

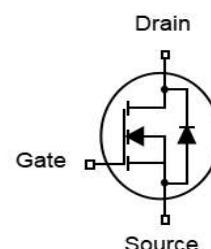
Features

- N-Channel
- Low RDS(ON) & FOM
- Extremely low switching loss
- Excellent reliability and uniformity
- Fast switching and soft recovery
- 100% EAS Tested

V_{DS}	30	V
$R_{DS(on),TYP}@ V_{GS}=10V$	0.55	mΩ
I_D	282	A

DFN5x6


Part ID	Package Type	Marking	Packing
ZTG006N03GC	DFN5x6	ZTG006N03GC	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	30	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)	$T_C = 25^\circ\text{C}$ 1128	A	
Mounted on Large Heat Sink				
I_D	Drain Current-Continuous ^(Note 1)	$T_C = 25^\circ\text{C}$	282	A
		$T_C = 100^\circ\text{C}$	178	A
P_D	Maximum Power Dissipation ^(Note 3)	139	W	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.9	°C/W	
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ^(Note 3)	50	°C/W	
Drain-Source Avalanche Ratings				
EAS	Avalanche Energy, Single Pulsed	135	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	30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, 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	1.3	--	2.3	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =20A	--	0.55	0.7	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note 4)						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	--	9045	--	pF
C _{oss}	Output Capacitance		--	5394	--	pF
C _{rss}	Reverse Transfer Capacitance		--	294	--	pF
R _g	Gate Resistance	f=1MHz	--	1.6	--	Ω
Q _g	Total Gate Charge	V _{DS} =15V, I _D =45A, V _{GS} =10V	--	122	--	nC
Q _{gs}	Gate-Source Charge		--	37	--	nC
Q _{gd}	Gate-Drain Charge		--	7.7	--	nC
Switching Characteristics (Note 4) (Note 5)						
T _{d(on)}	Turn-on Delay Time	V _{DD} =20V, I _D =20A, R _G =3.0Ω, V _{GS} =10V	--	26	--	ns
T _r	Turn-on Rise Time		--	70	--	ns
T _{d(off)}	Turn-Off Delay Time		--	105	--	ns
T _f	Turn-Off Fall Time		--	31	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _S	Diode Forward Current (Note 3)		--	--	282	A
V _{SD}	Forward on voltage (Note 6)	I _S =60A, V _{GS} =0V	--	--	1.4	V
T _{rr}	Reverse Recovery Time (Note 4)	T _J =25°C, I _S =13.5A, V _R =30V di/dt=100A/μs	--	101	--	ns
Q _{rr}	Reverse Recovery Charge		--	174	--	nC

Notes:

1. The rating only refers to the maximum absolute value of 25 °C in the specification. If the shell temperature is higher than 25 °C, it needs to be derated according to the actual environmental conditions.
2. Pulse time 5us, pulse width is limited by the maximum junction temperature.
3. The dissipated power value will change with the change of temperature, when greater than 25 °C, the dissipated power value will decrease by 0.74 W/°C with the increase of 1 °C of temperature.
4. Pulse test: pulse width ≤ 300μs, Duty Cycle ≤ 2%.
5. Basically unaffected by operating temperature.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

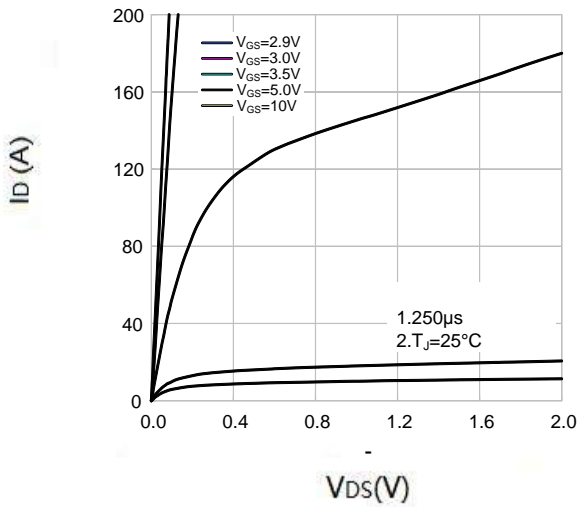


Figure 1 Output Characteristics

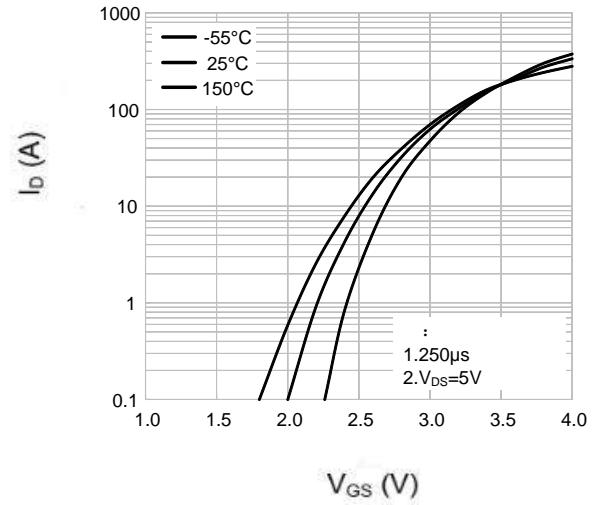


Figure 4 Transfer Characteristics

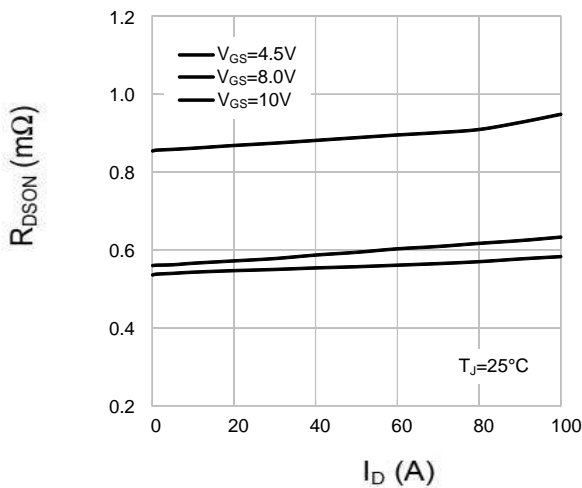


Figure 2 Rds(on)- Drain Current

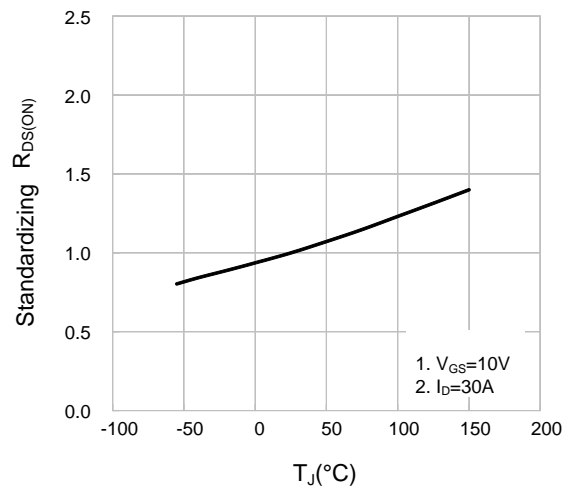


Figure 5 Rds(on) VS Temperature Characteristic

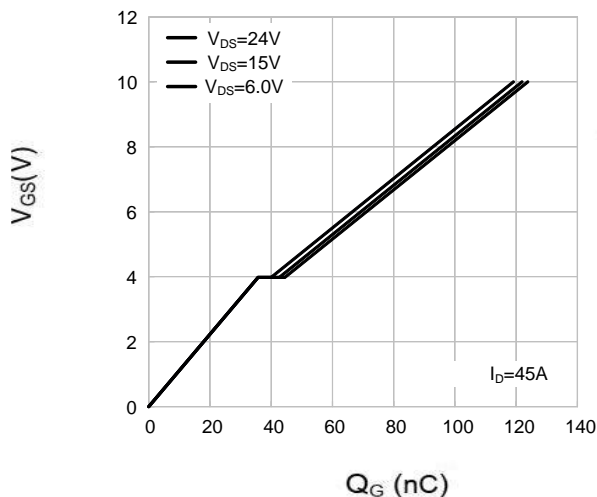


Figure 3 Gate Charge

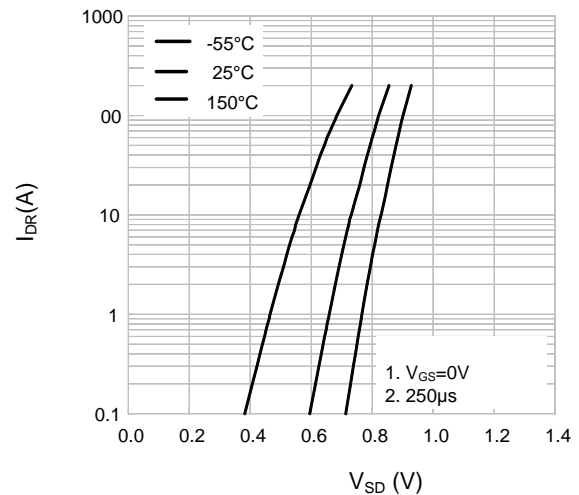


Figure 6 Drain current and temperature - Drain Diode Forward

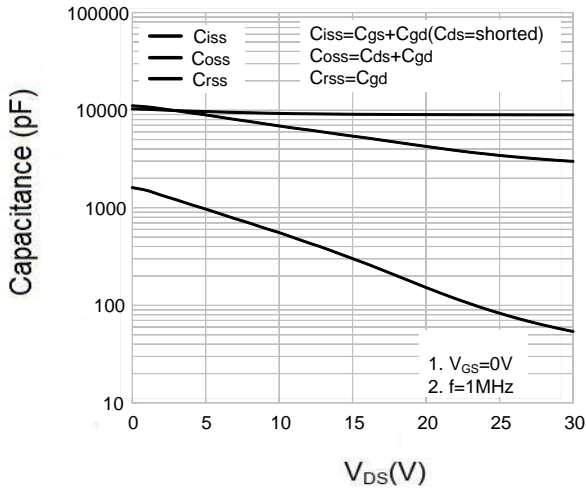


Figure 7 Capacitance vs Vds

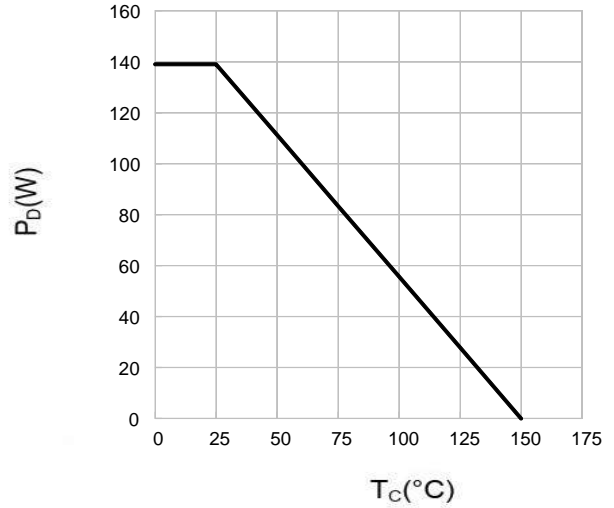


Figure 9 Power De-rating

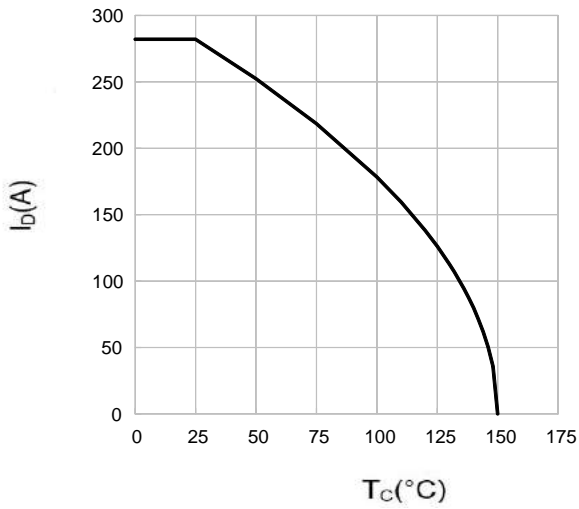


Figure 8 Current De-rating

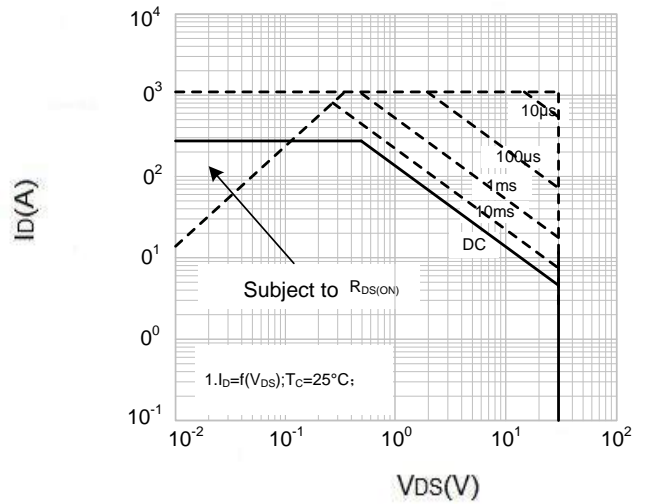


Figure 10 Safe Operation Area

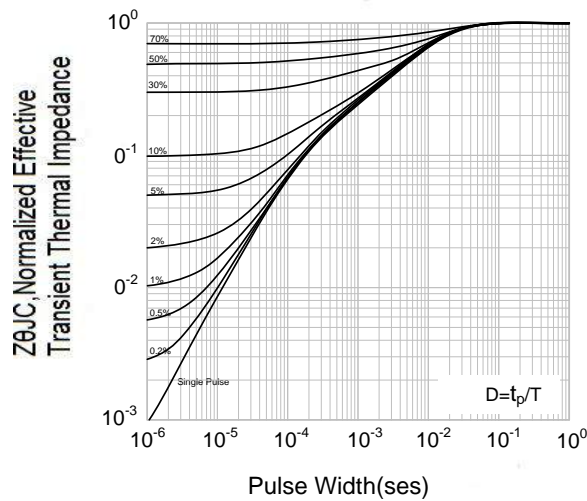
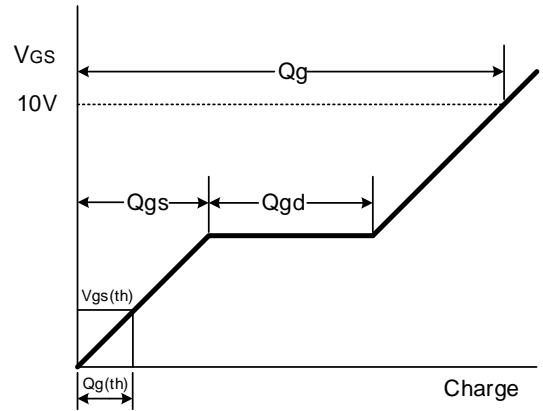
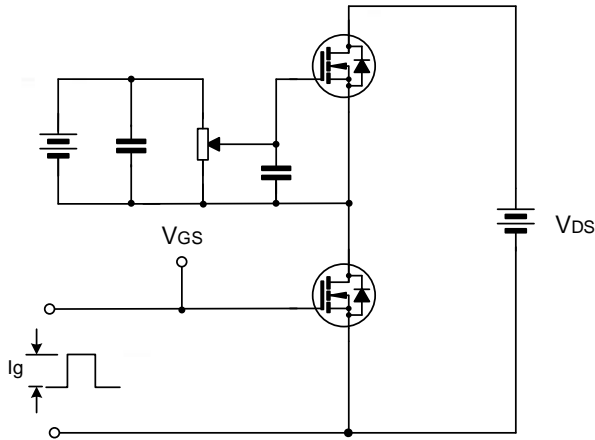


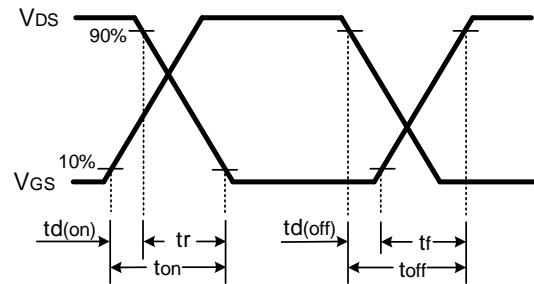
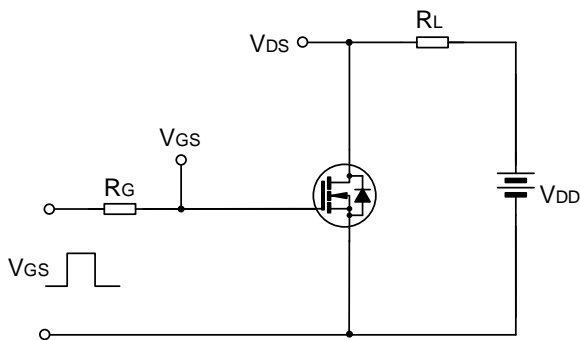
Figure 11 Normalized Maximum Transient Thermal Impedance

Test circuit&Waveform

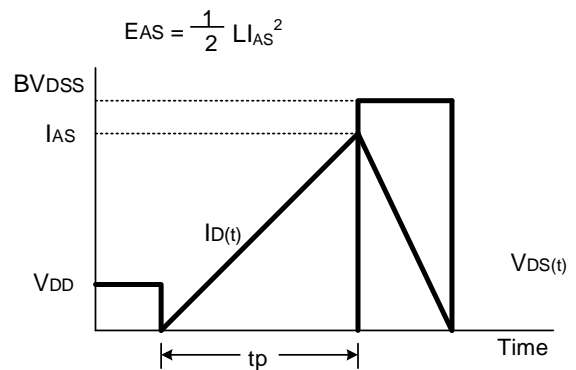
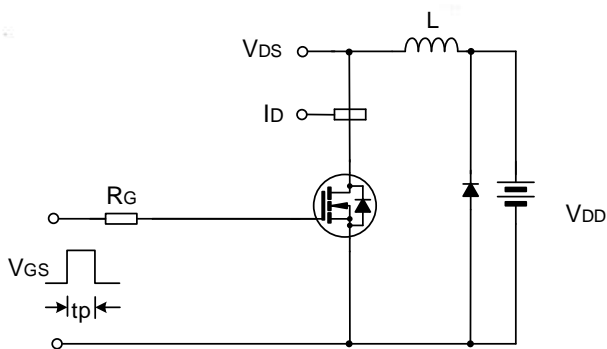
Gate Charge Test Circuit & Waveform



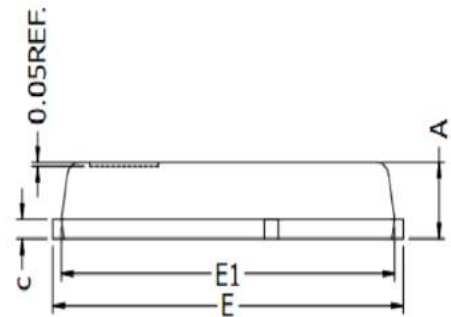
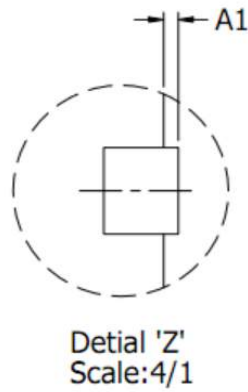
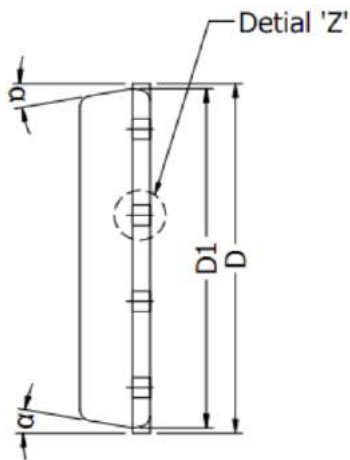
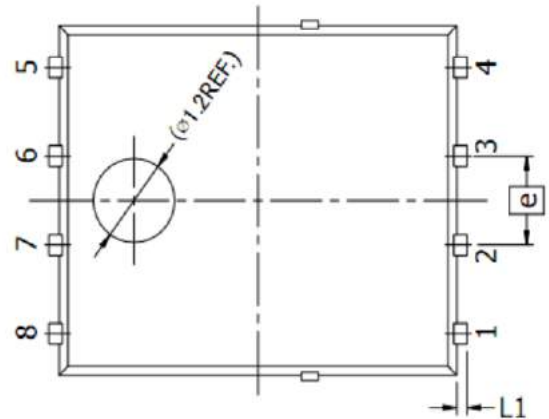
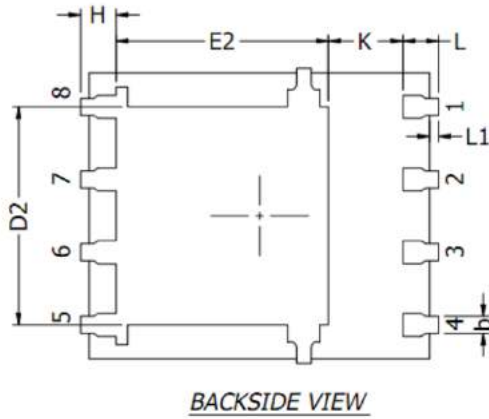
Resistive Switching Test Circuit & Waveforms



EAS Test Circuit & Waveforms



DFN5x6-8L Package Information



DIM.	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
A1	0	-	0.05
b	0.30	0.40	0.50
c	0.20	0.25	0.30
D	5.15 BSC		
D1	5.00 BSC		
D2	3.76	3.81	3.86
E	6.15 BSC		
E1	5.80	5.85	5.90
E2	3.45	3.65	3.85
e	1.27 BSC		
H	0.51	0.61	0.71
K	1.10	-	-
L	0.51	0.61	0.71
L1	0.08	0.15	0.23
α	10°	11°	12°

Customer Service

Sales and Service:
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