

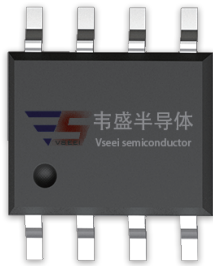
Description

Features

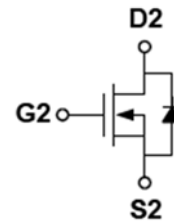
- N-Channel: 30V 6A
 $R_{DS(ON)}=18.6m\Omega$ (Typ.) @ $V_{GS}=10V$
 $R_{DS(ON)}=30m\Omega$ (Typ.) @ $V_{GS}=4.5V$
- P-Channel: -30V -6A
 $R_{DS(ON)}=27m\Omega$ (Typ.) @ $V_{GS}=-10V$
 $R_{DS(ON)}=42m\Omega$ (Typ.) @ $V_{GS}=-4.5V$
- Excellent Gate Charge x $R_{DS(ON)}$ Product(FOM)
- Very Low On-resistance $R_{DS(ON)}$
- Fast Switching Speed

Application

- Battery Protection
- Load Switch
- Power Management



SOP-8



Schematic Diagram

Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Symbol	Parameter	Max. N-Channel	Max. P-Channel	Units	
V _{DSS}	Drain-Source Voltage			30	-30
V _{GSS}	Gate-Source Voltage			±20	±20
I _D	Continuous Drain Current		T _C = 25°C	6	-6
			T _C = 100°C	5	-5
I _{DM}	Pulsed Drain Current ^{note1}			30	-30
P _D	Power Dissipation		T _A = 25°C	2	
R _{θJA}	Thermal Resistance, Junction to Ambient			100	°C/W
T _J , T _{STG}	Operating and Storage Temperature Range			-55 to +150	°C

N-Channel Electrical Characteristics (T_C=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} = 0V, T _J = 25℃	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =250μA	1.0	1.55	3.0	V
R _{DS(on)}	Static Drain-Source on-Resistance <small>note2</small>	V _{GS} =10V, I _D =6A	-	18.6	22	mΩ
		V _{GS} =4.5V, I _D =5A	-	30	37	mΩ
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =6A	-	15	-	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = 15V, V _{GS} = 0V, f = 1.0MHz	-	255	310	pF
C _{oss}	Output Capacitance		-	45	60	pF
C _{rss}	Reverse Transfer Capacitance		-	35	50	pF
Q _g	Total Gate Charge	V _{DS} =15V, I _D =6A, V _{GS} =10V	-	5.2	-	nC
Q _{gs}	Gate-Source Charge		-	2.5	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	1.0	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{GS} =10V, V _{DS} =15V, R _L =2.5Ω, R _{REN} =3Ω	-	4.5	-	ns
t _r	Turn-on Rise Time		-	2.5	-	ns
t _{d(off)}	Turn-off Delay Time		-	14.5	-	ns
t _f	Turn-off Fall Time		-	3.5	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _s	Maximum Continuous Drain to Source Diode Forward Current		-	-	6	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	30	A

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

P-Channel Electrical Characteristics (T_c=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V,I _D = -250μA	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -30V, V _{GS} = 0V,	-	-	-1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-0.8	-1.32	-2.0	V
R _{DS(on)}	Static Drain-Source on-Resistance <small>note2</small>	V _{GS} =-10V, I _D =-6A	-	27	35	mΩ
		V _{GS} =-4.5V, I _D =-5A	-	42	50	
g _{FS}	Forward Transconductance	V _{DS} =-5V, I _D = -6A	-	18	-	S
Dynamic Characteristics						
C _{iSS}	Input Capacitance	V _{DS} = -15V, V _{GS} = 0V, f = 1.0MHz	-	760	-	pF
C _{oSS}	Output Capacitance		-	140	-	pF
C _{rSS}	Reverse Transfer Capacitance		-	95	-	pF
Q _g	Total Gate Charge	V _{DS} = -15V, I _D = -6A, V _{GS} = -10V	-	13.6	-	nC
Q _{gs}	Gate-Source Charge		-	2.5	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	3.2	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} = -15V, R _L =2.3Ω, R _{GEN} =3Ω,V _{GS} =-10V,	-	11	-	ns
t _r	Turn-on Rise Time		-	35	-	ns
t _{d(off)}	Turn-off Delay Time		-	30	-	ns
t _f	Turn-off Fall Time		-	10	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _s	Maximum Continuous Drain to Source Diode Forward Current		-	-	-6	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-30	A

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%