N-Channel Enhancement Mode Power MOSFET

Features

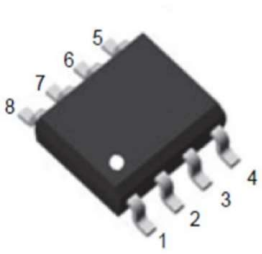
- V_{DS}= 30V, I_D= 18 A
  $R_{DS(ON)}$ < 4 mΩ @ V_{GS} = 10V
  $R_{DS(ON)}$ < 7 mΩ @ V_{GS} = 4.5V

General Features

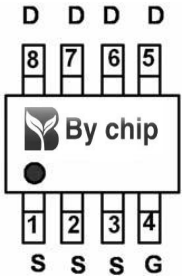
- Advanced Trench Technology
- Provide Excellent RDS(ON) and Low Gate Charge
- Lead Free and Green Available

100% UIS TESTED!
100% ΔVds TESTED!

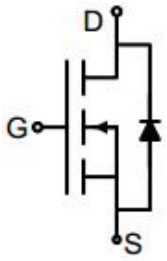
RoHS



SOP-8



pin assignment



Schematic diagram

Absolute Maximum Ratings T_C = 25ºC, unless otherwise noted			
Parameter	**Symbol**	**Value**	**Unit**
Drain-Source Voltage	V_{DS}	30	V
Continuous Drain Current	I_D	18	A
Pulsed Drain Current (note1)	I_{DM}	72	A
Gate-Source Voltage	V_{GS}	±20	V
Power Dissipation	P_D	2.1	W
Single pulse avalanche energy （note2）	E_{AS}	64	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}	59	ºC/W

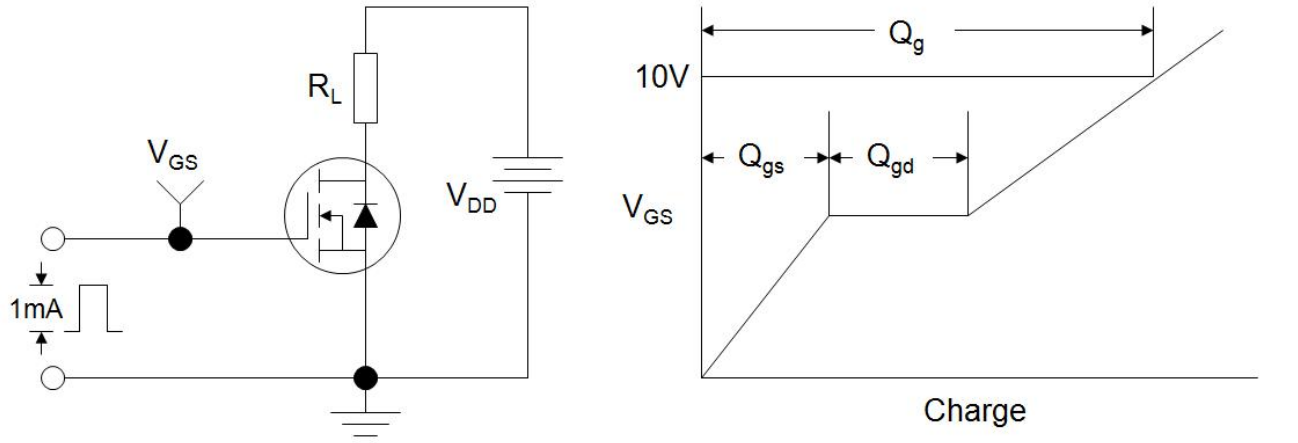
Specifications T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V, 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	1.0		3.0	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 10A	--		4	mΩ
		V_{GS} = 4.5V, I_D = 10A	--		7	
Forward Transconductance	g_{FS}	V_{GS} = 5V, I_D =10A	--	30	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1.0MHz	--	1714	--	pF
Output Capacitance	C_{oss}		--	339	--	
Reverse Transfer Capacitance	C_{rss}		--	326	--	
Total Gate Charge	Q_g	V_{DD} = 15V, I_D = 10A, V_{GS} = 10V	--	37	--	nC
Gate-Source Charge	Q_{gs}		--	4.8	--	
Gate-Drain Charge	Q_{gd}		--	11	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 15V, I_D = 10A, R_G = 3Ω	--	8.6	--	ns
Turn-on Rise Time	t_r		--	8.1	--	
Turn-off Delay Time	$t_{d(off)}$		--	29	--	
Turn-off Fall Time	t_f		--	8	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25ºC	--	--	18	A
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = 10A, V_{GS} = 0V	--	--	1.2	V
Reverse Recovery Charge	Qrr	I_F = 10A, V_{GS} = 0V di/dt=500A/us	--	40	--	nC
Reverse Recovery Time	Trr		--	14	--	ns

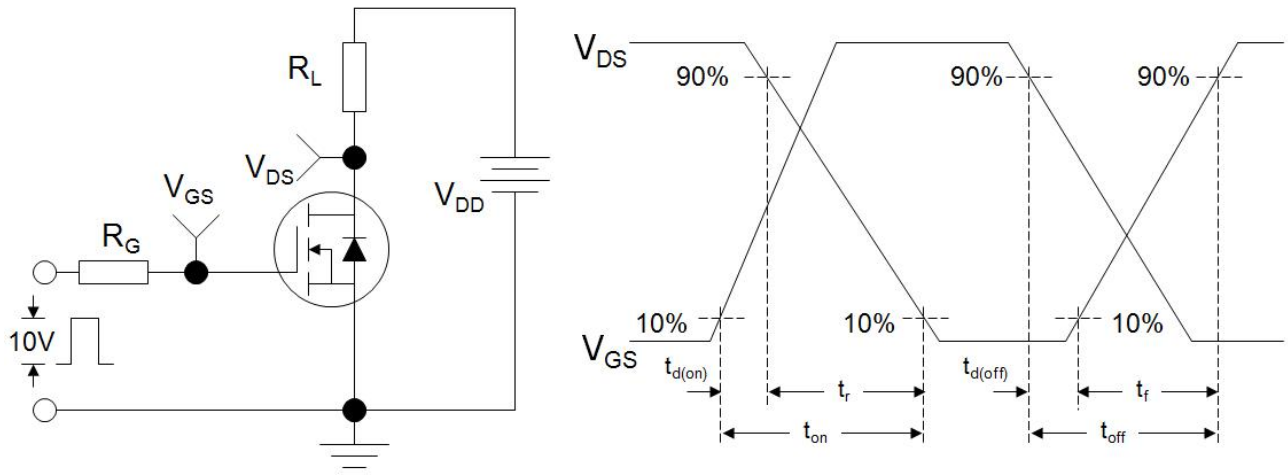
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. EAS condition : Tj=25℃ ,VDD=30V,VGS=10V,L=0.5mH,Rg=25Ω
3. Identical low side and high side switch with identical R_G

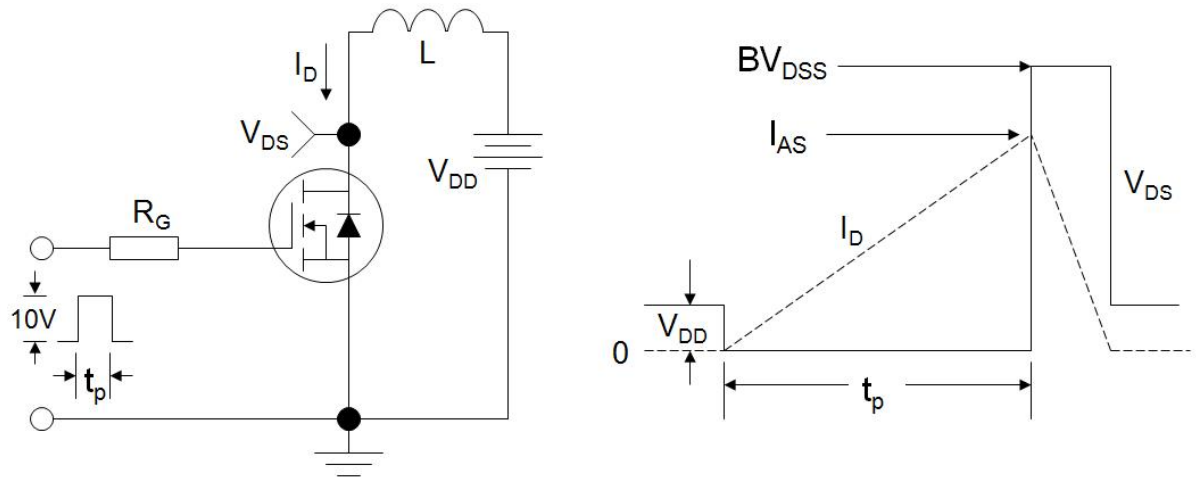
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 1. Output Characteristics

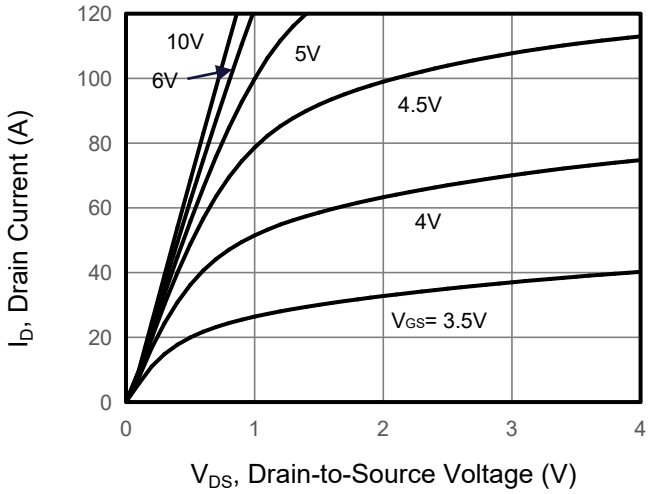


Figure 2. Transfer Characteristics

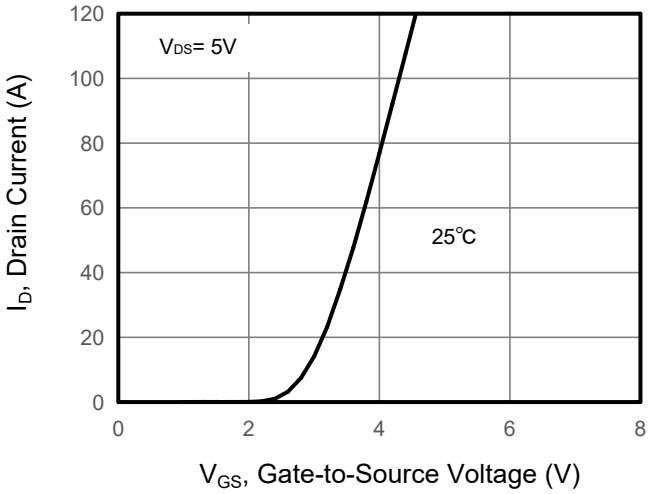


Figure 3. Drain Source On Resistance

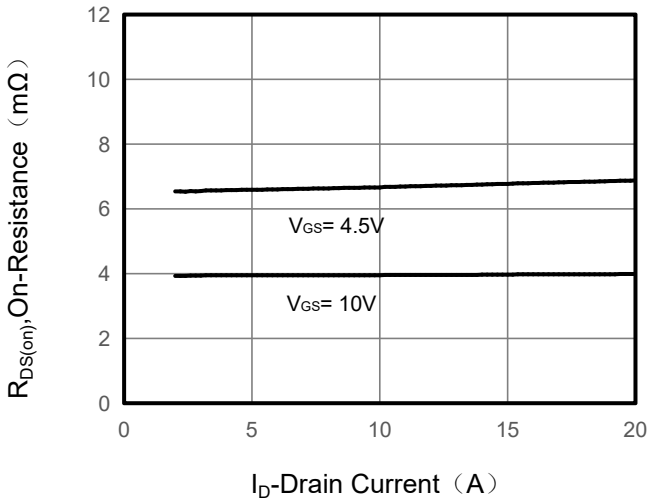


Figure 4. Gate Charge

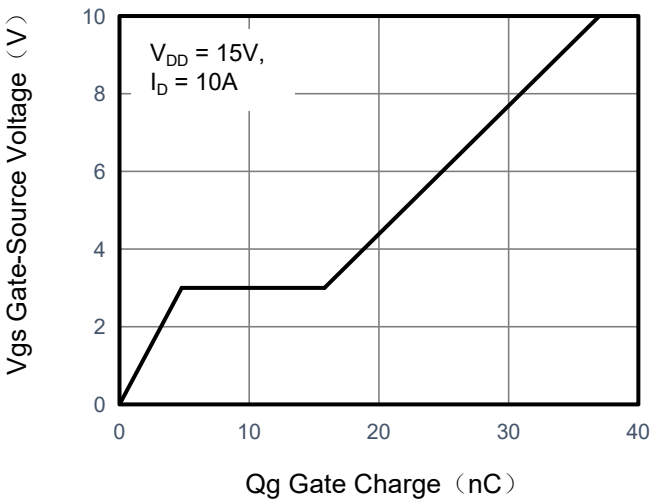


Figure 5. Capacitance

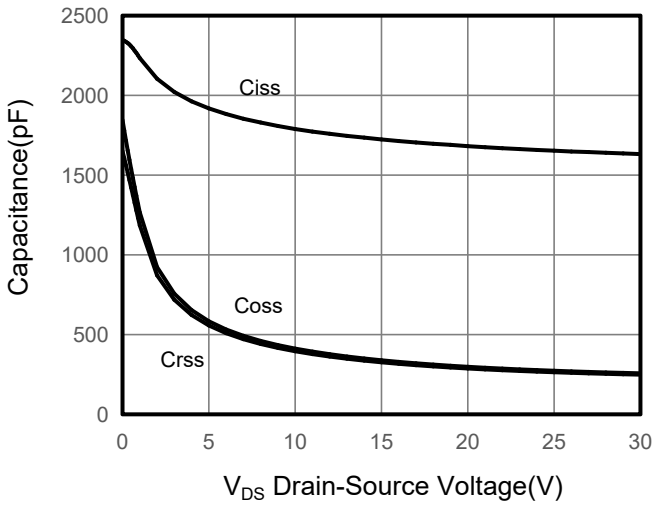
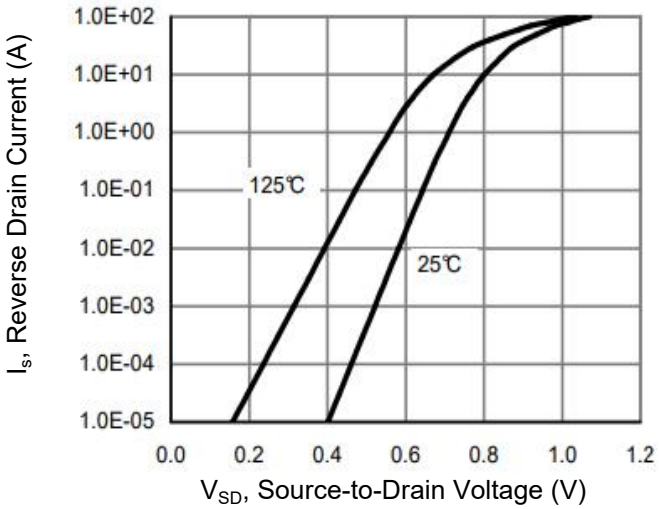


Figure 6. Source-Drain Diode Forward



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 7. Drain-Source On-Resistance

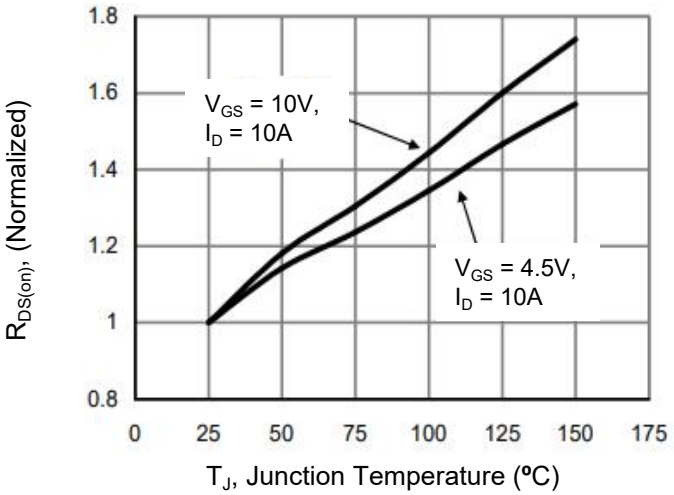


Figure 8. Safe Operation Area

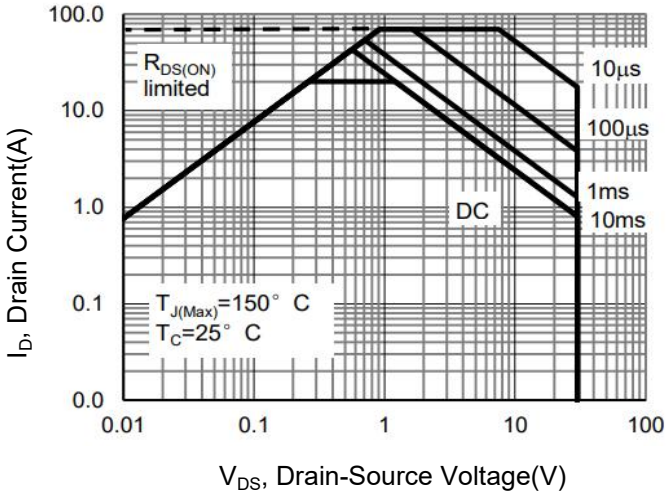


Figure 9. Normalized Maximum Transient Thermal Impedance

