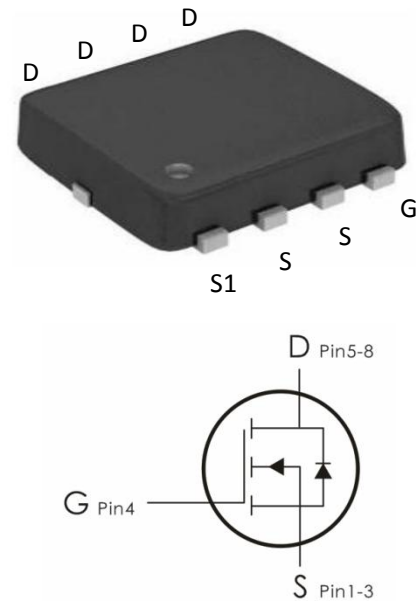


Description:

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) $V_{DS}=60V, I_D=20A, R_{DS(ON)} < 30m\Omega @ V_{GS}=10V$
- 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	60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current-Continuous- $T_c=25^\circ C$	20	A
	Continuous Drain Current-Continuous- $T_c=100^\circ C$	16	A
I_{DM}	Drain Current – Pulsed ³	90	A
EAS	Single Pulse Avalanche Energy ¹	42	mJ
P_D	Power Dissipation - $T_c=25^\circ C$	33	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	3.79	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	62	$^\circ C/W$

Package Marking and Ordering Information:

Part NO.	Marking	Package
DOZ20N06	20N06	DFN3*3-8

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

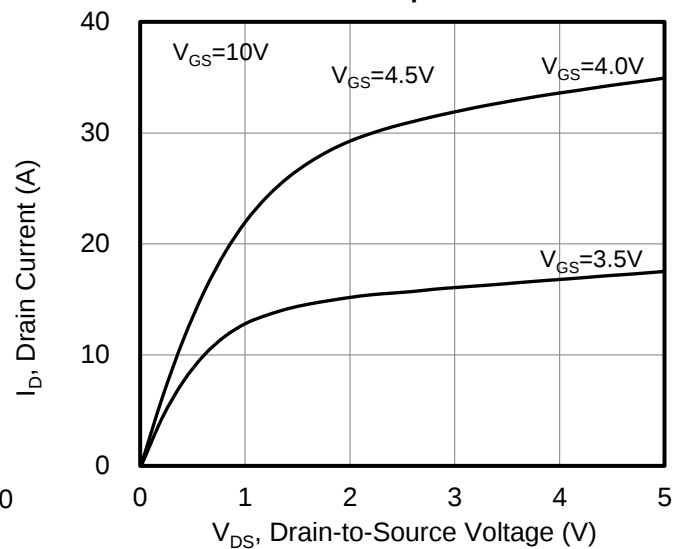
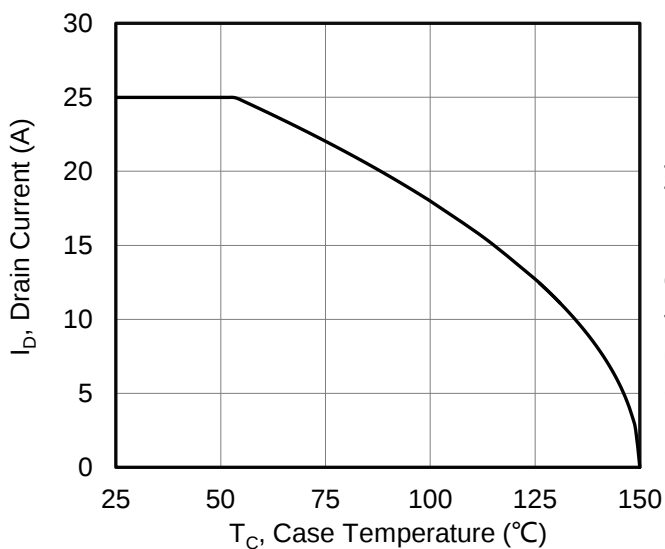
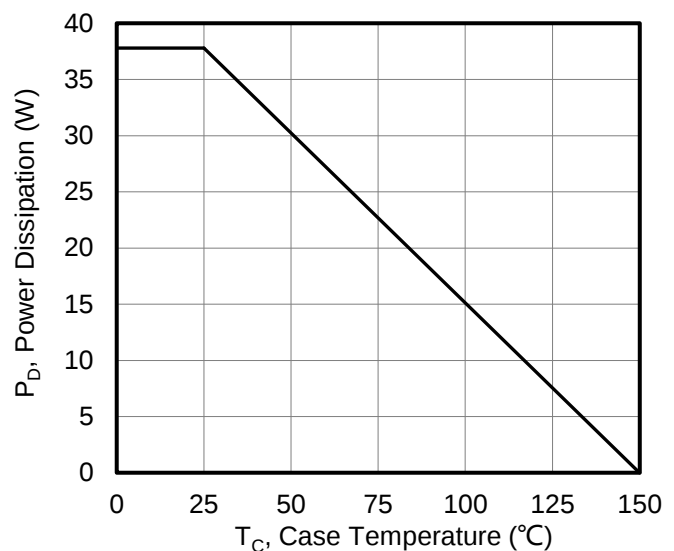
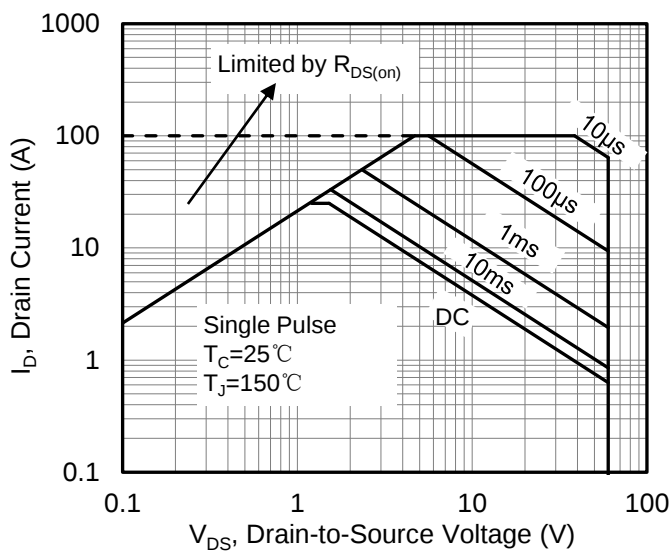
Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	60	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{GS} =0V, V _{DS} =60V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	1.2	1.8	2.5	V
R _{DS(ON)}	Drain-Source On Resistance ³	V _{GS} =10V, I _D =20A	---	24	30	m Ω
		V _{GS} =4.5V, I _D =20A	---	31	40	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	---	1060	---	pF
C _{OSS}	Output Capacitance		---	64	---	
C _{rss}	Reverse Transfer Capacitance		---	54	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =30V , V _{GS} =10V , I _D =20A, R _G = 3Ω	---	8.4	---	ns
t _r	Rise Time		---	8.5	---	ns
t _{d(off)}	Turn-Off Delay Time		---	36	---	ns
t _f	Fall Time		---	5	---	ns
Q _g	Total Gate Charge	V _{DS} =30V , V _{GS} =10V , I _D =20A	---	26	---	nC
Q _{gs}	Gate-Source Charge		---	5.7	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	5.2	---	nC
Drain-Source Diode Characteristics						
I _S	Continuous Source Current	VG=VD=0V	---	---	20	A
I _{SM}	Pulsed Source Current	VG=VD=0V	---	---	90	A

V_{SD}	Forward on voltage	$I_S=20A, V_{GS}=0V$	---	---	1.2	V
T_{rr}	Body Diode Reverse Recovery Time	$I_F=20A, dI/dt=100A/\mu s$	---	18	---	nS
Q_{rr}	Body Diode Reverse Recovery Charge		---	13	---	nC

Notes:

- 1) $L=0.5mH$, $V_{DD}=30V$, Start $T_J=25^\circ C$.
- 2) Limited by maximum junction temperature.
- 3) Repetitive Rating: Pulse width limited by maximum junction temperature

Typical Characteristics: ($T_C=25^\circ C$ unless otherwise noted)



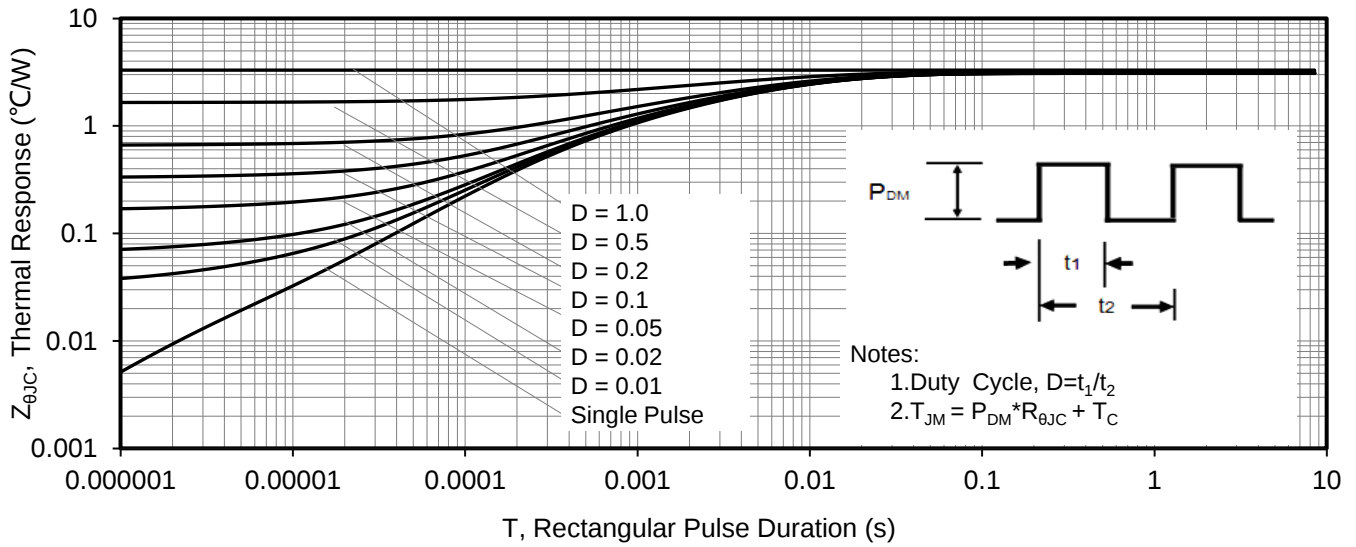


Figure 5. Maximum Effective Thermal Impedance, Junction to Case

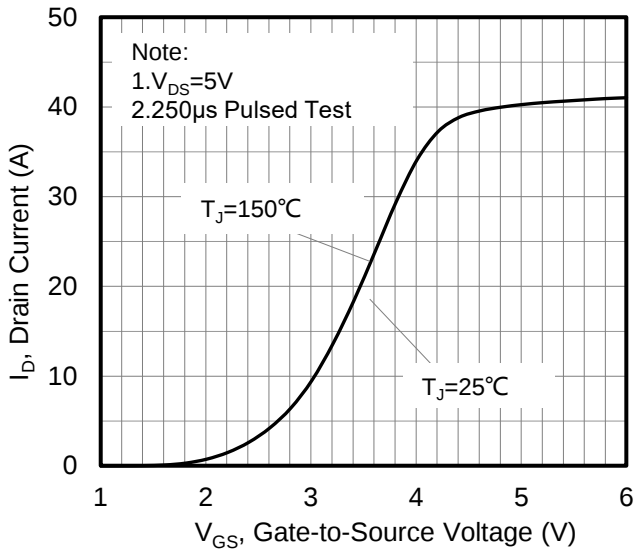


Figure 6. Typical Transfer Characteristics

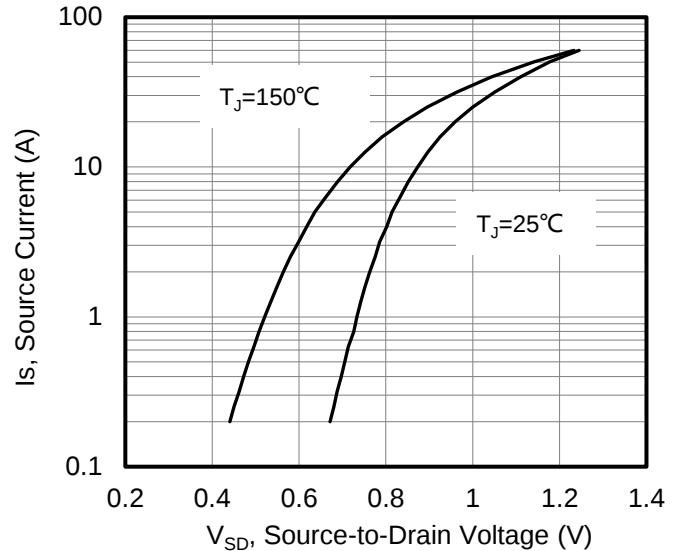


Figure 7. Typical Body Diode Transfer Characteristics

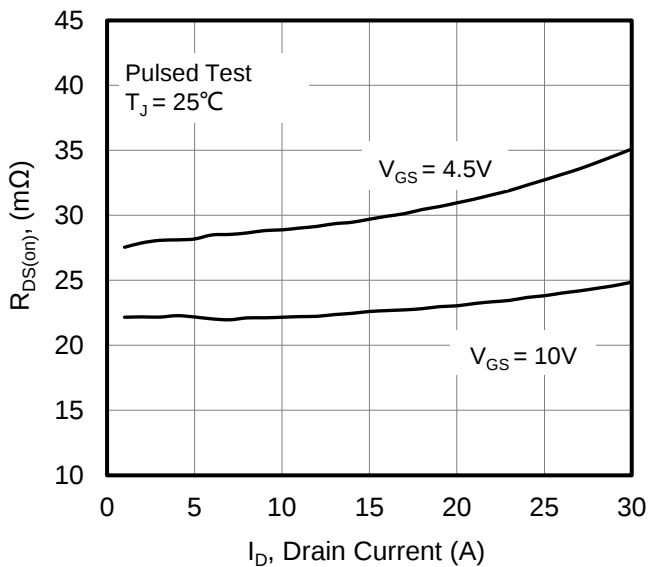


Figure 8. Drain-to-Source On Resistance vs Drain Current

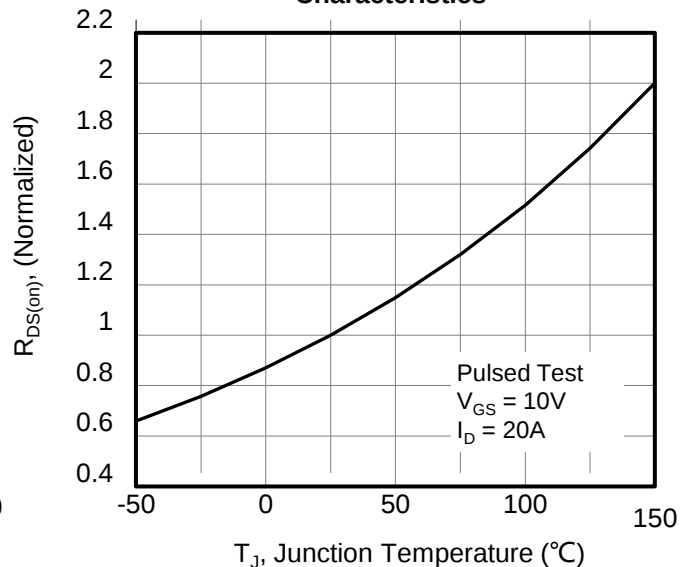


Figure 9. Normalized On Resistance vs Junction Temperature

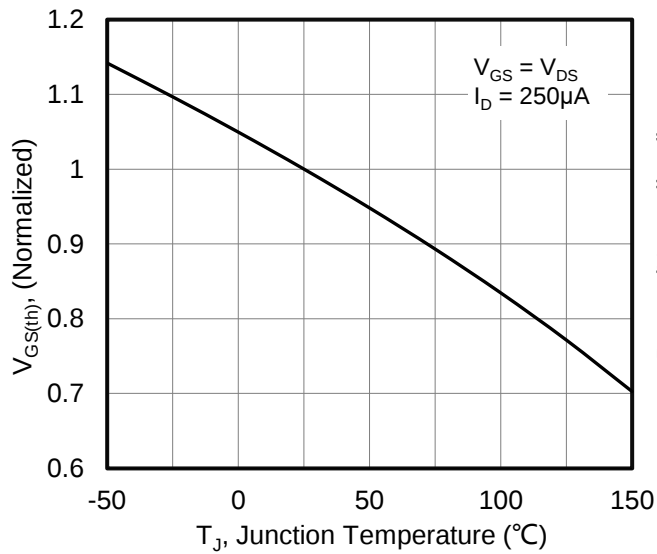


Figure 10. Normalized Threshold Voltage vs Junction Temperature

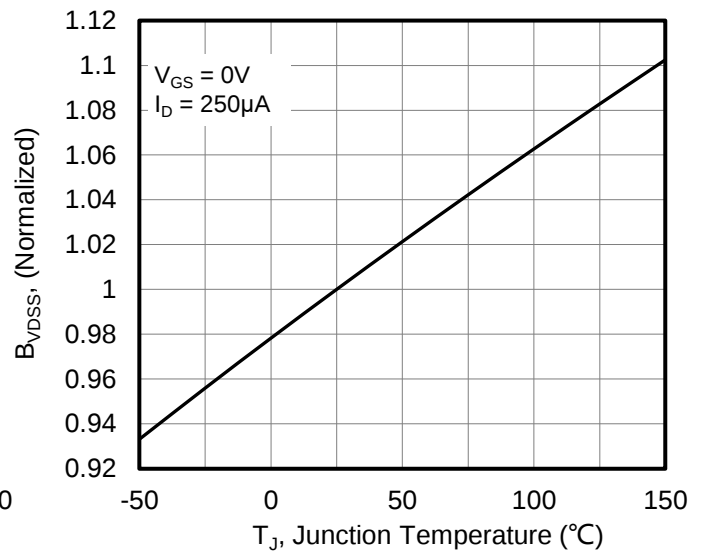


Figure 11. Normalized Breakdown Voltage vs Junction Temperature

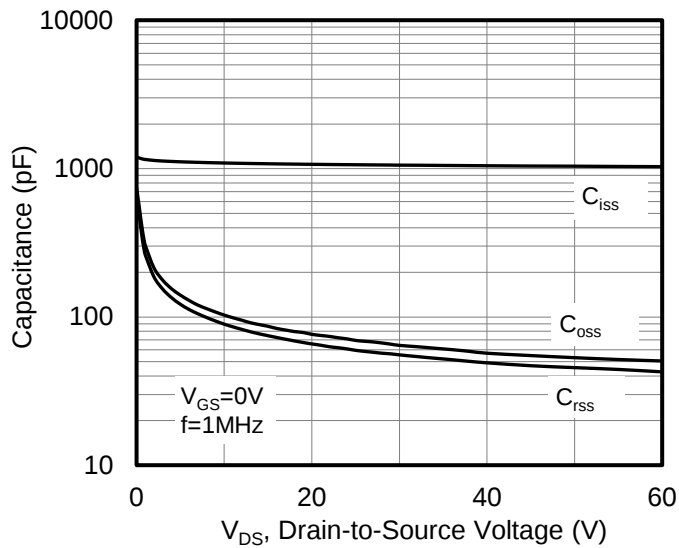


Figure 12. Capacitance Characteristics

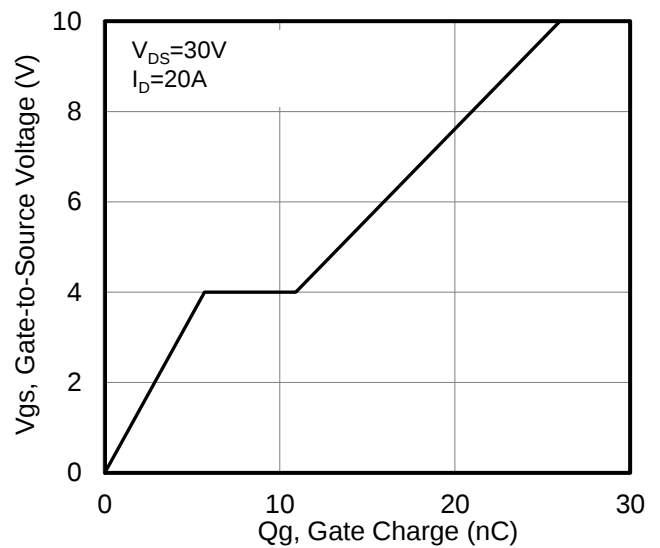


Figure 13. Typical Gate Charge vs Gate to Source Voltage