Q
0	0
5.69	17.8
6.01	33.52
10	51.88

Notes:	25℃	Notes:	125℃
MOSFET N-CHANNEL IS vs VSD		MOSFET N-CHANNEL IS vs VSD	
Vsd	IDS(25℃)	Vsd	IDS(150℃)
0.66	0.78	0.51	2.05
0.74	6.37	0.58	7.64
0.77	12.26	0.61	13.43
0.79	18.27	0.64	19.35
0.81	24.33	0.67	25.29
0.83	30.39	0.69	31.22
0.84	36.46	0.71	37.22
0.85	42.55	0.73	43.23
0.87	48.64	0.74	49.23
0.88	54.73	0.76	55.23
0.89	60.81	0.78	61.23
0.90	66.90	0.79	67.24
0.91	73.02	0.81	73.25
0.93	79.13	0.82	79.24
0.94	85.21	0.84	85.23
0.95	91.33	0.85	91.25
0.96	97.42	0.86	97.24
0.97	103.53	0.88	103.20
0.98	109.65	0.89	109.05
0.99	115.73	0.90	114.99
1.00	121.85	0.91	120.93
1.01	127.90	0.93	126.95
1.02	134.01	0.94	133.10
1.03	140.11	0.96	139.15
1.04	146.23	0.97	145.29
1.05	152.35	0.98	151.39
1.06	158.46	0.99	157.49
1.07	164.57	1.01	163.56
1.08	170.67	1.02	169.69
1.09	176.80	1.03	175.77
1.09	182.93	1.04	181.88
1.10	189.05	1.06	187.97
1.11	195.16	1.07	194.06
1.12	201.27	1.08	200.14
1.13	207.39	1.09	206.26
1.14	213.54	1.10	212.39
1.15	219.64	1.12	218.53
1.16	225.76	1.13	224.61
1.17	231.89	1.14	230.74
1.18	237.98	1.15	236.82
1.19	244.10	1.17	242.95
1.20	250.21	1.18	249.05
1.21	256.30	1.19	255.13
1.22	262.42	1.20	261.23
1.22	268.52	1.22	267.33
1.23	274.62	1.23	273.44
1.24	280.67	1.24	279.54
1.25	286.76	1.25	285.67

1.26	292.85	1.27	291.79
1.27	298.92	1.28	297.90
1.28	304.95	1.29	303.98
1.29	311.05	1.30	310.07
1.30	317.15	1.31	316.18
1.31	323.26	1.33	322.23
1.32	329.33	1.34	328.34
1.33	335.46	1.35	334.44
1.34	341.54	1.37	340.53
1.35	347.65	1.38	346.58
1.35	353.72	1.39	352.67
1.37	359.86	1.40	358.75
1.37	365.95	1.42	364.83
1.39	372.14	1.43	370.90
1.40	378.20	1.44	377.00
1.40	384.28		
1.41	390.42		

max/typ	1.3
RthJC_test	0.407
RthJC_max	0.52949
RthJA_test	60
RthJA_max	84

T(sec)	Single Pulse(Test)	Single Pulse(Max)	0.5	0.2	0.1
0.000001	0.0004958	0.00064454	0.265067	0.106414	0.053529
0.0000012	0.0005888	0.00076544	0.265128	0.10651	0.053638
0.0000014	0.0006801	0.00088413	0.265187	0.106605	0.053745
0.0000016	0.0007698	0.00100074	0.265245	0.106699	0.05385
0.0000019	0.0009015	0.00117195	0.265331	0.106836	0.054004
0.0000023	0.001072	0.0013936	0.265442	0.107013	0.054203
0.0000027	0.001238	0.0016094	0.26555	0.107186	0.054397
0.0000032	0.00144	0.001872	0.265681	0.107396	0.054634
0.0000037	0.001635	0.0021255	0.265808	0.107598	0.054862
0.0000044	0.0019	0.00247	0.26598	0.107874	0.055172
0.0000052	0.002191	0.0028483	0.266169	0.108177	0.055512
0.0000061	0.002508	0.0032604	0.266375	0.108506	0.055883
0.0000072	0.002881	0.0037453	0.266618	0.108894	0.05632
0.0000085	0.003306	0.0042978	0.266894	0.109336	0.056817
0.00001	0.00378	0.004914	0.267202	0.109829	0.057372
0.000012	0.00439	0.005707	0.267599	0.110464	0.058085
0.000014	0.004982	0.0064766	0.267983	0.111079	0.058778
0.000016	0.005559	0.0072267	0.268358	0.111679	0.059453
0.000019	0.006404	0.0083252	0.268908	0.112558	0.060442
0.000023	0.0075	0.00975	0.26962	0.113698	0.061724
0.000027	0.008569	0.0111397	0.270315	0.11481	0.062975
0.000032	0.009874	0.0128362	0.271163	0.116167	0.064502
0.000037	0.01115	0.014495	0.271993	0.117494	0.065995
0.000044	0.01288	0.016744	0.273117	0.119293	0.068019
0.000052	0.01481	0.019253	0.274372	0.1213	0.070277
0.000061	0.01691	0.021983	0.275737	0.123484	0.072734
0.000072	0.01938	0.025194	0.277342	0.126053	0.075624
0.000085	0.02219	0.028847	0.279169	0.128976	0.078911
0.0001	0.0253	0.03289	0.28119	0.13221	0.08255
0.00012	0.02924	0.038012	0.283751	0.136308	0.08716
0.00014	0.03298	0.042874	0.286182	0.140197	0.091536
0.00016	0.03654	0.047502	0.288496	0.1439	0.095701
0.00019	0.04158	0.054054	0.291772	0.149141	0.101598
0.00023	0.04783	0.062179	0.295835	0.155641	0.10891
0.00027	0.05362	0.069706	0.299598	0.161663	0.115684
0.00032	0.0603	0.07839	0.30394	0.16861	0.1235
0.00037	0.06645	0.086385	0.307938	0.175006	0.130696
0.00044	0.07431	0.096603	0.313047	0.18318	0.139892
0.00052	0.0824	0.10712	0.318305	0.191594	0.149357
0.00061	0.09055	0.117715	0.323603	0.20007	0.158893
0.00072	0.09942	0.129246	0.329368	0.209295	0.16927
0.00085	0.1086	0.14118	0.335335	0.218842	0.180011
0.001	0.1179	0.15327	0.34138	0.228514	0.190892
0.0012	0.1286	0.16718	0.348335	0.239642	0.203411
0.0014	0.1378	0.17914	0.354315	0.24921	0.214175
0.0016	0.1458	0.18954	0.359515	0.25753	0.223535
0.0019	0.1562	0.20306	0.366275	0.268346	0.235703
0.0023	0.1678	0.21814	0.373815	0.28041	0.249275
0.0027	0.1777	0.23101	0.38025	0.290706	0.260858
0.0032	0.1883	0.24479	0.38714	0.30173	0.27326
0.0037	0.1975	0.25675	0.39312	0.311298	0.284024
0.0044	0.2088	0.27144	0.400465	0.32305	0.297245
0.0052	0.22	0.286	0.407745	0.334698	0.310349
0.0061	0.2311	0.30043	0.41496	0.346242	0.323336
0.0072	0.2431	0.31603	0.42276	0.358722	0.337376

0.0085	0.2555	0.33215	0.43082	0.371618	0.351884
0.01	0.268	0.3484	0.438945	0.384618	0.366509
0.012	0.2825	0.36725	0.44837	0.399698	0.383474
0.014	0.2948	0.38324	0.456365	0.41249	0.397865
0.016	0.3055	0.39715	0.46332	0.423618	0.410384
0.019	0.3191	0.41483	0.47216	0.437762	0.426296
0.023	0.3336	0.43368	0.481585	0.452842	0.443261
0.027	0.345	0.4485	0.488995	0.464698	0.456599
0.032	0.3562	0.46306	0.496275	0.476346	0.469703
0.037	0.3649	0.47437	0.50193	0.485394	0.479882
0.044	0.3741	0.48633	0.50791	0.494962	0.490646
0.052	0.3817	0.49621	0.51285	0.502866	0.499538
0.061	0.3878	0.50414	0.516815	0.50921	0.506675
0.072	0.3929	0.51077	0.52013	0.514514	0.512642
0.085	0.397	0.5161	0.522795	0.518778	0.517439
0.1	0.4001	0.52013	0.52481	0.522002	0.521066
0.12	0.4026	0.52338	0.526435	0.524602	0.523991
0.14	0.4041	0.52533	0.52741	0.526162	0.525746
0.16	0.4051	0.52663	0.52806	0.527202	0.526916
0.19	0.4059	0.52767	0.52858	0.528034	0.527852
0.23	0.4065	0.52845	0.52897	0.528658	0.528554
0.27	0.4068	0.52884	0.529165	0.52897	0.528905
0.32	0.407	0.5291	0.529295	0.529178	0.529139
0.37	0.4071	0.52923	0.52936	0.529282	0.529256
0.44	0.4072	0.52936	0.529425	0.529386	0.529373
0.52	0.4072	0.52936	0.529425	0.529386	0.529373
0.61	0.4073	0.52949	0.52949	0.52949	0.52949
0.72	0.4073	0.52949	0.52949	0.52949	0.52949
0.85	0.4073	0.52949	0.52949	0.52949	0.52949
1	0.4073	0.52949	0.52949	0.52949	0.52949
1.2	0.4073	0.52949	0.52949	0.52949	0.52949
1.4	0.4073	0.52949	0.52949	0.52949	0.52949
1.6	0.4073	0.52949	0.52949	0.52949	0.52949
1.9	0.4073	0.52949	0.52949	0.52949	0.52949
2.3	0.4073	0.52949	0.52949	0.52949	0.52949
2.7	0.4073	0.52949	0.52949	0.52949	0.52949
3.2	0.4073	0.52949	0.52949	0.52949	0.52949
3.7	0.4073	0.52949	0.52949	0.52949	0.52949
4.4	0.4073	0.52949	0.52949	0.52949	0.52949
5.2	0.4073	0.52949	0.52949	0.52949	0.52949
6.1	0.4073	0.52949	0.52949	0.52949	0.52949
7.2	0.4073	0.52949	0.52949	0.52949	0.52949
8.5	0.4073	0.52949	0.52949	0.52949	0.52949
10	0.4073				
12	0.4073				
14	0.4073				
16	0.4073				
19	0.4073				
23	0.4073				
27	0.4073				
32	0.4073				
37	0.4073				
44	0.4073				
52	0.4073				
61	0.4073				
72	0.4073				
85	0.4073				

100	0.4073
120	0.4073
140	0.4073
160	0.4073
190	0.4073
230	0.4073
270	0.4073
320	0.4073
370	0.4073
440	0.4073
520	0.4073
610	0.4073
720	0.4073
850	0.4073
1000	0.4073
1200	0.4073
1400	0.4073
1600	0.4073
1900	0.4073
2300	0.4073
2700	0.4073
3200	0.4073
3700	0.4073
4400	0.4073
5200	0.4073
6100	0.4073
7200	0.4073
8500	0.4073
10000	0.4073
12000	0.4073
14000	0.4073
16000	0.4073
19000	0.4073
23000	0.4073
27000	0.4073
32000	0.4073
37000	0.4073
44000	0.4073
52000	0.4073
61000	0.4073
72000	0.4073
85000	0.4073
100000	0.4073
120000	0.4073
140000	0.4073
160000	0.4073
190000	0.4073
230000	0.4073
270000	0.4073
320000	0.4073
370000	0.4073
440000	0.4073
520000	0.4073
610000	0.4073
720000	0.4073
850000	0.4073
1000000	0.4073

0.05	0.02	0.01
0.027087	0.011221	0.005933
0.027202	0.01134	0.006053
0.027314	0.011456	0.00617
0.027425	0.011571	0.006286
0.027588	0.011738	0.006455
0.027798	0.011956	0.006675
0.028003	0.012167	0.006888
0.028253	0.012424	0.007148
0.028494	0.012673	0.007399
0.028821	0.01301	0.00774
0.02918	0.013381	0.008115
0.029572	0.013785	0.008523
0.030033	0.01426	0.009003
0.030557	0.014802	0.00955
0.031143	0.015406	0.01016
0.031896	0.016183	0.010945
0.032627	0.016937	0.011707
0.03334	0.017672	0.012449
0.034383	0.018748	0.013537
0.035737	0.020145	0.014947
0.037057	0.021507	0.016323
0.038669	0.023169	0.018003
0.040245	0.024795	0.019645
0.042381	0.026999	0.021871
0.044765	0.029458	0.024355
0.047358	0.032133	0.027058
0.050409	0.03528	0.030237
0.053879	0.03886	0.033853
0.05772	0.042822	0.037856
0.062586	0.047842	0.042927
0.067205	0.052606	0.04774
0.071601	0.057142	0.052322
0.077826	0.063563	0.058808
0.085545	0.071525	0.066852
0.092695	0.078902	0.074304
0.100945	0.087412	0.082901
0.10854	0.095247	0.090816
0.118247	0.105261	0.100932
0.128239	0.115567	0.111344
0.138304	0.125951	0.121833
0.149258	0.137251	0.133248
0.160596	0.148946	0.145063
0.172081	0.160794	0.157032
0.185296	0.174426	0.170803
0.196658	0.186147	0.182644
0.206538	0.196339	0.19294
0.219382	0.209589	0.206324
0.233708	0.224367	0.221254
0.245934	0.23698	0.233995
0.259025	0.250484	0.247637
0.270387	0.262205	0.259477
0.284343	0.276601	0.274021
0.298175	0.29087	0.288435
0.311883	0.305011	0.302721
0.326703	0.320299	0.318165

0.342017	0.336097	0.334123
0.357455	0.352022	0.350211
0.375362	0.370495	0.368872
0.390553	0.386165	0.384703
0.403767	0.399797	0.398473
0.420563	0.417123	0.415977
0.438471	0.435596	0.434638
0.45255	0.45012	0.44931
0.466382	0.464389	0.463724
0.477126	0.475472	0.474921
0.488488	0.487193	0.486762
0.497874	0.496876	0.496543
0.505408	0.504647	0.504394
0.511706	0.511144	0.510957
0.51677	0.516368	0.516234
0.520598	0.520317	0.520224
0.523686	0.523502	0.523441
0.525538	0.525413	0.525372
0.526773	0.526687	0.526659
0.527761	0.527706	0.527688
0.528502	0.528471	0.52846
0.528873	0.528853	0.528847
0.52912	0.529108	0.529104
0.529243	0.529235	0.529233
0.529367	0.529363	0.529361
0.529367	0.529363	0.529361
0.52949	0.52949	0.52949
0.52949	0.52949	0.52949
0.52949	0.52949	0.52949
0.52949	0.52949	0.52949
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0.52949	0.52949	0.52949
0.52949	0.52949	0.52949
0.52949	0.52949	0.52949
0.52949	0.52949	0.52949
0.52949	0.52949	0.52949

TC(°C)	PD (W)
0	236
25	236
50	188.9
75	141.6
100	94.4
125	47.2
150	0.0
175	-47.2

Max Tj	150	°C
RthJC	0.52949	°C/W
Rds(on) max maxTj	0.093	ohm
Ron k@Tj	2.3	-
Package limit	120	A

TC	ID(Silicon)	ID limit
0	50	50
25	50	50
30	49	49
35	48	48
40	47	47
45	46	46
50	45	45
55	44	44
60	43	43
65	42	42
70	40	40
75	39	39
80	38	38
85	36	36
90	35	35
95	33	33
100	32	32
105	30	30
110	29	29
115	27	27
120	25	25
125	23	23
130	20	20
135	17	17
140	14	14
145	10	10
150	0	0
155	#NUM!	#NUM!
160	#NUM!	#NUM!
165	#NUM!	#NUM!
170	#NUM!	#NUM!
175	#NUM!	#NUM!

Package Wire Current limit:

Merterial	D(mils)	I(A) <=1mm	I(A) >1mm
Cu/Au	1	0.9	0.6
Cu/Au	1.3	1.4	1.0
Cu/Au	1.5	1.7	1.2
Cu/Au	1.7	2.1	1.4
Cu/Au	2	2.7	1.8
Al	1	0.7	0.5
Al	1.25	1.0	0.7
Al	1.5	1.3	0.9
Al	2	2.0	1.4
Al	3	3.6	2.5
Al	4	5.6	3.8
Al	5	7.8	5.4
Al	8	16	11
Al	10	22	15
Al	12	29	20
Al	15	40	28
Al	18	53	37
Al	20	62	43
Al	25	87	60

RθJC_max	0.529
PD	236.1
BVDSS	200
I_D	50
I_{DP}	200
封装限流	120
Ron_max	0.036
k	2.3
Ron@Tj_max	0.0828

tp	DC	0.01	0.001	0.0001	0.00001
Zth_max	0.529	0.348	0.153	0.033	0.005
PD	236	359	816	3801	25438
ID	53	66	99	214	554
ID limit	53	66	99	200	200

DC		10ms		1ms	
VDS	ID	VDS	ID	VDS	ID
0.01	0.12	0.01	0.12	0.01	0.12
4.421212	53	5.45	65.8	8.22	99.2
4.421212	53	5.45	65.8	8.22	99.2
200	1.18	200	1.79	200	4.1
200	0.01	200	0.01	200	0.01

0.000001
0.001
193937
1530
200

100us		10us		1us	
VDS	ID	VDS	ID	VDS	ID
0.01	0.12	0.01	0.12	0.01	0.12
16.56	200	16.56	200	16.56	200
19.00	200	127.2	200	200	200
200	19.00	200	127.2	200	200
200	0.01	200	0.01	200	0.01