

P-channel Enhancement Mode Power MOSFET

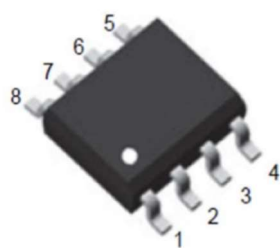
Features

- $V_{DS} = -60V$, $I_D = -12A$
 $R_{DS(ON)} < 25m\Omega$ @ $V_{GS} = -10V$
 $R_{DS(ON)} < 28m\Omega$ @ $V_{GS} = -4.5V$

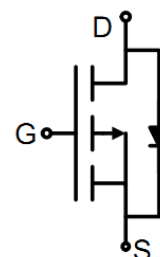
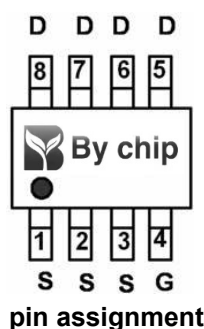
General Features

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

100% UIS TESTED!
100% ΔV_{ds} TESTED!



SOP-8



Schematic diagram

Absolute Maximum Ratings $T_C = 25^\circ C$, 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	$^\circ C$

Thermal Resistance

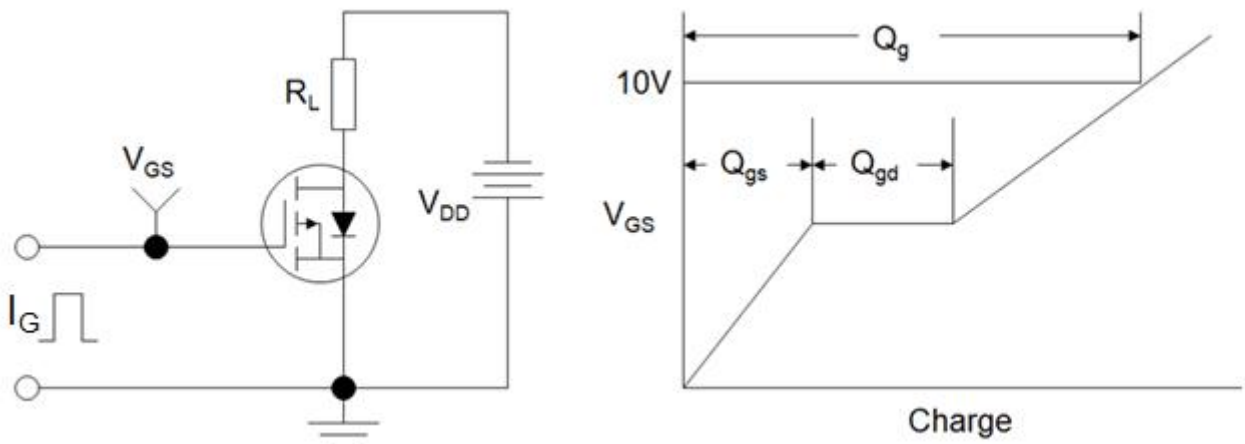
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	R_{thJA}	42	$^\circ C/W$

Specifications T _J = 25°C, 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 = 25°C	--	--	-40	A
Body Diode Voltage	V _{SD}	T _J = 25°C, 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

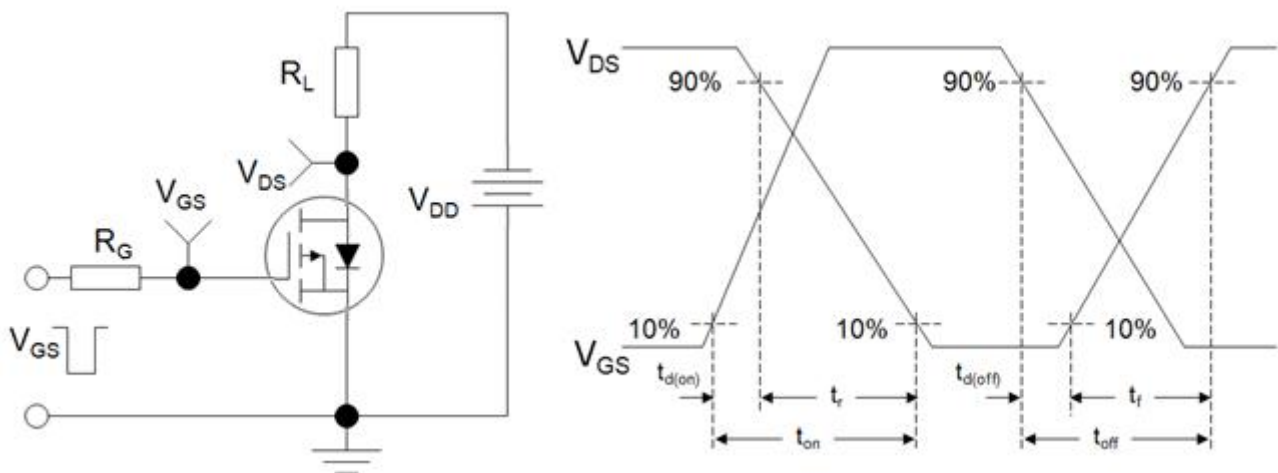
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. EAS condition : $T_J = 25^{\circ}\text{C}$, $V_{DD} = -50V$, $V_{GS} = -10V$, $L = 0.5mH$, $R_G = 25\Omega$
3. Identical low side and high side switch with identical R_G

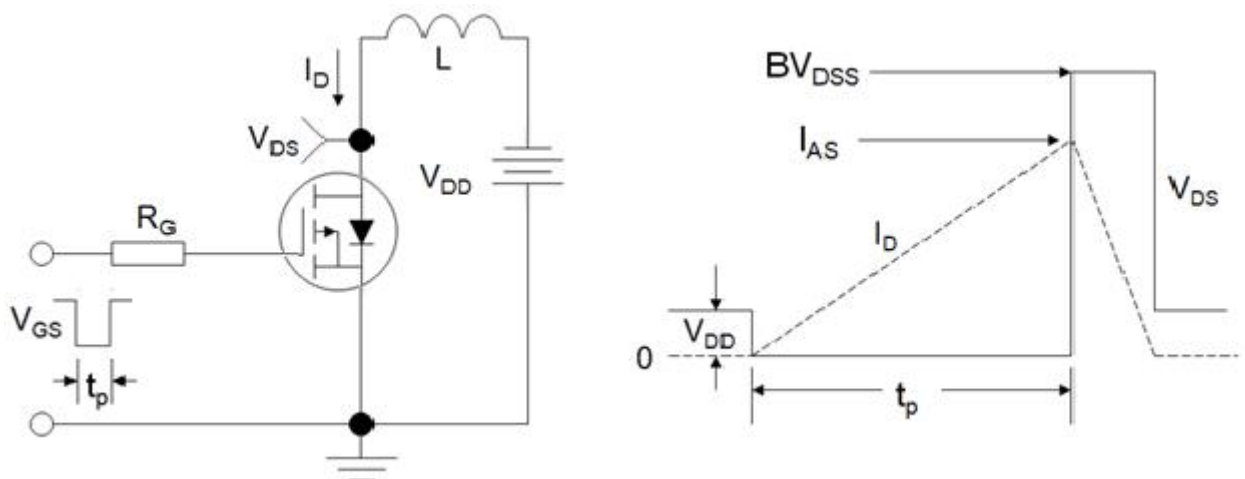
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 1. Output Characteristics

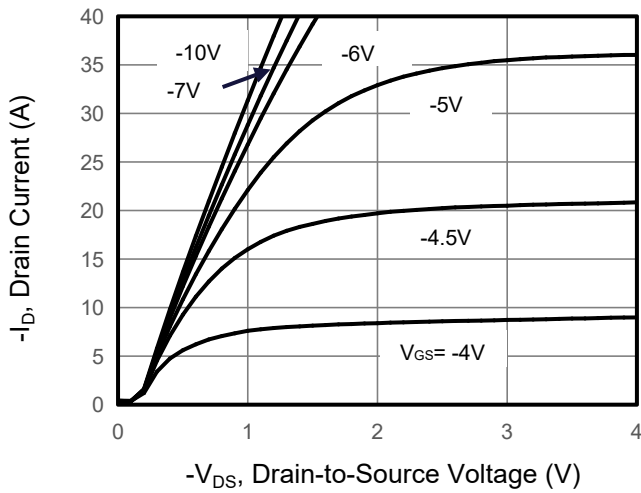


Figure 2. Transfer Characteristics

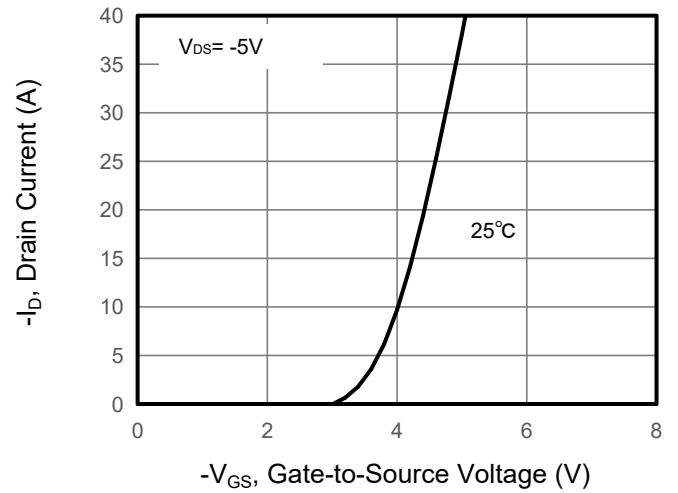


Figure 3. Drain Source On Resistance

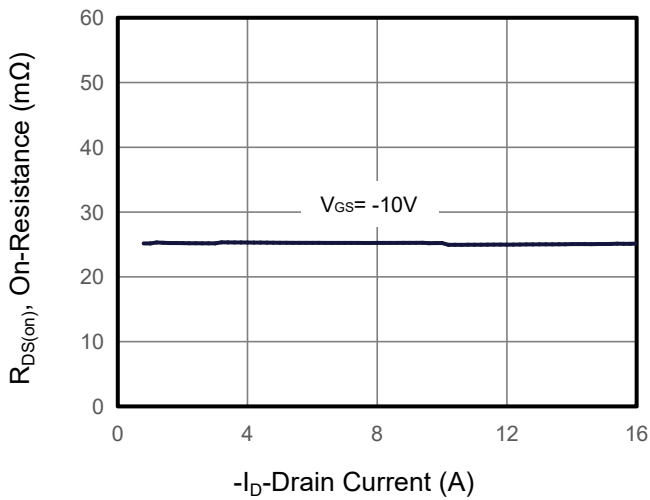


Figure 4. Gate Charge

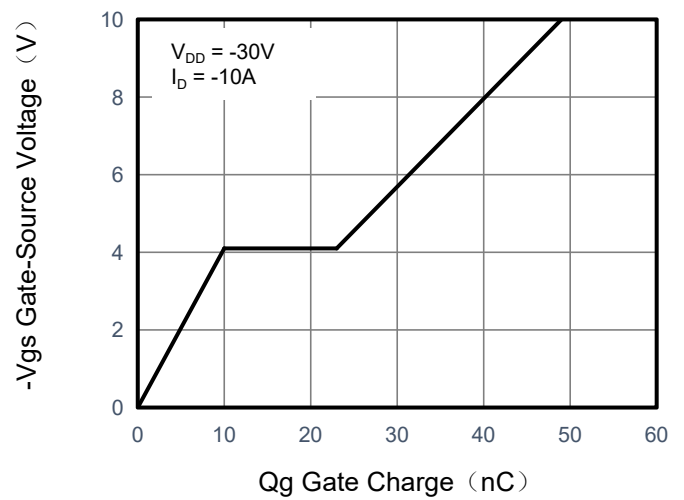


Figure 5. Capacitance

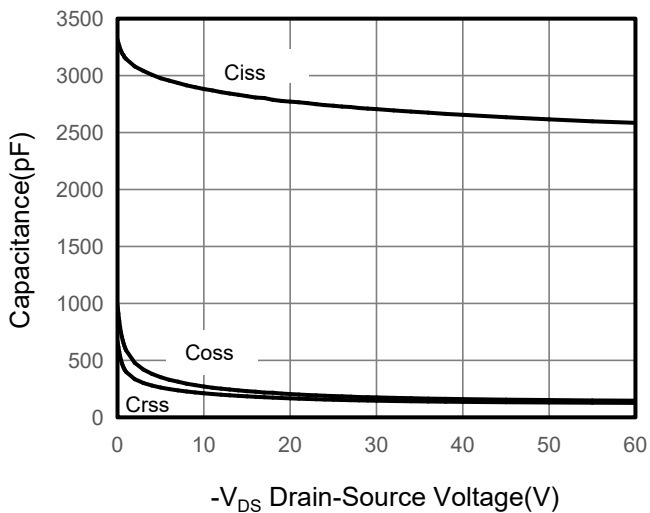
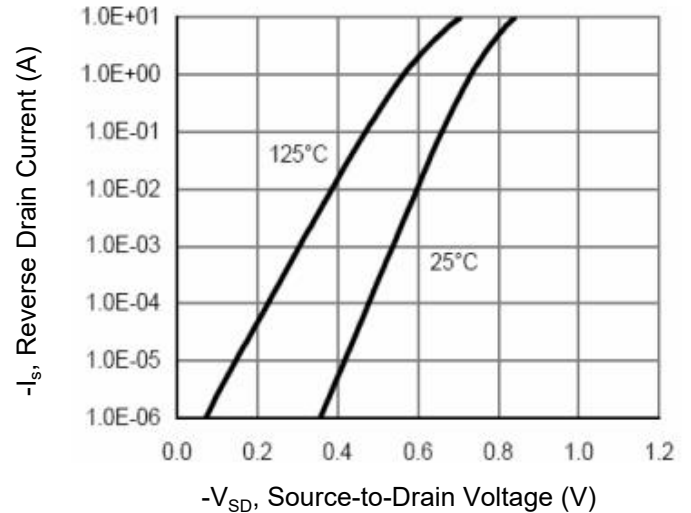


Figure 6. Source-Drain Diode Forward



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 7. Drain-Source On-Resistance

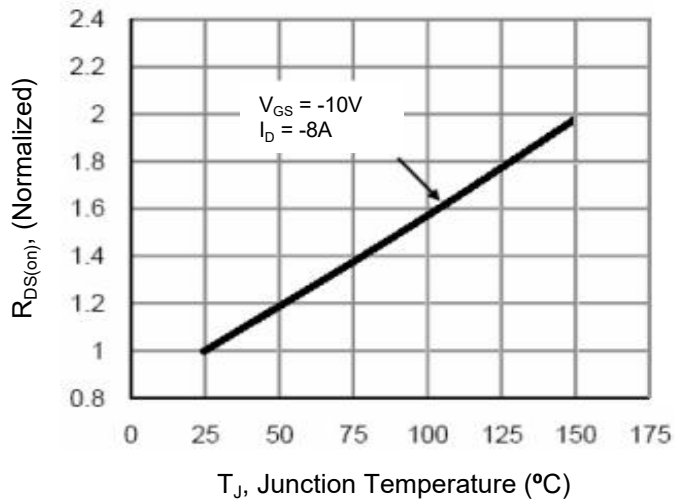


Figure 10. Safe Operation Area

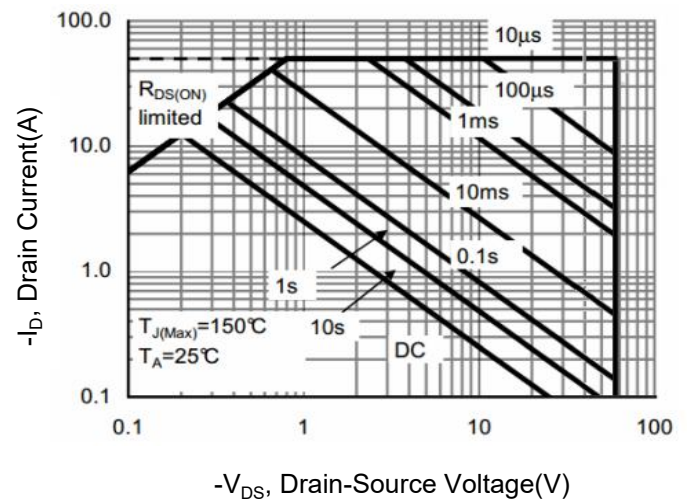


Figure 9. Normalized Maximum Transient Thermal Impedance

