

Features

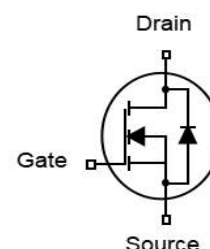
- N-Channel
- Low Gate Charge
- Green Device Available
- 100% EAS Tested

V_{DS}	60	V
$R_{DS(on),TYP@ V_{GS}=10V}$	8.5	mΩ
$R_{DS(on),TYP@ V_{GS}=4.5V}$	12	mΩ
I_D	30	A

DFN3x3



Part ID	Package Type	Marking	Packing
ZTG080N06Q	DFN3x3	ZTG080N06Q	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)	$T_C = 25^\circ\text{C}$ 120	A	
Mounted on Large Heat Sink				
I_D	Drain Current-Continuous (Note 1)	$T_C = 25^\circ\text{C}$	30	A
		$T_C = 100^\circ\text{C}$	20	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	--	8.5	9.5	mΩ
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =11.5A	--	12	16	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)		--	--	30	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

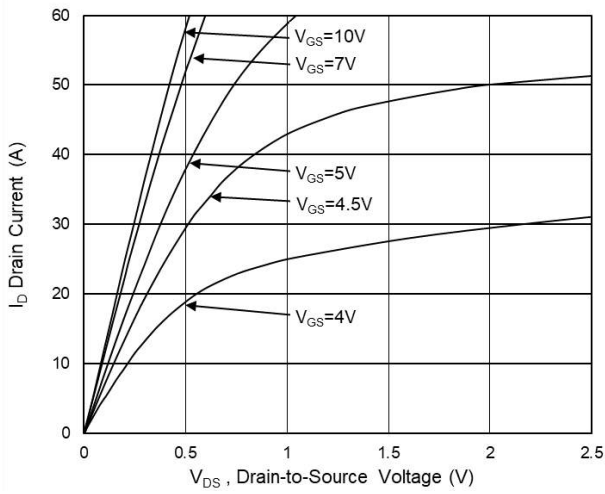


Fig.1 Typical Output Characteristics

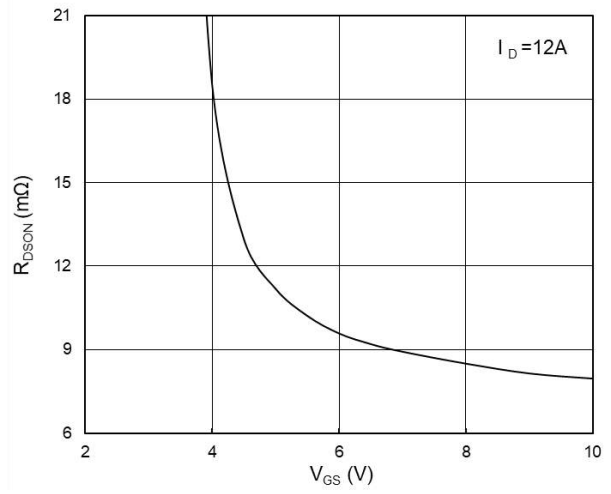


Fig.4 On-Resistance vs G-S Voltage

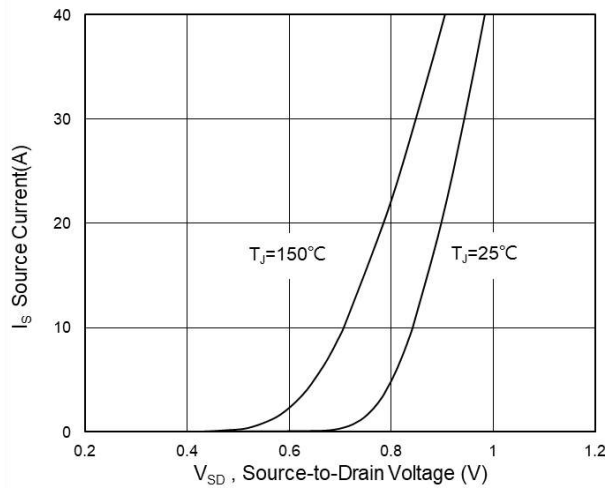


Fig.2 Source Drain Forward Characteristics

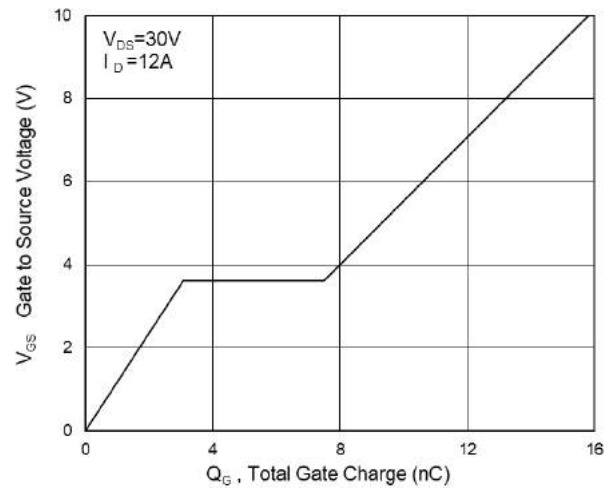


Fig.5 Gate-Charge Characteristics

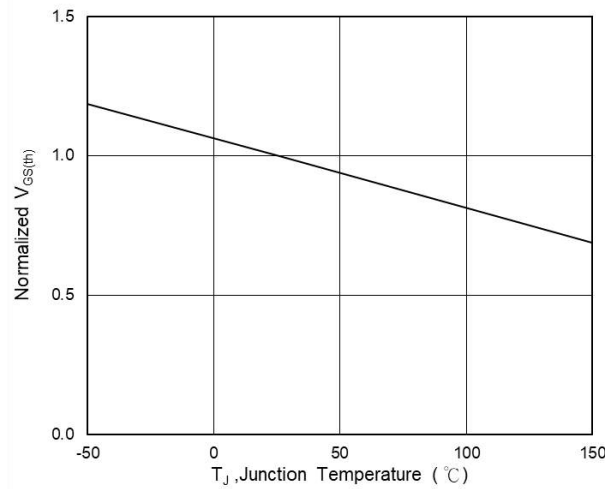


Fig.3 Normalized $V_{GS(th)}$ vs T_J

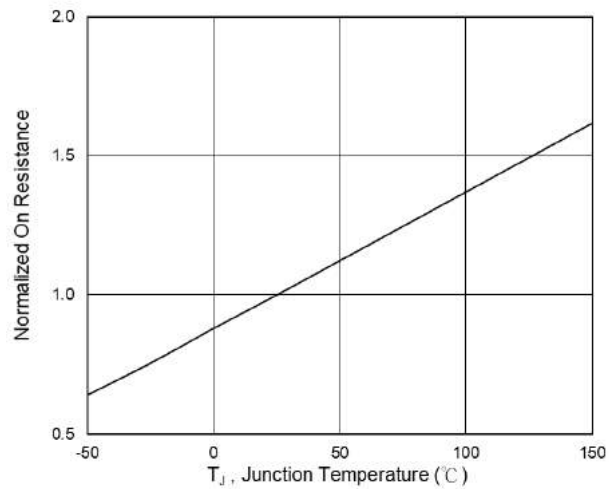


Fig.6 Normalized $R_{DS(on)}$ vs T_J

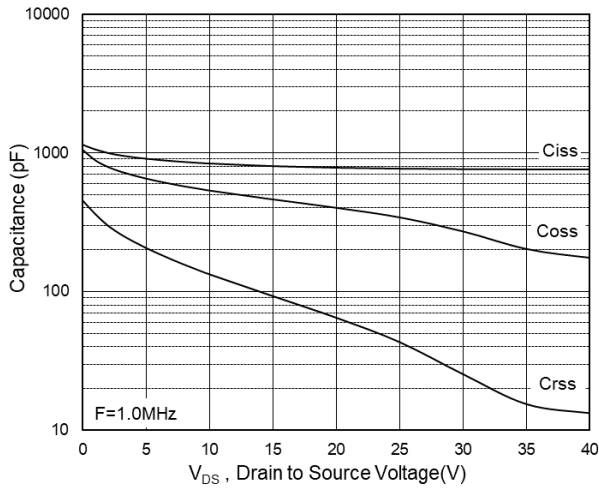


Fig.7 Capacitance

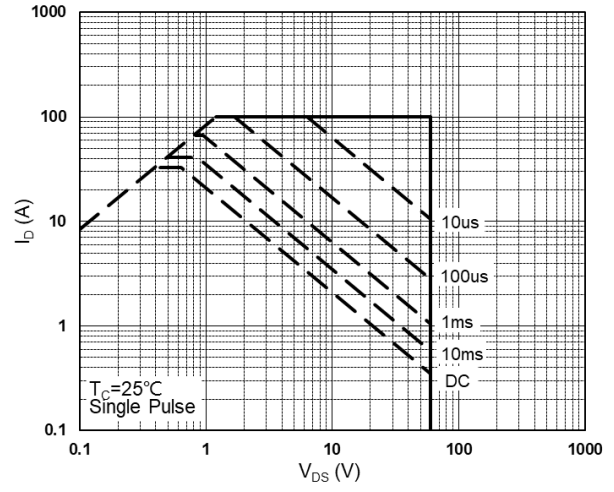


Fig.8 Safe Operating Area

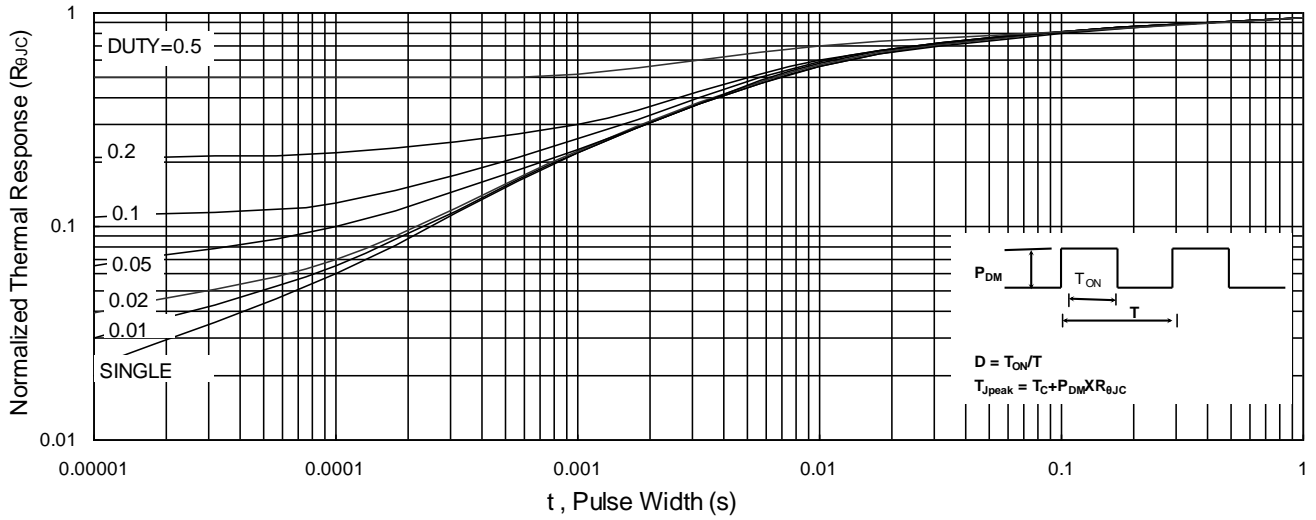
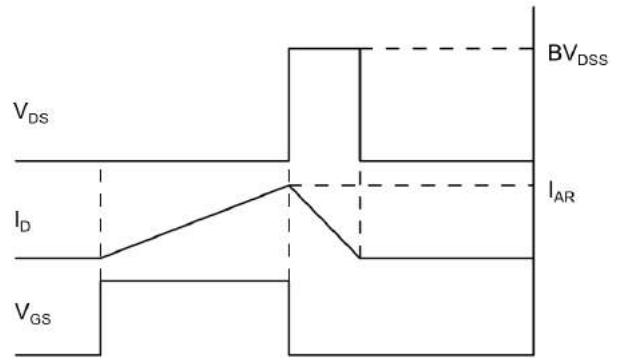
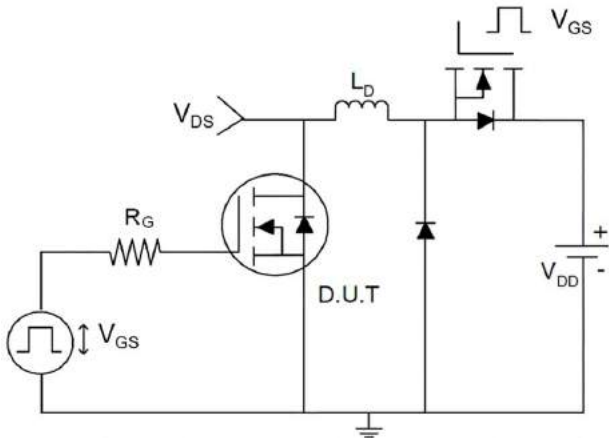


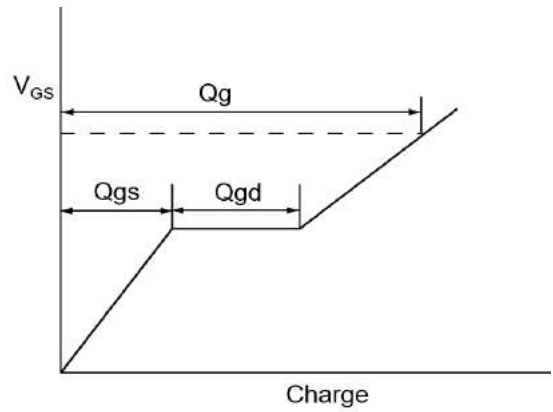
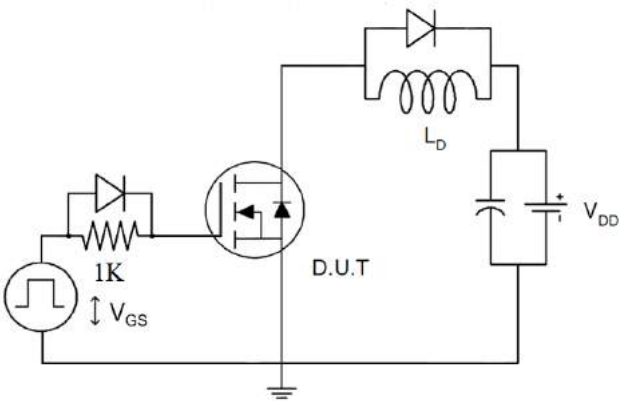
Fig.9 Normalized Maximum Transient Thermal Impedance

Test Circuit

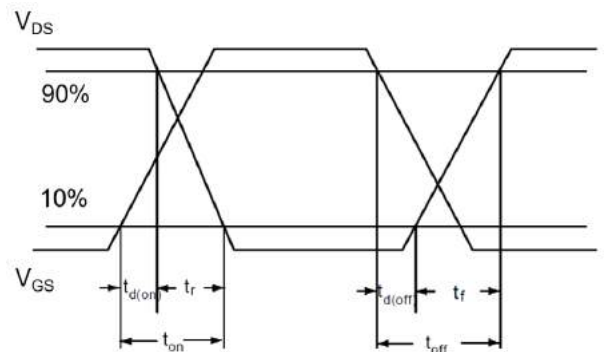
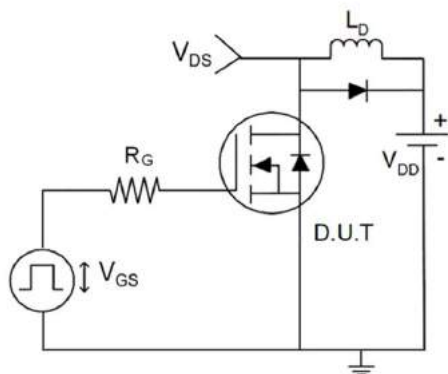
1) E_{AS} Test Circuits



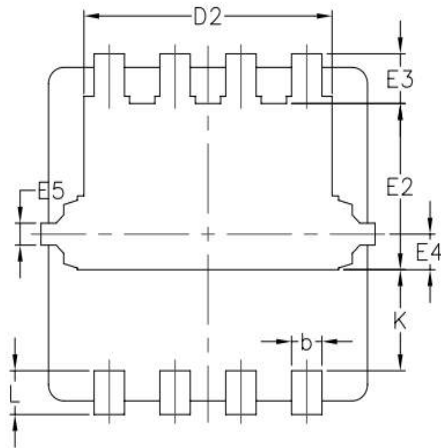
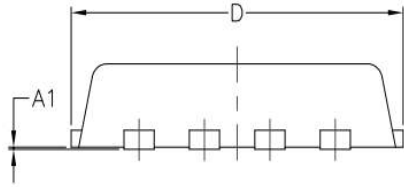
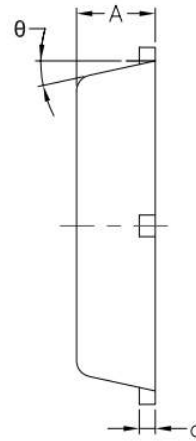
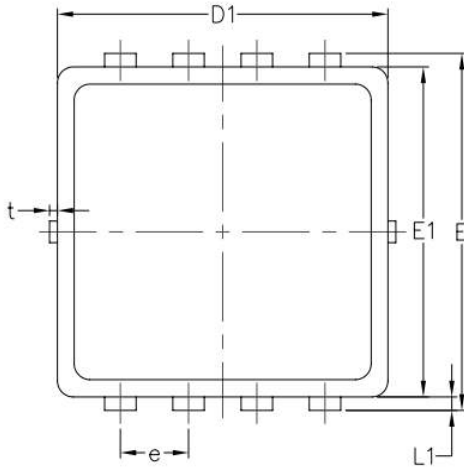
2) Gate Charge Test Circuit



3) Switch Time Test Circuit



DFN3x3-8L Package Information



SYMBOL	COMMON		
	MM		
	MIN	NOM	MAX
A	0.70	0.75	0.85
A1	/	/	0.05
b	0.20	0.30	0.40
c	0.10	0.152	0.25
D	3.15	3.30	3.45
D1	3.00	3.15	3.25
D2	2.29	2.45	2.65
E	3.15	3.30	3.45
E1	2.90	3.05	3.20
E2	1.32	1.52	1.72
E3	0.28	0.46	0.65
E4	0.18	0.33	0.48
E5	0.10	0.20	0.30
e	0.60	0.65	0.70
K	0.78	0.93	1.13
L	0.30	0.40	0.50
L1	0.06	0.125	0.20
t	0	0.075	0.13
θ	10°	12°	14°

Customer Service

Sales and Service:

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