Dual N-Channel Advanced Power MOSFET

Features

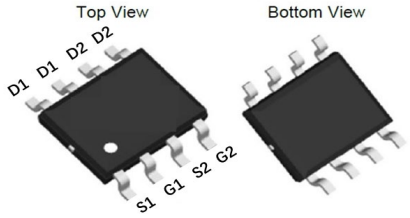
- VDS= 60V, ID= 9 A
  RDS(ON) < 14 mΩ @ VGS = 10V
  RDS(ON) < 18 mΩ @ VGS = 4.5V

General Features

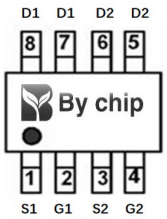
- Advanced Trench Technology
- Provide Excellent RDS(ON) and Low Gate Charge
- Lead Free and Green Available

100% UIS TESTED!
100% ΔVds TESTED!

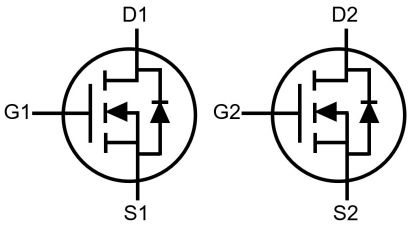
RoHS



SOP-8 (Dual)



Pin Assignment



Schematic diagram

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	9	A
Pulsed Drain Current (note1)	I_{DM}	36	A
Gate-Source Voltage	V_{GS}	±20	V
Power Dissipation	P_D	2.6	W
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}	48	ºC/W

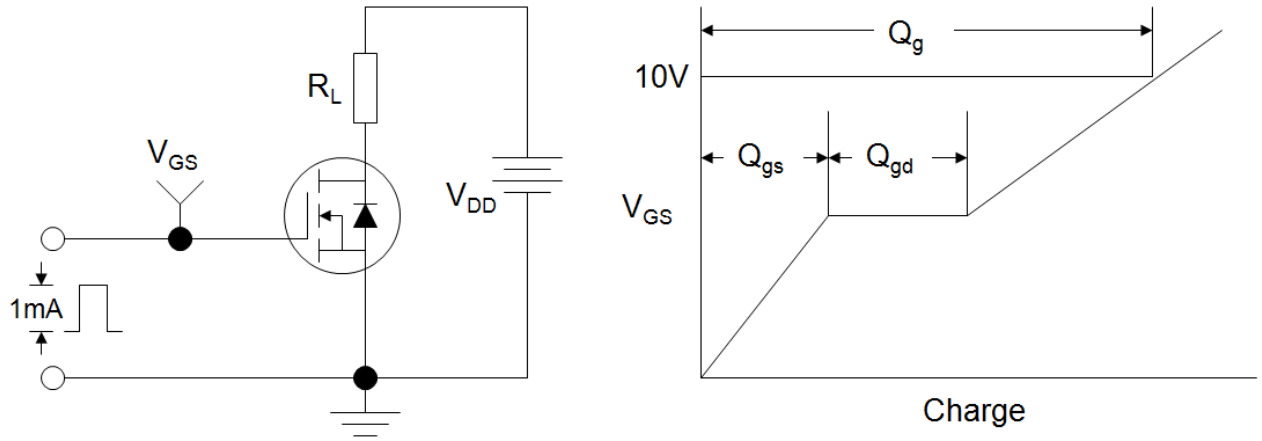
Specifications T_J = 25ºC, unless otherwise noted

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, T_J = 25ºC	--	--	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		2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 9A	--		14	mΩ
		V_{GS} = 4.5V, I_D = 9A	--		18	
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=9A	25	--	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 30V, f = 1.0MHz	--	2180	--	pF
Output Capacitance	C_{oss}		--	350	--	
Reverse Transfer Capacitance	C_{rss}		--	270	--	
Total Gate Charge	Q_g	V_{DD} = 30V, I_D = 9A, V_{GS} = 10V	--	47	--	nC
Gate-Source Charge	Q_{gs}		--	6.7	--	
Gate-Drain Charge	Q_{gd}		--	12.5	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 30V, I_D = 9A, R_G = 3Ω	--	8.5	--	ns
Turn-on Rise Time	t_r		--	6	--	
Turn-off Delay Time	$t_{d(off)}$		--	30	--	
Turn-off Fall Time	t_f		--	5	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25ºC	--	--	9	A
Pulsed Diode Forward Current	I_{SM}		--	--	36	
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = 9A, V_{GS} = 0V	--	--	1.2	V

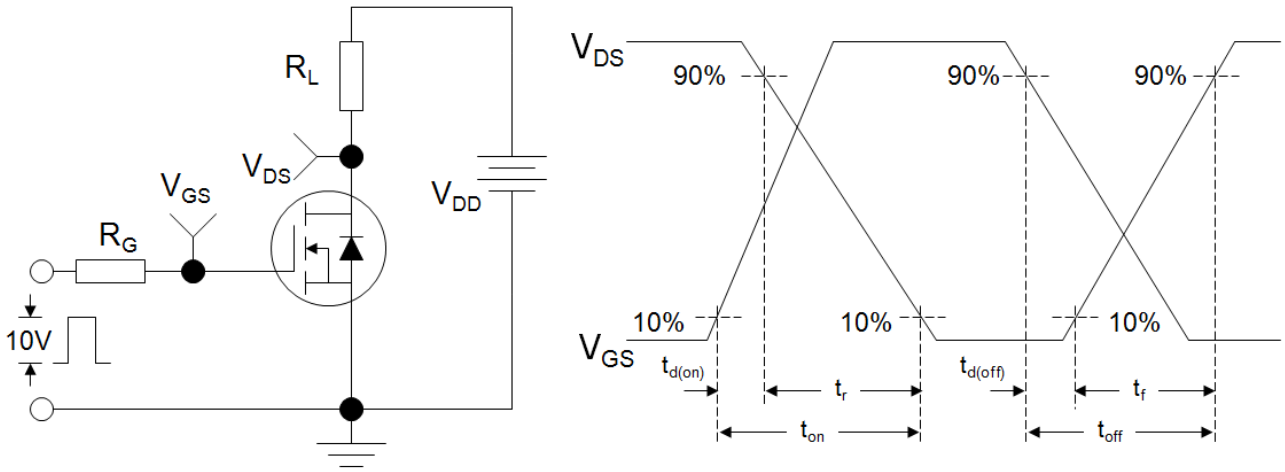
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Identical low side and high side switch with identical R_G

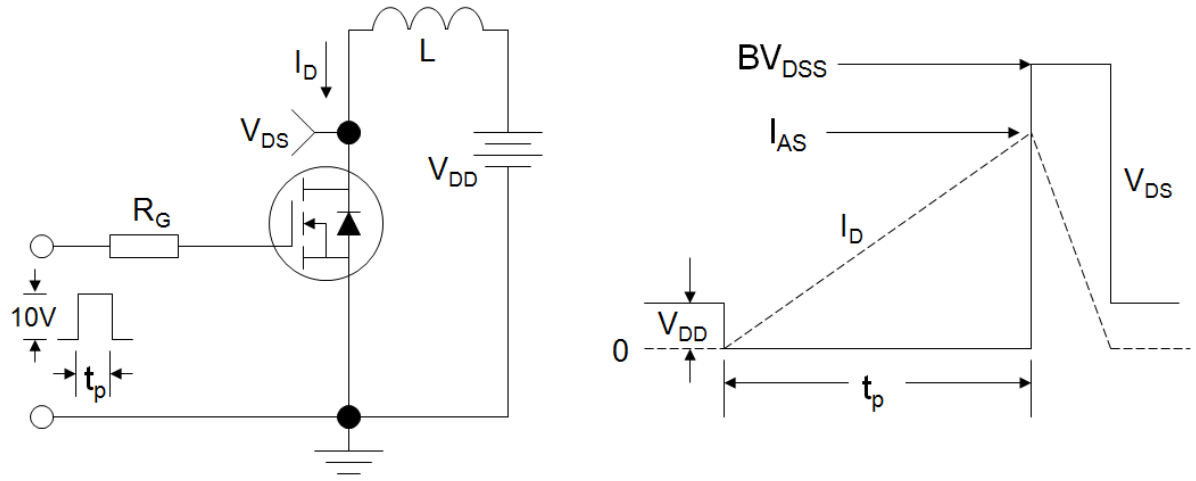
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 1. Output Characteristics

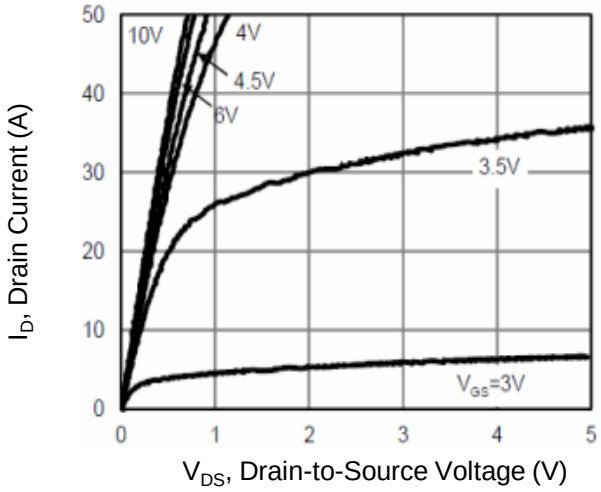


Figure 2. Transfer Characteristics

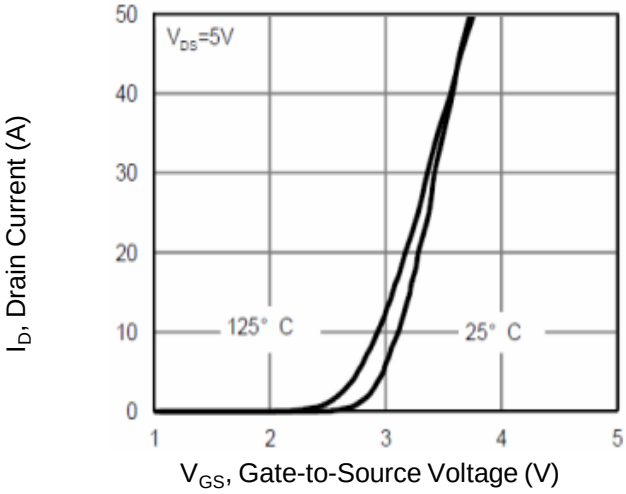


Figure 3. On-Resistance vs. Drain Current

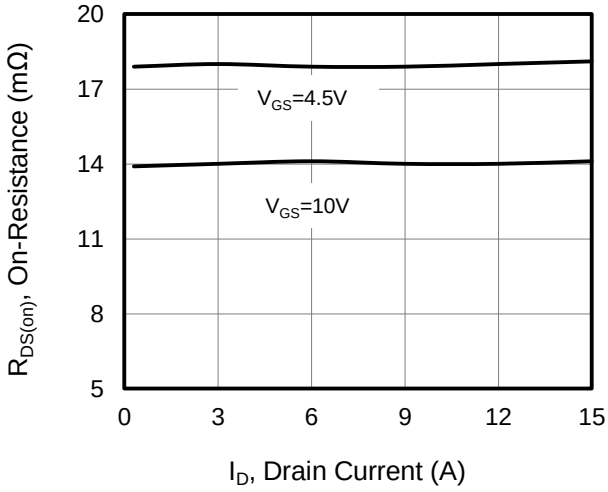


Figure 4. Gate Charge

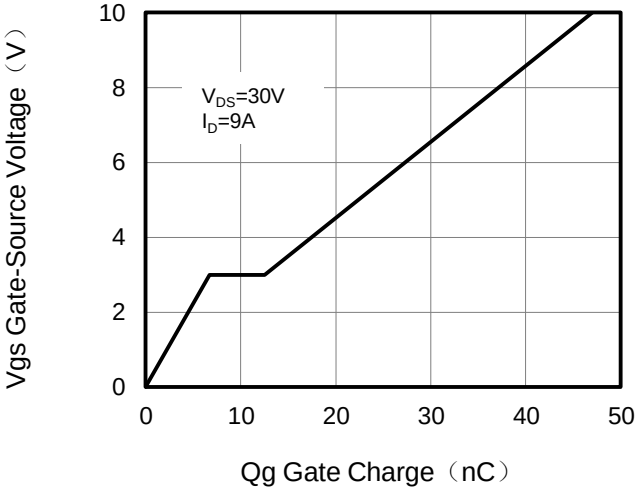


Figure 5. Capacitance

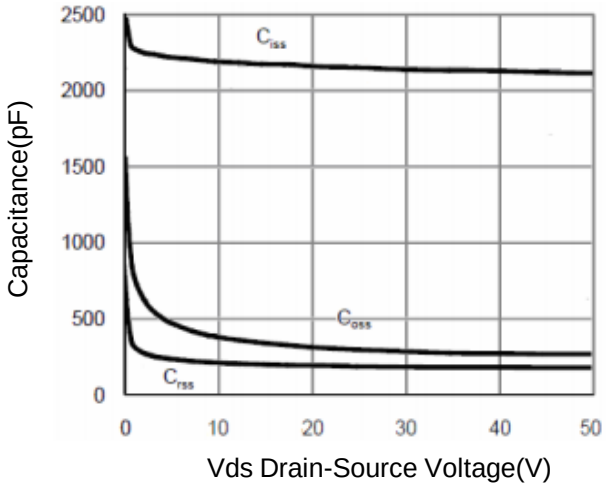
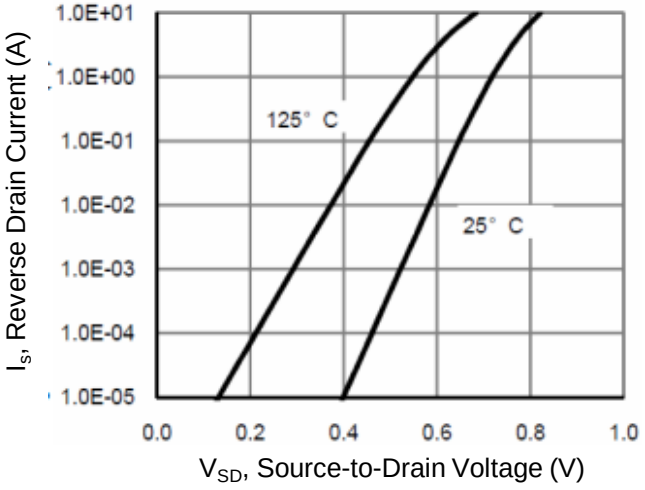


Figure 6. Source-Drain Diode Forward



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 7. Drain-Source On-Resistance

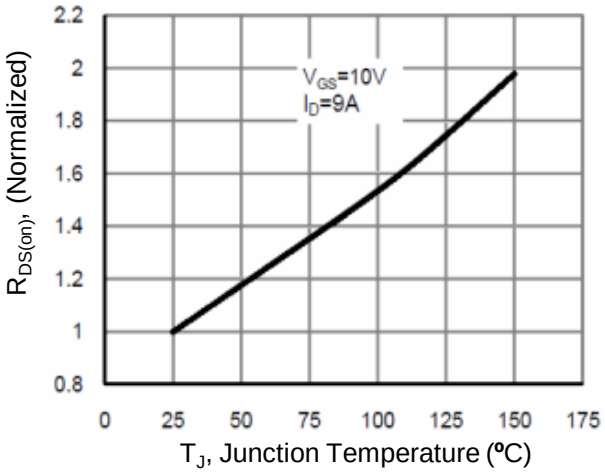


Figure 8. Safe Operation Area

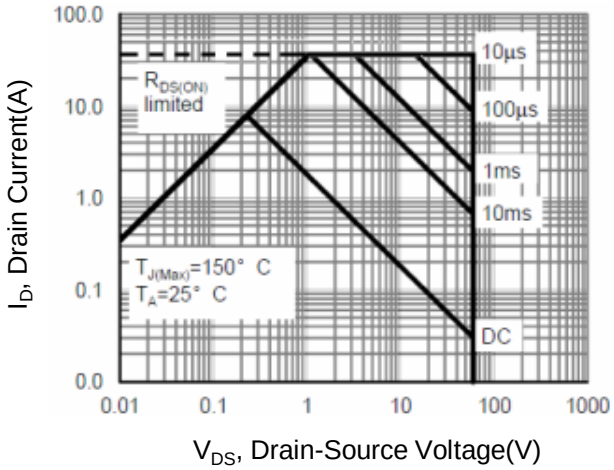


Figure 9. Normalized Maximum Transient Thermal Impedance

