

Dual P-channel Enhancement Mode Power MOSFET

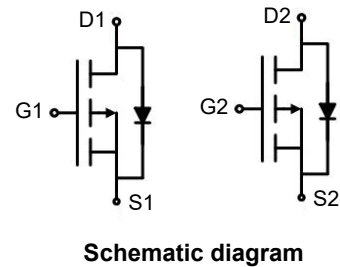
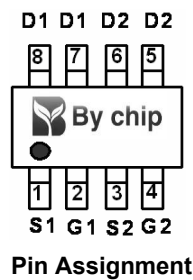
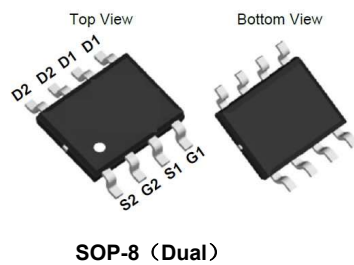
Features

- V_{DS} = -20V, I_D = -13 A
R_{DS(ON)} < 15mΩ @ V_{GS} = -10V
R_{DS(ON)} < 20mΩ @ 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_A = 25°C, unless otherwise specified

Symbol	Parameter	Rating	Unit
V(BR) _{DSS}	Drain-Source breakdown voltage	-20	V
V _{GS}	Gate-Source voltage	±12	V
I _S	Diode continuous forward current	T _A = 25°C -2.6	A
I _D	Continuous drain current @ V _{GS} = -4.5V	T _A = 25°C -13 T _A = 70°C -10	A
I _{DM}	Pulse drain current tested ①	T _A = 25°C -52	A
EAS	Avalanche energy, single pulsed ②	42	mJ
P _D	Maximum power dissipation	T _A = 25°C 3.1	W
T _{STG} , T _J	Storage and operating temperature range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Max	Unit
R _{θJL}	Thermal Resistance-Junction to Lead		29	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient		48	°C/W

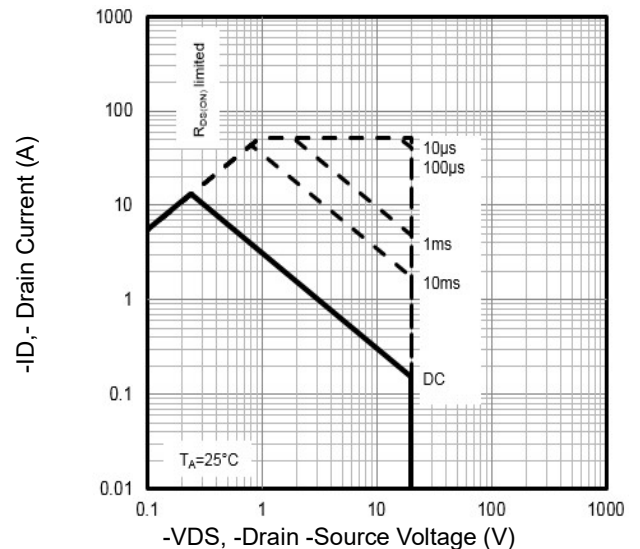
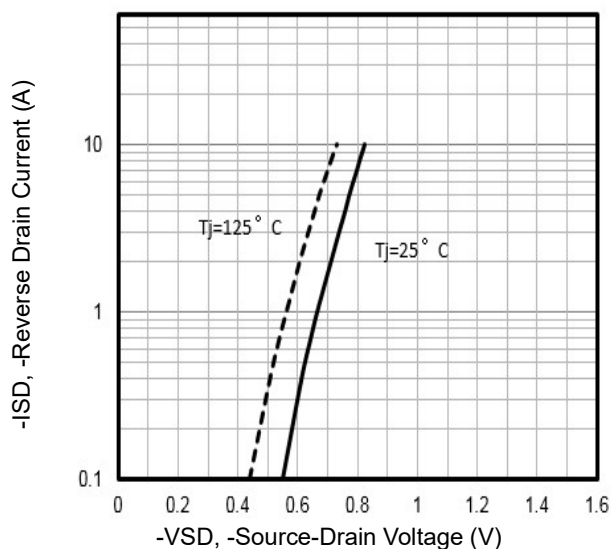
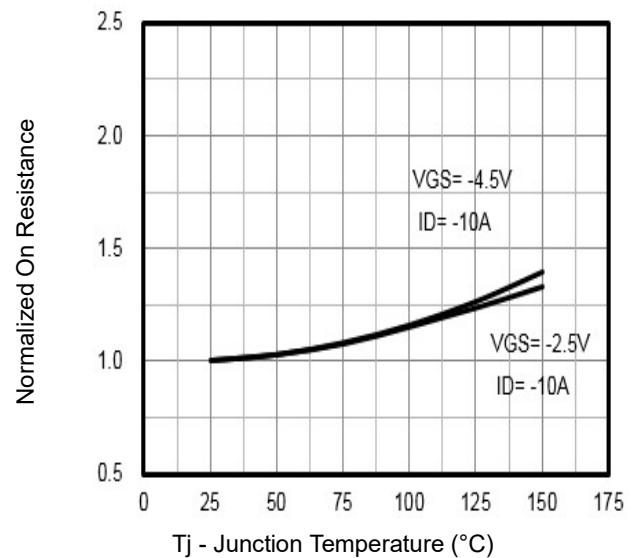
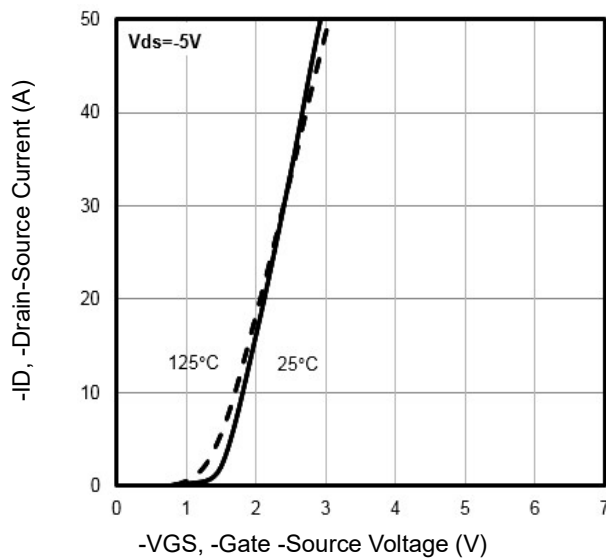
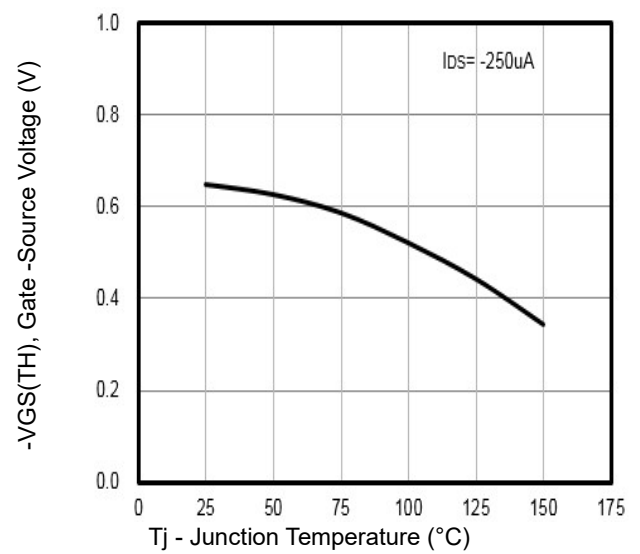
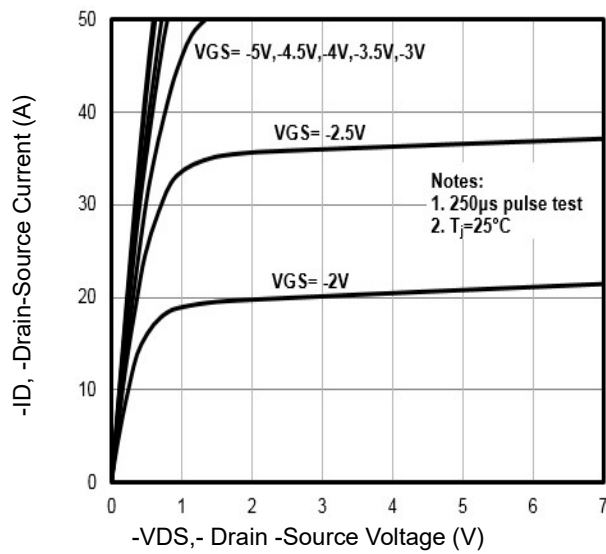
Electrical Characteristics

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	-20	--	--	V
IDSS	Zero Gate Voltage Drain Current	V _{DS} =-20V,V _{GS} =0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(T _j =125°C)	V _{DS} =-20V,V _{GS} =0V	--	--	-100	μA
IGSS	Gate-Body Leakage Current	V _{GS} =±12V,V _{DS} =0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =-250μA	-0.3		-2.0	V
RDS(on)	Drain-Source On-State Resistance ③	V _{GS} =-4.5V, I _D =-10A	--		15	mΩ
RDS(on)	Drain-Source On-State Resistance ③	V _{GS} =-2.5V, I _D =-10A	--		20	mΩ
RDS(on)	Drain-Source On-State Resistance ③	V _{GS} =-1.8V, I _D =-8A	--		32	mΩ
Dynamic Electrical Characteristics @ T _j = 25°C (unless otherwise stated)						
Ciss	Input Capacitance	V _{DS} =-10V,V _{GS} =0V, f=1MHz			4655	pF
Coss	Output Capacitance				465	pF
Crss	Reverse Transfer Capacitance				335	pF
Rg	Gate Resistance	f=1MHz	0.2		5	Ω
Qg	Total Gate Charge	V _{DS} =-10V,I _D =-10A, V _{GS} =-4.5V	--		39	nC
Qgs	Gate-Source Charge		--		8.1	nC
Qgd	Gate-Drain Charge		--		7.8	nC
Switching Characteristics						
Td(on)	Turn-on Delay Time	V _{DD} =-10V, I _D =-10A, R _G =2.7Ω, V _{GS} =-10V	--	7.6	--	ns
Tr	Turn-on Rise Time		--	44	--	ns
Td(off)	Turn-Off Delay Time		--	75	--	ns
Tf	Turn-Off Fall Time		--	27	--	ns
Source- Drain Diode Characteristics@ T _j = 25°C (unless otherwise stated)						
VSD	Forward on voltage	I _{SD} =-10A,V _{GS} =0V	--	-0.8	-1.2	V
Trr	Reverse Recovery Time	T _j =25°C,I _{sd} =-10A, V _{GS} =0V	--	14	28	ns
Qrr	Reverse Recovery Charge	di/dt=-100A/μs	--	4.7	9.4	nC

NOTE:

- ① Repetitive rating; pulse width limited by max junction temperature.
- ② Limited by T_{Jmax} , starting $T_J = 25^{\circ}\text{C}$, $L = 0.5\text{mH}$, $R_G = 25\Omega$, $I_{AS} = -13A$, $V_{GS} = -10V$. Part not recommended for use above this value
- ③ Pulse width $\leq 380\mu s$; duty cycles $\leq 2\%$.

Typical Characteristics



Typical Characteristics

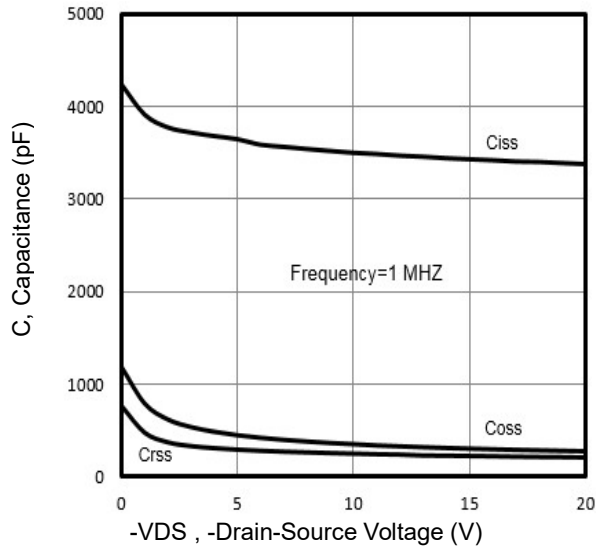


Fig7. Typical Capacitance Vs. Drain-Source Voltage

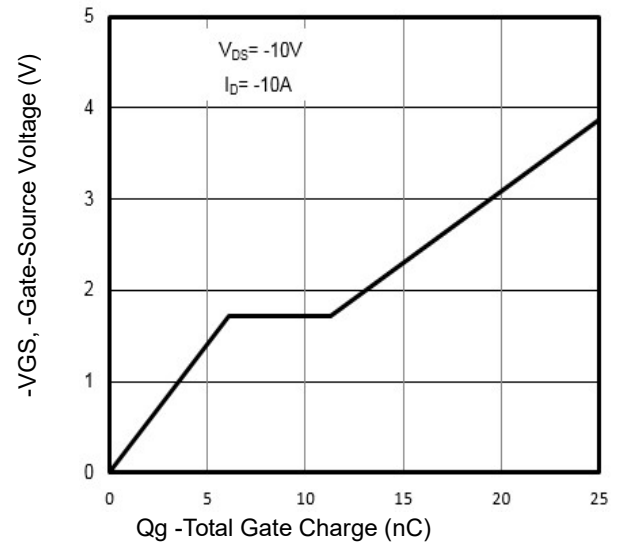


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

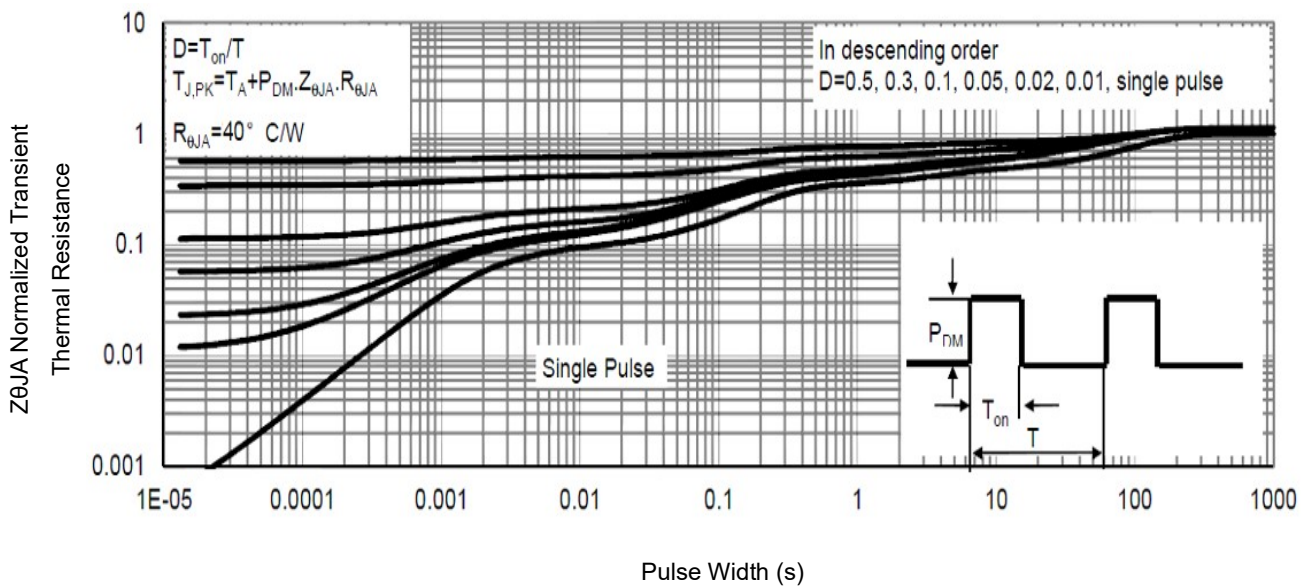


Fig9. Normalized Maximum Transient Thermal Impedance

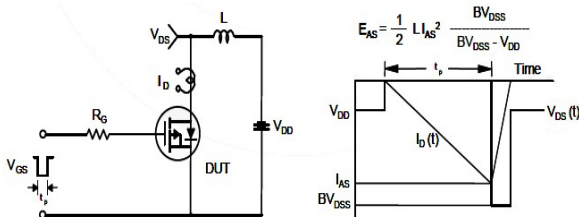


Fig10. Unclamped Inductive Test Circuit and Waveforms

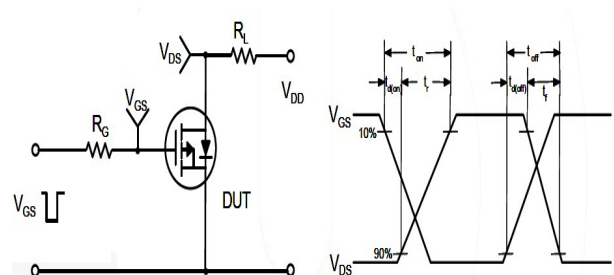


Fig11. Switching Time Test Circuit and waveforms