N-Channel Enhancement Mode Power MOSFET

Description

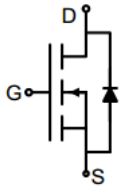
The GT130N03D5 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.

General Features

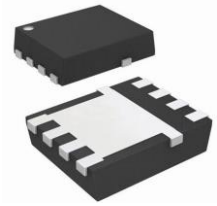
- V_{DS} 30V
- I_D (at V_{GS} = 10V) 115A
- $R_{DS(ON)}$ (at V_{GS} = 10V) < 3.5mΩ
- $R_{DS(ON)}$ (at V_{GS} = 4.5V) < 6mΩ
- 100% Avalanche Tested
- RoHS Compliant

Application

- Synchronous Rectification in SMPS or LED Driver
- UPS
- Motor Control
- BMS
- High Frequency Circuit



Schematic Diagram



DFN5X6-8L

Device	Package	Marking	Packaging
GT130N03D5	DFN5X6-8L	GT130N03	2500pcs/Reel

Absolute Maximum Ratings T_C = 25ºC, unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Continuous Drain Current	I_D	115	A
Pulsed Drain Current (note1)	I_{DM}	345	A
Gate-Source Voltage	V_{GS}	±20	V
Power Dissipation	P_D	36	W
Single pulse avalanche energy （note3）	E_{AS}	156	mJ
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	ºC

Thermal Resistance

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	R_{thJA}	40	ºC/W
Thermal Resistance, Junction-to-Case	R_{thJC}	2.8	ºC/W

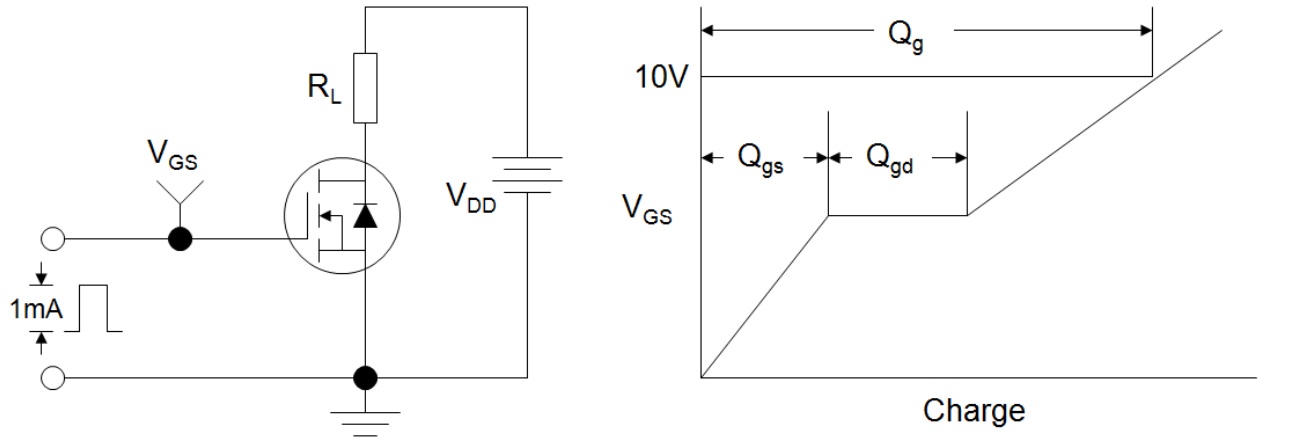
Specifications T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V, V_{GS} = 0V	--	--	1	μA
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.5	2.2	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 50A	--	2.5	3.5	mΩ
		V_{GS} = 10V, I_D = 10A	--	2.5	3.5	
		V_{GS} = 4.5V, I_D = 50A	--	3.5	6	
		V_{GS} = 4.5V, I_D = 10A	--	3.5	6	
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1.0MHz	--	1330	--	pF
Output Capacitance	C_{oss}		--	360	--	
Reverse Transfer Capacitance	C_{rss}		--	55	--	
Total Gate Charge	Q_g	V_{DS} = 15V, I_D = 20A, V_{GS} = 10V	--	20	--	nC
Gate-Source Charge	Q_{gs}		--	3.5	--	
Gate-Drain Charge	Q_{gd}		--	3.5	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DS} = 15V, I_D = 20A, R_G = 3Ω	--	8	--	ns
Turn-on Rise Time	t_r		--	3	--	
Turn-off Delay Time	$t_{d(off)}$		--	20	--	
Turn-off Fall Time	t_f		--	3	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25ºC	--	--	40	A
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_S = 1A, V_{GS} = 0V	--	--	1.2	V

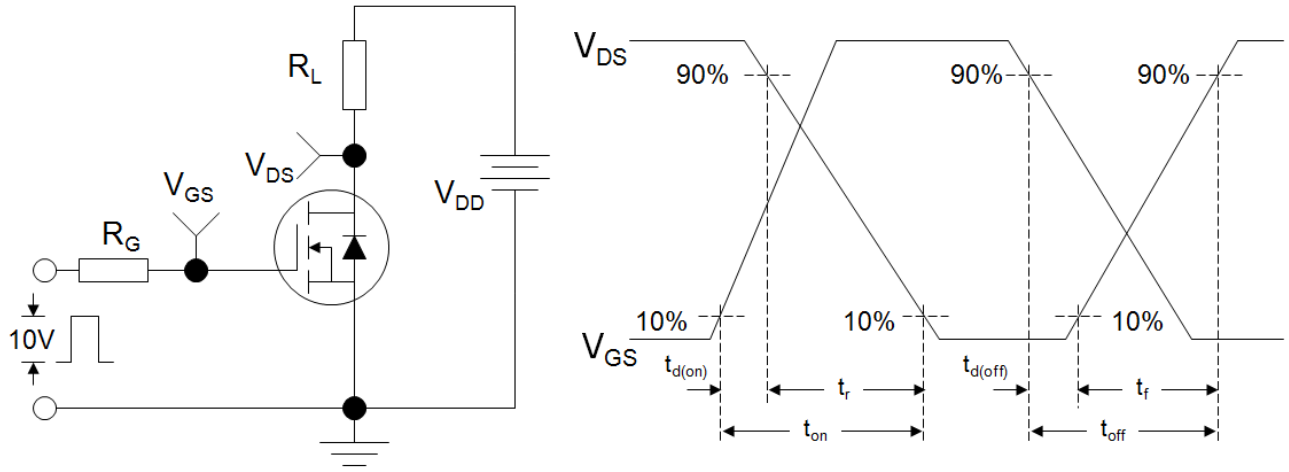
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Identical low side and high side switch with identical R_G
3. EAS condition : Tj=25℃ ,VDD=30V,VGS=10V,L=0.5mH,Rg=25Ω

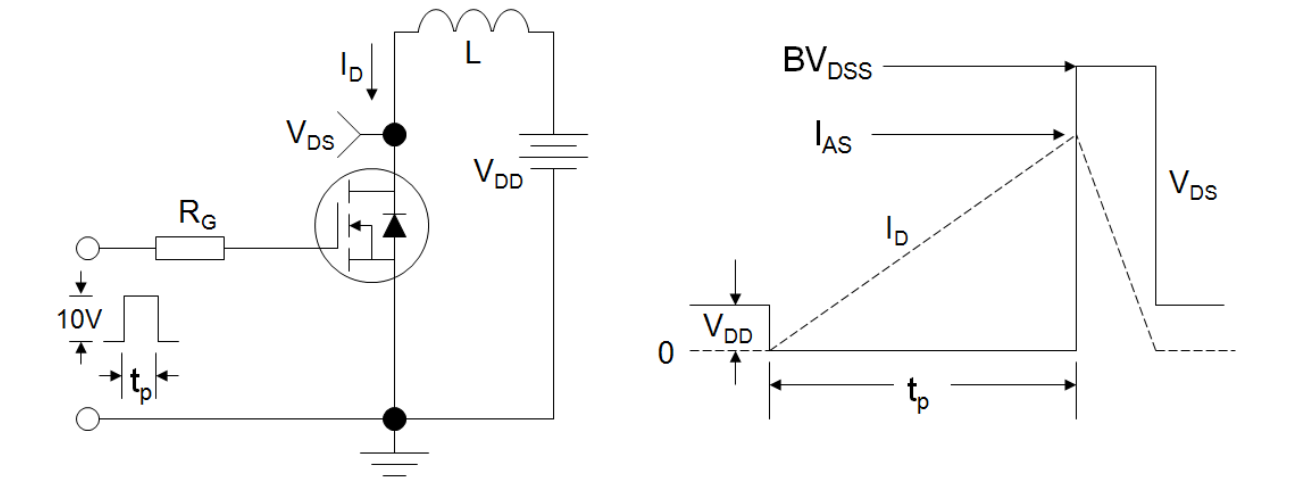
Gate Charge Test Circuit



EAS Test Circuit



Switch Time Test Circuit



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 1. Output Characteristics

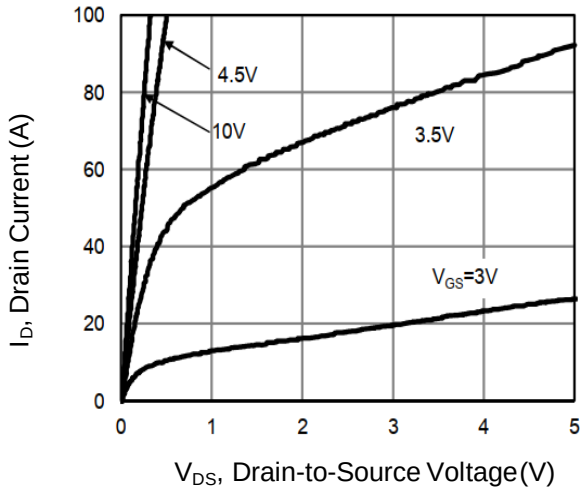


Figure 2. Transfer Characteristics

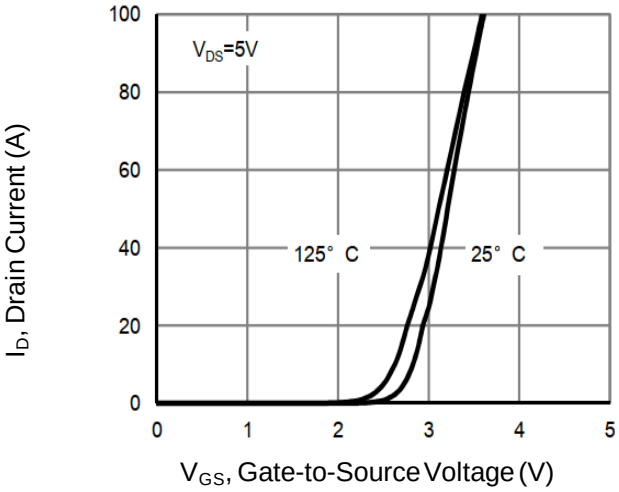


Figure 3.Rdson-Drain Current

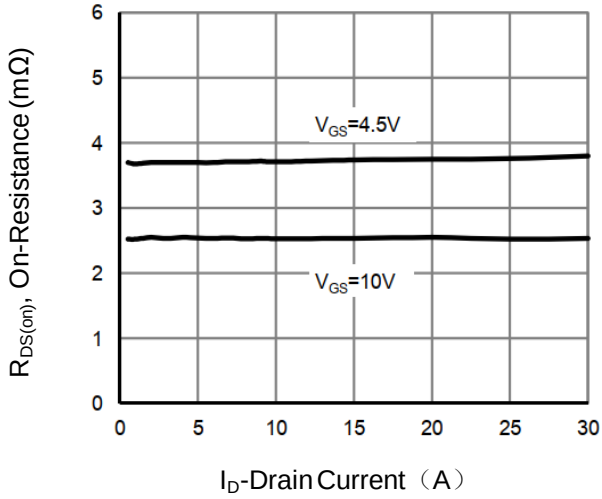


Figure 4. Gate Charge

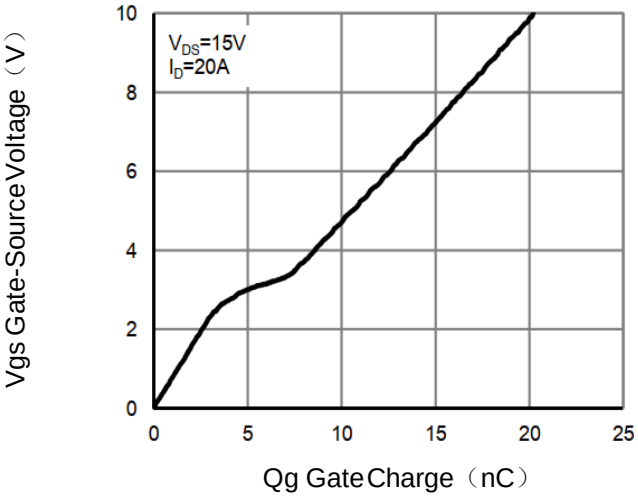


Figure5. Capacitance vs Vds

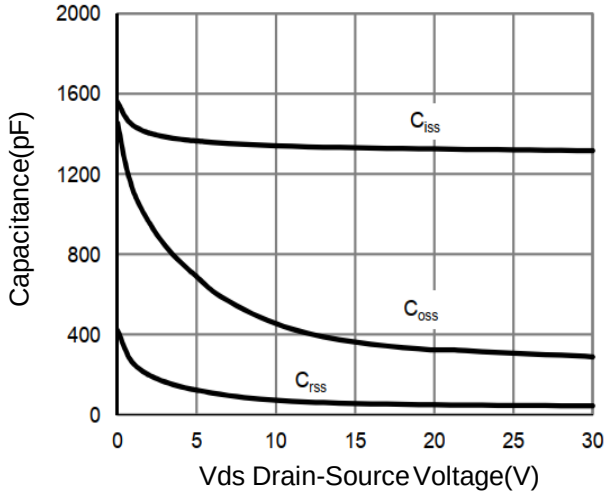
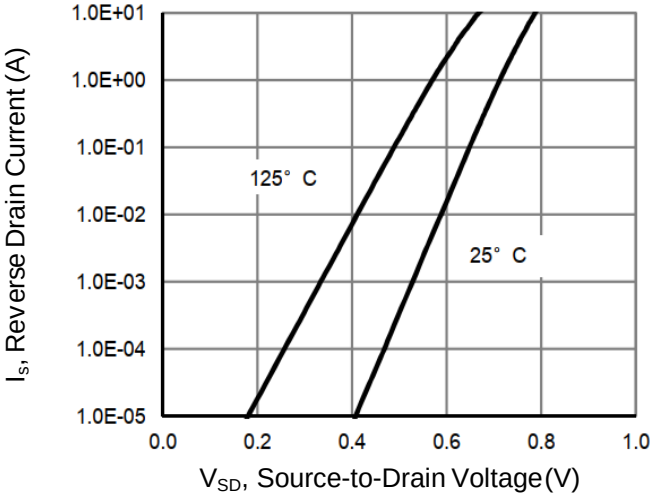


Figure 6. Source-Drain Diode Forward



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 7. Drain-Source On-Resistance

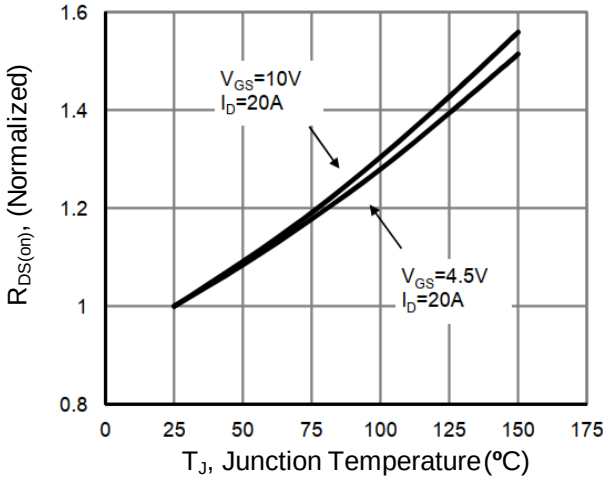


Figure 8. On-Resistance vs. Gate-Source Voltage

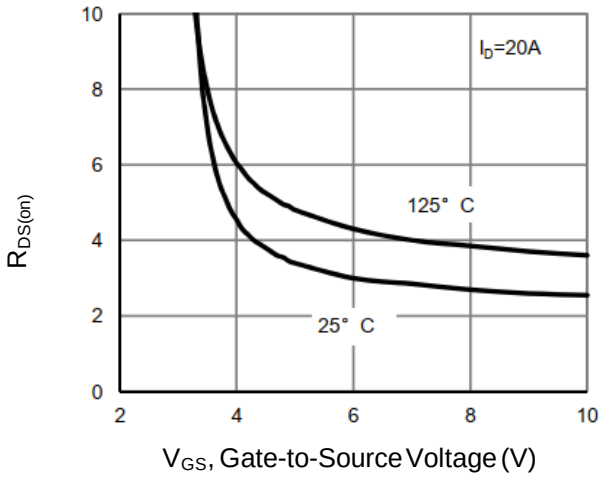


Figure 9. Normalized Maximum Transient Thermal Impedance

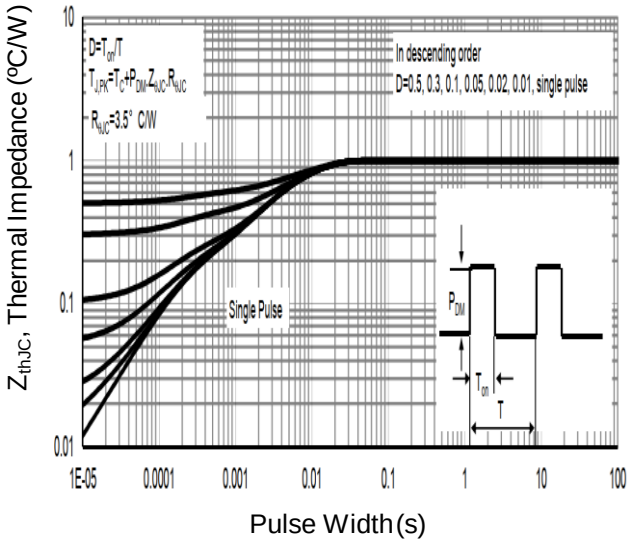
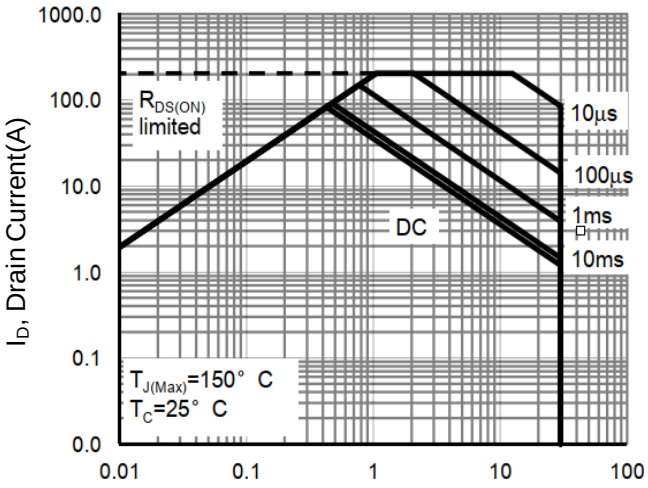
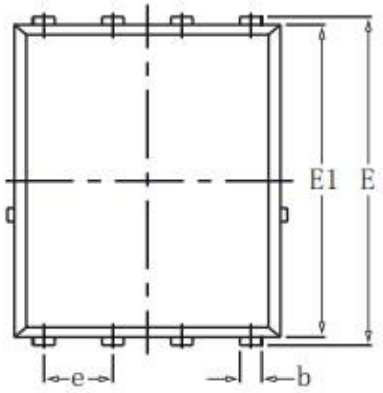
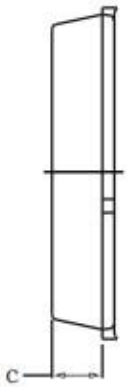


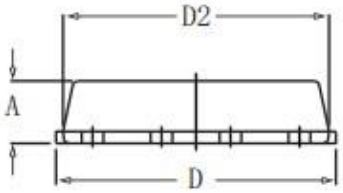
Figure 10. Safe Operation Area

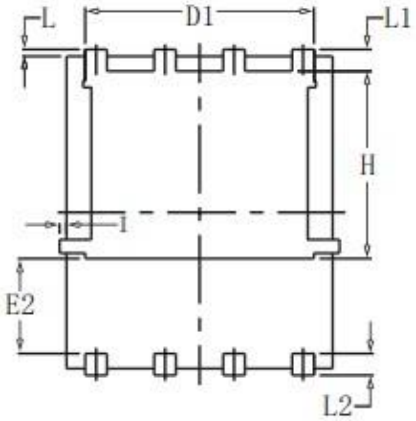


DFN5X6-8L Package Information









SYMBOL	COMMON			
	MM		INCH	
	MIN	MAX	MIN	MAX
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.970	0.0324	0.0382
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.59	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	-	0.0630	-
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	-	0.18	-	0.0070

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET ***category:***

Click to view products by GOFORD ***manufacturer:***

Other Similar products are found below :

614233C 648584F MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ FW216A-TL-2W FW231A-TL-E APT5010JVR NTNS3A92PZT5G IRF100S201 JANTX2N5237 2SK2464-TL-E 2SK3818-DL-E FCA20N60_F109 FDZ595PZ STD6600NT4G FSS804-TL-E 2SJ277-DL-E 2SK1691-DL-E 2SK2545(Q,T) D2294UK 405094E 423220D MCH6646-TL-E TPCC8103,L1Q(CM 367-8430-0972-503 VN1206L 424134F 026935X 051075F SBVS138LT1G 614234A 715780A NTNS3166NZT5G 751625C 873612G IRF7380TRHR IPS70R2K0CEAKMA1 RJK60S3DPP-E0#T2 RJK60S5DPK-M0#T0 APT5010JVFR APT12031JFLL APT12040JVR DMN3404LQ-7 NTE6400 JANTX2N6796U JANTX2N6784U JANTXV2N5416U4 SQM110N05-06L-GE3 SIHF35N60E-GE3