HP5634GU

P-Channel 20V (D-S) MOSFET

GENERAL DESCRIPTION

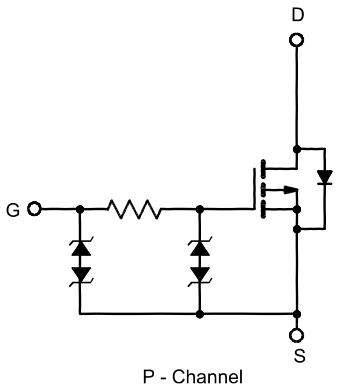
The HM2301DR is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

FEATURES

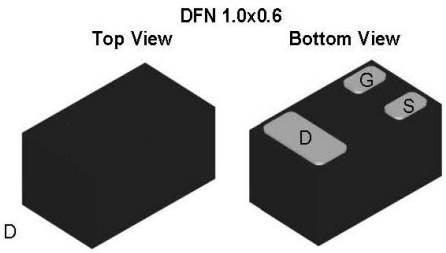
- $R_{DS(ON)}$= 0.48Ω @V_{GS}=-4.5V
- $R_{DS(ON)}$= 0.67Ω @V_{GS}=-2.5V
- $R_{DS(ON)}$= 0.95Ω @V_{GS}=-1.8V
- $R_{DS(ON)}$= 2.20Ω @V_{GS}=-1.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Capable doing Cu wire bonding

APPLICATIONS

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



P - Channel



Absolute Maximum Ratings (T_A=25℃ 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℃ Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-20			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-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						
Ciss	Input Capacitance	V_{DS}=-16V, V_{GS}=0V, f=1MHZ		152		pF
Coss	Output Capacitance			18.5		
Crss	Reverse Transfer Capacitance			6		
Qg	Total Gate Charge	V_{DS}=-16V, V_{GS}=-4.5V, I_D=-200mA		2.8		nC
Qgs	Gate-Source Charge			2.1		
Qgd	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.

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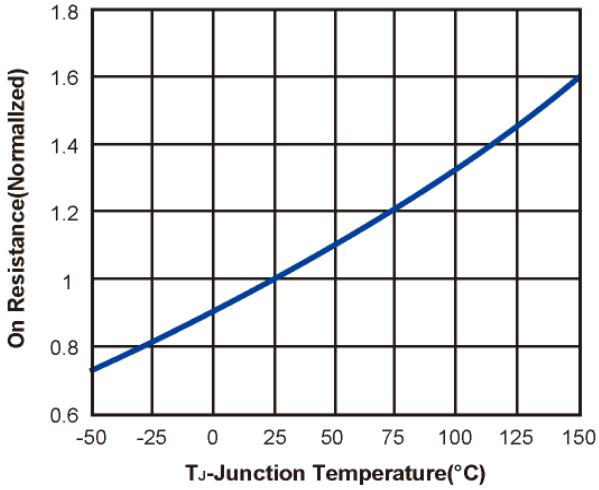
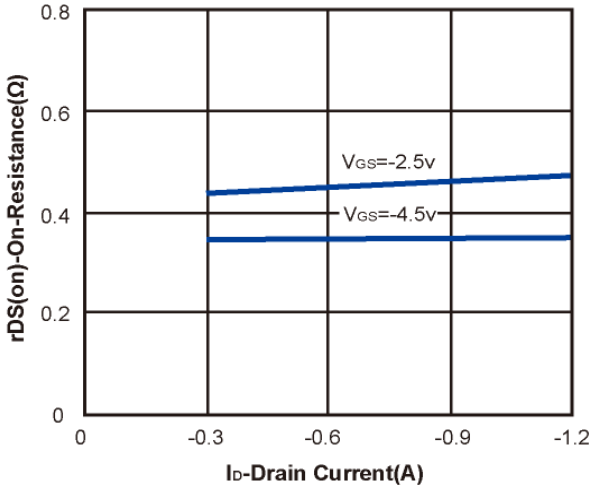
Typical Characteristics (T_J =25℃ Noted)

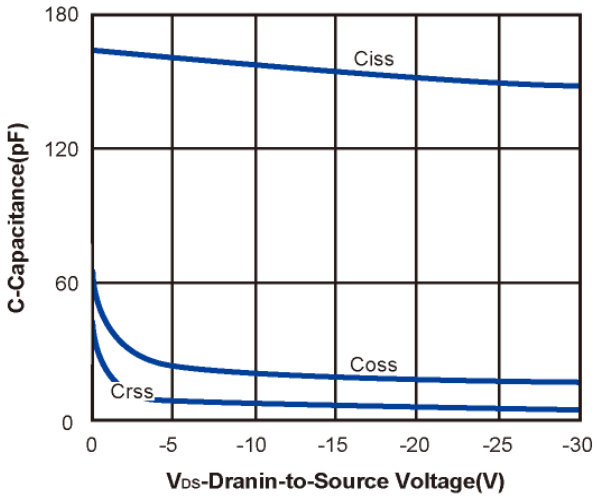
On Resistance vs. Junction Temperature



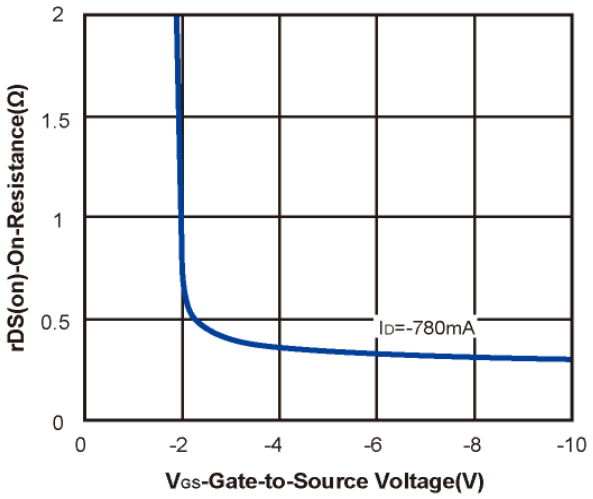
On Resistance vs. Drain Current



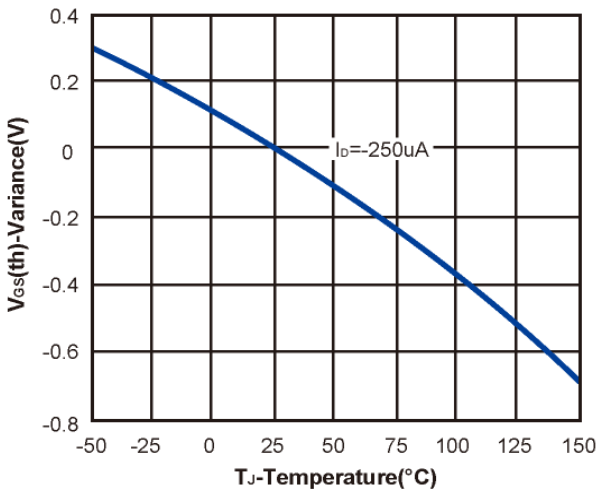
Capacitance



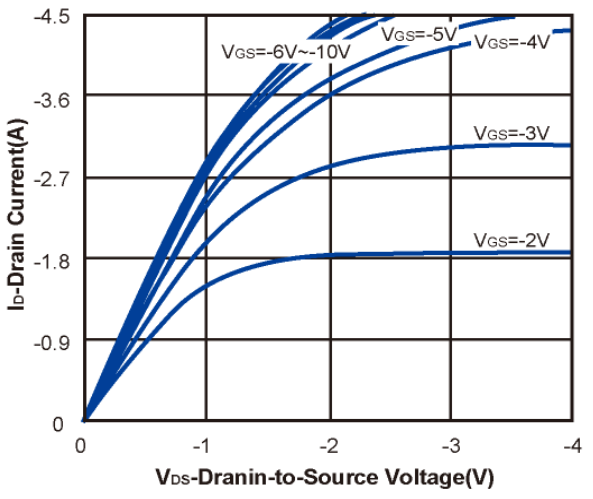
On Resistance vs. Gate-to-Source Voltage



Threshold Voltage



On-Region Characteristics



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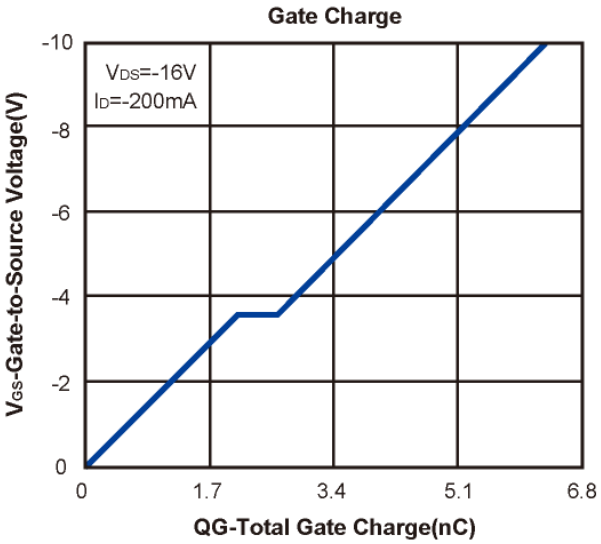

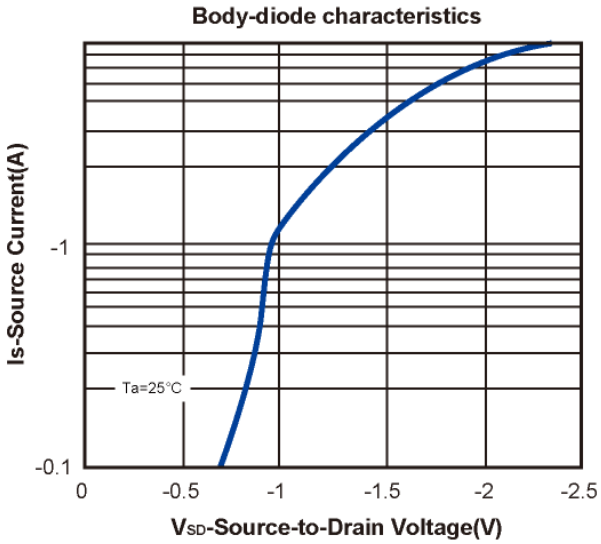

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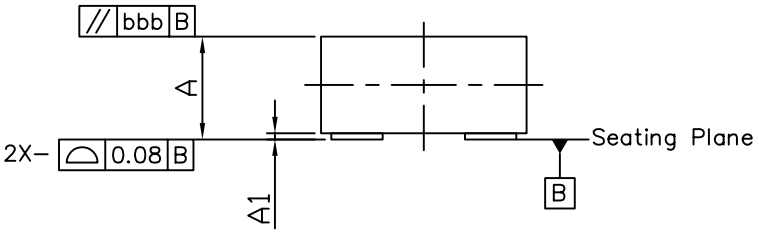
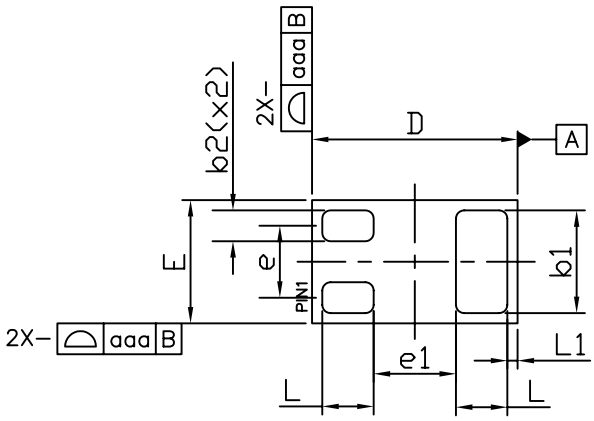
DFN1.0X0.6-3L

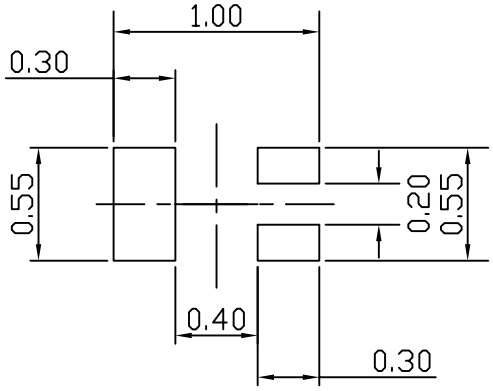


SIDE VIEW



BOTTOM VIEW

RECOMMENDED LAND PATTERN



UNIT: mm

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.