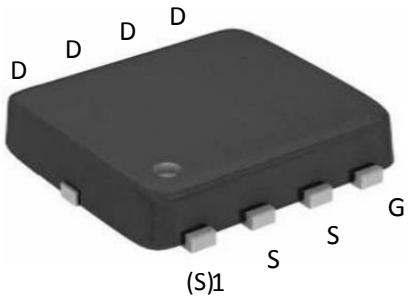
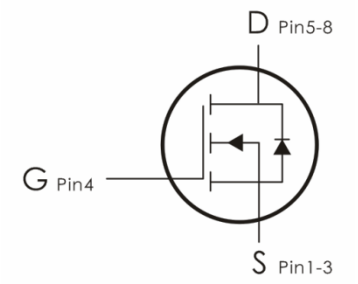
Description：

This N-Channel MOSFET uses advanced trench technology to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.





Features：

1) V_{DS}=30V,I_D=90A,$R_{DS(ON)}$< 4.2mΩ @V_{GS}=10V
2) Improved dv/dt capability
3) Fast switching
4) 100% EAS Guaranteed
5) Green Device Available.

Absolute Maximum Ratings： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current-Continuous (TC=25℃)	90	A
	Continuous Drain Current-TC=100℃	53	
I_{DM}	Drain Current – Pulsed[1]	330	A
E_{AS}	Single Pulse Avalanche Energy	240	mJ
P_D	Power Dissipation (TC=25℃)	45	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	2.5	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient[3]	62.5	

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Package Marking and Ordering Information：

Part NO.	Marking	Package
ZC005NG	C005N	DFN3*3-8

Electrical Characteristics： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	30	---	---	V
I_{DSS}	Drain-Source Leakage Current	V_{GS}=0V, V_{DS}=24V, T_J=25℃	---	---	10	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1	1.5	3	V
$R_{DS(ON)}$	Drain-Source On Resistance[2]	V_{GS}=10V,I_D=30A	---	3.6	4.2	mΩ
		V_{GS}=4.5V,I_D=20A	---	---	7	
G_{FS}	Forward Transconductance	V_{DS}=5V, I_D=6A	---	13	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	1950	2350	pF
C_{oss}	Output Capacitance		---	320	---	
C_{rss}	Reverse Transfer Capacitance		---	240	---	
R_g	Gate Resistance	f=1MHz	---	0.9	---	Ω
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=15V , V_{GS}=10V , R_G=3.3Ω ,I_D=15A	---	13	---	ns
t_r	Rise Time		---	36	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	43	---	ns
t_f	Fall Time		---	16	---	ns
Q_g	Total Gate Charge	V_{DS}=24V , V_{GS}=10V , I_D=20A	---	42	---	nC
Q_{gs}	Gate-Source Charge		---	3.9	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	14	---	nC
Drain-Source Diode Characteristics						

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V_{SD}	Source-Drain Diode Forward Voltage[2]	V_{GS}=0V , I_S=30A , T_J=25℃	---	---	1.2	V
t_{rr}	Reverse Recovery Time	V_{GS}=0V,I_S=10A , di/dt=100A	---	16	---	nS
Q_{rr}	Reverse Recovery Charge		---	5	---	nC

Notes:

1.Pulse width limited by max. junction temperature

2.Pulse test

3.Surface mounted on 1 in^2 copper pad of FR4 board

Typical Characteristics: (T_C=25℃ unless otherwise noted)

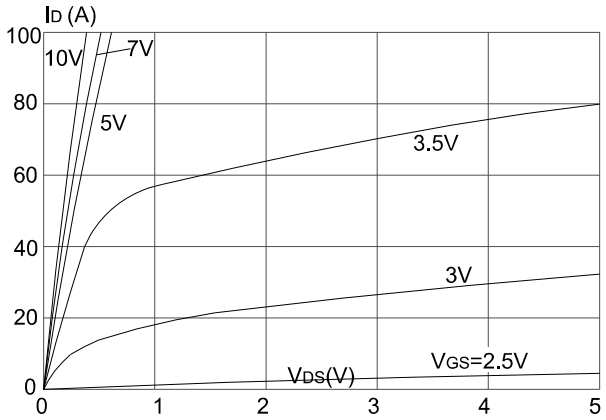


Figure1: Output Characteristics

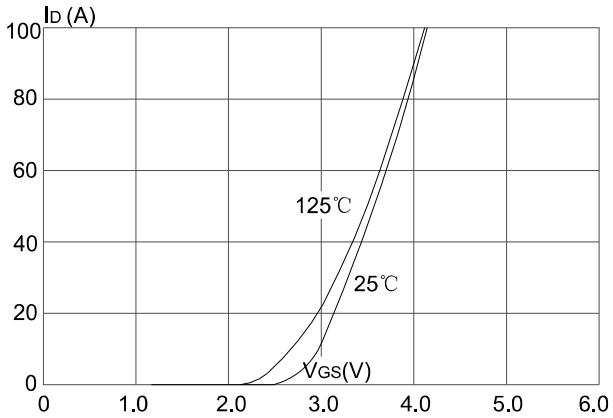


Figure 2: Typical Transfer Characteristics

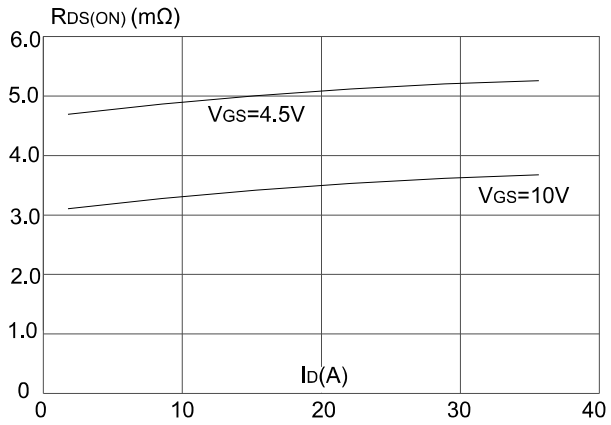


Figure 3: On-resistance vs Drain Current

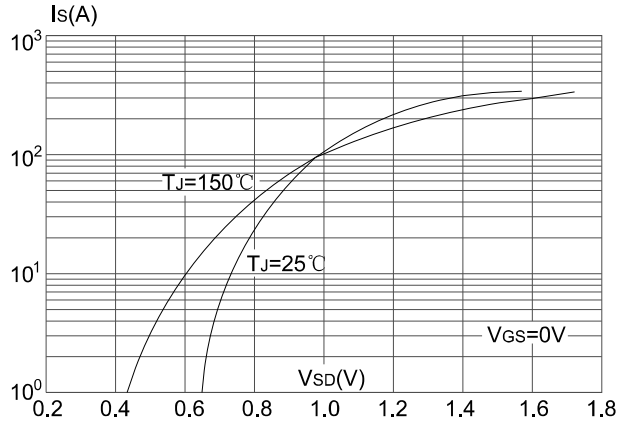


Figure 4: Body Diode Characteristics

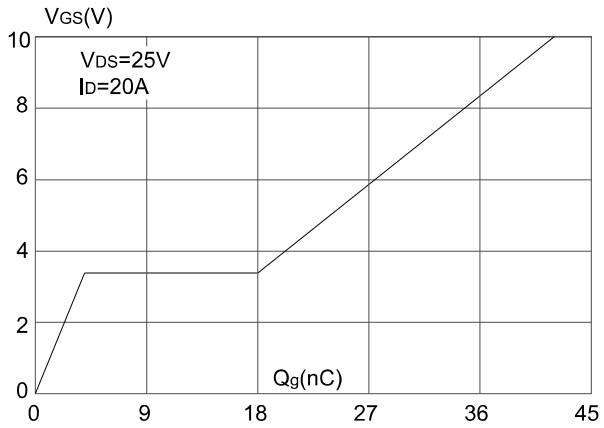


Figure 5: Gate Charge Characteristics

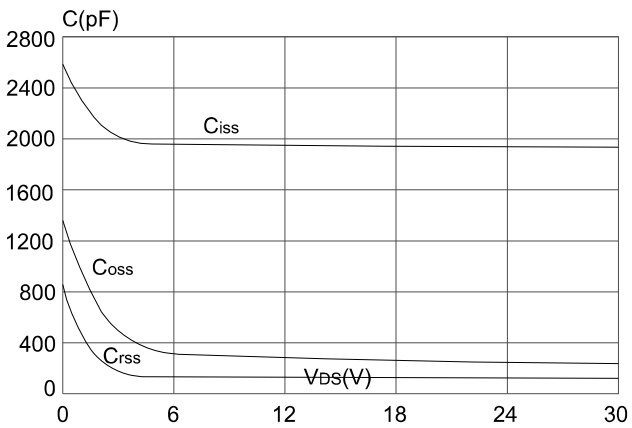


Figure 6: Capacitance Characteristics

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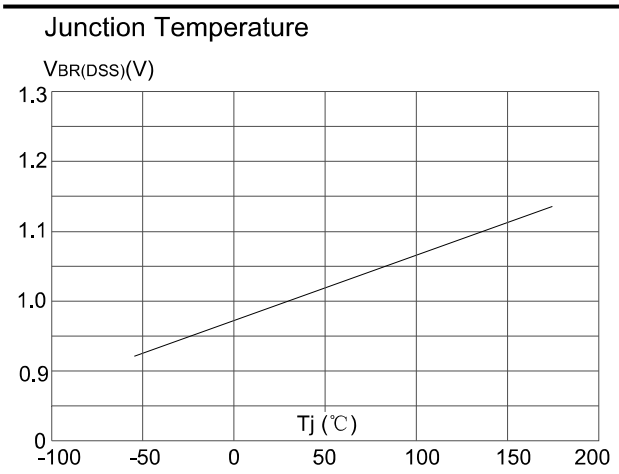


Figure 7: Normalized Breakdown Voltage vs.

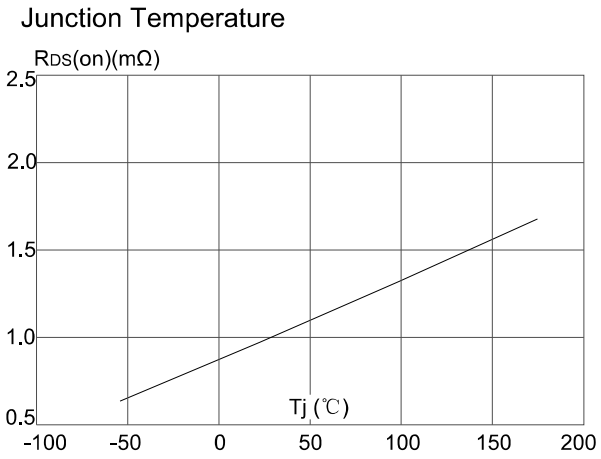


Figure 8: Normalized on Resistance vs.

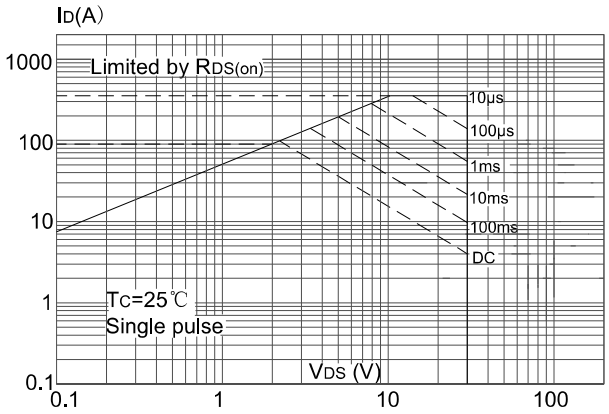


Figure 9: Maximum Safe Operating Area

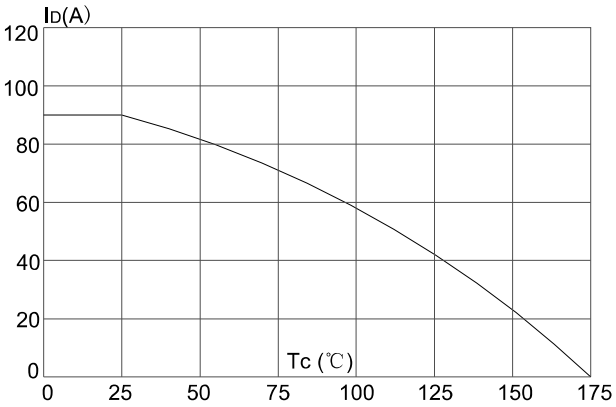


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

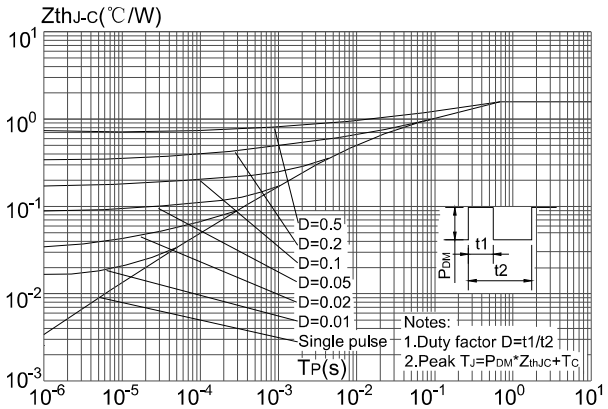


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

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