

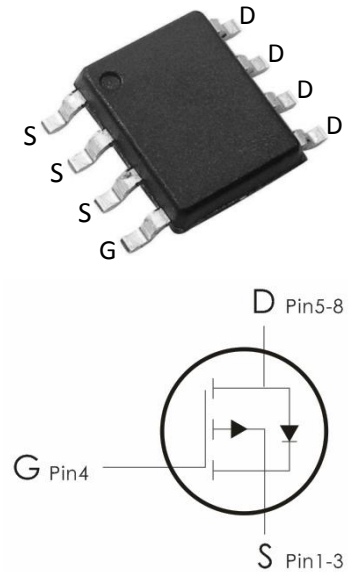
Description:

This P-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) $V_{DS}=-100V, I_D=-1.8A, R_{DS(on)}<200m\Omega$ @ $V_{GS}=-10V$ (Typ : $165m\Omega$)
- 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: ($T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current-($T_A=25^\circ C$)	-1.8	A
	Continuous Drain Current-($T_A=70^\circ C$)	-1.4	
	Pulsed Drain Current ¹	-7.2	A
P_D	Power Dissipation-($T_A=25^\circ C$)	2	W
	Power Dissipation -Derate above $25^\circ C$	0.016	W/ $^\circ C$
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	62.5	$^\circ C/W$

Package Marking and Ordering Information:

Part NO.	Marking	Package
DOS2P10	2P10	SOP-8

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	$V_{GS}=0V, I_D=250\ \mu A$	-100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=-100V, T_J=25^{\circ}\text{C}$	---	---	-1	μA
		$V_{DS}=-80V, V_{GS}=0V, T_J=125^{\circ}\text{C}$	---	---	-10	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu A$	-1.2	-1.6	-2.5	V
$R_{DS(on)}$	Drain-Source On Resistance	$V_{GS}=-10V, I_D=-1.8A$	---	165	200	m Ω
		$V_{GS}=-4.5V, I_D=-1.5A$	---	180	230	
G_{FS}	Forward Transconductance	$V_{DS}=-10V, I_S=-3A$	---	6.5	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=-50V, V_{GS}=0V, f=1\text{MHz}$	---	1455	2200	pF
C_{oss}	Output Capacitance		---	860	1300	
C_{rss}	Reverse Transfer Capacitance		---	60	85	
R_g	Gate resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	---	16	---	Ω
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time ^{2,3}	$V_{DD}=-50V, V_{GS}=-10V$ $R_G=25\ \Omega, I_D=1.8A$	---	18	36	ns
t_r	Rise Time ^{2,3}		---	8	16	ns
$t_{d(off)}$	Turn-Off Delay Time ^{2,3}		---	100	200	ns
t_f	Fall Time ^{2,3}		---	30	60	ns
Q_g	Total Gate Charge ^{2,3}	$V_{DS}=-80V, V_{GS}=-10V,$ $I_D=1.8A$	---	20	40	nC
Q_{gs}	Gate-Source Charge ^{2,3}		---	3.5	7	nC
Q_{gd}	Gate-Drain Charge ^{2,3}		---	4.6	9	nC

Drain-Source Diode Characteristics						
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-1.8	A
I_{SM}	Pulsed Source Current		---	---	-3.6	A
V_{SD}	Drain Diode Forward Voltage	$V_{GS}=0V, I_S=-1A, T_J=25^\circ C$	---	---	-1	V
t_{rr}	Reverse Recovery Time	$V_R=-100V, I_S=-1A,$ $di/dt=100A/\mu S, T_J=25^\circ C$	---	13	---	ns
Q_{rr}	Reverse Recovery Charge		---	15	---	nC

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

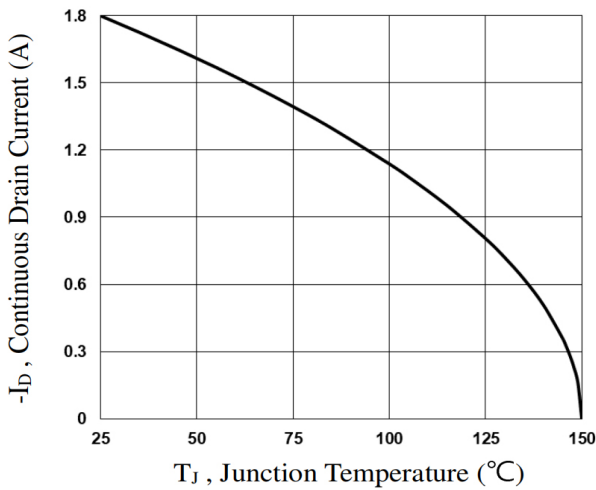


Fig.1 Continuous Drain Current vs. T_J

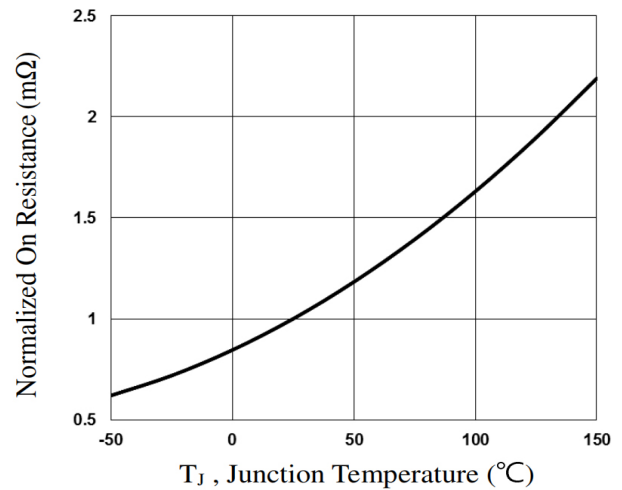


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

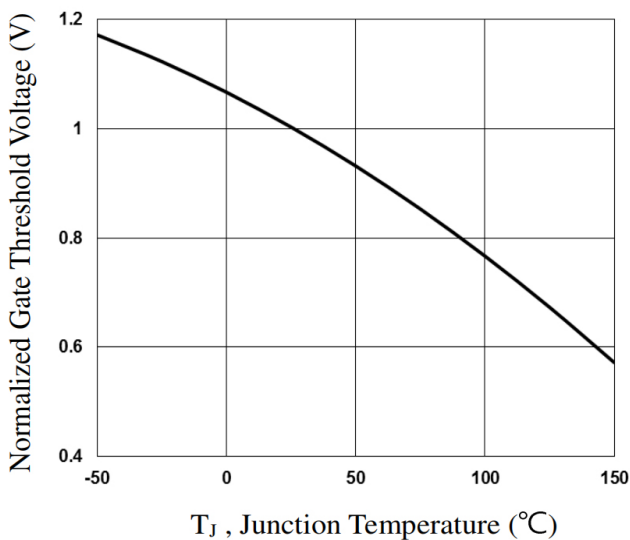


Fig.3 Normalized V_{th} vs. T_J

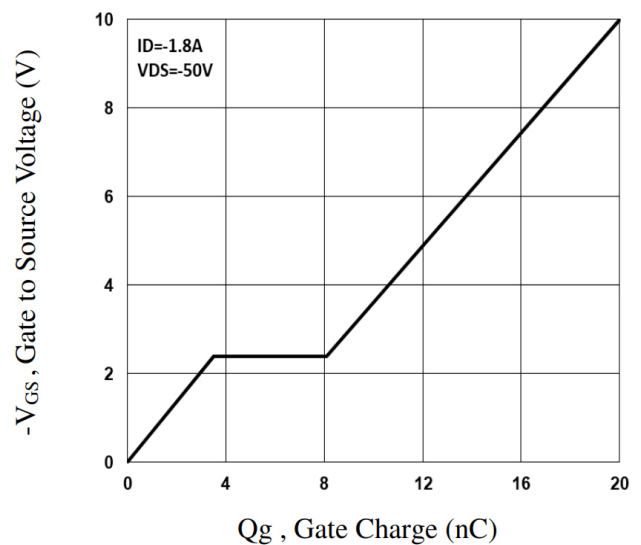


Fig.4 Gate Charge Waveform

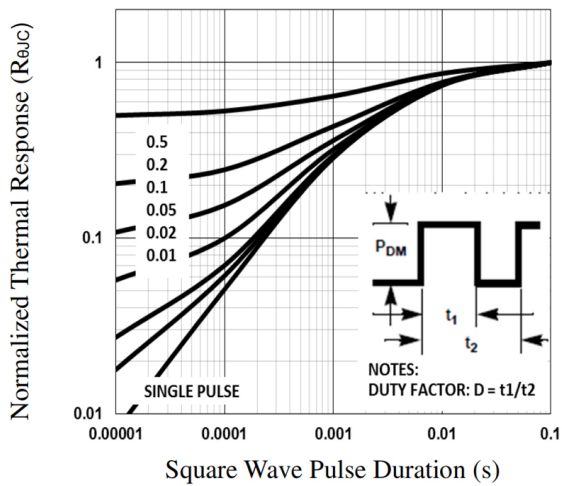


Fig.5 Normalized Transient Impedance

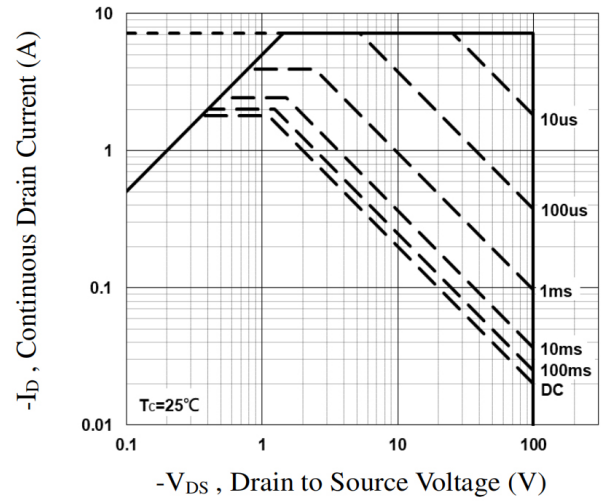


Fig.6 Maximum Safe Operation Area

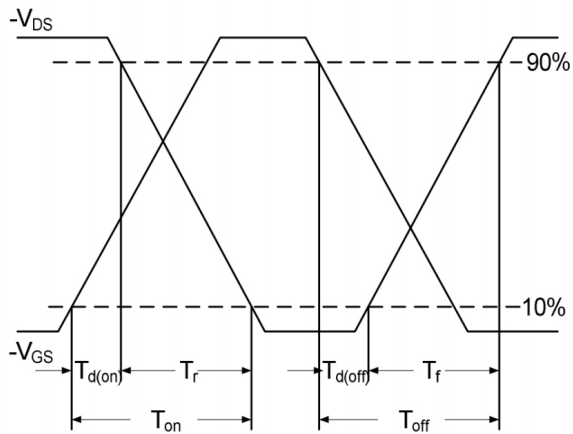


Fig.7 Switching Time Waveform

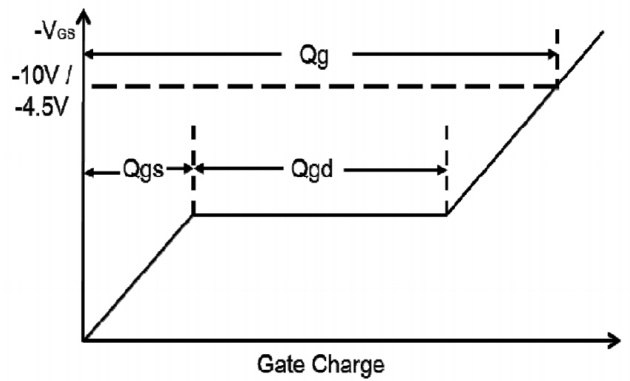


Fig.8 Gate Charge Waveform