

GENERAL DESCRIPTION

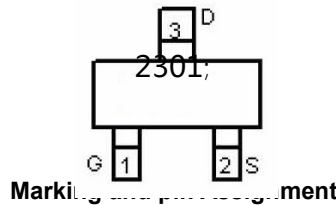
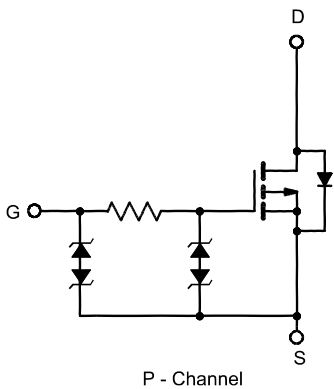
The HM2301D is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System

FEATURES

- $R_{DS(ON)} = 0.48\Omega$ @ $V_{GS} = -4.5V$
- $R_{DS(ON)} = 0.67\Omega$ @ $V_{GS} = -2.5V$
- $R_{DS(ON)} = 0.95\Omega$ @ $V_{GS} = -1.8V$
- $R_{DS(ON)} = 2.20\Omega$ @ $V_{GS} = -1.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Capable doing Cu wire bonding



Absolute Maximum Ratings (TA=25°C Unless Otherwise Noted)

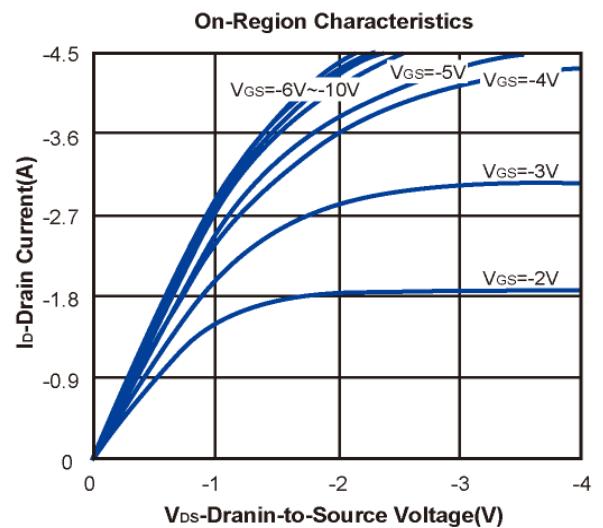
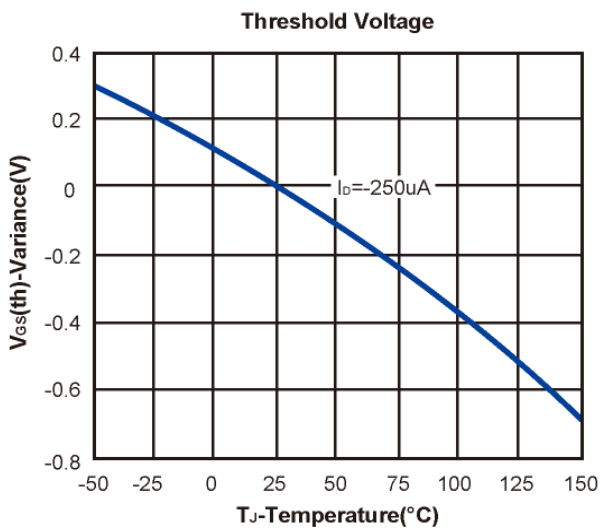
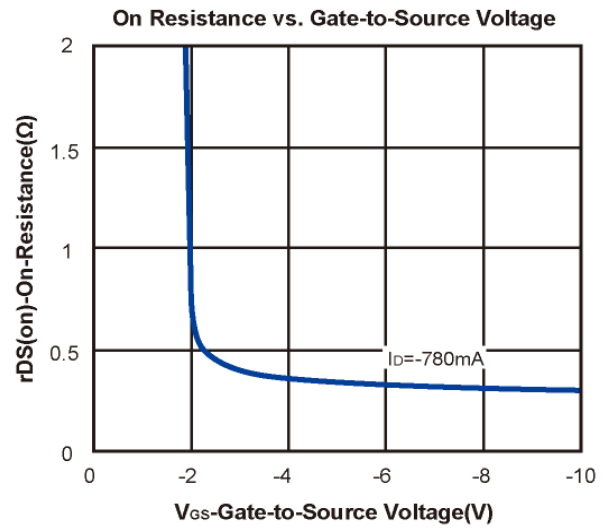
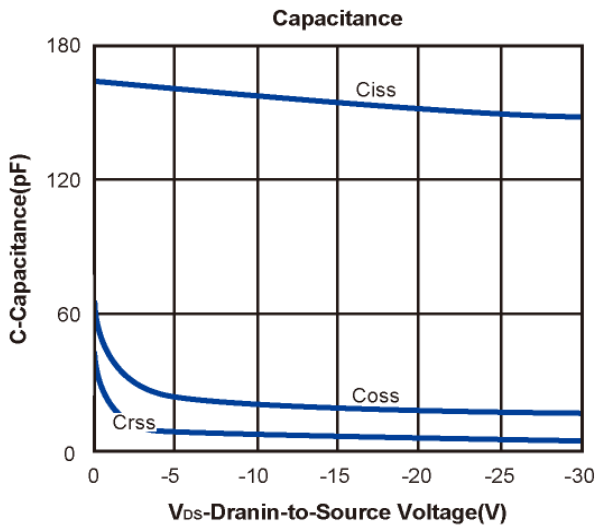
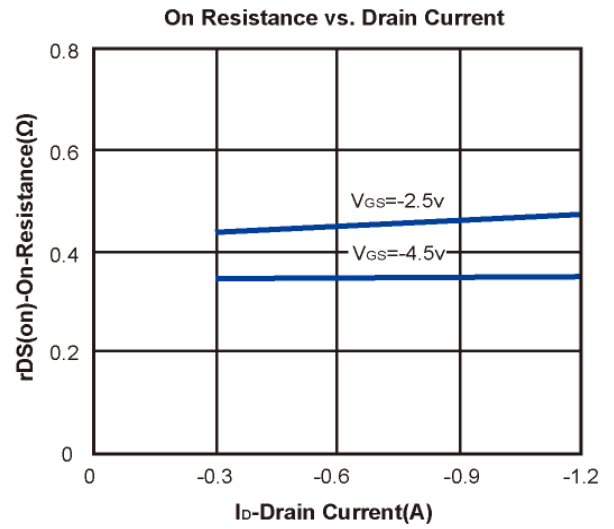
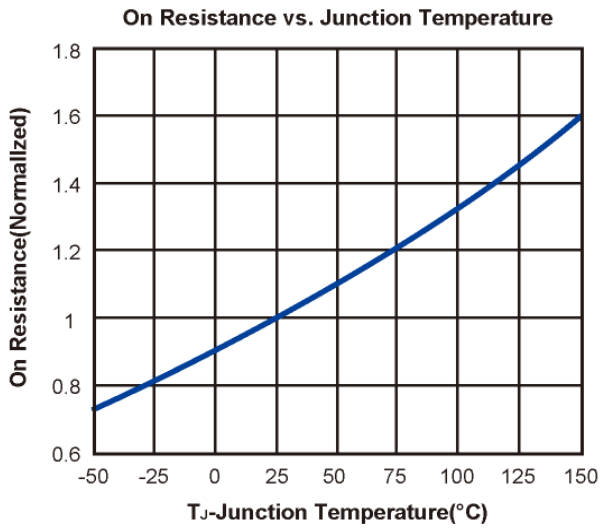
Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±6	V

Electrical Characteristics (T_J = 25°C Unless Otherwise Specified)

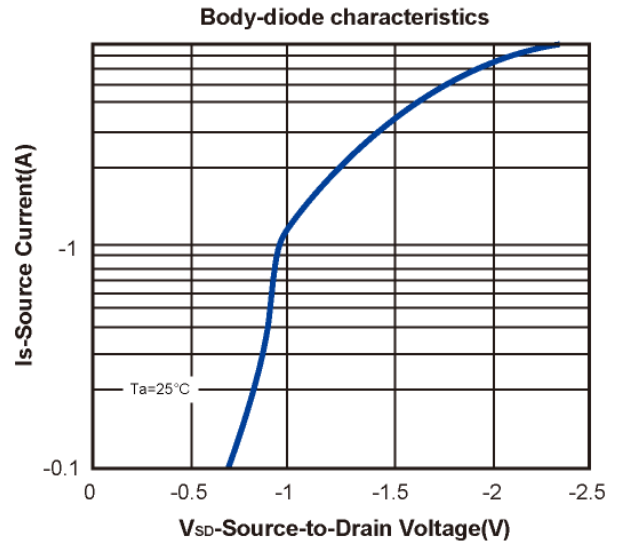
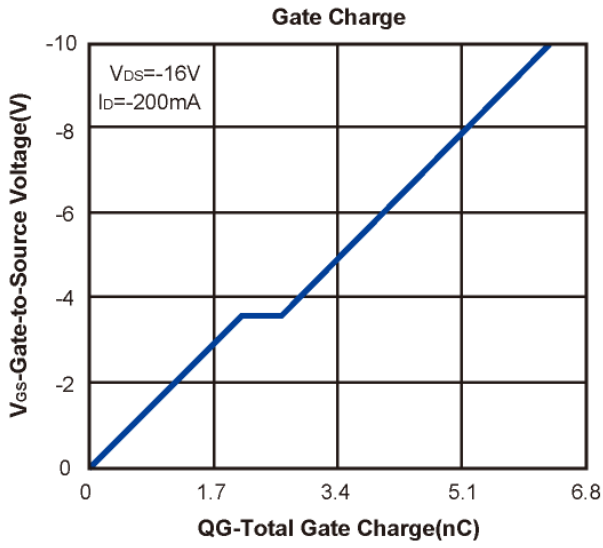
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250 μA	-20			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250 μA	-0.45		-1.2	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±4.5V			±10	μA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-16V, V _{GS} =0V			-1	μA
R _{DS(ON)}	Drain-Source On-Resistance ^a	V _{GS} =-4.5V, I _D =-780mA		0.35	0.48	Ω
		V _{GS} =-2.5V, I _D =-660mA		0.44	0.67	
		V _{GS} =-1.8V, I _D =-100mA		0.55	0.95	
		V _{GS} =-1.5V, I _D =-100mA		0.78	2.20	
V _{SD}	Diode Forward Voltage	I _S =-350mA, V _{GS} =0V		-0.8	-1.2	V
DYNAMIC						
C _{iss}	Input Capacitance	V _{DS} =-16V, V _{GS} =0V, f=1MHZ		152		pF
C _{oss}	Output Capacitance			18.5		
C _{rss}	Reverse Transfer Capacitance			6		
Q _g	Total Gate Charge	V _{DS} =-16V, V _{GS} =-4.5V, I _D =-200mA		2.8		nC
Q _{gs}	Gate-Source Charge			2.1		
Q _{gd}	Gate-Drain Charge			0.5		
t _{d(on)}	Turn-On Delay Time	V _{DD} =-10V, R _L =50Ω V _{GEN} =-5V, R _G =10Ω I _D =-200mA		51.3		ns
t _r	Turn-On Rise Time			24.2		
t _{d(off)}	Turn-Off Delay Time			246		
t _f	Turn-Off Fall Time			81.2		

- Notes: a. Based on Eutectic paste and bond wire Cu wire 1mil×1(S), Cu wire 1mil×1(G) on each die of SOT-523 package.
b. Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%.
c. H&M SEMI reserves the right to improve product design, functions and reliability without notice.

Typical Characteristics (T_J =25°C Noted)

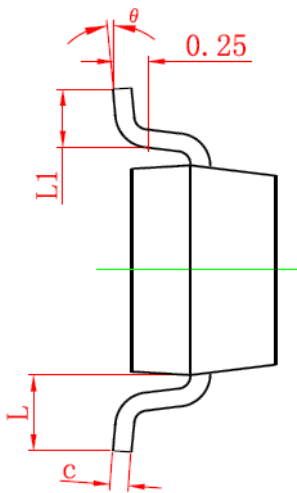
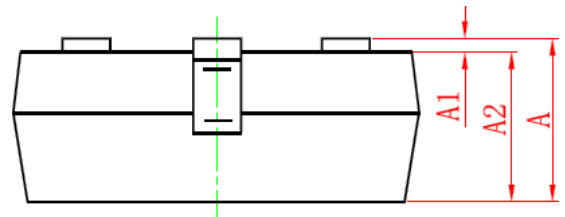
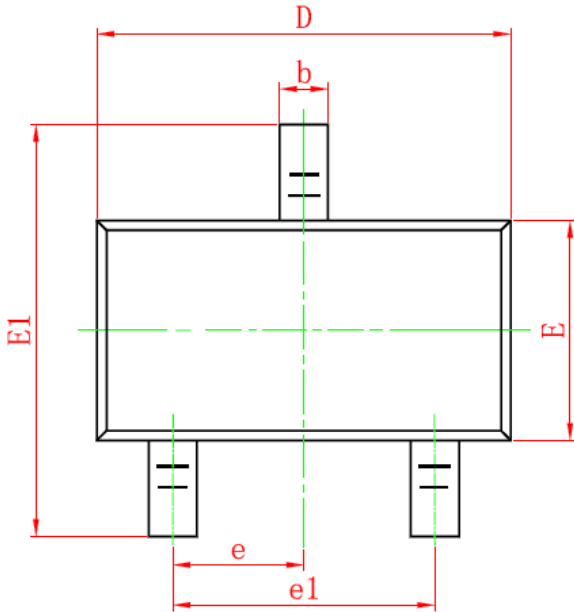


Typical Characteristics (T_J =25°C Noted)



SOT-23 PACKAGE INFORMATION

Dimensions in Millimeters (UNIT:mm)



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

NOTES

- All dimensions are in millimeters.
- Tolerance $\pm 0.10\text{mm}$ (4 mil) unless otherwise specified
- Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
- Dimension L is measured in gauge plane.
- Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.