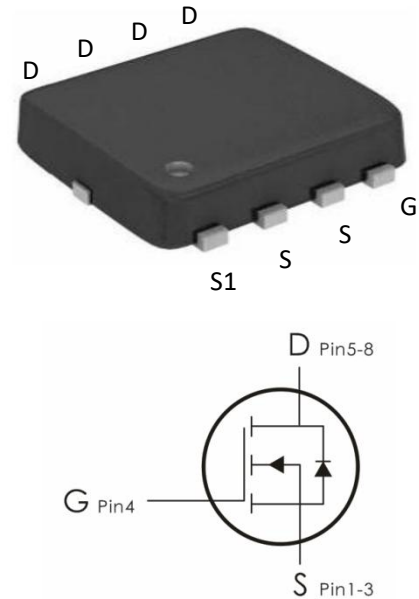


Description:

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) $V_{DS}=30V, I_D=20A, R_{DS(ON)} < 24m\Omega @ V_{GS}=10V$
- 2) Improved dv/dt capability
- 3) Fast switching
- 4) 100% EAS Guaranteed
- 5) Green Device Available.



Absolute Maximum Ratings: ($T_C=25^\circ C$ 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- $T_C=25^\circ C$	20	A
	Continuous Drain Current- $T_C=70^\circ C$	15	
I_{DM}	Drain Current – Pulsed①	75	A
P_D	Power Dissipation - $T_C=25^\circ C$	17.8	W
	Power Dissipation - $T_C=70^\circ C$	14	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	7	$^\circ C/W$

Package Marking and Ordering Information:

Part NO.	Marking	Package
DOZ20N03	20N03	DFN3*3-8

Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	30	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{GS} =0V, V _{DS} =30V, T _A =25℃	---	---	1	μ A
		V _{GS} =0V, V _{DS} =24V, T _A =125℃	---	---	100	μ A
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 =250 μ A	1	1.6	2.5	V
R _{DS(ON)}	Drain-Source On Resistance②	V _{GS} =10V, I _D =8A	---	19	24	m Ω
		V _{GS} =4.5V, I _D =4A	---	28	36	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	310	---	pF
C _{oss}	Output Capacitance		---	50	---	
C _{rss}	Reverse Transfer Capacitance		---	38	---	
R _G	Gate Resistance	f=1MHz	---	9	---	Ω
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =15V , V _{GS} =4.5V , R _G =3.3 Ω , I _D =1A	---	2.6	---	ns
t _r	Rise Time		---	8.2	---	ns
t _{d(off)}	Turn-Off Delay Time		---	15	---	ns
t _f	Fall Time		---	4.1	---	ns
Q _g	Total Gate Charge	V _{DS} =15V , V _{GS} =4.5V , I _D =4A	---	4.3	---	nC
Q _{gs}	Gate-Source Charge		---	0.8	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	1.5	---	nC
Drain-Source Diode Characteristics						

I_{SD}	Source drain current(Body Diode)	T _C =25 °C	---	---	20	A
V_{SD}	Forward on voltage②	I _{SD} =4A, T _J =25 °C, V _{GS} =0V	---	0.8	1.2	V

Notes:

① Pulse width limited by maximum allowable junction temperature

②Pulse test ; Pulse width≤300μs, duty cycle≤2%.

Typical Characteristics: (T_C=25 °C unless otherwise noted)

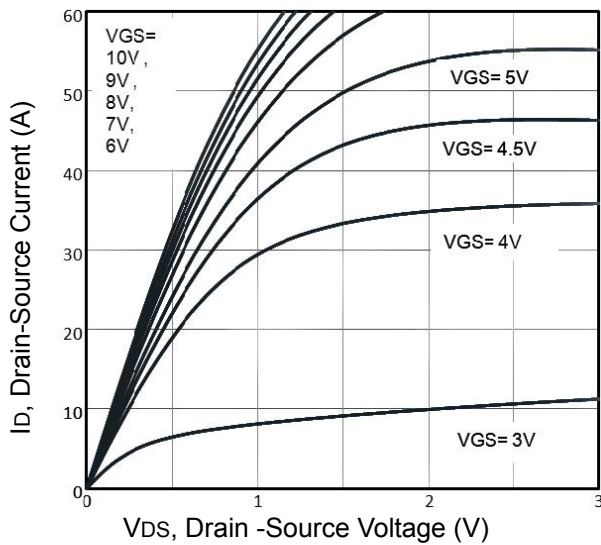


Fig1. Typical Output Characteristics

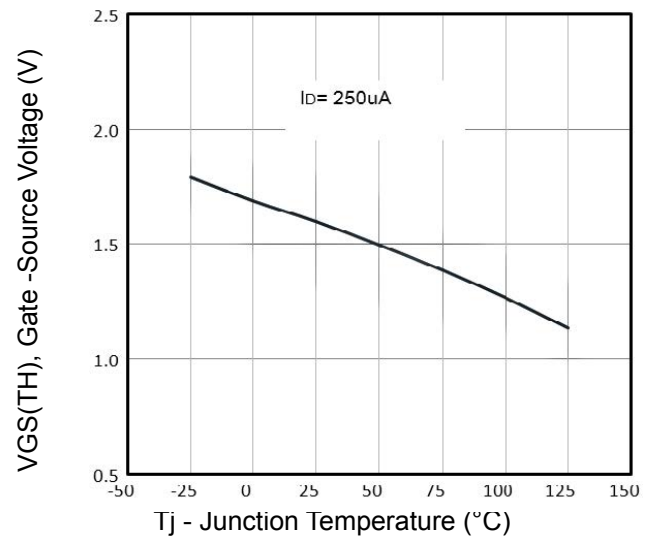


Fig2. VGS(TH) Voltage Vs. Temperature

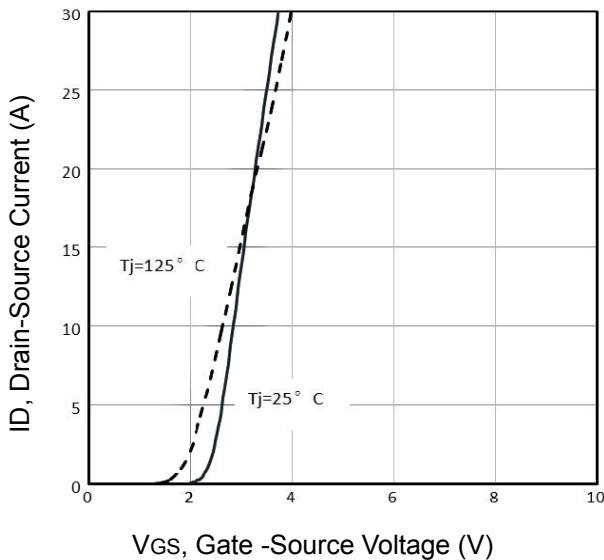


Fig3. Typical Transfer Characteristics

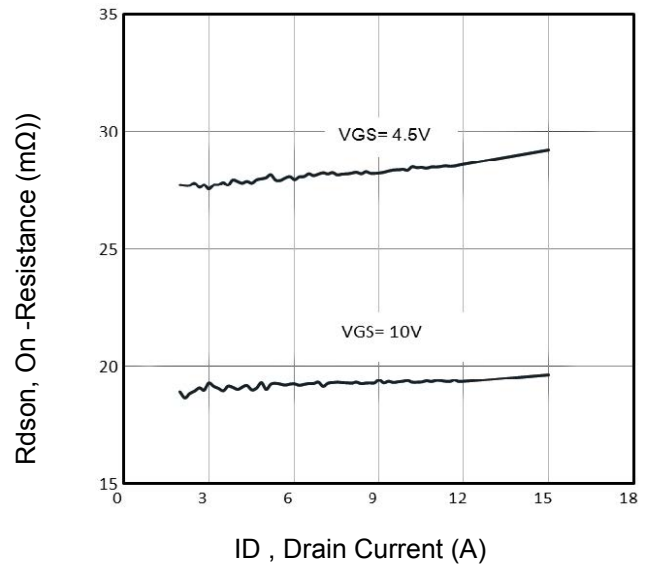
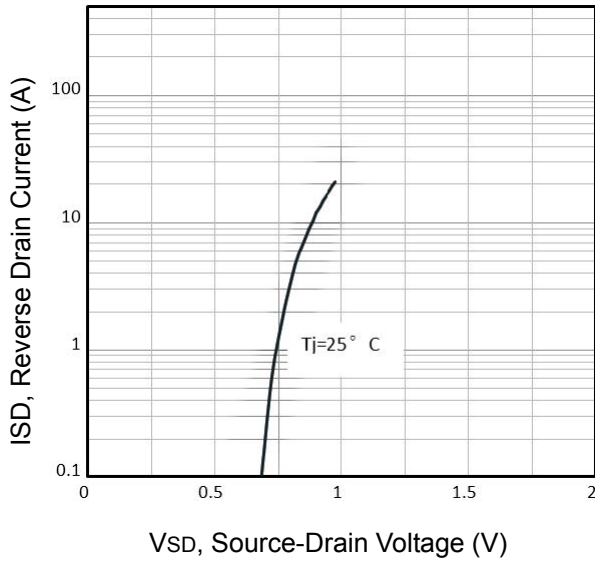
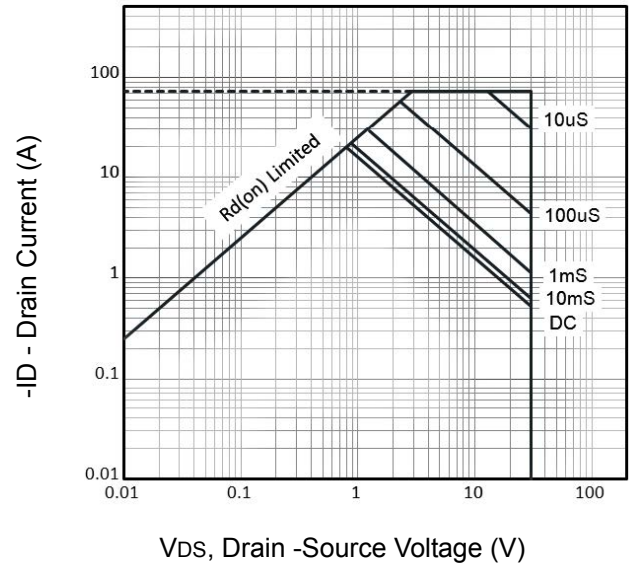
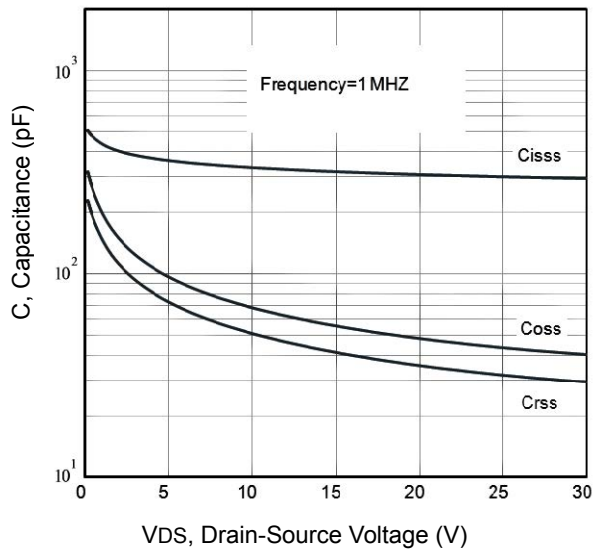
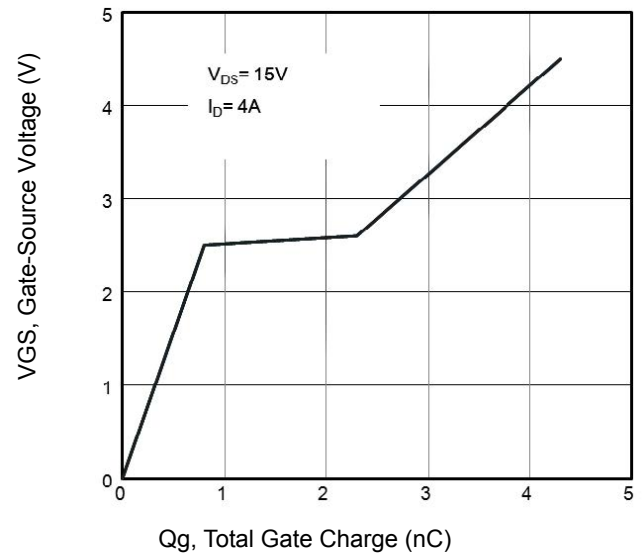
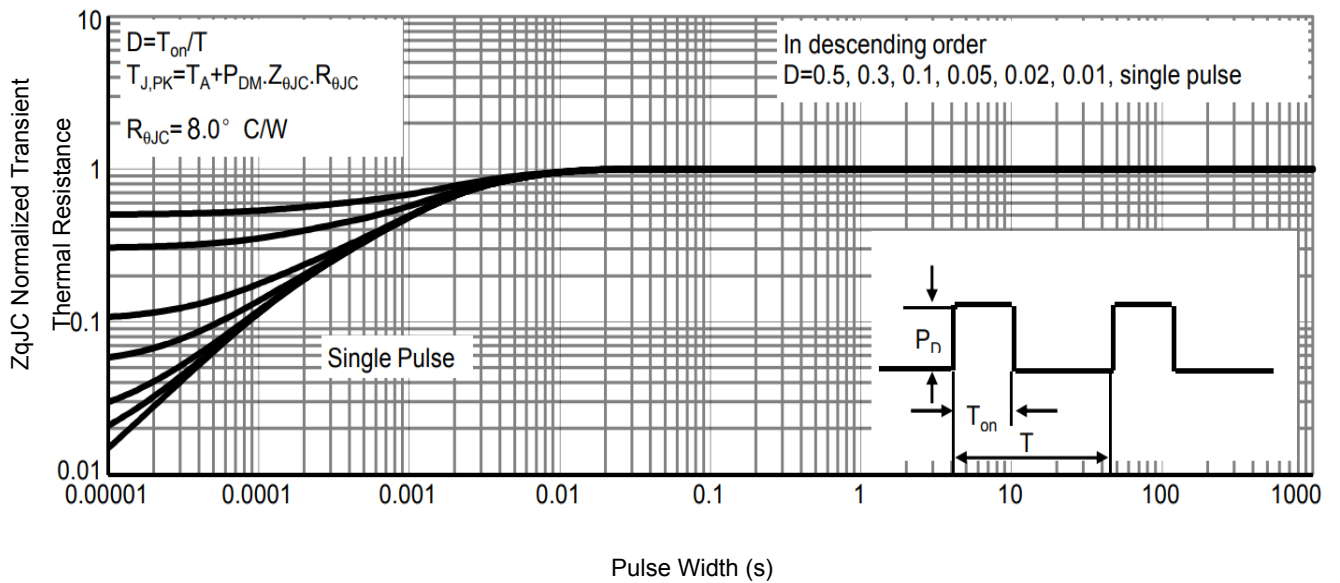


Fig4. On-Resistance vs. Drain Current and Gate


Fig5. Typical Source-Drain Diode Forward Voltage

Fig6. Maximum Safe Operating Area

Fig7. Typical Capacitance Vs. Drain-Source Voltage

Fig8. Typical Gate Charge Vs. Gate-Source Voltage


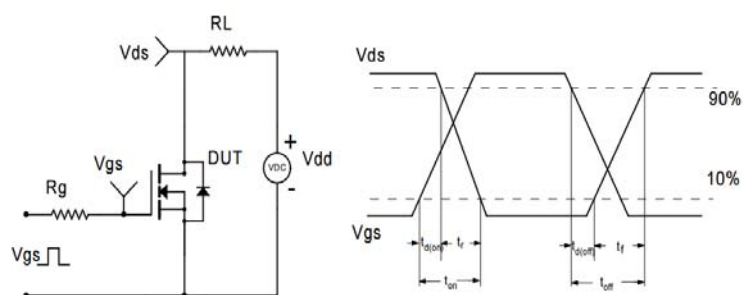


Fig10. Switching Time Test Circuit and waveforms