Complementary Enhancement Mode Field Effect Transistor

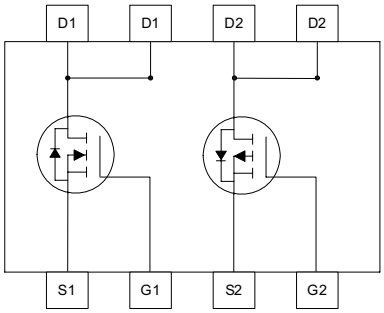
● Features

N-channel	P-channel
V_{DS} (V) = 30 V	V_{DS} (V) = -30 V
I_D =7 A	I_D = -6A

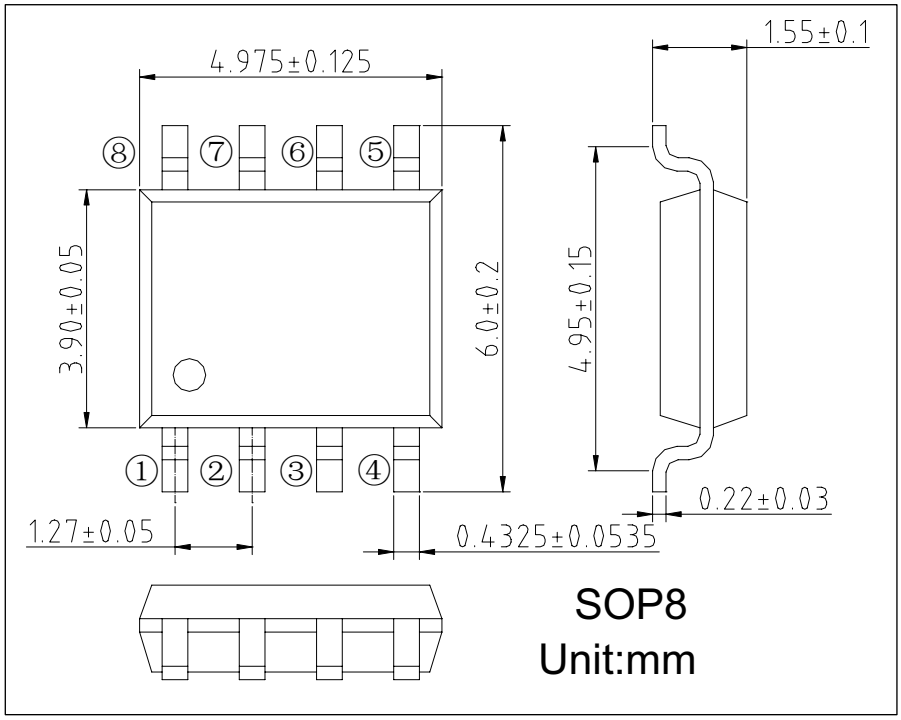
● General Description

The HX4606 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. The complementary MOSFETs may be used to form a level shifted high side switch, and for a host of other applications.

● Pin Configuration



● Package Information



● Absolute Maximum Ratings @ T_A = 25°C unless otherwise specified

Parameter	Symbol	N-channel	P-channel	Unit
Drain-Source Voltage	V_{DSS}	30	-30	V
Gate-Source Voltage	V_{GSS}	±20	±20	V
Continuous Drain Current (Note 1)	I_D	7	-6	A
Plused Drain Current (Note 2)	I_{DM}	30	-30	A
Total Power Dissipation (Note 1)	P_D	1	1	W
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	-55 to +150	°C

- **N-channel Electrical Characteristics** @ T_A = 25°C unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 250 μ A	30	33	--	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D =250 μ A	1	1.5	3	V
Gate–Body Leakage Current	I_{GSS}	V_{GS} = ± 20 V, V_{DS} = 0 V	--	--	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24 V, V_{GS} = 0 V	--	--	1	μ A
Drain–Source On–State Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 7.0A	--	21	30	mΩ
		V_{GS} = 4.5 V, I_D = 5.0A	--	34	40	
Forward Transconductance	g_{FS}	V_{DS} = 5 V, I_D = 5 A	--	7.3	--	S
Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 1 A	--	0.76	1	V
Input Capacitance	C_{iss}	V_{DS} = 15 V, V_{GS} = 0 V, f = 1.0 MHz	--	407	--	pF
Output Capacitance	C_{oss}		--	113	--	
Reverse Transfer Capacitance	C_{rss}		--	57	--	
Turn–On Delay Time	$t_{d(on)}$	V_{Ds} = 15 V, R_L = 2.3Ω, V_{GS} = 10V, R_{GEN}=3Ω	--	4.5	18	nS
Turn–Off Delay Tim	$t_{d(off)}$		--	19	70	

- **P-channel Electrical Characteristics** @ T_A = 25°C unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = -250 μ A	-30	-34	--	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D =-250 μ A	-1	-1.5	-3	V
Gate–Body Leakage Current	I_{GSS}	V_{GS} = ± 20 V, V_{DS} = 0 V	--	--	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24 V, V_{GS} = 0 V	--	--	-1	μ A
Drain–Source On–State Resistance	$R_{DS(on)}$	V_{GS} = -10 V, I_D = -6 A	--	27	35	mΩ
		V_{GS} = - 4.5 V, I_D = -5 A	--	35	50	
Forward Transconductance	g_{FS}	V_{DS} = -5 V, I_D = -4 A	--	12	--	S
Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = -1 A	--	-0.77	--	V
Input Capacitance	C_{iss}	V_{DS} = -15 V, V_{GS} = 0 V, f = 1.0 MHz	--	950	--	pF
Output Capacitance	C_{oss}		--	137	--	
Reverse Transfer Capacitance	C_{rss}		--	118	--	
Turn–On Delay Time	$t_{d(on)}$	V_{Ds} = -15 V, R_L = 2.5Ω, V_{GS} = -10V, R_{GEN}=3Ω	--	8	18	nS
Turn–Off Delay Tim	$t_{d(off)}$		--	22	70	

Note: 1. DUT is mounted on a 1in ^{2} FR-4 board with 2oz. Copper in a still air environment at 25°C， the current rating is based on the DC（<10s） test conditions

2. Repetitive rating, pulse width limited by junction temperature.

- **N-channel Typical Performance Characteristics**

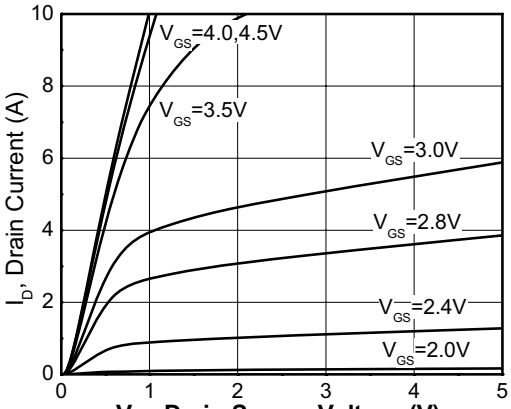


Figure 1. Output Characteristics

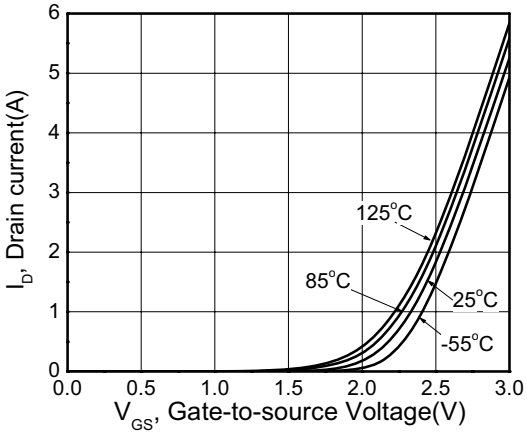


Figure 2. Transfer Characteristics

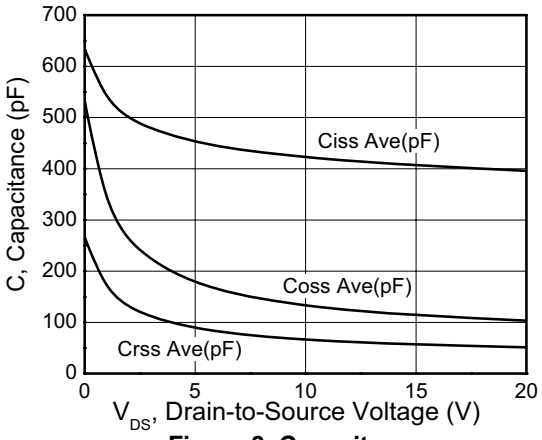


Figure 3. Capacitance

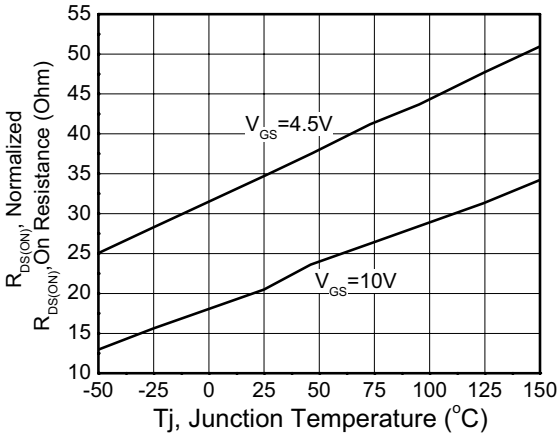


Figure 4. On Resistance Vs. Temperature

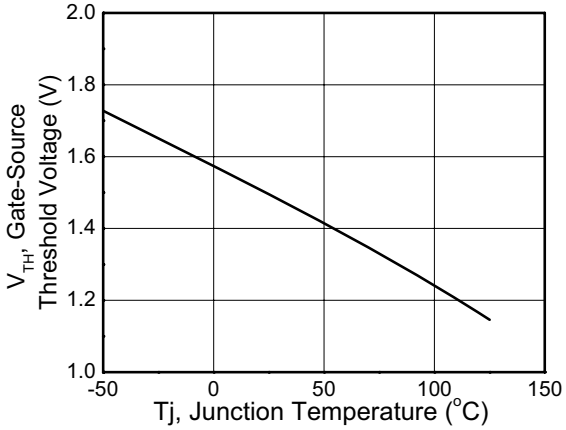


Figure 5. Gate Threshold Vs. Temperature

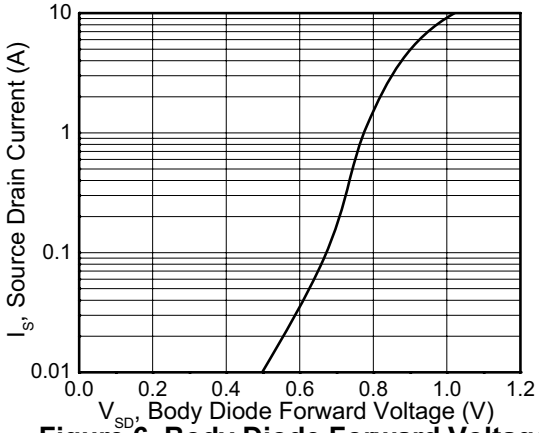


Figure 6. Body Diode Forward Voltage Vs. Source Current

- **P-channel Typical Performance Characteristics**

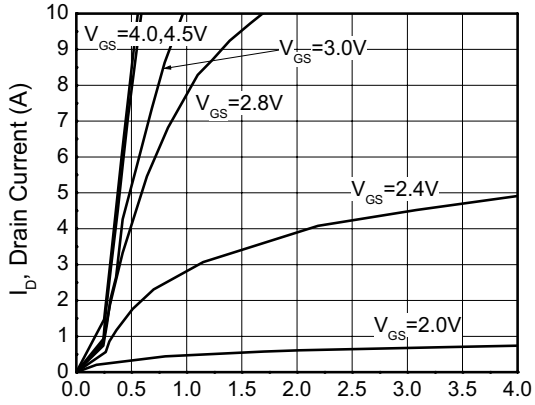


Figure 1. Output Characteristics

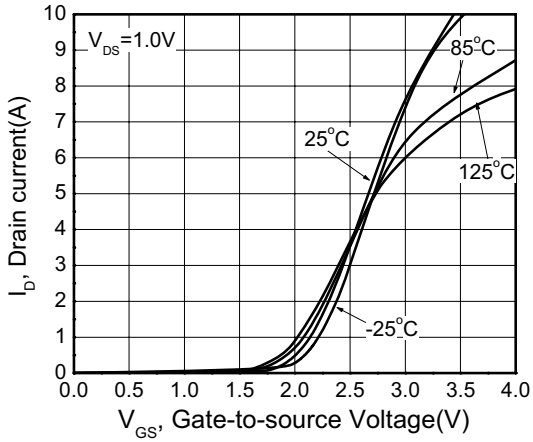


Figure 2. Transfer Characteristics

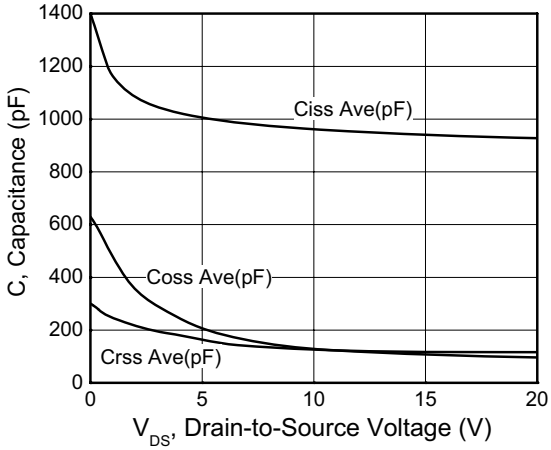
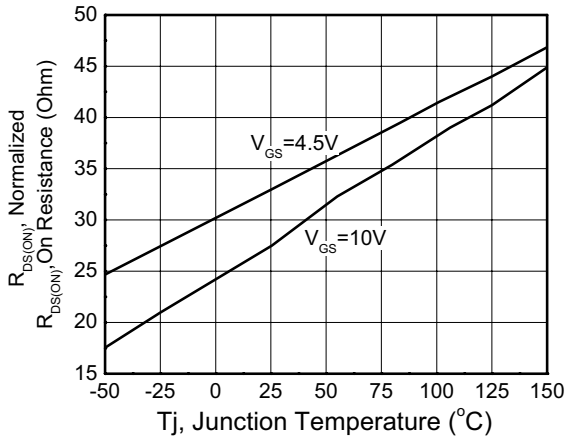


Figure 3. Capacitance



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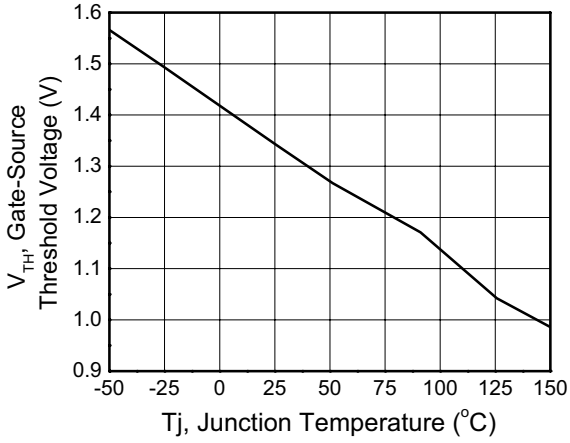

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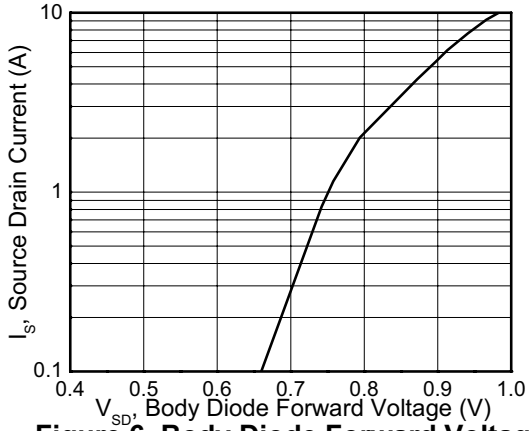

Figure 6. Body Diode Forward Voltage Vs. Source Current

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