

Dual N-channel Enhancement Mode Power MOSFET

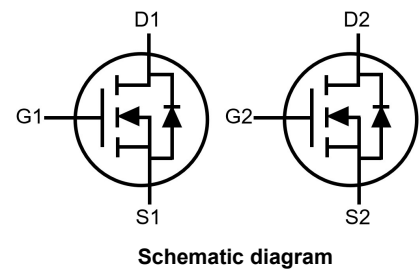
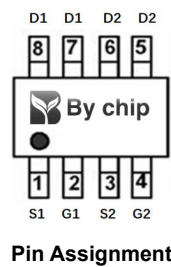
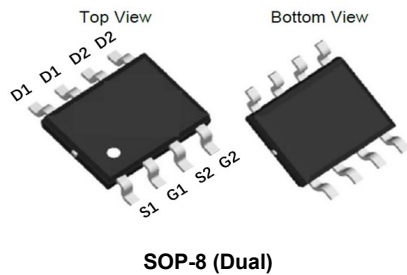
Features

- V_{DS}= 30V, I_D= 9 A
- R_{DS(ON)} < 16 mΩ @ V_{GS} = 10V
- R_{DS(ON)} < 24 mΩ @ V_{GS} = 4.5V

General Features

- Advanced Trench Technology
- Provide Excellent R_{DS(ON)} and Low Gate Charge
- Lead Free and Green Available

100% UIS TESTED!
100% ΔV_{ds} TESTED!



Maximum ratings, at T_J=25 °C, unless otherwise specified

Symbol	Parameter		Rating	Unit
V _{(BR)DSS}	Drain-Source breakdown voltage		30	V
I _S	Diode continuous forward current	T _A =25°C	2.3	A
I _D	Continuous drain current @V _{GS} =10V	T _A =25°C	9	A
		T _A =100°C	5.7	A
I _{DM}	Pulse drain current tested ①	T _A =25°C	36	A
EAS	Avalanche energy, single pulsed ②		9	mJ
P _D	Maximum power dissipation	T _A =25°C	2	W
V _{GS}	Gate-Source voltage		±20	V
MSL			Level 3	
T _{STG} T _J	Storage and operating temperature range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
R _{θJL}	Thermal Resistance-Junction to Lead	40	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient	62.5	°C/W

Electrical Characteristics

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current(Tc=25°C)	V _{DS} =30V,V _{GS} =0V	--	--	1	μA
	Zero Gate Voltage Drain Current(Tc=125°C)	V _{DS} =30V,V _{GS} =0V	--	--	100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V,V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =250μA	1		2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance ②	V _{GS} =10V, I _D =8A	--		16	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance ②	V _{GS} =4.5V, I _D =4A	--		24	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =15V,V _{GS} =0V, f=1MHz	--	455	--	pF
C _{oss}	Output Capacitance		--	75	--	pF
C _{rss}	Reverse Transfer Capacitance		--	60	--	pF
R _g	Gate Resistance	f=1MHz	--	3.3	--	Ω
Q _g	Total Gate Charge	V _{DS} =15V,I _D =8A, V _{GS} =10V	--	11	--	nC
Q _{gs}	Gate-Source Charge		--	3	--	nC
Q _{gd}	Gate-Drain Charge		--	4	--	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =15V, I _D =8A, R _G =3Ω, V _{GS} =10V	--	7	--	ns
t _r	Turn-on Rise Time		--	10	--	ns
t _{d(off)}	Turn-Off Delay Time		--	22	--	ns
t _f	Turn-Off Fall Time		--	7	--	ns
Source- Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	I _{SD} =8A,V _{GS} =0V	--	0.9	1.2	V
t _{rr}	Reverse Recovery Time	T _J =25°C ,I _{sd} =8A, V _{GS} =0V	--	9.5	--	ns
Q _{rr}	Reverse Recovery Charge	di/dt=500A/μs	--	11.8	--	nC

NOTE:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Limited by T_{Jmax}, starting T_J = 25°C, L = 0.5mH, R_G = 25Ω, I_{AS} = 6A, V_{GS}=10V. Part not recommended for use above this value
- ③ Pulse width ≤ 300μs; duty cycles ≤ 2%.

Typical Characteristics

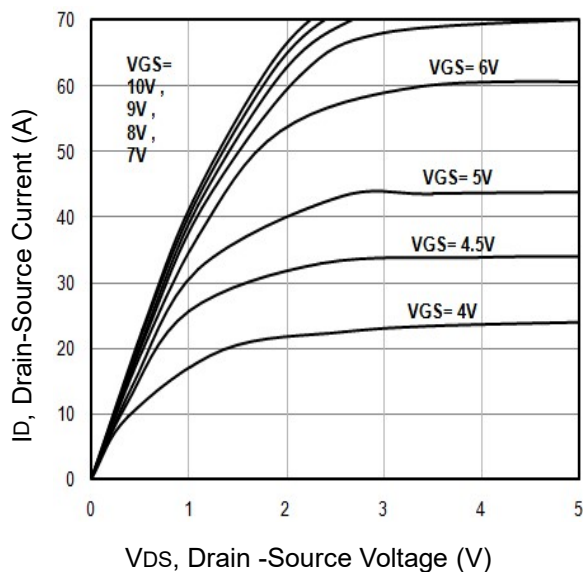


Fig1. Typical Output Characteristics

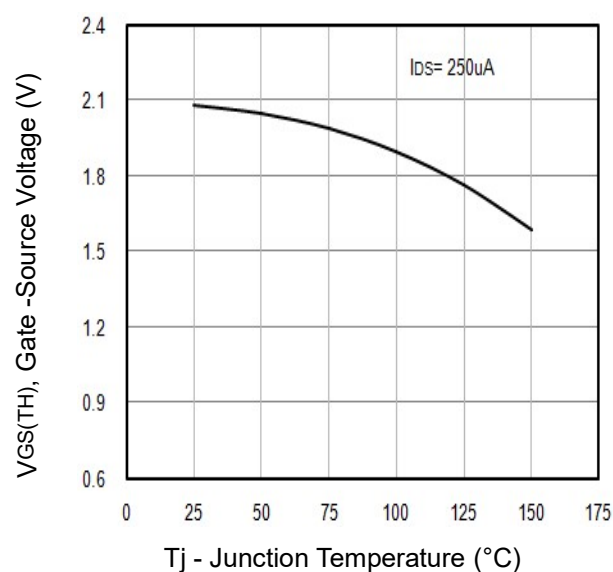


Fig2. Threshold Voltage Vs. Temperature

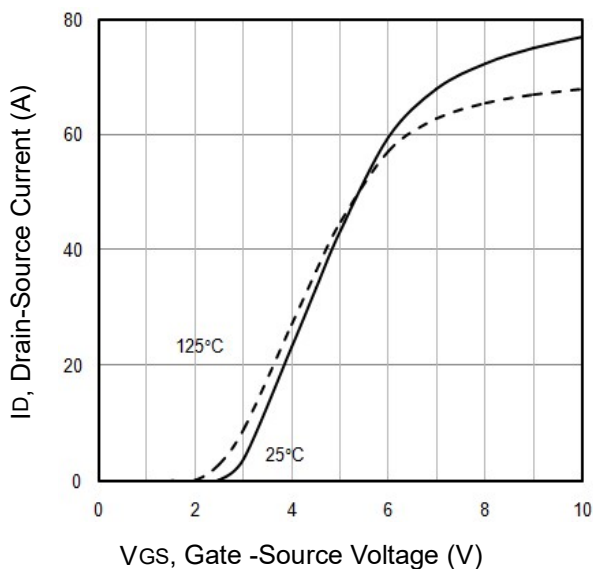


Fig3. Typical Transfer Characteristics

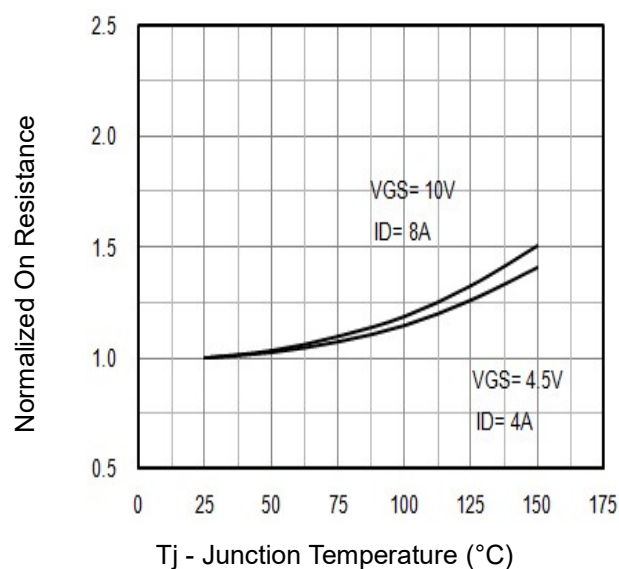


Fig4. Normalized On-Resistance Vs. Temperature

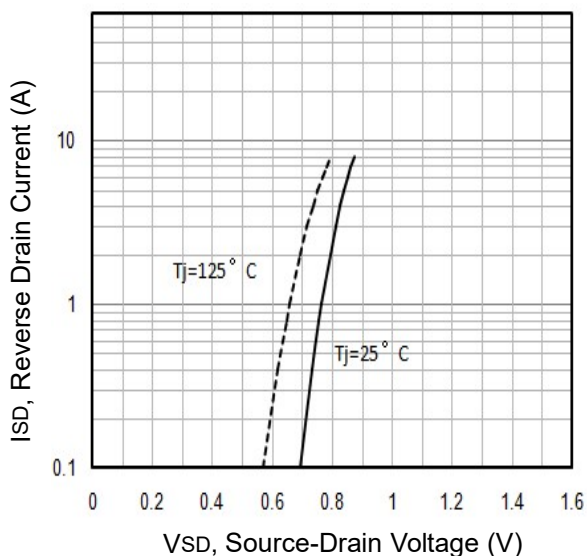


Fig5. Typical Source-Drain Diode Forward Voltage

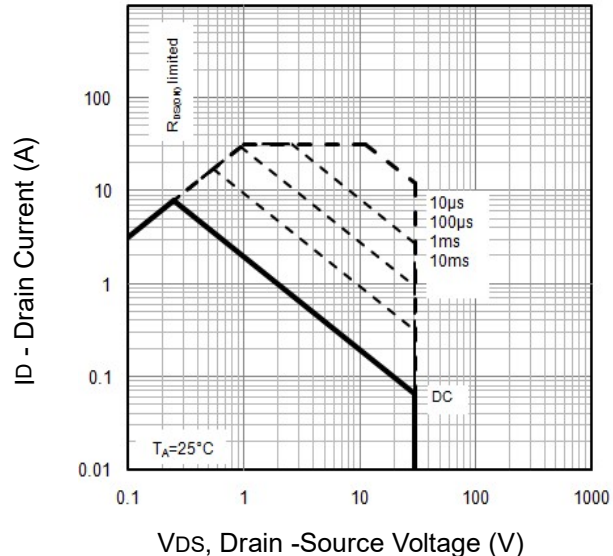


Fig6. Maximum Safe Operating Area

Typical Characteristics

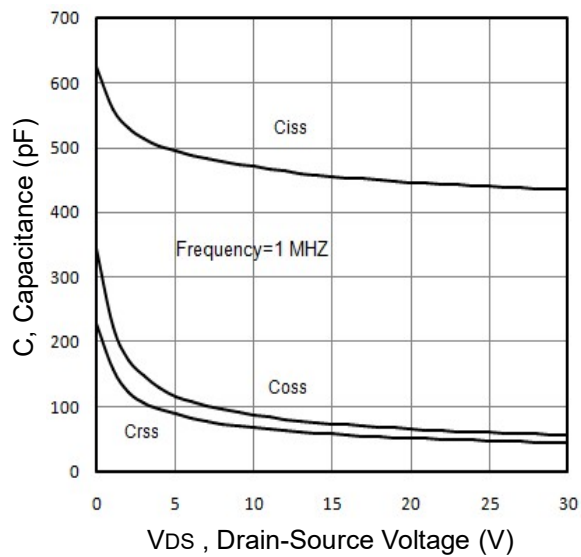


Fig7. Typical Capacitance Vs. Drain-Source Voltage

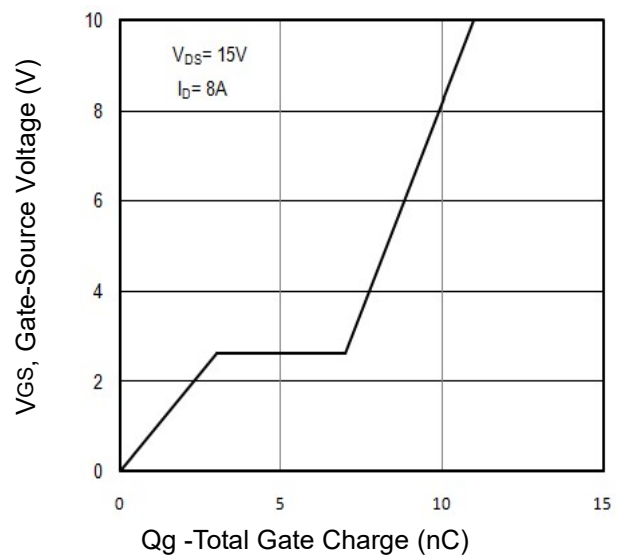


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

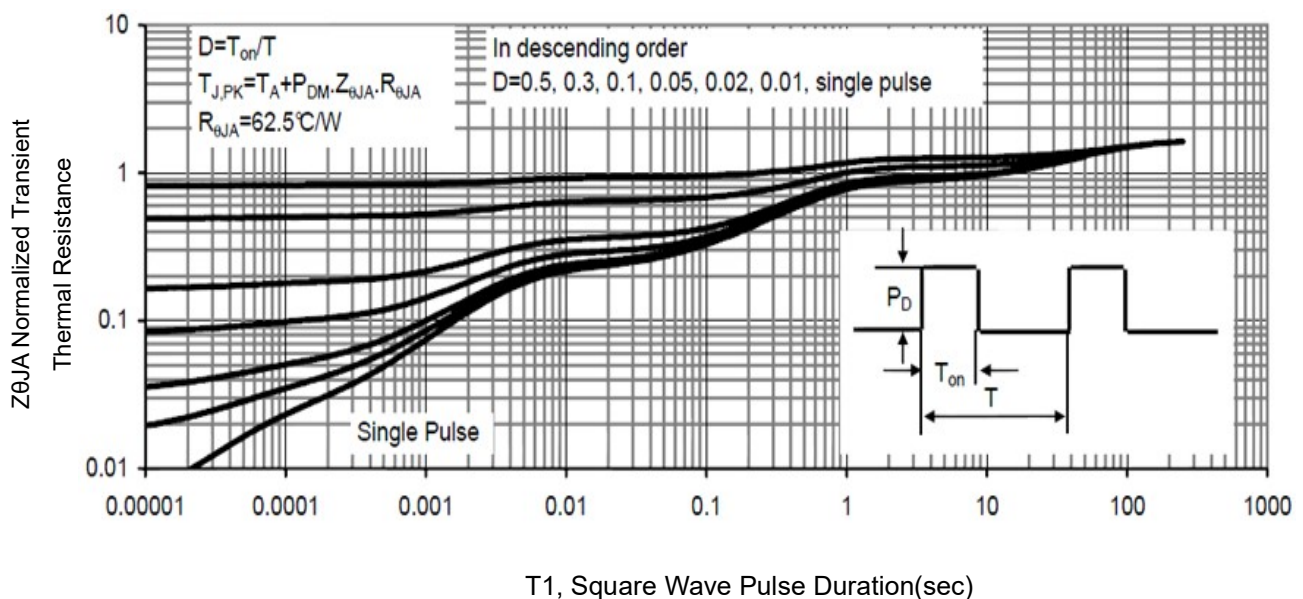


Fig9. T1, Transient Thermal Response Curve

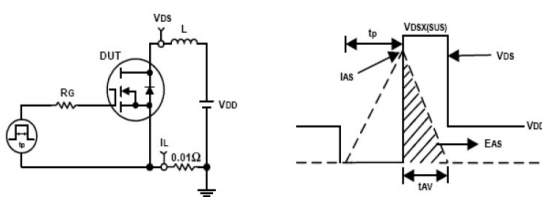


Fig10. Unclamped Inductive Test Circuit and waveforms

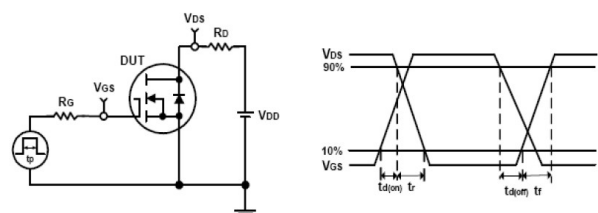


Fig11. Switching Time Test Circuit and waveforms