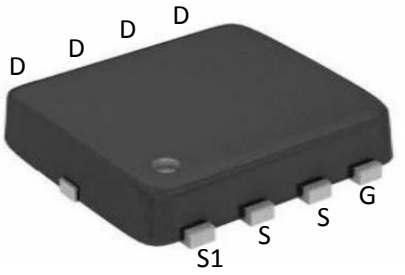
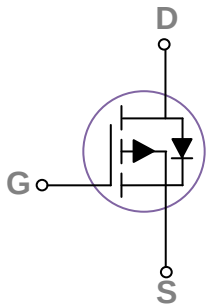
Description：

This P-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=-50A,$R_{DS(ON)}$<8.5mΩ @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℃)	-50	A
	Continuous Drain Current-TC=100℃	-32	
I_{DM}	Drain Current – Pulsed[1]	-200	A
E_{AS}	Single Pulse Avalanche Energy[2]	---	mJ
P_D	Power Dissipation (TC=25℃)	59	W
	Power Dissipation – Derate above 25℃	0.47	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	62	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	2.1	

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Package Marking and Ordering Information：

Part NO.	Marking	Package
ZC010PG	C010P	DNF3*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}=-30V, T_J=25℃	---	---	-1	μA
		V_{GS}=0V, V_{DS}=-24V, T_J=125℃			-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	-1.2	-1.6	-2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=10A	---	7.1	8.5	mΩ
		V_{GS}=4.5V,I_D=8A	---	11.5	14	
G_{FS}	Forward Transconductance	V_{DS}=-10V, I_D=10A	---	14	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz	---	3300	4800	pF
C_{oss}	Output Capacitance		---	410	700	
C_{rss}	Reverse Transfer Capacitance		---	280	500	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time[2.3]	V_{DD}=-15V , V_{GS}=-10V , R_G=6,I_D=1A	---	24.5	38	ns
t_r	Rise Time[2.3]		---	10.5	16	ns
$t_{d(off)}$	Turn-Off Delay Time[2.3]		---	156.8	230	ns
t_f	Fall Time[2.3]		---	50	75	ns
Q_g	Total Gate Charge[2.3]	V_{DS}=-15V , V_{GS}=4.5V , I_D=10A	---	35	56	nC
Q_{gs}	Gate-Source Charge[2.3]		---	10.8	16	nC
Q_{gd}	Gate-Drain “Miller” Charge[2.3]		---	10.6	16	nC

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Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	-1	V
IS	Continuous Source Current	VG=V0=0V,Fore Current	---	---	-50	A
ISM	Pulsed Source Current		---	---	-100	A

Notes

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

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

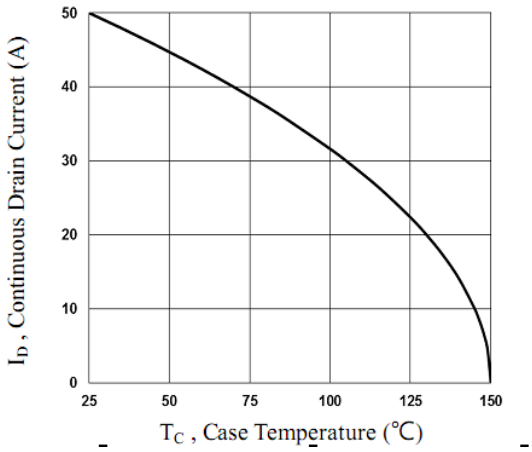


Fig.1 Continuous Drain Current vs. T

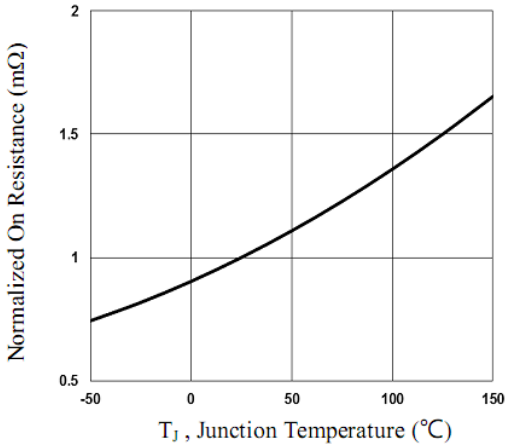


Fig.2 Normalized RDSON vs. T

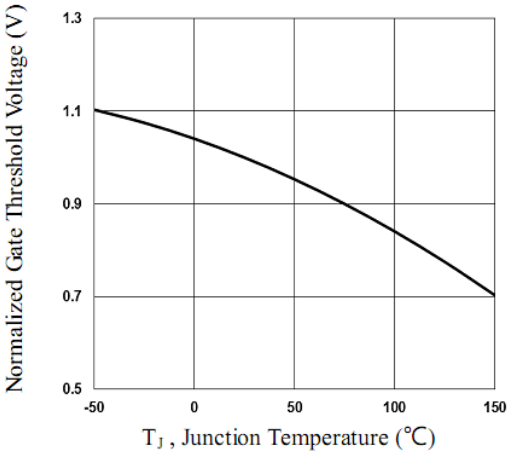


Fig.3 Normalized Vth vs. T

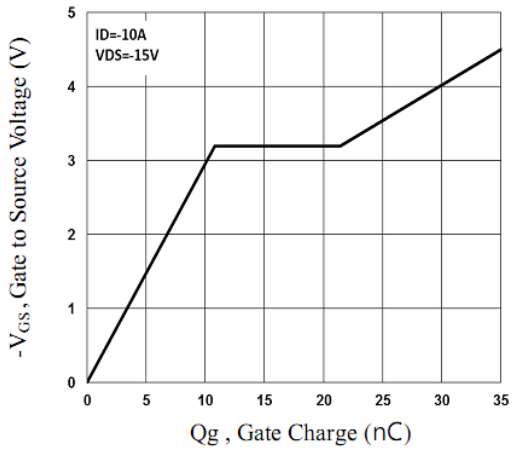


Fig.4 Gate Charge Waveform

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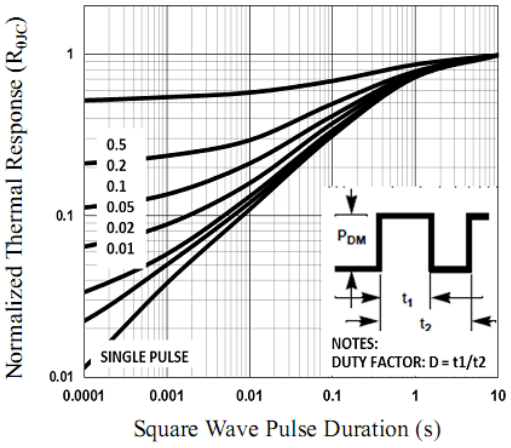


Fig.5 Normalized Transient Im pedance

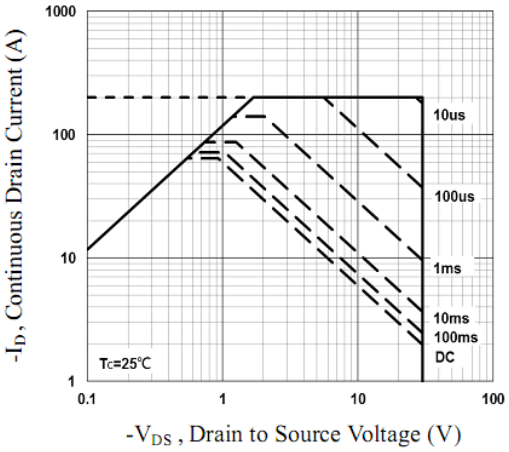


Fig.6 Maximum Safe Operation Area

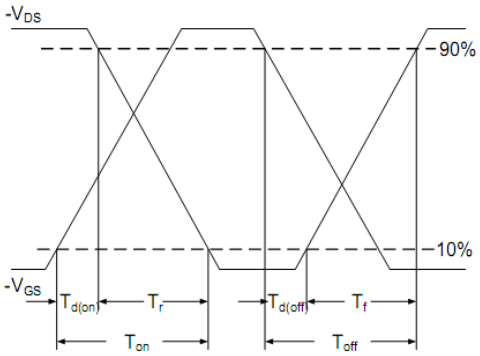


Fig.7 Switching Time Waveform

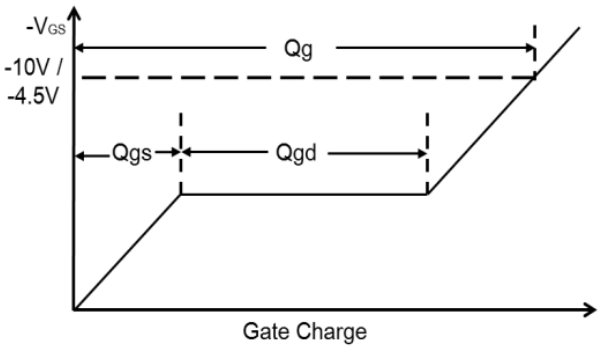


Fig.8 Gate Charge Waveform

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