P-channel Enhancement Mode Power MOSFET

Features

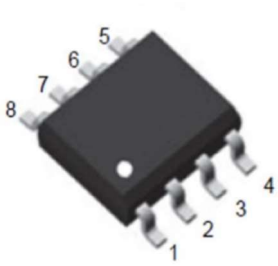
- VDS= - 60V, ID= -12A
  RDS(ON) < 25mΩ @ VGS = -10V
  RDS(ON) < 28mΩ @ VGS = -4.5V

General Features

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

100% UIS TESTED!
100% ΔVds TESTED!

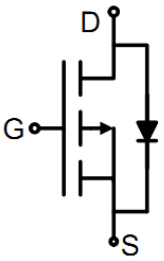
RoHS



SOP-8



pin assignment



Schematic diagram

Absolute Maximum Ratings T_C = 25ºC, unless otherwise noted			
Parameter	**Symbol**	**Value**	**Unit**
Drain-Source Voltage	V_{DS}	-60	V
Continuous Drain Current	I_D	-12	A
Pulsed Drain Current (note1)	I_{DM}	-24	A
Gate-Source Voltage	V_{GS}	±20	V
Power Dissipation	P_D	3	W
Single pulse avalanche energy （note2）	E_{AS}	110	mJ
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	ºC

Thermal Resistance			
Parameter	**Symbol**	**Value**	**Unit**
Thermal Resistance, Junction-to-Ambient	R_{thJA}	42	ºC/W

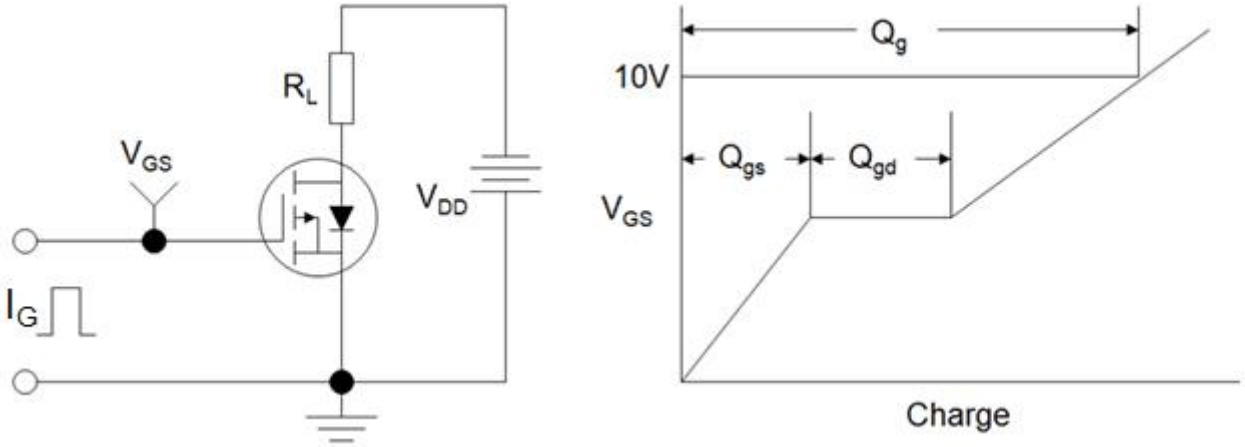
Specifications T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -60V, V_{GS} = 0V	--	--	-1	μA
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1		-3	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -8A	--		25	mΩ
Forward Transconductance	g_{FS}	V_{DS} = -5V,I_D = -8A	--	11	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -30V, f = 1.0MHz	--	2719	--	pF
Output Capacitance	C_{oss}		--	174	--	
Reverse Transfer Capacitance	C_{rss}		--	147	--	
Total Gate Charge	Q_g	V_{DD} = -30V, I_D = -8A, V_{GS} = -10V	--	49	--	nC
Gate-Source Charge	Q_{gs}		--	10	--	
Gate-Drain Charge	Q_{gd}		--	13	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -30V, I_D = -8A, R_G = 3Ω	--	15	--	ns
Turn-on Rise Time	t_r		--	12	--	
Turn-off Delay Time	$t_{d(off)}$		--	38	--	
Turn-off Fall Time	t_f		--	15	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25ºC	--	--	-40	A
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = -8A, V_{GS} = 0V	--	--	-1.2	V
Reverse Recovery Charge	Q_{rr}	I_F = -8A, V_{GS} = 0V di/dt=-100A/us	--	53	--	nC
Reverse Recovery Time	T_{rr}		--	47	--	ns

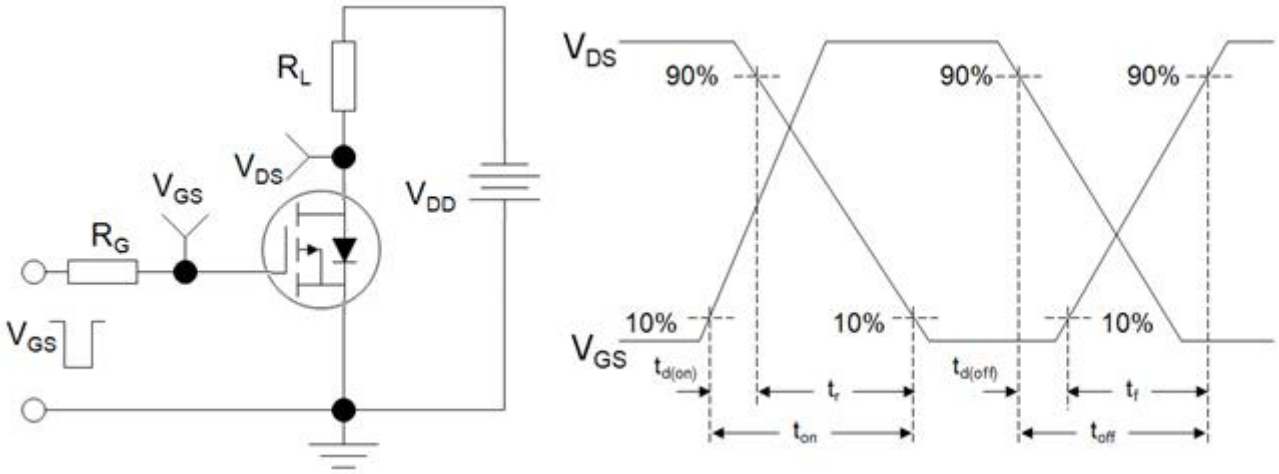
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. EAS condition : Tj=25℃ ,VDD=-50V,VGS=-10V,L=0.5mH,Rg=25Ω
3. Identical low side and high side switch with identical R_G

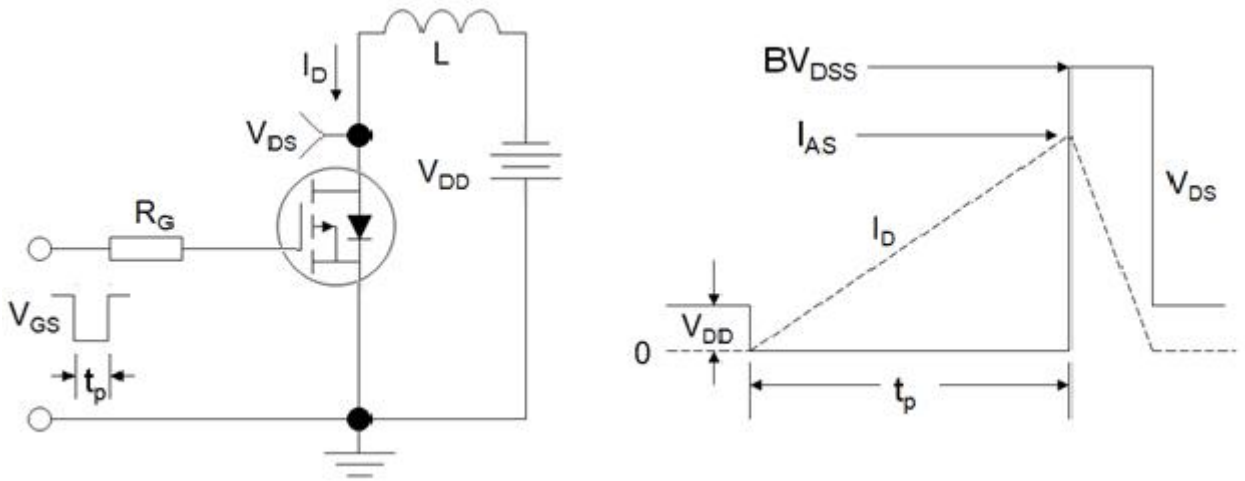
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 1. Output Characteristics

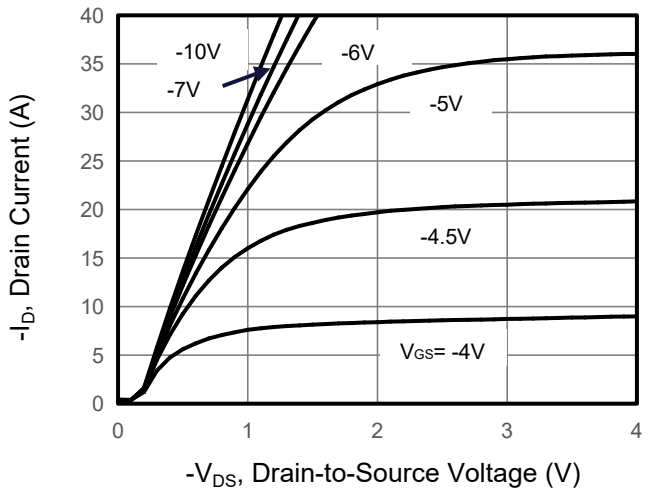


Figure 2. Transfer Characteristics

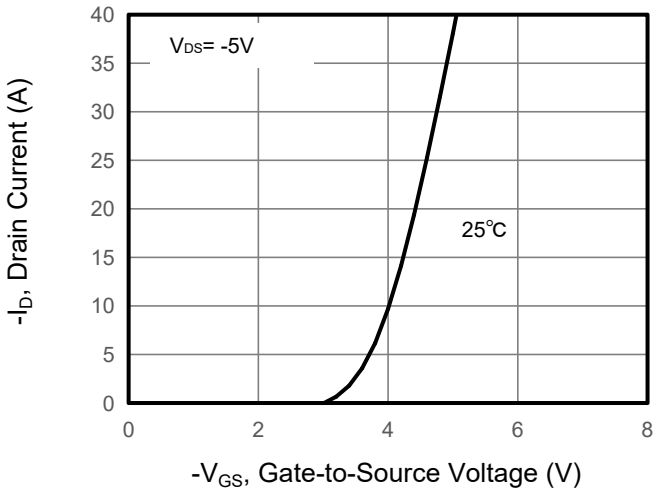


Figure 3.Drain Source On Resistance

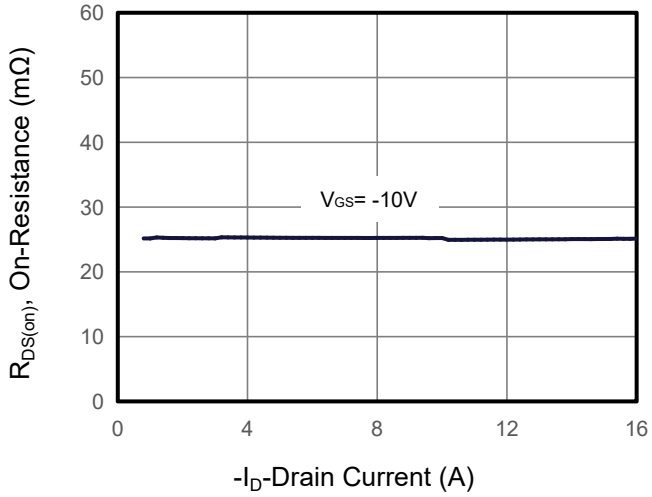


Figure 4. Gate Charge

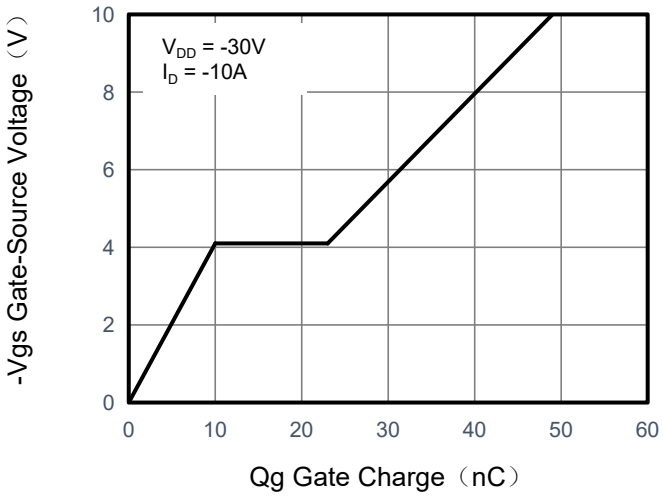


Figure 5. Capacitance

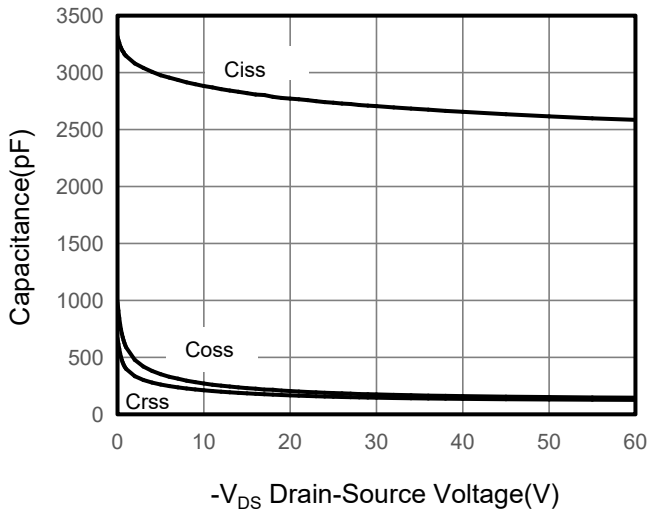
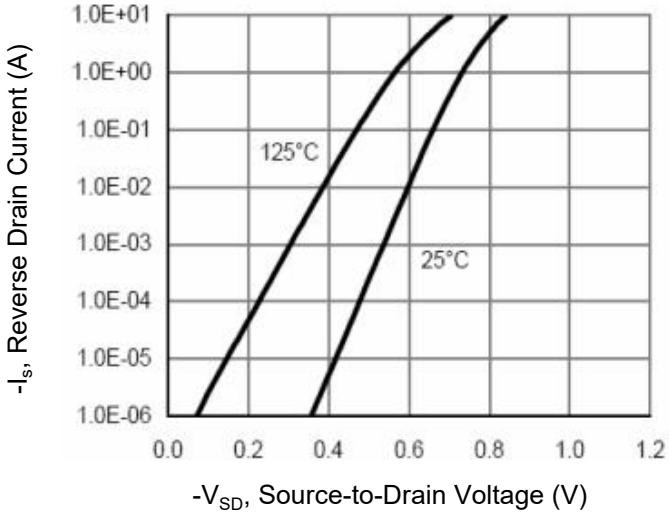


Figure 6. Source-Drain Diode Forward



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 7. Drain-Source On-Resistance

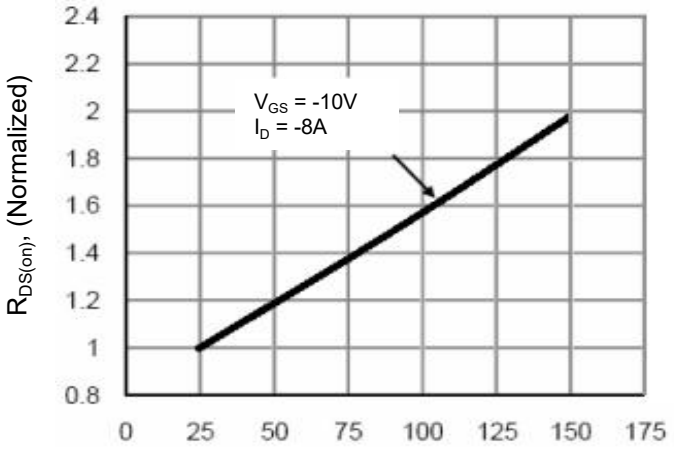


Figure 10. Safe Operation Area

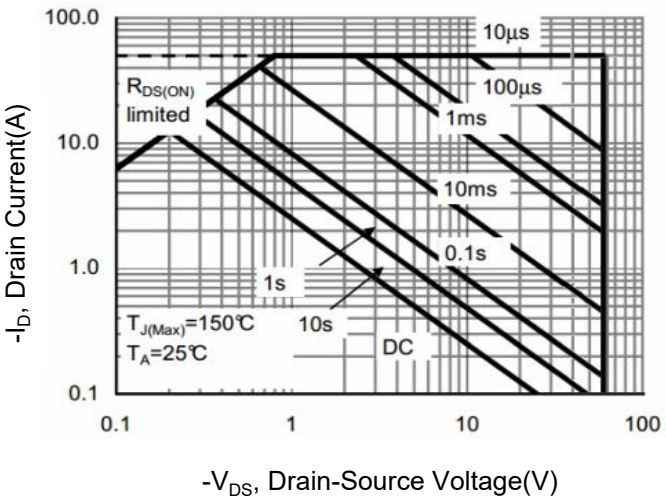


Figure 9. Normalized Maximum Transient Thermal Impedance

