

Features

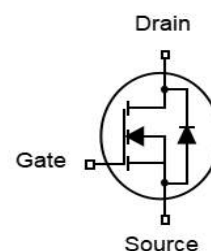
- N-Channel
- Low Gate Charge
- Green Device Available
- 100% EAS Tested

V_{DS}	60	V
$R_{DS(on),TYP@ V_{GS}=10V}$	8	mΩ
$R_{DS(on),TYP@ V_{GS}=4.5V}$	11	mΩ
I_D	33	A

DFN5x6



Part ID	Package Type	Marking	Packing
ZTG080N06G	DFN5x6	ZTG080N06G	5000pcs/Reel



Absolute Maximum Ratings $T_A = 25^\circ\text{C}$, unless otherwise specified

Symbol	Parameter	Rating	Unit	
Common Ratings ($T_c=25^\circ\text{C}$ Unless Otherwise Noted)				
V_{GS}	Gate-Source Voltage	±20	V	
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	60	V	
T_J	Maximum Junction Temperature	150	°C	
T_{STG}	Storage Temperature Range	-55 to 150	°C	
I_{DM}	Drain Current-Continuous@ Current-Pulsed (Note 2)	$T_c = 25^\circ\text{C}$ 132	A	
Mounted on Large Heat Sink				
I_D	Drain Current-Continuous (Note 1)	$T_c = 25^\circ\text{C}$	33	A
		$T_c = 100^\circ\text{C}$	21	A
P_D	Maximum Power Dissipation (Note 4)	21	W	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	6	°C/W	
$R_{\theta JA}$	Thermal Resistance Junction-Ambient (Note 1)	60	°C/W	
Drain-Source Avalanche Ratings				
EAS	Avalanche Energy, Single Pulsed (Note 3)	54	mJ	

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J=25°C (unless otherwise stated)						
V(BR)DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =48V, V _{GS} =0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.4	1.8	2.4	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =13.5A	--	8	9.2	mΩ
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =11.5A	--	11	15	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	--	933	--	pF
C _{oss}	Output Capacitance		--	272	--	pF
C _{rss}	Reverse Transfer Capacitance		--	26	--	pF
R _g	Gate Resistance	f=1MHz	--	1.6	--	Ω
Q _g	Total Gate Charge	V _{DS} =30V, I _D =12A, V _{GS} =10V	--	15.8	--	nC
Q _{gs}	Gate-Source Charge		--	3.1	--	nC
Q _{gd}	Gate-Drain Charge		--	4.4	--	nC
Switching Characteristics						
T _{d(on)}	Turn-on Delay Time	V _{DD} =30V, I _D =12A, R _G =3.3Ω, V _{GS} =10V	--	5.8	--	ns
T _r	Turn-on Rise Time		--	3.5	--	ns
T _{d(off)}	Turn-Off Delay Time		--	26	--	ns
T _f	Turn-Off Fall Time		--	3.2	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _S	Diode Forward Current (Note 1,5)		--	--	33	A
V _{SD}	Forward on voltage (Note 2)	I _S =1A, V _{GS} =0V	--	--	1.2	V

Note :

1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
2. Single pulse width limited by junction temperature T_{J(MAX)}=150°C.
3. The EAS data shows Max. rating . The test condition is V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=33A
4. The power dissipation is limited by 150°C junction temperature
5. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

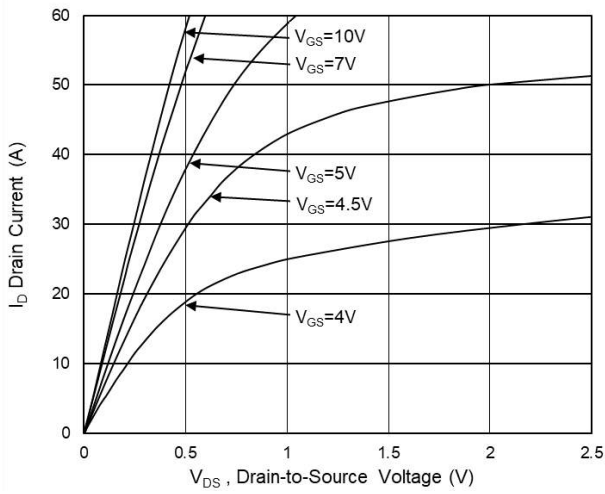


Fig.1 Typical Output Characteristics

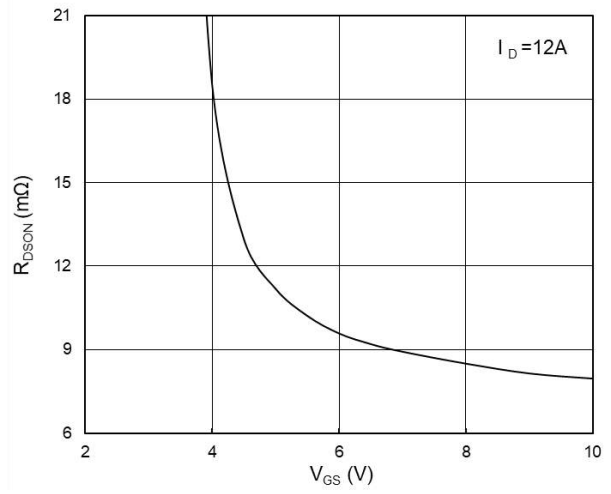


Fig.4 On-Resistance vs G-S Voltage

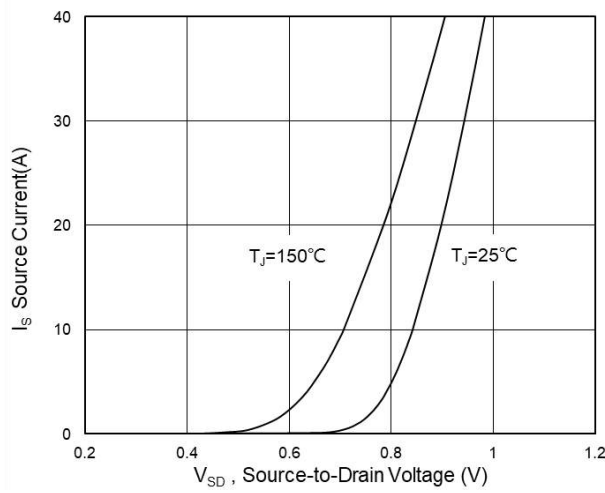


Fig.2 Source Drain Forward Characteristics

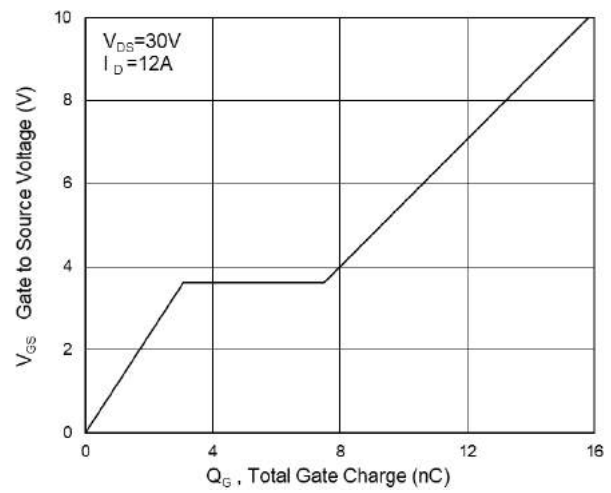


Fig.5 Gate-Charge Characteristics

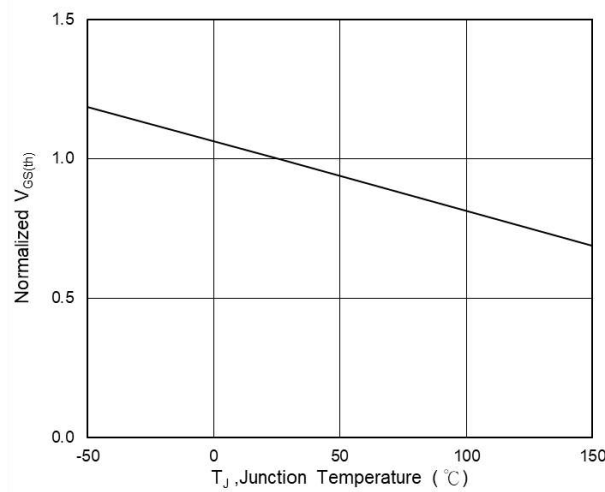


Fig.3 Normalized $V_{GS(th)}$ vs T_J

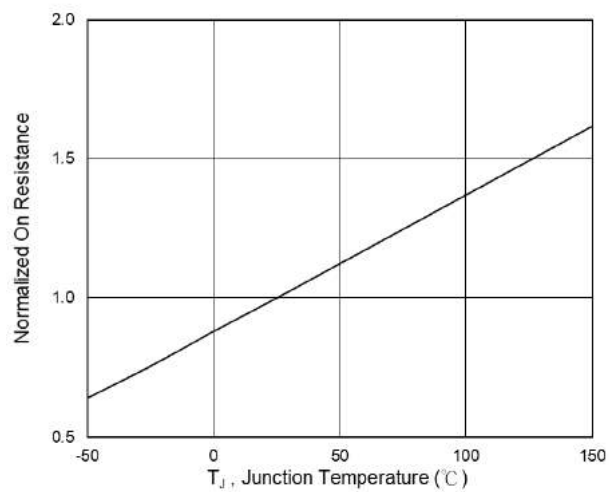


Fig.6 Normalized $R_{DS(on)}$ vs T_J

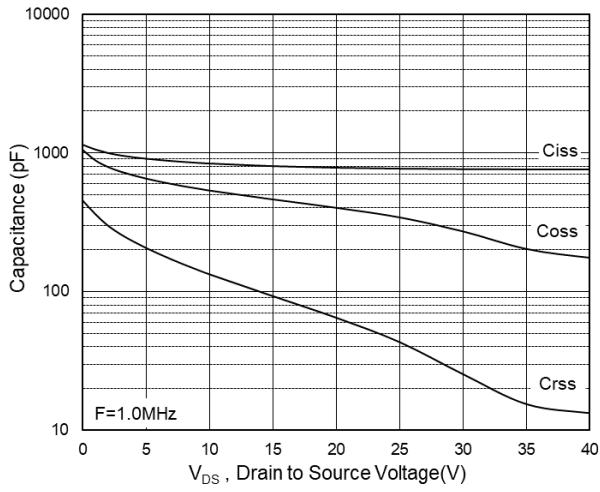


Fig.7 Capacitance

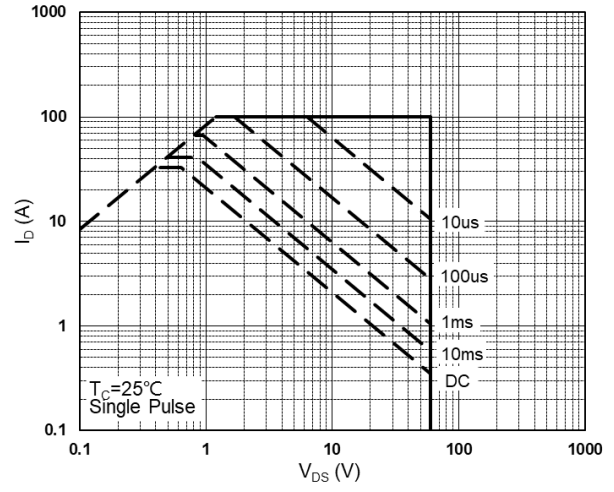


Fig.8 Safe Operating Area

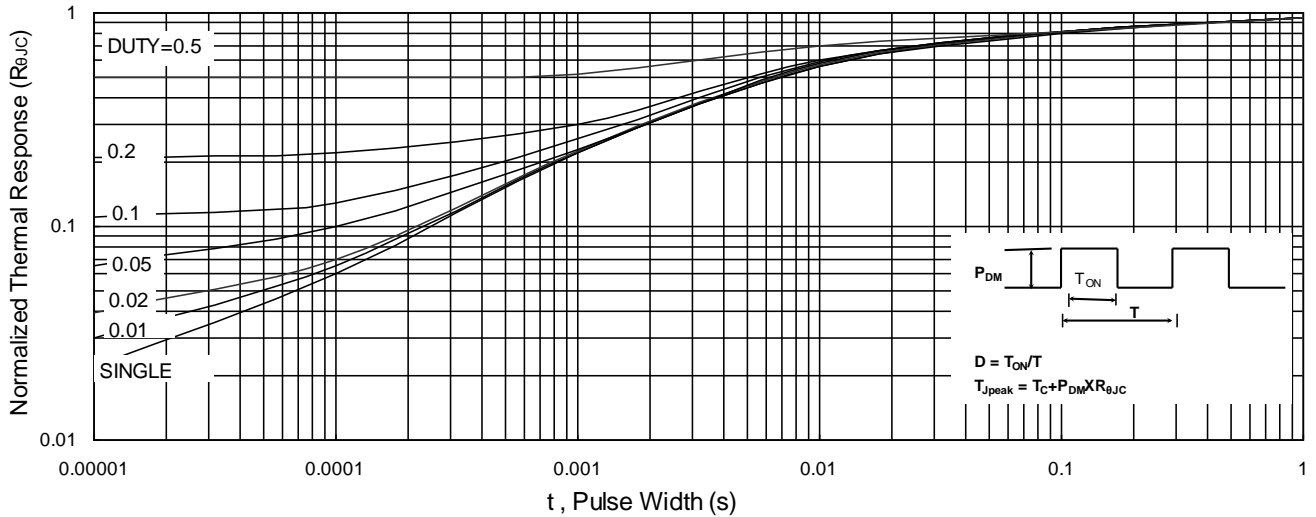
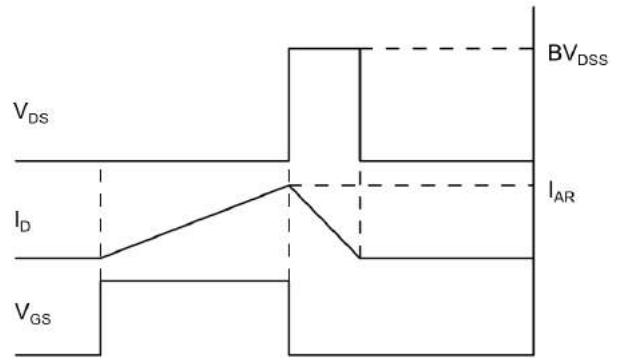
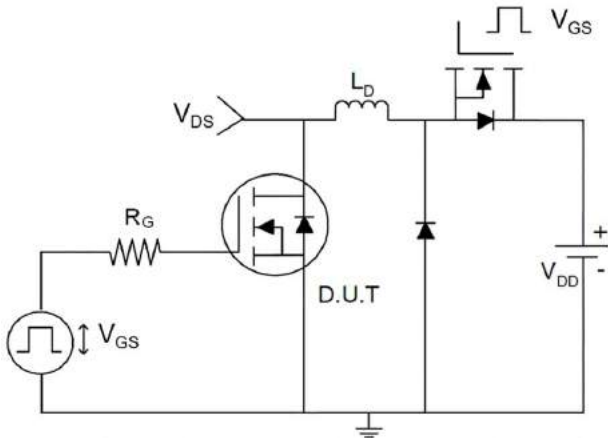


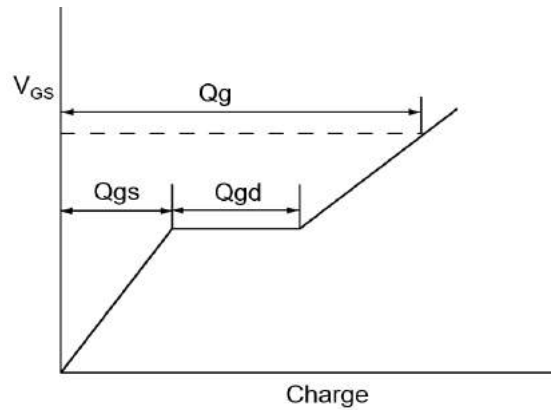
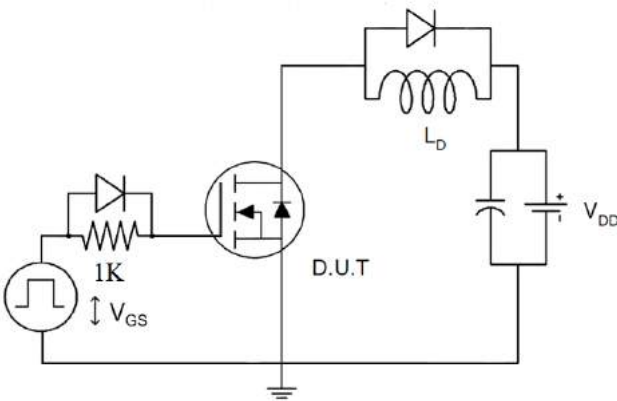
Fig.9 Normalized Maximum Transient Thermal Impedance

Test Circuit

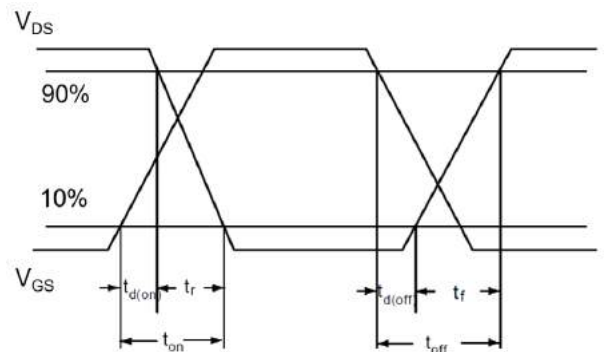
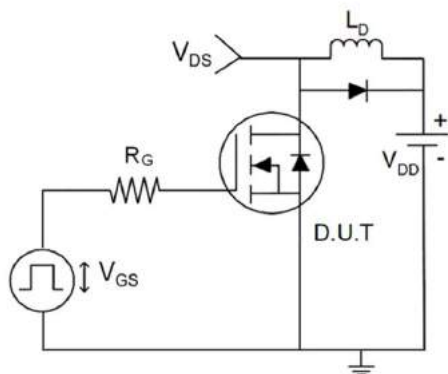
1) E_{AS} Test Circuits



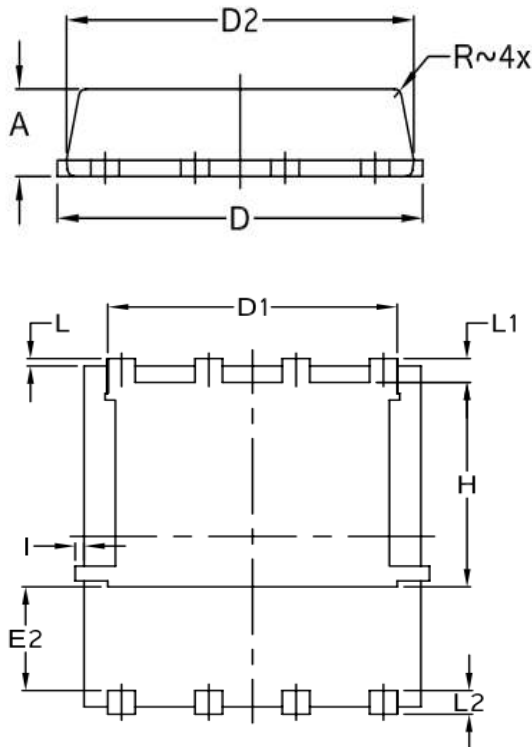
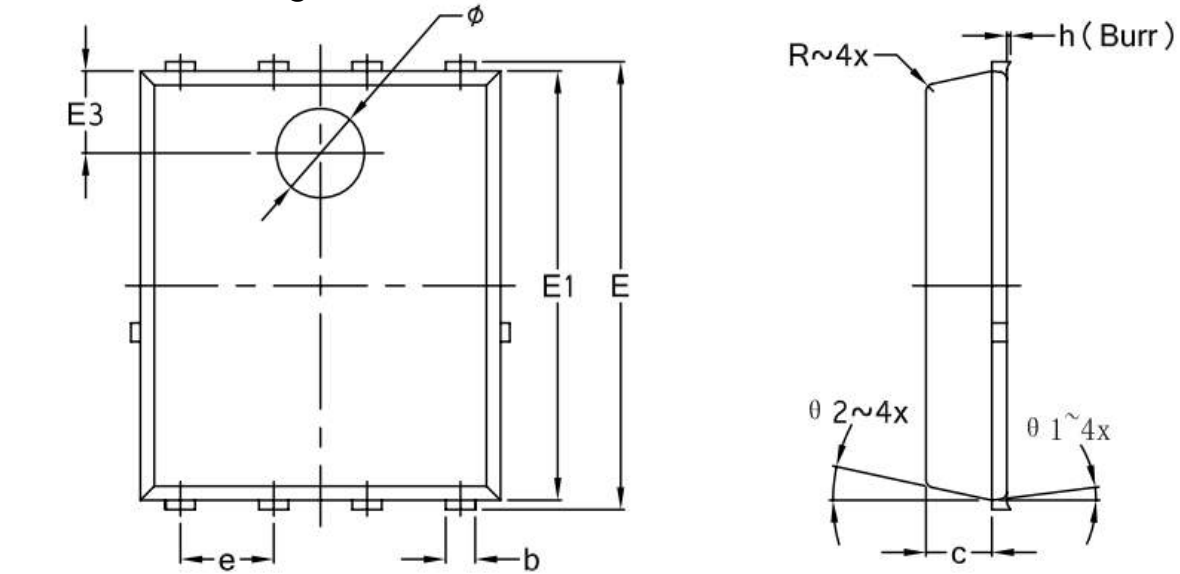
2) Gate Charge Test Circuit



3) Switch Time Test Circuit



DFN5x6-8L Package Information



SYMBOL	COMMON			
	MM		INCH	
	MIN.	MAX.	MIN.	MAX.
A	1.03	1.17	0.0406	0.0461
b	0.35	0.46	0.0138	0.0181
c	0.84	0.95	0.0331	0.0374
D	4.83	5.37	0.1902	0.2114
D1	4.14	4.28	0.1630	0.1685
D2	4.83	4.97	0.1902	0.1957
E	6.03	6.13	0.2374	0.2413
E1	5.68	5.82	0.2236	0.2291
E2	1.65	—	0.0650	—
E3	1.03	1.17	0.0406	0.0461
e	1.27 BSC		0.0500 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.40	0.48	0.0157	0.0189
L2	0.40	0.48	0.0157	0.0189
H	3.315	3.475	0.1305	0.1368
I	—	0.16	—	0.0063
phi	1.13	1.27	0.0445	0.0500
R	0.10		0.0039	
theta 1	7° REF		7° REF	
theta 2	12° REF		12° REF	
h	0.08 MAX		0.0031	

Customer Service

Sales and Service:

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