K P 5635G

N-Channel 20V (D-S) MOSFET

GENERAL DESCRIPTION

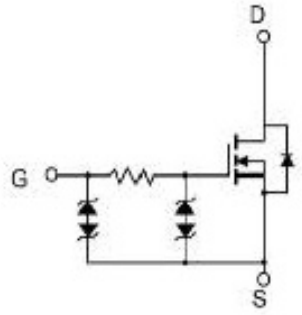
The HM2302D is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

FEATURES

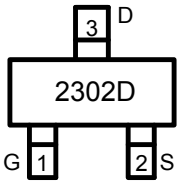
- $R_{DS(ON)}$= 270 mΩ @V_{GS}=4.5V
- $R_{DS(ON)}$= 330 mΩ @V_{GS}=2.5V
- $R_{DS(ON)}$= 450 mΩ @V_{GS}=1.8V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Capable doing Cu wire bonding

APPLICATIONS

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



N-Channel



Marking and pin Assignment

SOT-23 top view

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}	±8	V

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Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	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}=±8V			±10	μA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V			1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance[a]	V_{GS}=4.5V, I_D=890mA		220	270	mΩ
		V_{GS}=2.5V, I_D=780mA		260	330	
		V_{GS}=1.8V, I_D=700mA		330	450	
V_{SD}	Diode Forward Voltage	I_S=350mA, V_{GS}=0V		0.75	1.2	V
DYNAMIC						
Ciss	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHZ		21		pF
Coss	Output Capacitance			15		
Crss	Reverse Transfer Capacitance			8		
Qg	Total Gate Charge	V_{DS}=25V, V_{GS}=10V, I_D=0.22A		6.7		nC
Qgs	Gate-Source Charge			1.2		
Qgd	Gate-Drain Charge			0.9		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=10V, R_L =3Ω V_{GEN}=10V,R_G=10Ω		120		ns
tr	Turn-On Rise Time			317		
$t_{d(off)}$	Turn-Off Delay Time			748		
t_f	Turn-Off Fall Time			716		

Notes: a. Based on epoxy or solder 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. Force mos reserves the right to improve product design, functions and reliability without notice.

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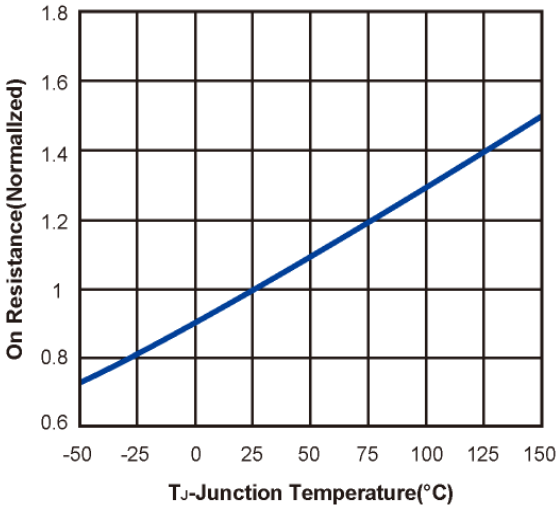
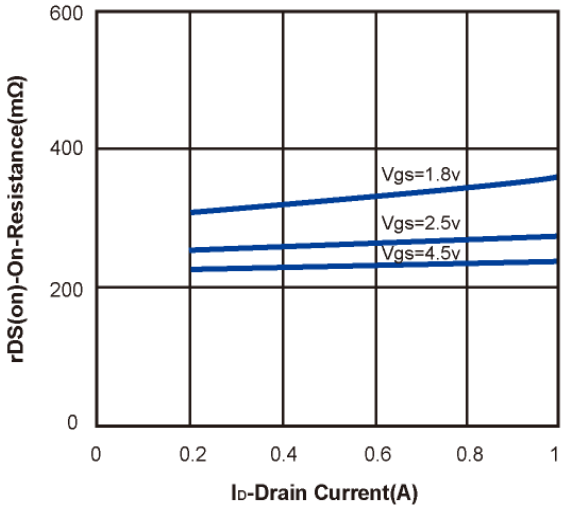
Typical Characteristics (T_J =25℃ Noted)

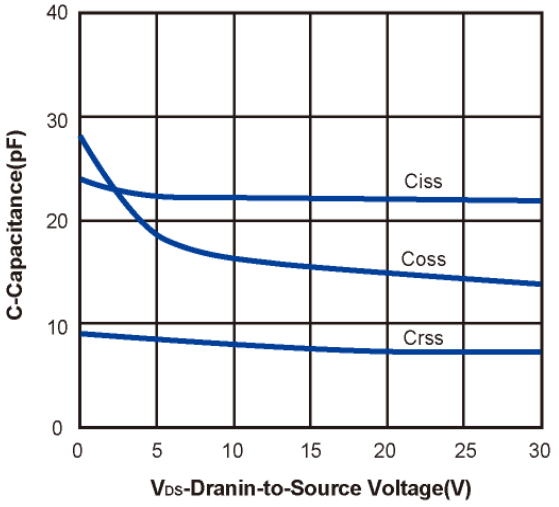
On Resistance vs. Junction Temperature



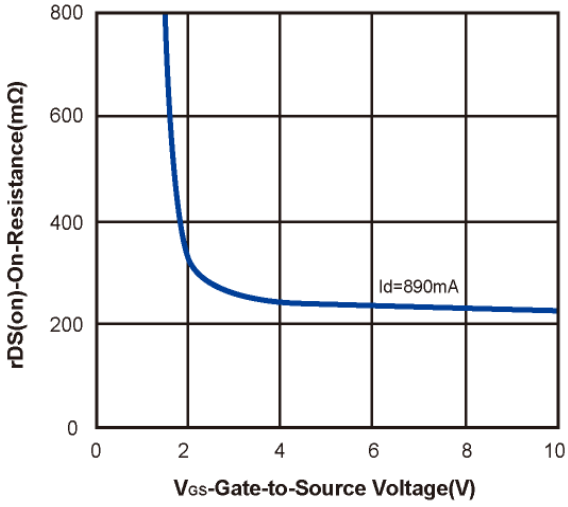
On Resistance vs. Drain Current



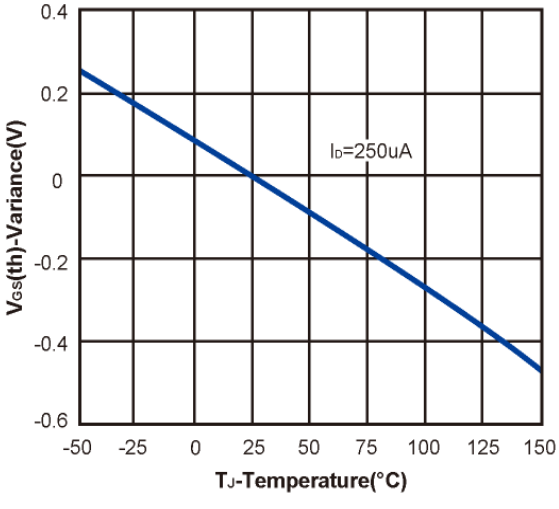
Capacitance



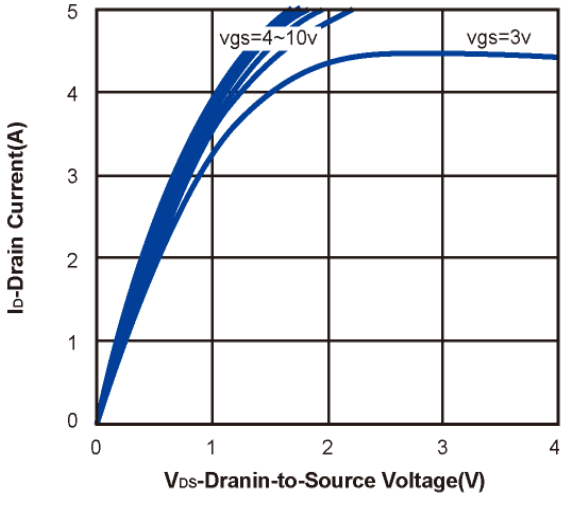
On Resistance vs. Gate-to-Source Voltage



Threshold Voltage



On-Region Characteristics



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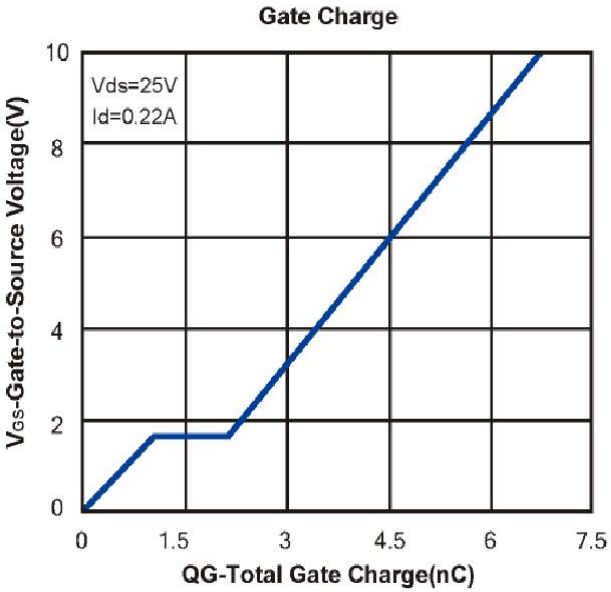

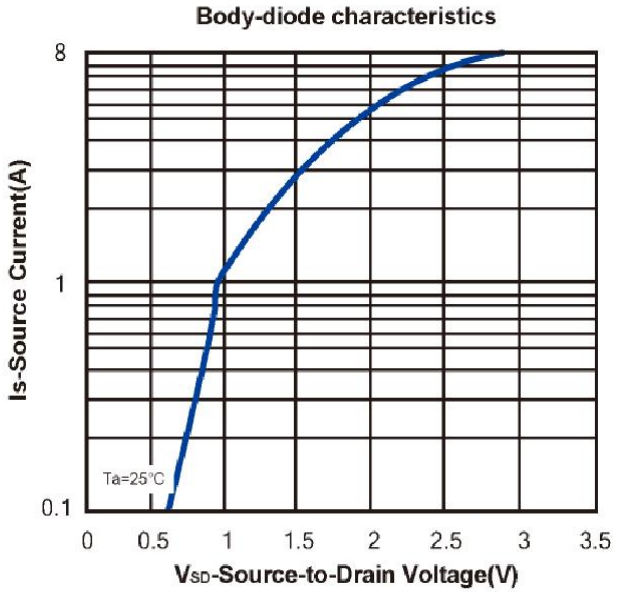

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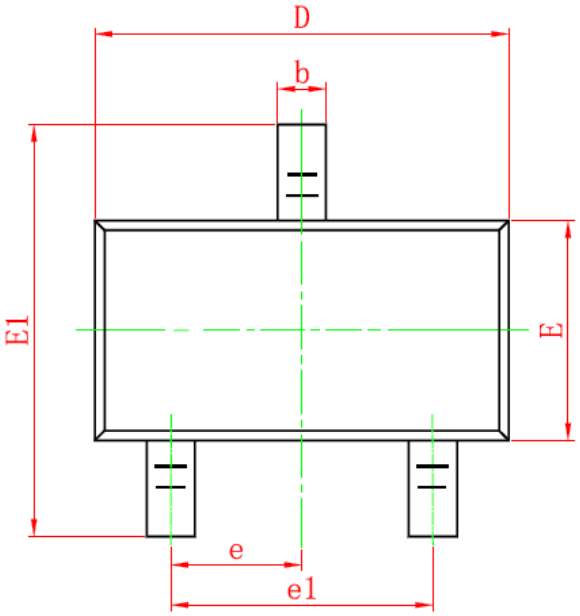
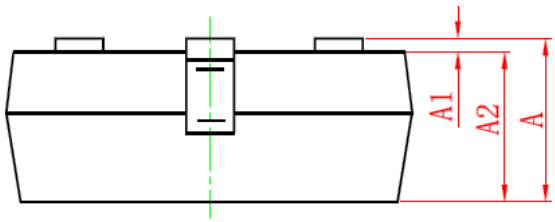
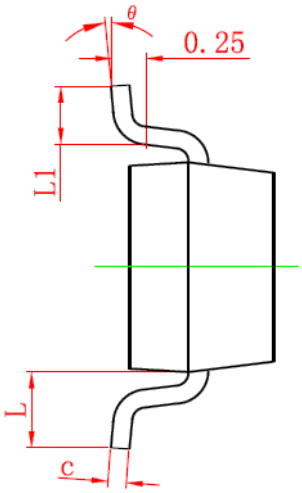
SOT-23 PACKAGE INFORMATION

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

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