

GENERAL DESCRIPTION

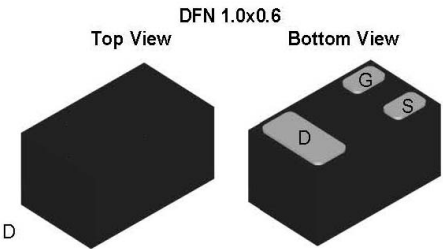
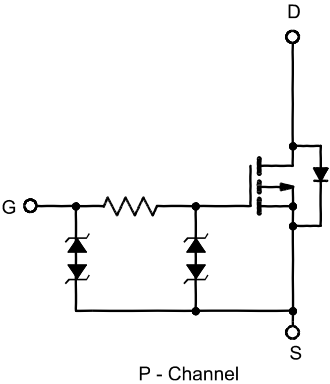
The HM2301DR is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

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)

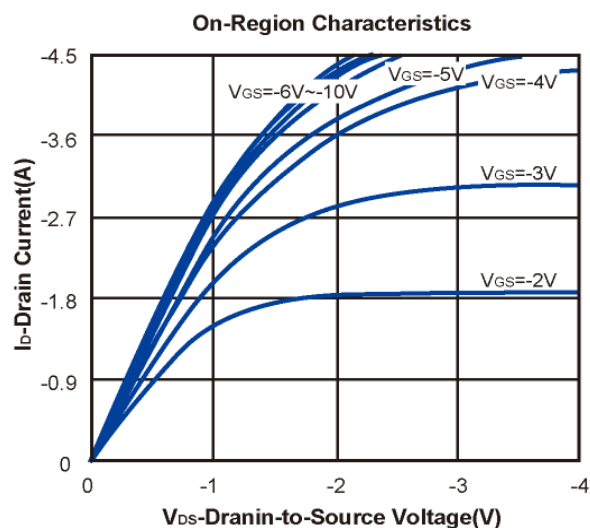
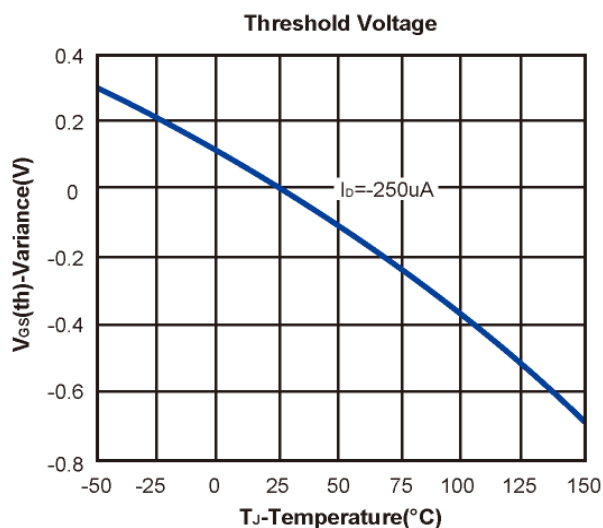
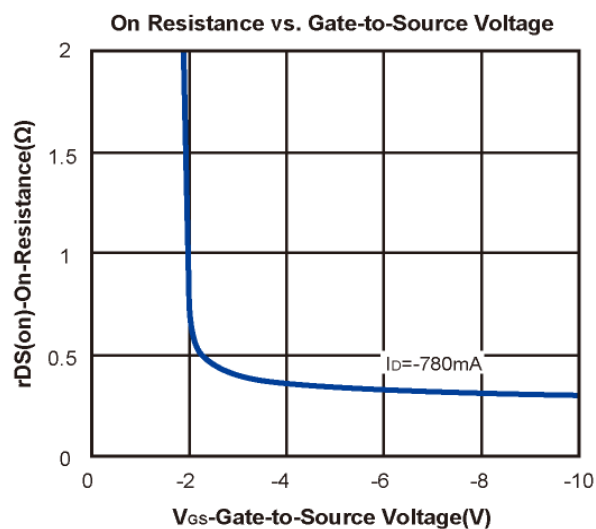
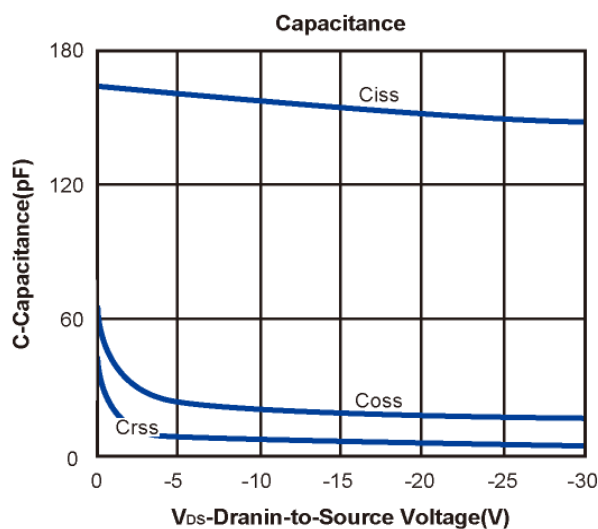
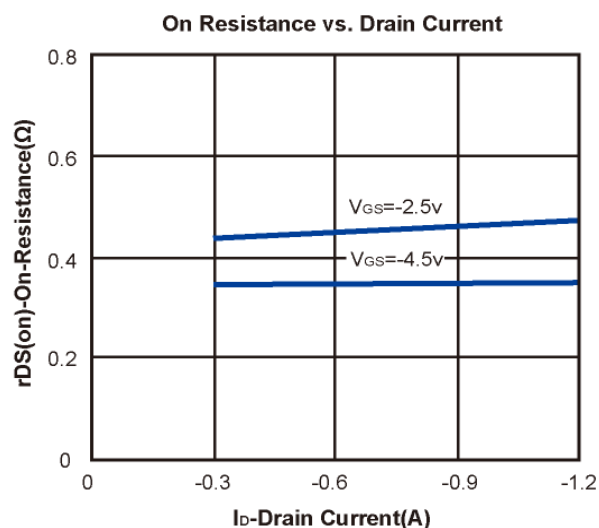
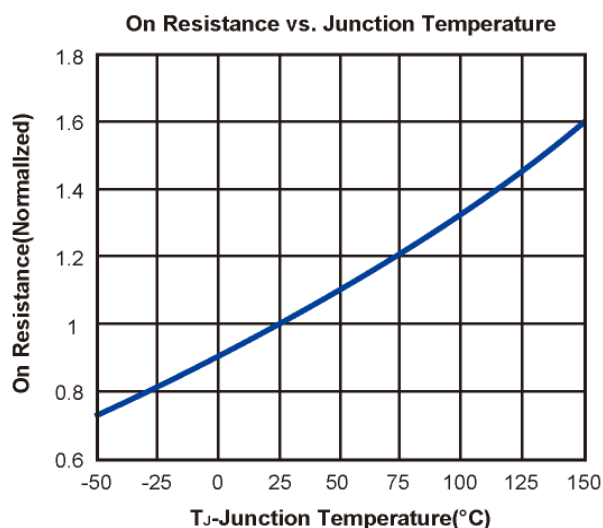
Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 6	V

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

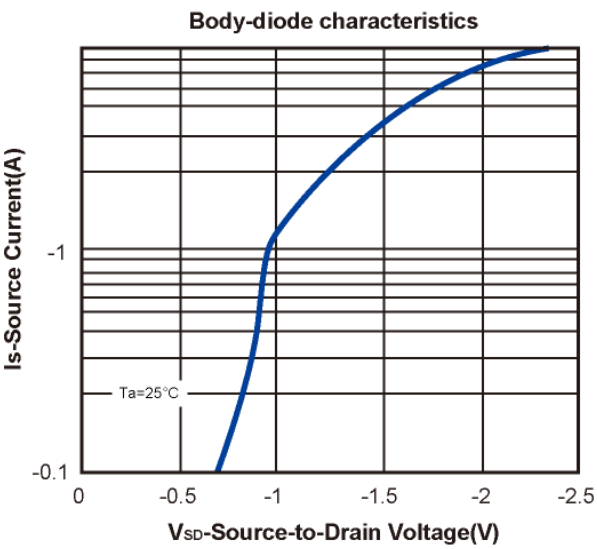
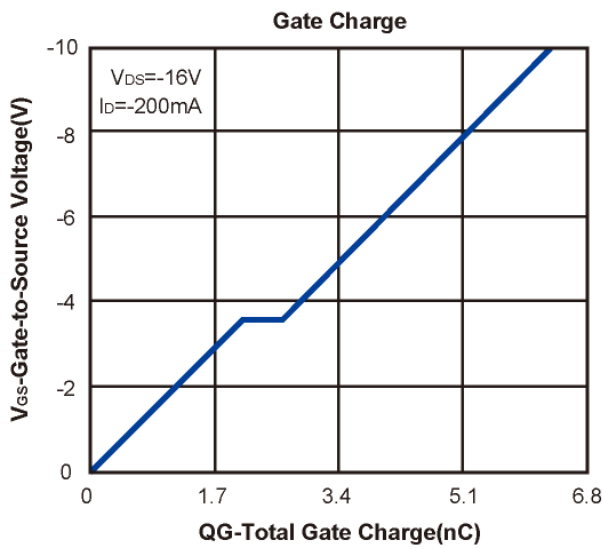
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250 μA	-20			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250 μA	-0.45		-1.2	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±4.5V			±10	μA
I _{DSS}	Zero Gate Voltage 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.

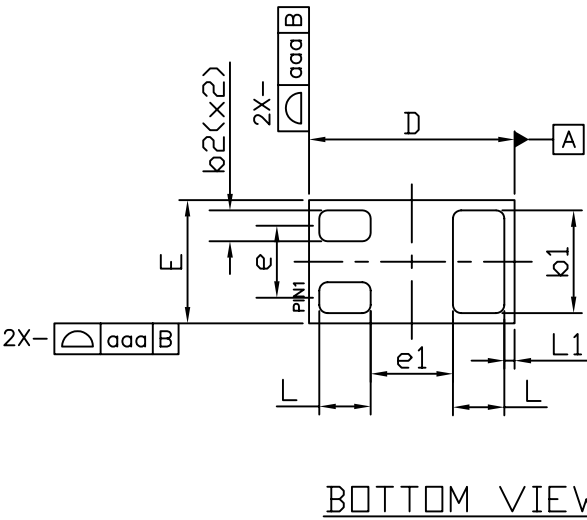
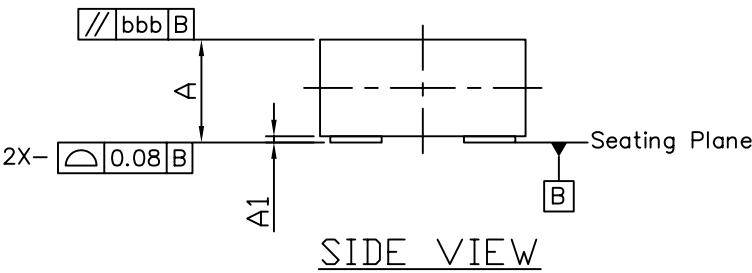
Typical Characteristics (T_J = 25°C Noted)



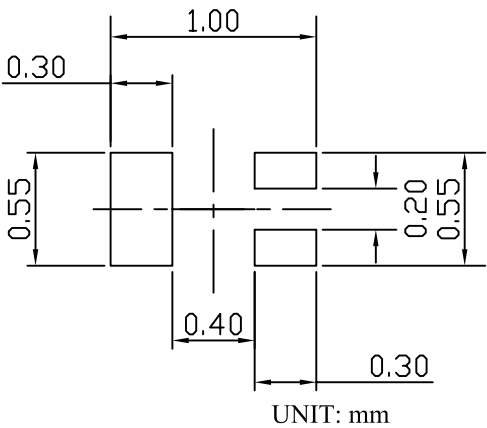
Typical Characteristics (TJ =25℃ Noted)



DFN1.0X0.6-3L



RECOMMENDED LAND PATTERN



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.52	0.55	0.019	0.020	0.022
A1	0.00	0.03	0.05	0.000	0.001	0.002
b1	0.45	0.50	0.55	0.018	0.020	0.022
b2	0.10	0.15	0.20	0.004	0.006	0.008
D	0.95	1.00	1.075	0.037	0.039	0.042
E	0.55	0.60	0.675	0.022	0.024	0.027
e	---	0.35	---	---	0.014	---
e1	---	0.40	---	---	0.016	---
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	---	0.05	---	---	0.002	---
aaa	0.15			0.006		
bbb	0.05			0.002		

- NOTE
1. ALL DIMENSION ARE IN MILLIMETERS.ANGLES ARE IN DEGREES.
 2. COPLANARITY APPLIES TO THE EXPOSED HEAT SINK SLUG AS WELL AS THE TERMINALS.