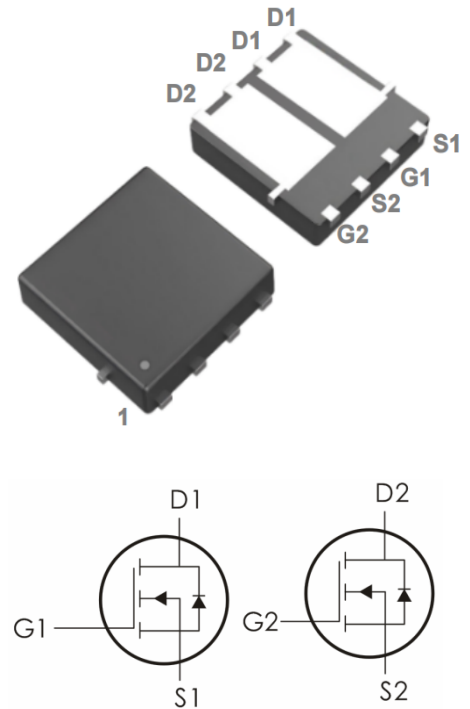


Description:

This Dual 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) $V_{DS}=30V, I_D=28A, R_{DS(ON)} < 13m\Omega @ V_{GS}=10V$
- 2) Improved dv/dt capability
- 3) Fast switching
- 4) 100% EAS Guaranteed
- 5) Green Device Available.



Absolute Maximum Ratings: ($T_J=25^\circ\text{C}$ 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- $T_C=25^\circ\text{C}$	28	A
	Continuous Drain Current-Continuous- $T_C=100^\circ\text{C}$	21	
I_{DM}	Drain Current – Pulsed ^{note1}	100	A
EAS	Single Pulse Avalanche Energy ^{note2}	10	mJ
P_D	Power Dissipation - $T_C=25^\circ\text{C}$	22	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	5.68	$^\circ\text{C}/\text{W}$

Package Marking and Ordering Information:

Part NO.	Marking	Package
DOZ30DN03	30DN03	DFN3*3-8D

Electrical Characteristics: ($T_J=25^{\circ}\text{C}$ 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 _J =25 °C	---	---	1.0	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	1.0	1.5	2.5	V
R _{DS(ON)}	Drain-Source On Resistance ^{note3}	V _{GS} =10V, I _D =10A	---	10	13	m Ω
		V _{GS} =4.5V, I _D =5A	---	16	22.5	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	550	---	pF
C _{oss}	Output Capacitance		---	105	---	
C _{rss}	Reverse Transfer Capacitance		---	95	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =30V , V _{GS} =10V , R _G =3.0 Ω , I _D =18A	---	5	---	ns
t _r	Rise Time		---	8	---	ns
t _{d(off)}	Turn-Off Delay Time		---	21	---	ns
t _f	Fall Time		---	7	---	ns
Q _g	Total Gate Charge	V _{DS} =15V , V _{GS} =10V , I _D =10A	---	15	---	nC
Q _{gs}	Gate-Source Charge		---	4.7	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	3.6	---	nC
Drain-Source Diode Characteristics						
I _S	Continuous Source Current1,5	VG=VD=0V , Force Current	---	---	28	A
I _{SM}	Pulsed Source Current2,5		---	---	72	A

V_{SD}	Forward on voltage	I _{SD} =18A, T _J =25 °C, V _{GS} =0V	---	---	1.2	V
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Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J=25 °C, V_{GS}=10V, R_G=25Ω, L=0.5mH, I_{AS}=8A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

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

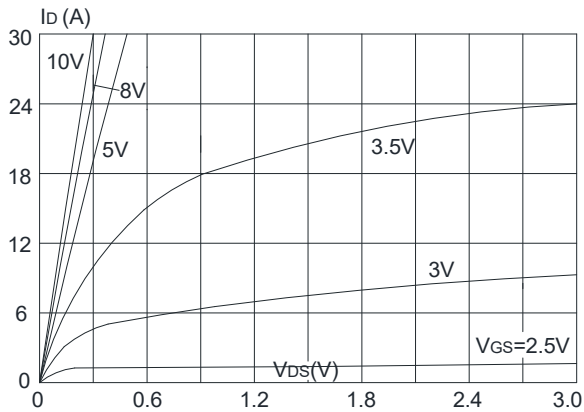


Figure1: Output Characteristics

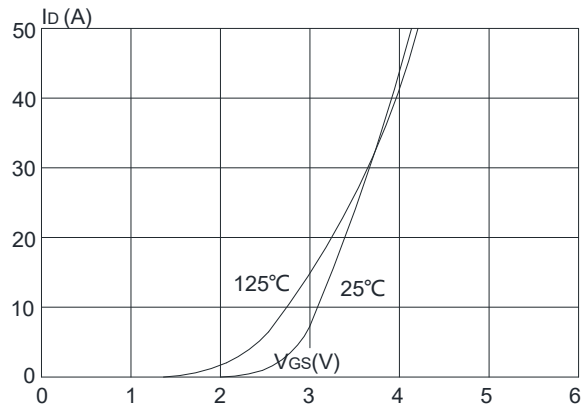


Figure 2: Typical Transfer Characteristics

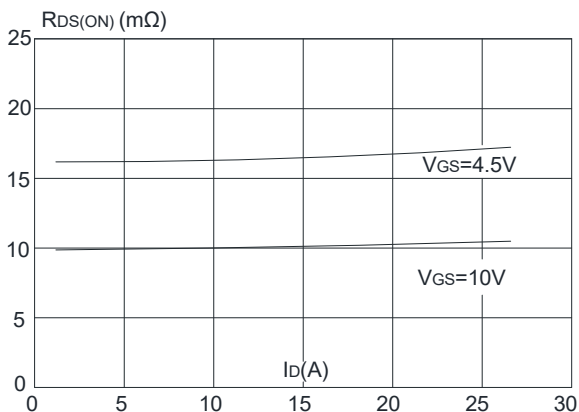


Figure 3: On-resistance vs. Drain Current

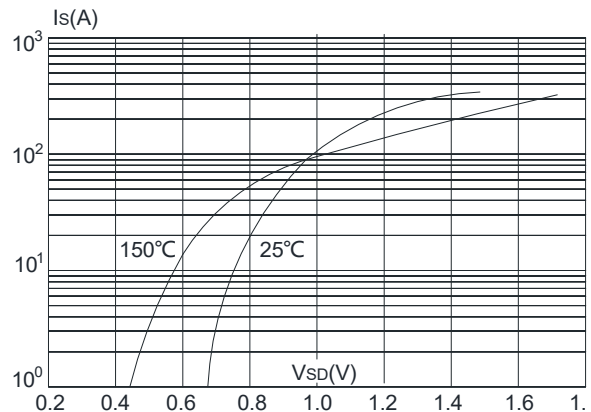


Figure 4: Body Diode Characteristics

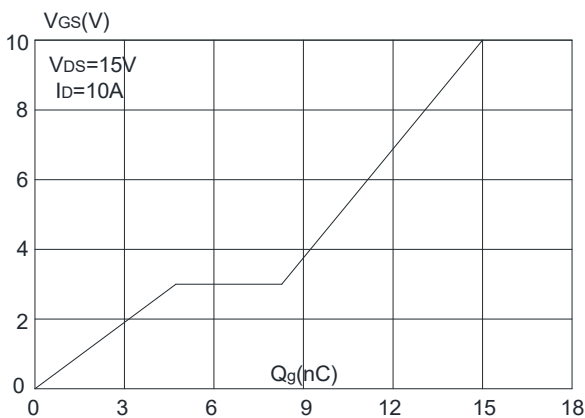


Figure 5: Gate Charge Characteristics

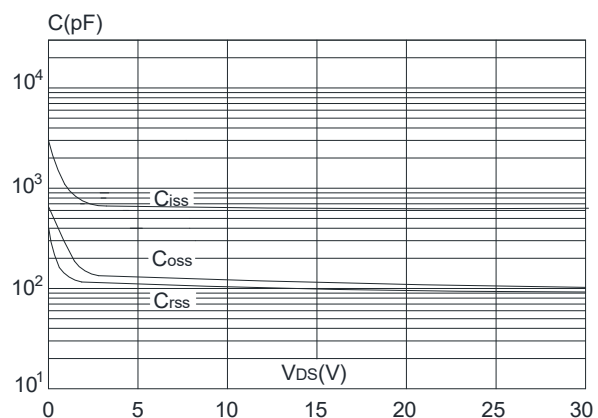


Figure 6: Capacitance Characteristics

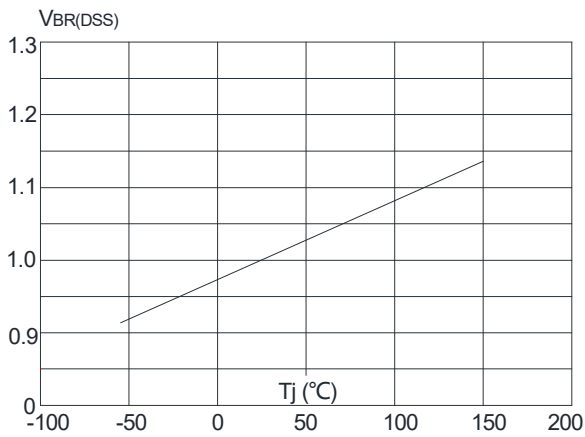


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

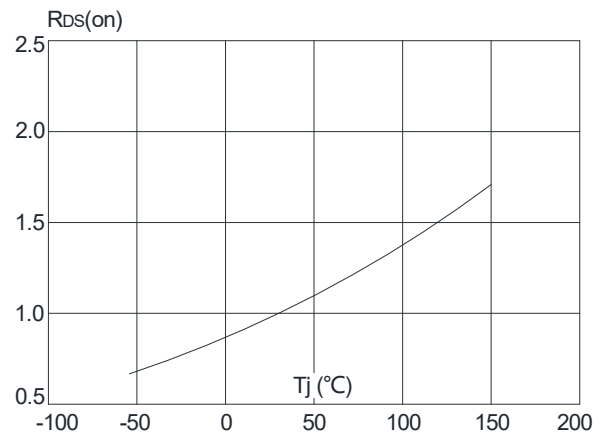


Figure 8: Normalized on Resistance vs. Junction Temperature

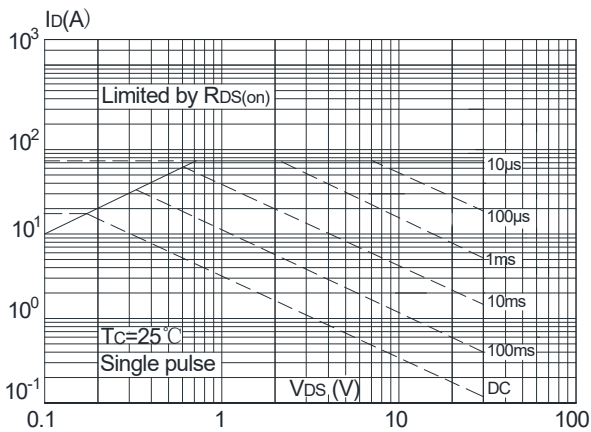


Figure 9: Maximum Safe Operating Area

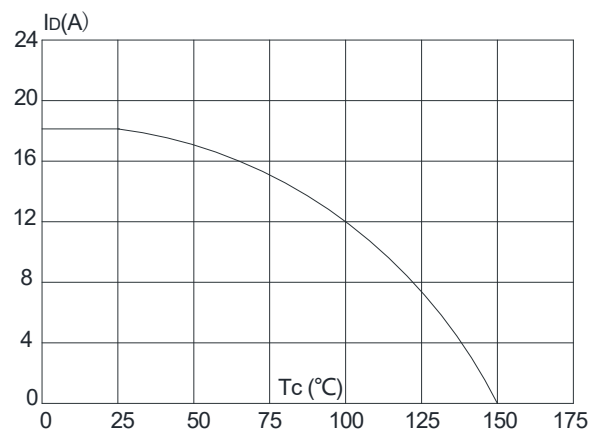


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

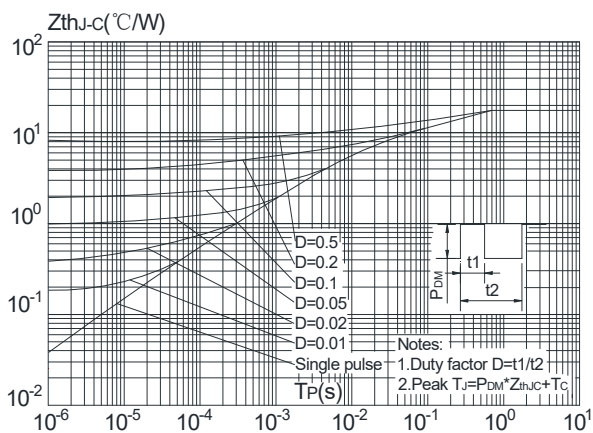


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case