

Dual P-channel Enhancement Mode Power MOSFET

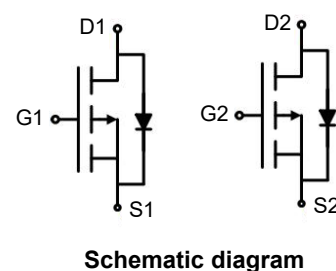
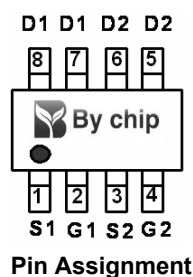
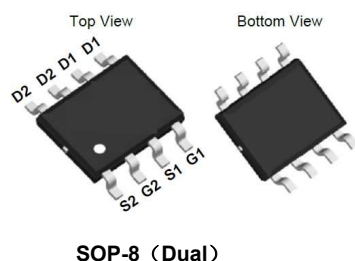
Features

- $V_{DS} = -30V$, $I_D = -5A$
 $R_{DS(ON)} < 37m\Omega$ @ $V_{GS} = -10V$
 $R_{DS(ON)} < 52m\Omega$ @ $V_{GS} = -4.5V$

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!



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Continuous Drain Current	I_D	-5	A
Pulsed Drain Current (note1)	I_{DM}	-20	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	P_D	1.6	W
Single pulse avalanche energy (note2)	E_{AS}	12	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}	78	$^\circ C/W$

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

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$	--	--	-1	μA
Gate-Source Leakage	I_{GSS}	$V_{GS} = \pm 20V$	--	--	± 100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1		-3	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -5A$	--		37	m Ω
		$V_{GS} = -4.5V, I_D = -4A$	--		52	
Forward Transconductance	g_{FS}	$V_{DS} = -5V, I_D = -5A$	--	6.2	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{GS} = 0V,$ $V_{DS} = -15V,$ $f = 1.0MHz$	--	592	--	pF
Output Capacitance	C_{oss}		--	76	--	
Reverse Transfer Capacitance	C_{rss}		--	66	--	
Total Gate Charge	Q_g	$V_{DD} = -15V,$ $I_D = -5A,$ $V_{GS} = -10V$	--	11	--	nC
Gate-Source Charge	Q_{gs}		--	2	--	
Gate-Drain Charge	Q_{gd}		--	3	--	
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -15V,$ $I_D = -5A,$ $R_G = 3\Omega$	--	13	--	ns
Turn-on Rise Time	t_r		--	7	--	
Turn-off Delay Time	$t_{d(off)}$		--	14	--	
Turn-off Fall Time	t_f		--	9	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	$T_C = 25^{\circ}C$	--	--	-5	A
Body Diode Voltage	V_{SD}	$T_J = 25^{\circ}C, I_{SD} = -5A, V_{GS} = 0V$	--	--	-1.2	V
Reverse Recovery Charge	Q_{rr}	$I_F = -5A, V_{GS} = 0V$ $di/dt = -100A/us$	--	5.3	--	nC
Reverse Recovery Time	T_{rr}		--	11	--	ns

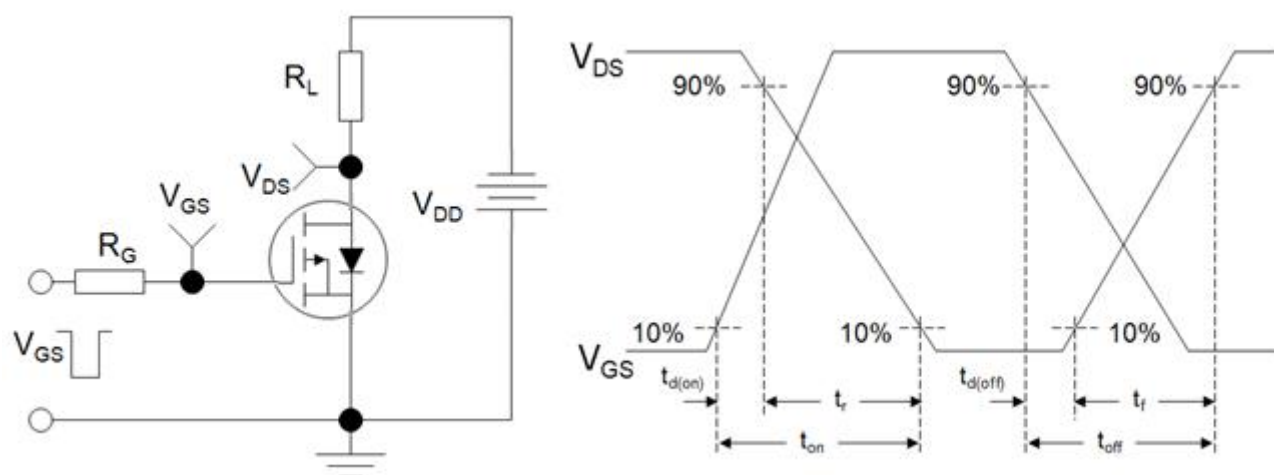
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. EAS condition : $T_J = 25^{\circ}\text{C}$, $V_{DD} = -30V$, $V_{GS} = -10V$, $L = 0.5mH$, $R_G = 25\Omega$
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

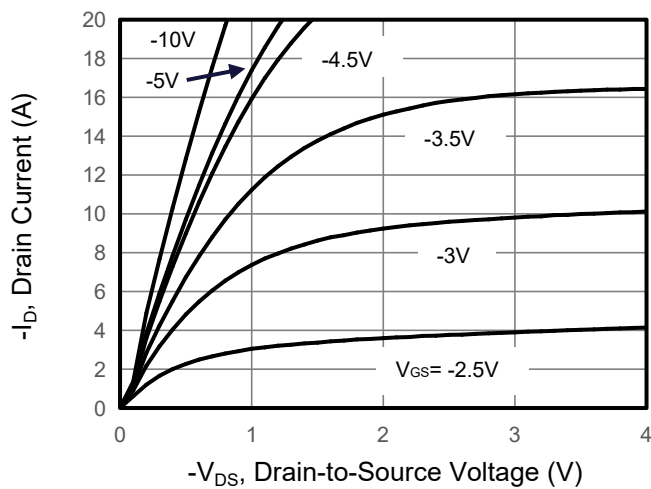


Figure 2. Transfer Characteristics

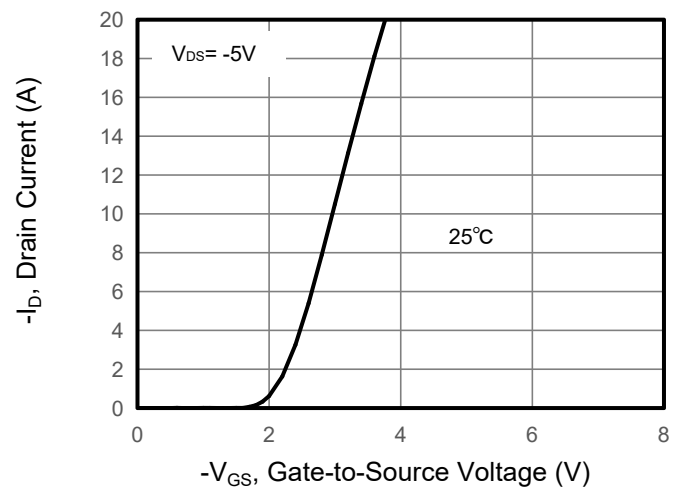


Figure 3. Drain Source On Resistance

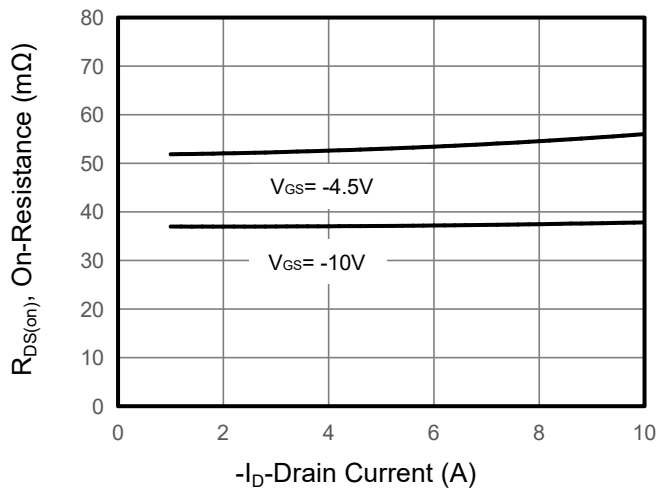


Figure 4. Gate Charge

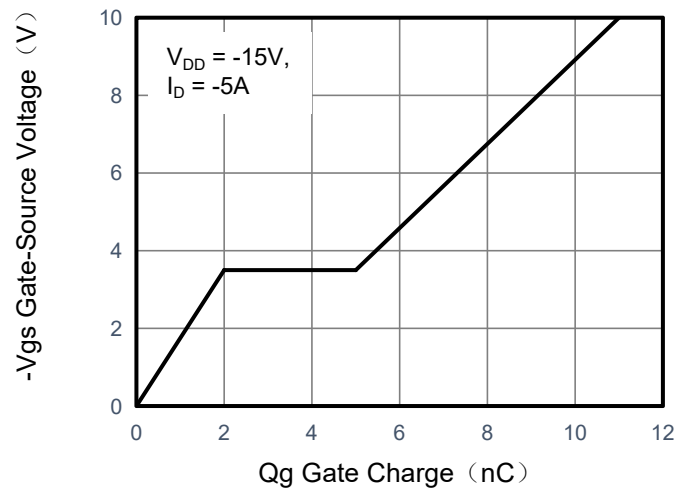


Figure 5. Capacitance

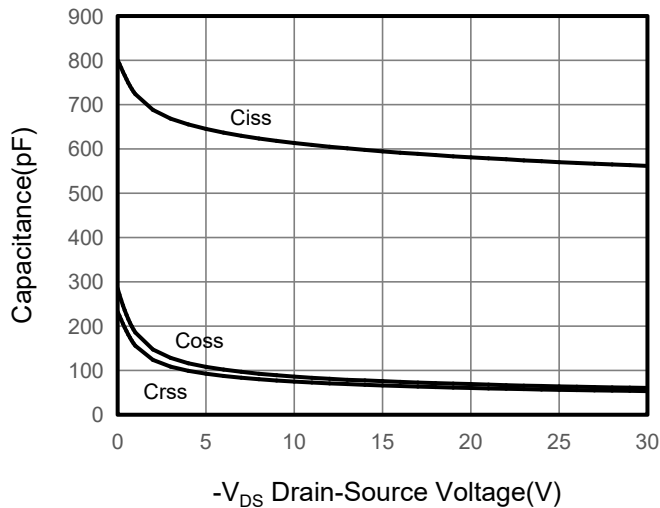
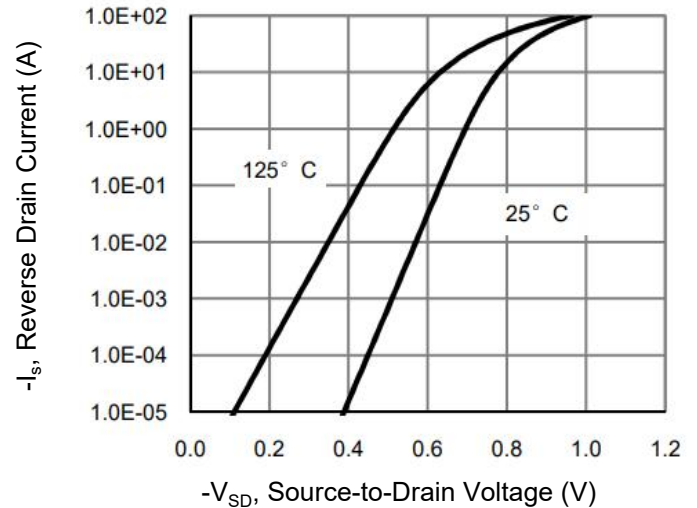


Figure 6. Source-Drain Diode Forward



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

