

Features

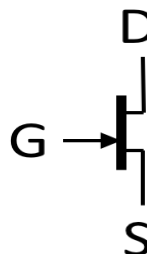
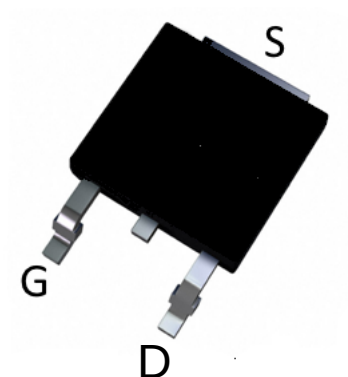
- Single chip 1200V Emode GaN
- Ultra-low $R_{DS(on)}$
- High dv/dt capability
- Extremely low input capacitance
- Zero Q_{rr}
- Outstanding switching performance

Applications

- Switching Power Applications

Description

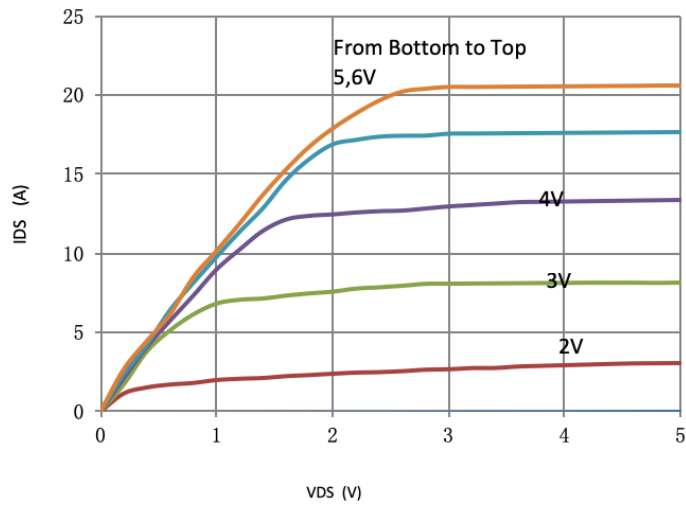
These devices are N-channel 1200 V Power GaN HEMTs based on proprietary E-mode GaN on silicon technology. The resulting product has extremely low on state resistance, very low input capacitance and zero reverse recovery charge making it especially suitable for applications which require superior power density, ultra-high switching frequency and outstanding efficiency.



Static Parameters					
				Test data	
NO.	Parameters		Condition	1#	Unit
1	V _{gs(TH)}	Gate Threshold Voltage	V _{ds} =V _{gs} I _d =3.5mA	1.2	V
2	BV _{dss}	Drain-Source breakdown voltage	V _{gs} =0V I _d =25uA	>1200	V
3	I _{dss}	Zero gate voltage drain current, T _C = 25C°	V _{gs} =0V V _{ds} =1200V	6.7	uA
4	I _{gss}	Gate-Source Leakage	V _{gs} = 6V V _{ds} =0V	64.4	uA
5	R _{dson}	static Drain-Source on resistance, T _C = 25C°	V _{gs} =6V I _d =2.5A	0.095	Ω
6	V _{sd}	Reverse conduction voltage	I _{sq} =1A V _{gs} =0V	1.96	V
Dynamic Parameters				Test data	Unit
1	Capacitance	C _{iss}	V _{gs} =0V V _{ds} =400V f=1MHz	124	pf
		C _{Oss}		38	pf
		C _{rss}		6.8	pf
3	Q _g	Gate charge	V _{ds} =400V I _d =7.5A V _{gs} =6V	4.15	nC
	Q _{gS}			0.7	nC
	Q _{gd}			0.9	nC
Switching Performance				Test data	Unit
1	t _{d(on)}	Turn-on delay time	V _{ds} =400V I _d =2.5A	6	ns
2	t _r	Rise time		12	ns
3	t _{d(off)}	Turn-off delay time	R _g =10Ω	16	ns
4	t _f	Fall time	V _{gs} =6V	12	ns

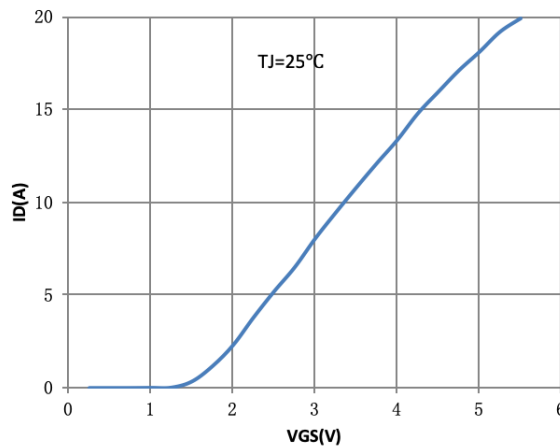
1. $I_{DS}-V_{GS}$ Curves

	0	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5
$V_{GS}=1V$	0	2.89E-05	4.21E-05	5.97E-05	7.87E-05	9.86E-05	1.31E-04	1.67E-04	2.05E-04	2.49E-04	2.85E-04	3.28E-04	3.49E-04	4.50E-04	5.15E-04	5.93E-04	6.78E-04	7.16E-04	7.77E-04	8.64E-04	9.93E-04	9.69E-04	1.05E-03	1.19E-03	1.27E-03	1.37E-03
$V_{GS}=2V$	0	1.13	1.51	1.69	1.79	1.97	2.05	2.10	2.21	2.28	2.36	2.43	2.46	2.52	2.61	2.64	2.71	2.72	2.81	2.85	2.89	2.93	2.97	3.00	3.01	3.02
$V_{GS}=3V$	0	1.72	3.79	5.12	6.12	6.80	7.04	7.12	7.30	7.44	7.55	7.74	7.82	7.92	8.04	8.05	8.06	8.07	8.08	8.09	8.10	8.11	8.11	8.11	8.10	8.12
$V_{GS}=4V$	0	2.11	4.08	5.73	7.31	8.95	10.21	11.38	12.09	12.32	12.41	12.53	12.61	12.65	12.78	12.91	13.00	13.09	13.18	13.20	13.22	13.24	13.26	13.28	13.30	13.32
$V_{GS}=5V$	0	2.34	4.22	6.41	8.12	9.76	11.35	12.83	14.61	15.92	16.84	17.12	17.32	17.38	17.39	17.51	17.52	17.53	17.54	17.55	17.56	17.57	17.58	17.59	17.6	17.61
$V_{GS}=6V$	0	2.68	4.48	6.18	8.51	10.18	11.91	13.72	15.33	16.77	17.91	18.86	19.67	20.24	20.42	20.53	20.53	20.54	20.55	20.56	20.57	20.58	20.59	20.60	20.62	20.62



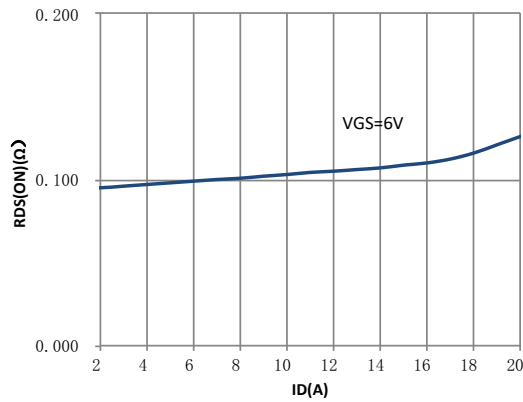
2. $I_{DS}-V_{GS}$ Curve @ $V_{DS}=5V$

V_{GS} (V)	$I_{DS}(25^{\circ}C)$
0.25	5.322E-06
0.5	2.54E-05
0.75	2.53E-04
1	0.008265
1.25	0.022
1.5	0.352
1.75	1.18
2	2.31
2.25	3.81
2.5	5.21
2.75	6.51
3	8.06
3.25	9.46
3.5	10.81
3.75	12.12
4	13.38
4.25	14.81
4.5	15.98
4.75	17.13
5	18.13
5.25	19.21
5.5	19.93
5.75	
6	



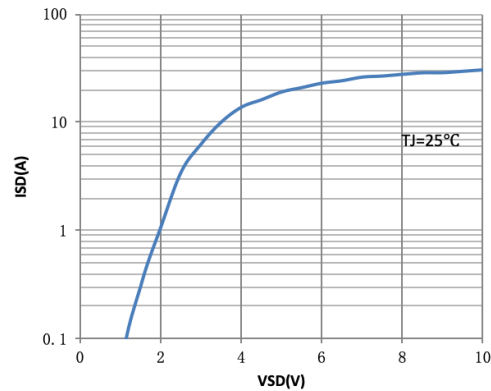
3. $R_{DS(on)}-I_{DS}$

IDS(A)	RDS(ON)(Ω) VGS=6V
1	0.095
2	0.095
3	0.096
4	0.097
5	0.098
6	0.099
7	0.100
8	0.101
9	0.102
10	0.103
11	0.104
12	0.105
13	0.106
14	0.107
15	0.109
16	0.110
17	0.112
18	0.116
19	0.121
20	0.126



4. $I_{SD}-V_{SD}$ @ $V_{GS}=0V$

VSD	ISD(25°C)
0.5	0.000895
1	0.0483
1.5	0.3120
2	1.0870
2.5	3.4500
3	6.2600
3.5	9.9600
4	13.6300
4.5	15.9600
5	18.8200
5.5	20.63
6	22.64
6.5	23.87
7	25.75
7.5	26.35
8	27.32
8.5	28.22
9	28.29
9.5	29.14
10	30.05



5. Capacitance- V_{DS}

Voltage[V]	Ciss[pF]	Coss[pF]	Crss[pF]
0.5	152	233	75.4
3	141	222	58.3
5	139	219	53.7
8	138	217	48.4
10	136	215	46.2
15	136	212	40.5
20	134	210	35.5
25	133	208	31.4
30	134	206	28.2
35	133	200	26.8
40	132	198	25.2
50	131	196	23.8
60	131	144	21.6
70	129	118	19.2
80	128	85	17.4
90	128	76	15.8
100	127	63	13.2
200	127	50	10.5
300	125	43	8.2
400	124	38	6.8
500	123	35	5.6

