



N-Channel Enhancement Mode Field Effect Transistor

- **Features**

$V_{DS} = 30V$

$R_{DS(ON)}$, @ $V_{GS}=10V$, $I_{DS}=5.8A$, TYP $24m\Omega$

$R_{DS(ON)}$, @ $V_{GS}=4.5V$, $I_{DS}=5A$, TYP $27m\Omega$

Fast switching speed

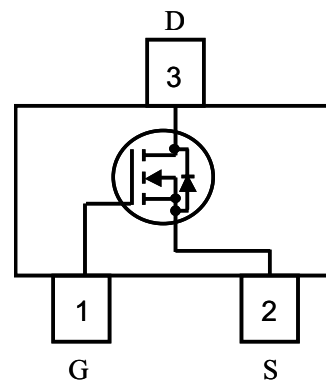
Low threshold voltage (0.8V) makes this device Ideal for portable equipment

excellent $R_{DS(ON)}$ and low gate charge low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a load switch or in PWM applications.

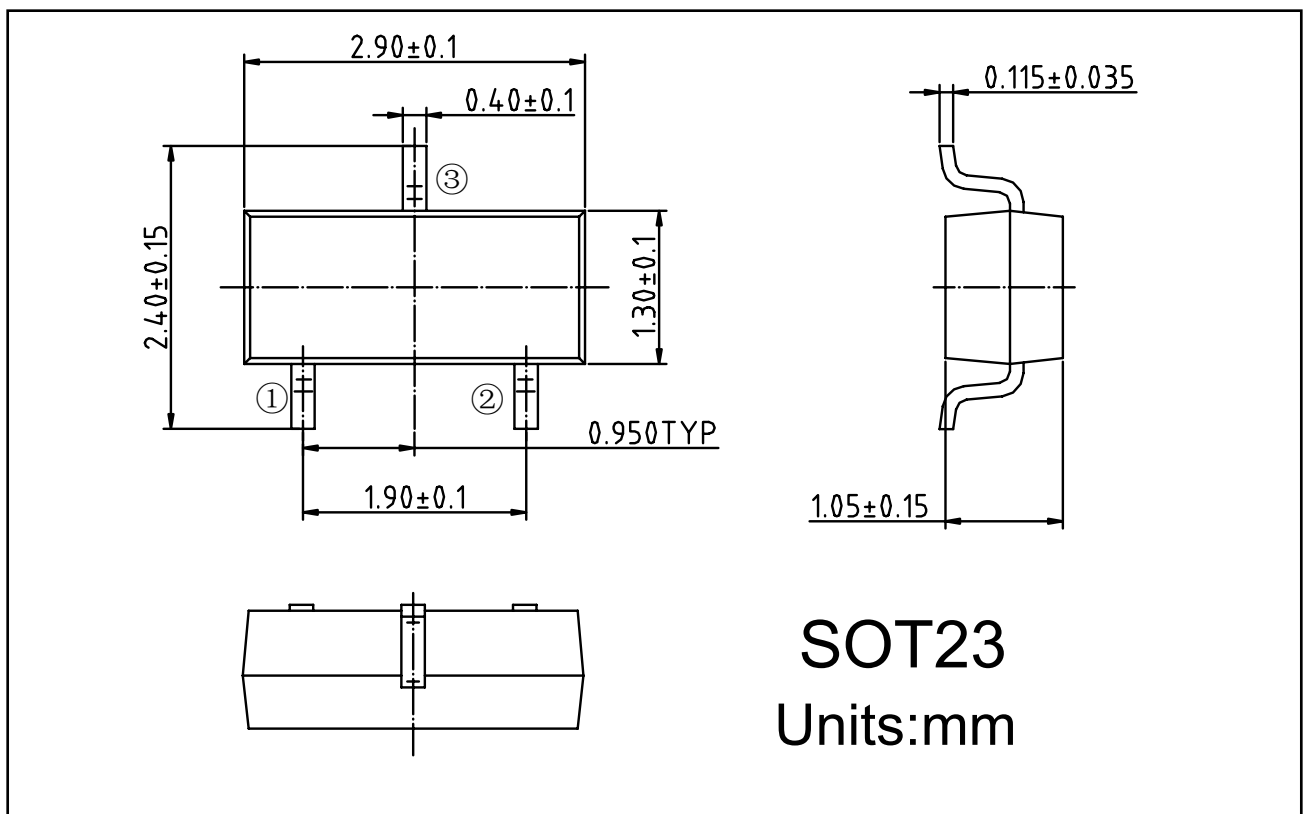
- **General Description**

The HX2306A uses advanced trench technology to provide

- **Pin Configuration**



- **Package Information**





● **Absolute Maximum Ratings** @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	N-channel	Unit
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 12	V
Continuous Drain Current (Note 1)	I_D	5.2	A
Plused Drain Current (Note 2)	I_{DM}	30	A
Total Power Dissipation (Note 1)	P_D	1	W
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

● **Electrical Characteristics** @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{ A}$	30	34	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{ A}$	0.7	0.8	1.0	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 12\text{ V}, V_{DS} = 0\text{ V}$	--	--	± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24\text{ V}, V_{GS} = 0\text{ V}$	--	--	1	$\mu\text{ A}$
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = 10\text{ V}, I_D = 5.8\text{ A}$	--	24	28	m Ω
		$V_{GS} = 4.5\text{ V}, I_D = 5\text{ A}$	--	27	33	
		$V_{GS} = 2.5\text{ V}, I_D = 4\text{ A}$	--	39	52	
Forward Transconductance	G_{FS}	$V_{DS} = 5\text{ V}, I_D = 5\text{ A}$	10	15	--	S
Diode Forward Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_S = 1\text{ A}$	--	0.71	1	V
Input Capacitance	C_{ISS}	$V_{DS} = 15\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$	--	697	--	pF
Output Capacitance	C_{OSS}		--	259	--	
Reverse Transfer Capacitance	C_{RSS}		--	308	--	
Turn-On Delay Time	$T_{D(ON)}$	$V_{DS} = 15\text{ V}, R_L = 2.3\ \Omega,$	--	--	18	ns
Turn-Off Delay Tim	$T_{D(OFF)}$	$V_{GS} = 10\text{ V}, R_{GEN} = 3\ \Omega$	--	--	70	

Note : 1. DUT is mounted on a 1 in^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.



● Typical Performance Characteristics

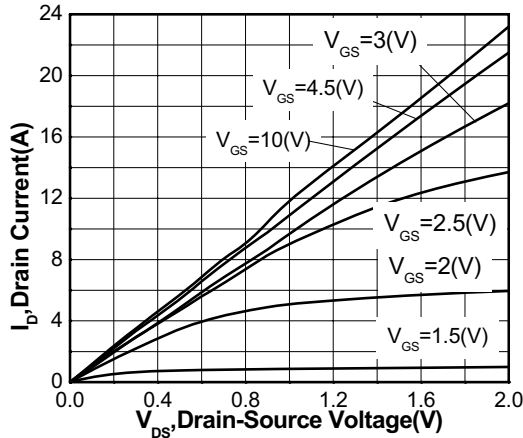


Figure1. Drain-source Voltage vs Drain Current

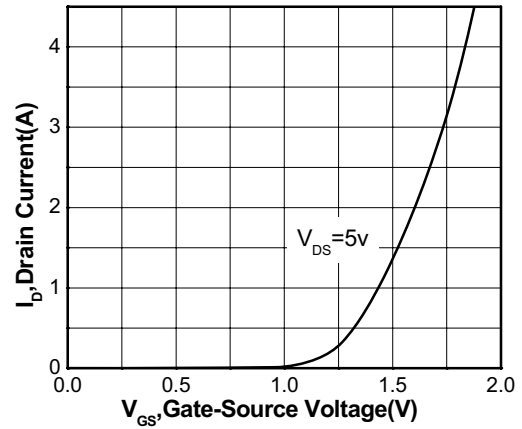


Figure2. Gate-Source Voltage vs Drain Current

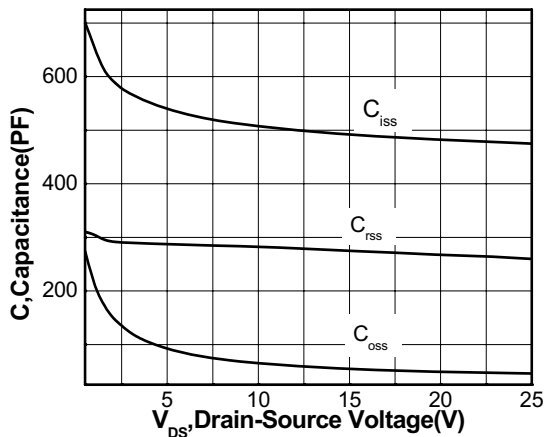


Figure3. Drain-Source Voltage vs Capacitance

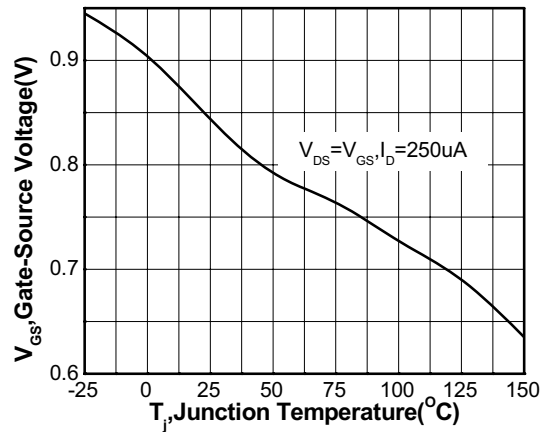


Figure4. Junction Temperature vs Gate-Source Voltage

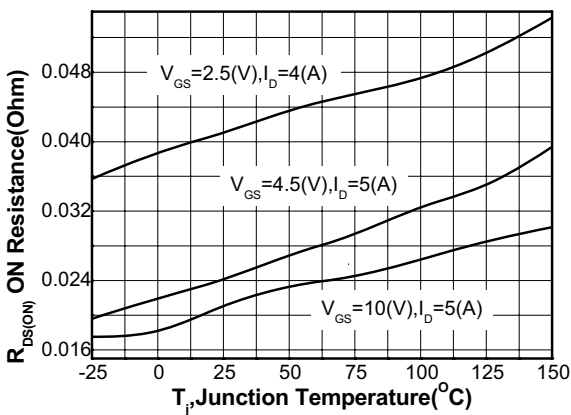


Figure5. Junction Temperature vs ON Resistance

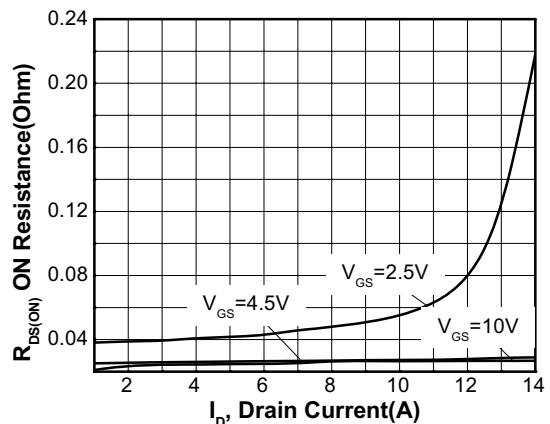


Figure6. Drain Current vs ON Resistance

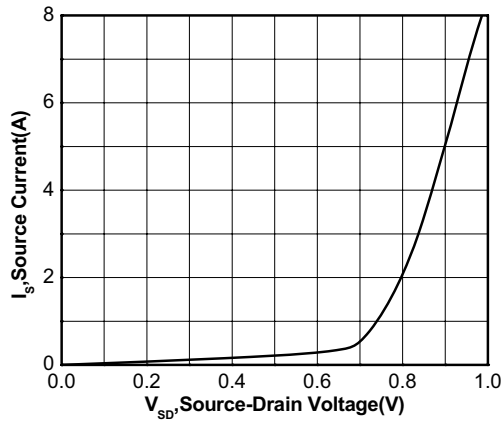


Figure7 Source-Drain Voltage vs Source Current

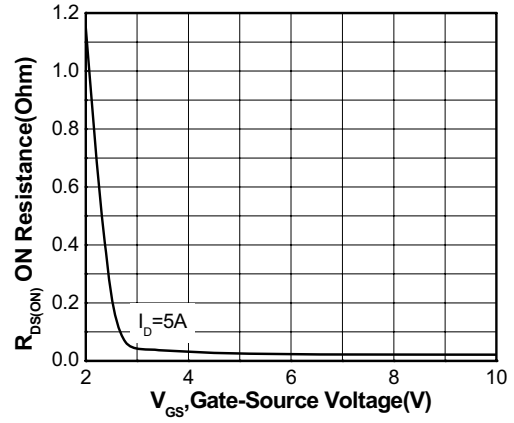


Figure8. Gate-Source Voltage vs ON Resistance



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