Dual P-channel Enhancement Mode Power MOSFET

Features

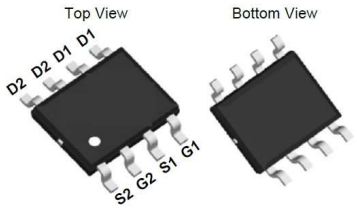
- VDS= -20V, ID= -13 A
  RDS(ON) < 15mΩ @ VGS = -10V
  RDS(ON) < 20mΩ @ VGS = -4.5V

General Features

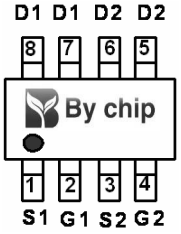
- Advanced Trench Technology
- Provide Excellent RDS(ON) and Low Gate Charge
- Lead Free and Green Available

100% UIS TESTED!
100% ΔVds TESTED!

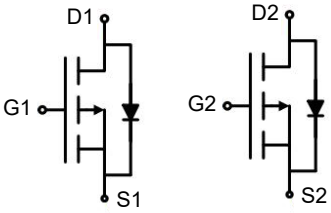
RoHS



SOP-8（Dual）



Pin Assignment



Schematic diagram

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@VGS=-4.5V	T_A =25°C	-13	A
		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
$R_{\theta JL}$	Thermal Resistance-Junction to Lead		29	°C/W
$R_{\theta JA}$	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
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-20V,V_{GS}=0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(Tj=125℃)	V_{DS}=-20V,V_{GS}=0V	--	--	-100	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±12V,V_{DS}=0V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250μA	-0.3		-2.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance ③	V_{GS}=-4.5V, I_D=-10A	--		15	mΩ
$R_{DS(on)}$	Drain-Source On-State Resistance ③	V_{GS}=-2.5V, I_D=-10A	--		20	mΩ
$R_{DS(on)}$	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)						
V_{SD}	Forward on voltage	I_{SD}=-10A,V_{GS}=0V	--	-0.8	-1.2	V
Trr	Reverse Recovery Time	T_j=25℃,I_{sd}=-10A, V_{GS}=0V di/dt=-100A/μs	--	14	28	ns
Qrr	Reverse Recovery Charge		--	4.7	9.4	nC

NOTE:

① Repetitive rating; pulse width limited by max junction temperature.

② Limited by TJmax, starting TJ = 25°C, L = 0.5mH, RG = 25Ω, IAS = -13A, VGS =-10V. Part not recommended for use above this value

③ Pulse width ≤ 380μs; duty cycle≤ 2%.

Typical Characteristics

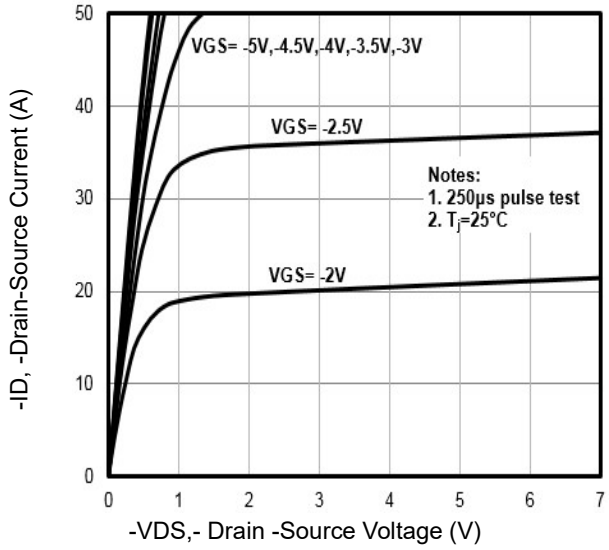


Fig1. Typical Output Characteristics

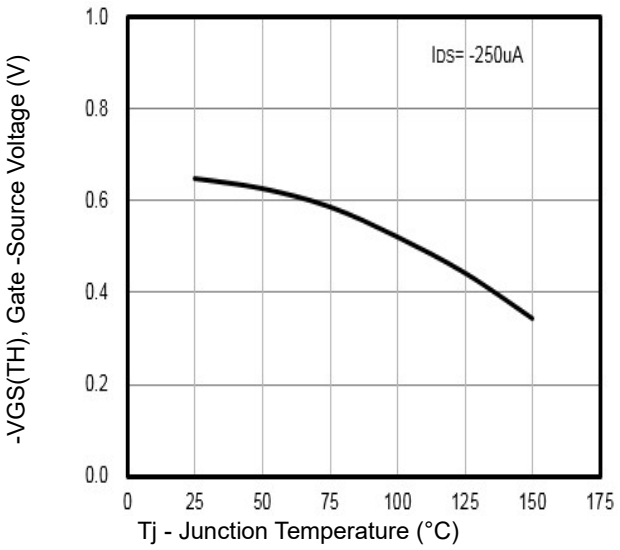


Fig2. $-V_{GS(TH)}$ Gate -Source Voltage Vs.Tj

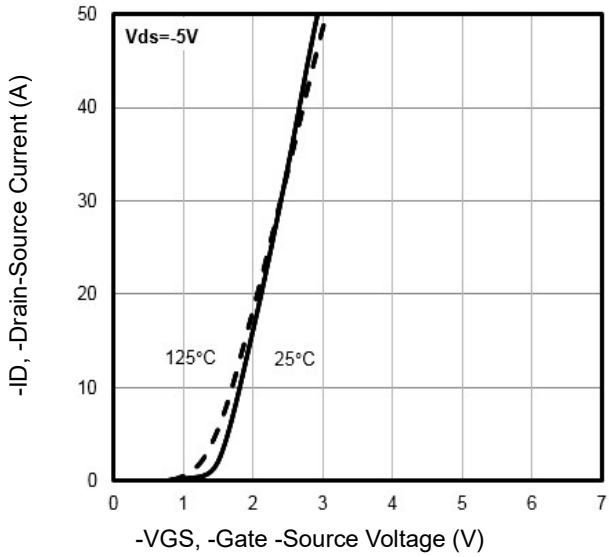


Fig3. Typical Transfer Characteristics

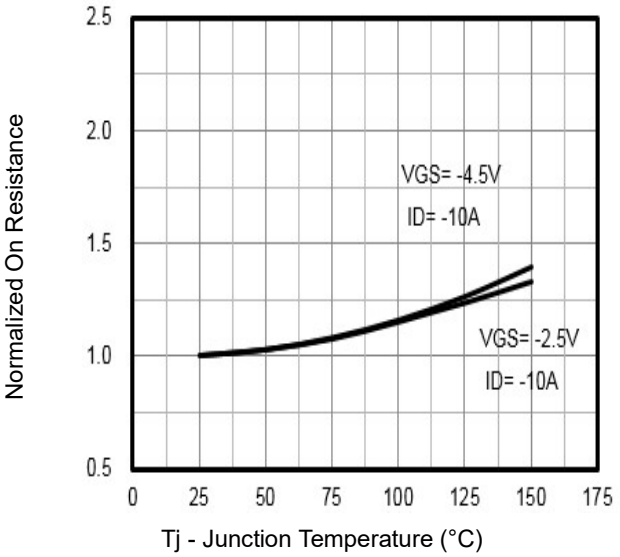


Fig4. Normalized On-Resistance Vs. Tj

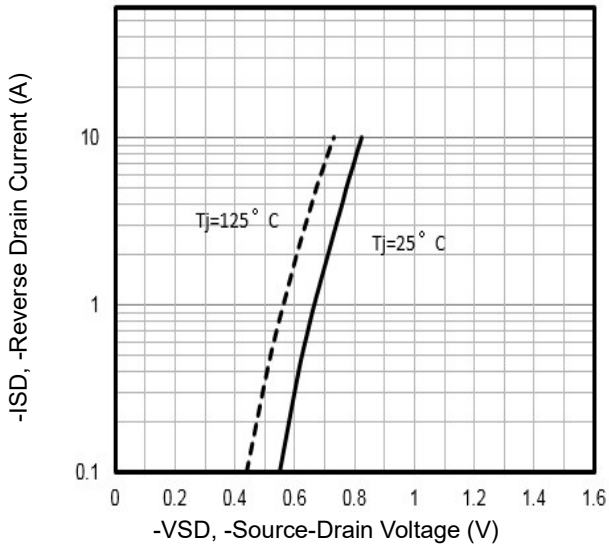


Fig5. Typical Source-Drain Diode Forward Voltage

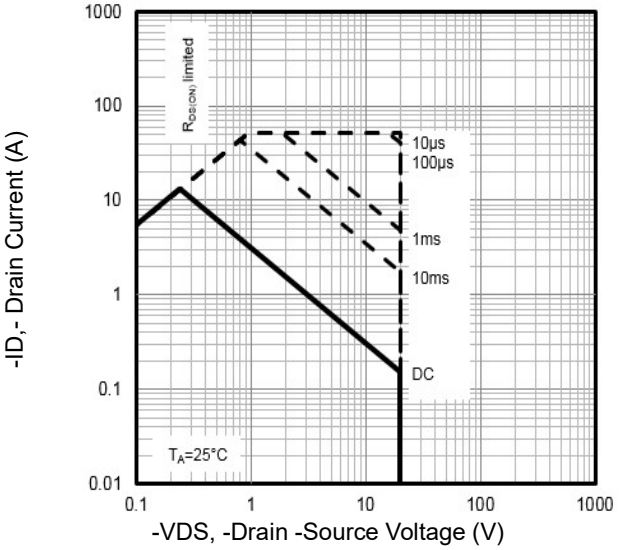


Fig6. Maximum Safe Operating Area

Typical Characteristics

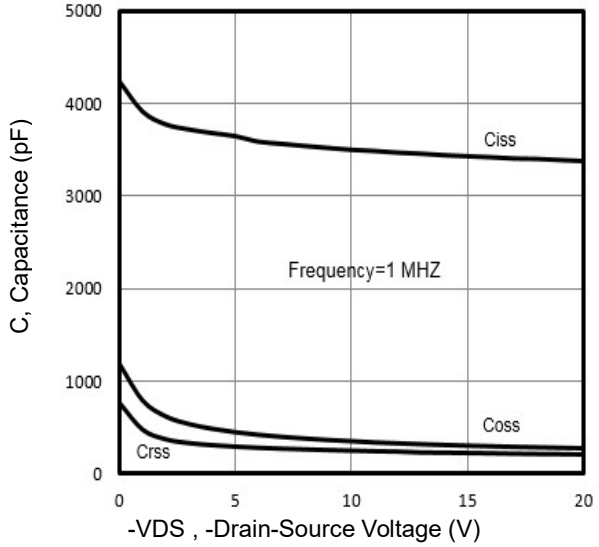


Fig7. Typical Capacitance Vs.Drain-Source Voltage

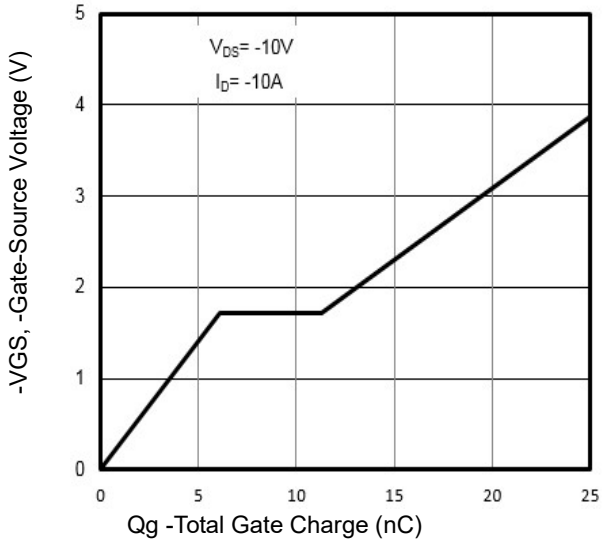


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

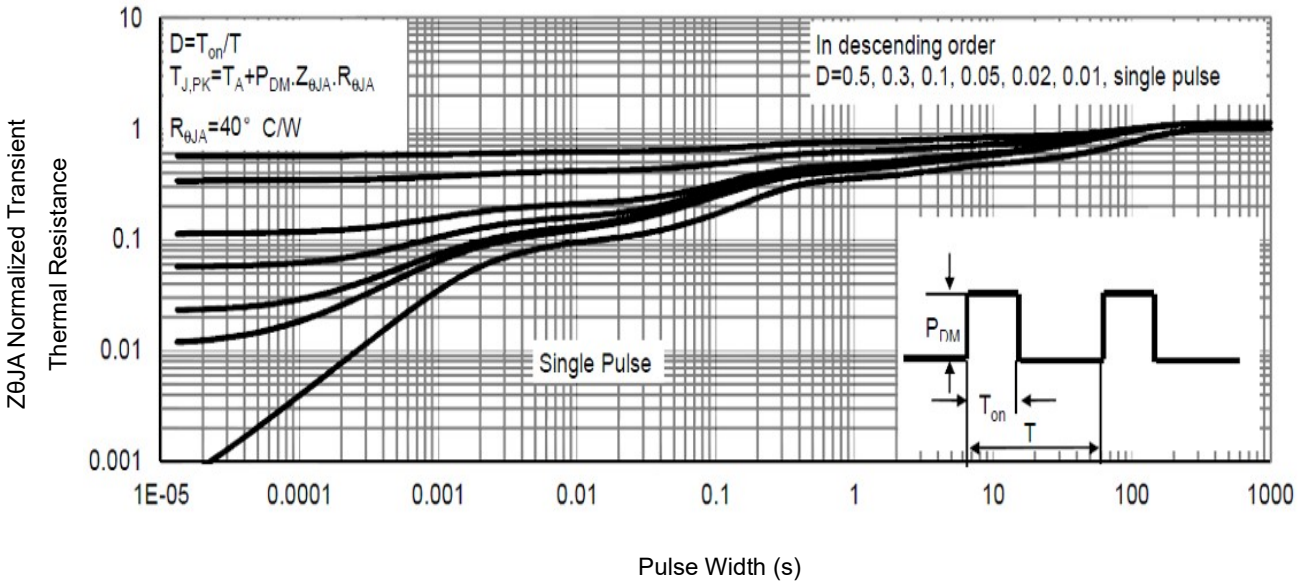


Fig9. Normalized Maximum Transient Thermal Impedance

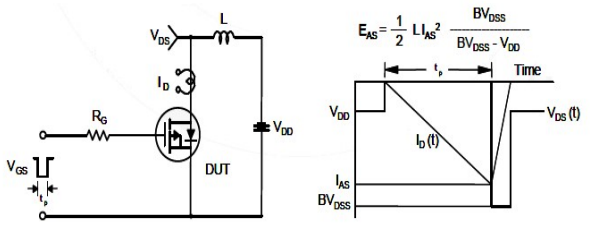


Fig10. Unclamped Inductive Test Circuit and Waveforms

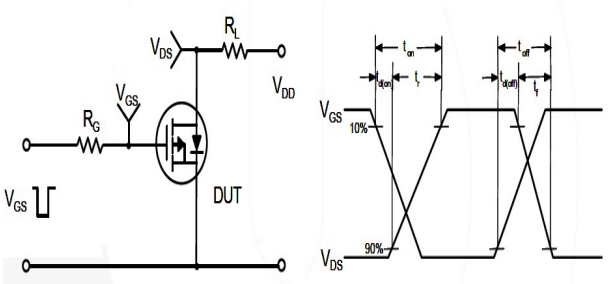


Fig11. Switching Time Test Circuit and waveforms