

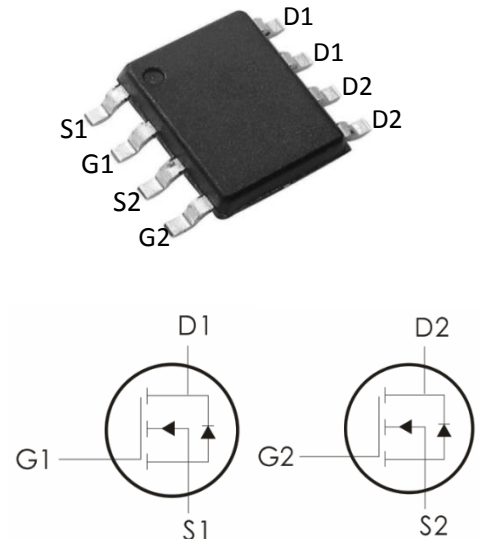
Description:

This Dual N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=20V, I_D=11A, R_{DS(on)} < 10m\Omega @ V_{GS}=4.5V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_a=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current - $T_C=25^\circ C$	11	A
	Continuous Drain Current - $T_C=100^\circ C$	6	
I_{DM}	Drain Current-Pulsed ¹	35	A
P_D	Power Dissipation	1.25	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	100	$^\circ C/W$

Package Marking and Ordering Information:

Part NO.	Marking	Package
DOS11DN02	11DN02	SOP-8D

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	20	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =20V,T _J =25 °C	---	---	1	μ A
		V _{GS} =0V, V _{DS} =16V,T _J =125 °C	---	---	10	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 12V, V _{DS} =0A	---	---	± 10	μ A
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	0.3	0.6	1	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =4.5V,I _D =5A	---	9	10	m Ω
		V _{GS} =2.5V,I _D =3A	---	10	14	
G _{FS}	Forward Transconductance	V _{DS} =10V, I _D =5A	---	11	---	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	---	1000	1450	pF
C _{Oss}	Output Capacitance		---	158	230	
C _{rss}	Reverse Transfer Capacitance		---	105	155	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time ^{2,,3}	V _{DD} =10V, I _D =1A R _G =25 Ω . V _{GS} =4.5V,	---	6.8	13	ns
t _r	Rise Time ^{2,,3}		---	20	38	ns
t _{d(off)}	Turn-Off Delay Time ^{2,,3}		---	41.8	79	ns
t _f	Fall Time ^{2,,3}		---	13.2	25	ns
Q _g	Total Gate Charge ^{2,,3}	V _{GS} =4.5V, V _{DS} =10V, I _D =5A	---	16.9	26	nC
Q _{gs}	Gate-Source Charge ^{2,,3}		---	1.1	3	nC
Q _{gd}	Gate-Drain “Miller” Charge ^{2,,3}		---	4	7	nC
Drain-Source Diode Characteristics						

V_{SD}	Source-Drain Diode Forward Voltage	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1	V
I_S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	7.5	A
I_{SM}	Pulsed Source Current		---	---	30	A

Notes:

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

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

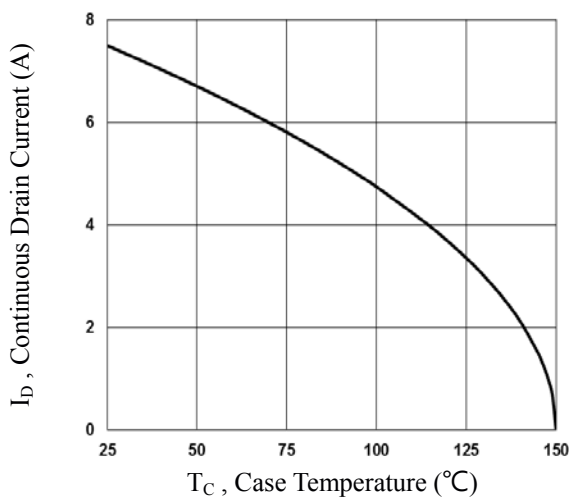


Fig.1 Continuous Drain Current vs. T_C

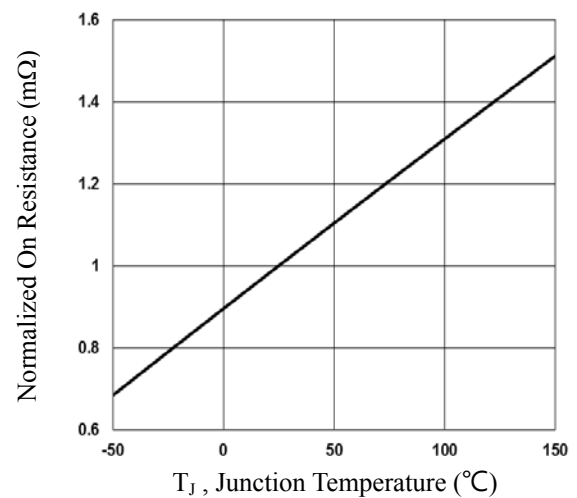


Fig.2 Normalized RDSON vs. T_J

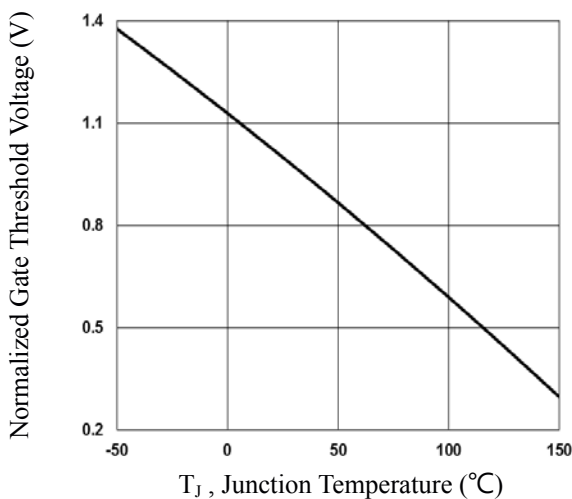


Fig.3 Normalized V_{th} vs. T_J

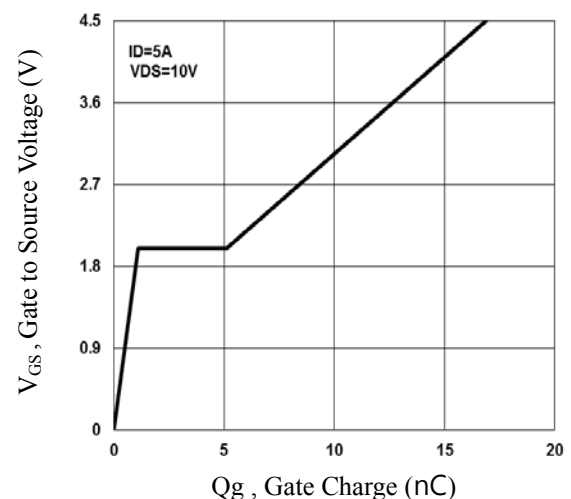


Fig.4 Gate Charge Waveform

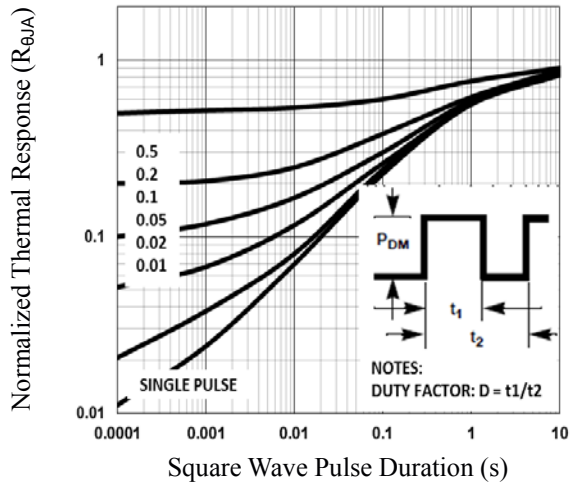


Fig.5 Normalized Transient Impedance

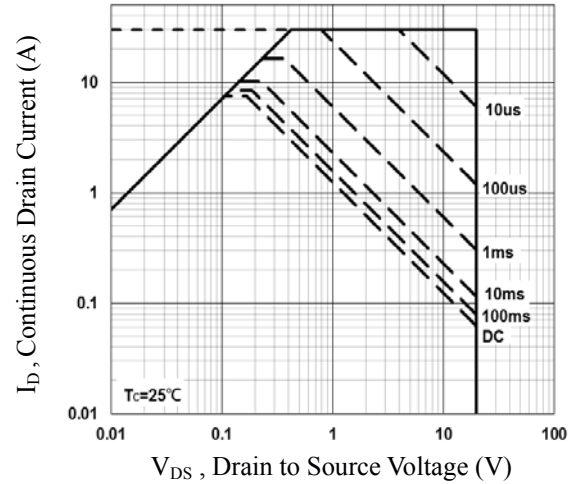


Fig.6 Maximum Safe Operation Area

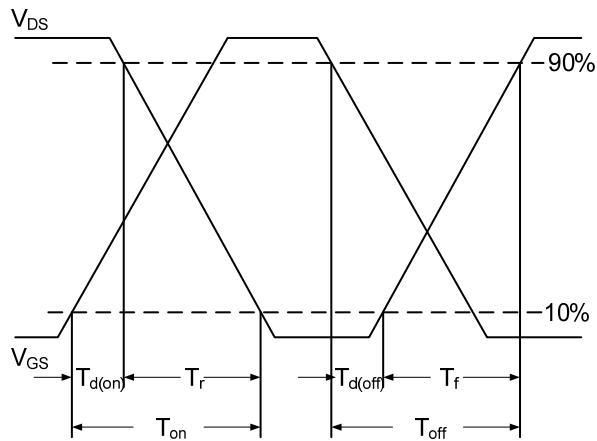


Fig.7 Switching Time Waveform

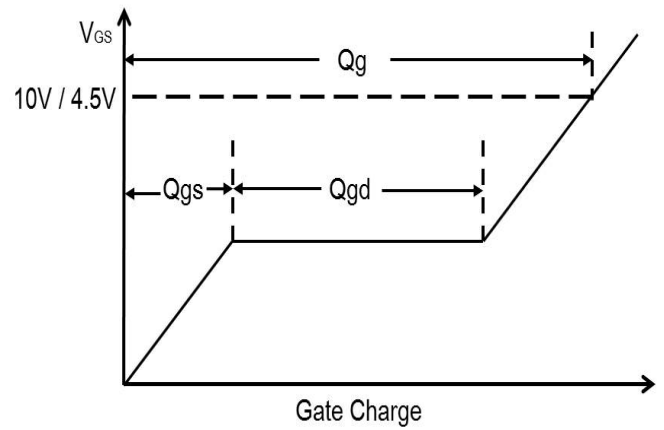


Fig.8 Gate Charge Waveform