

GENERAL DESCRIPTION

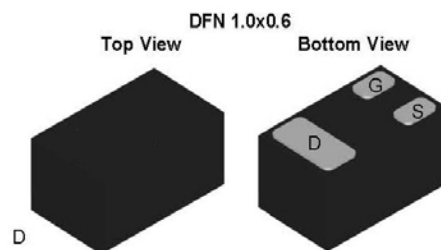
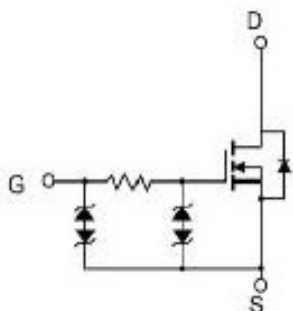
The HM2302DR is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

FEATURES

- $R_{DS(ON)} = 270 \text{ m}\Omega$ @ $V_{GS} = 4.5\text{V}$
- $R_{DS(ON)} = 330 \text{ m}\Omega$ @ $V_{GS} = 2.5\text{V}$
- $R_{DS(ON)} = 450 \text{ m}\Omega$ @ $V_{GS} = 1.8\text{V}$
- 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



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ 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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Electrical Characteristics (T_j=25°C Unless Otherwise Specified)

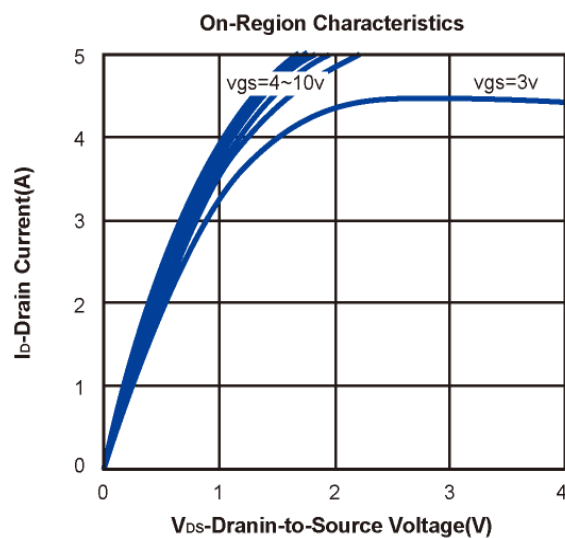
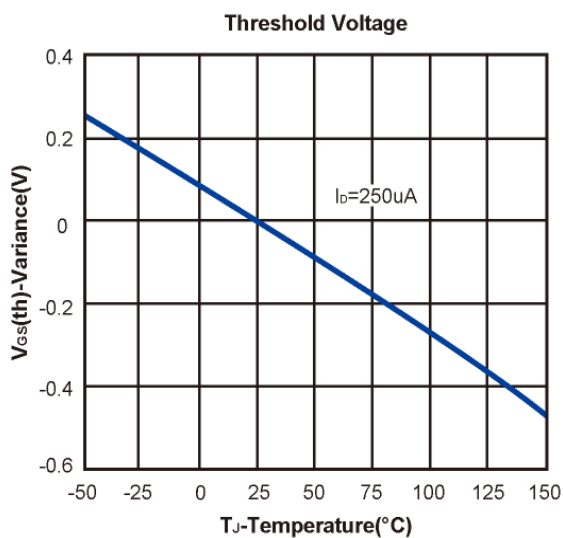
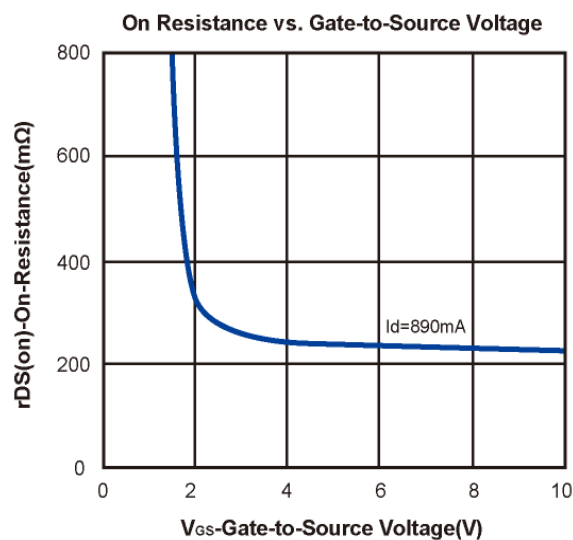
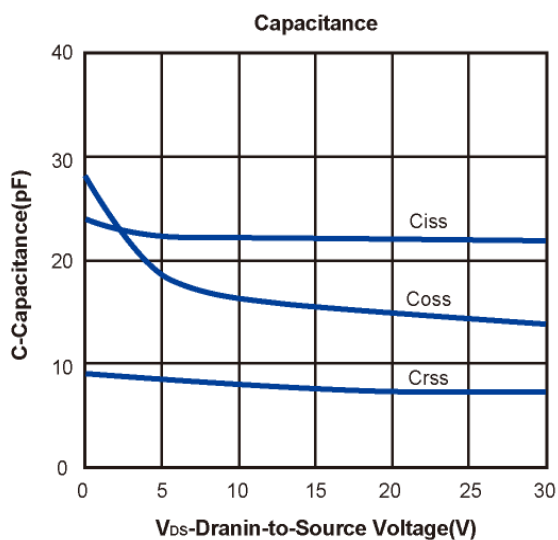
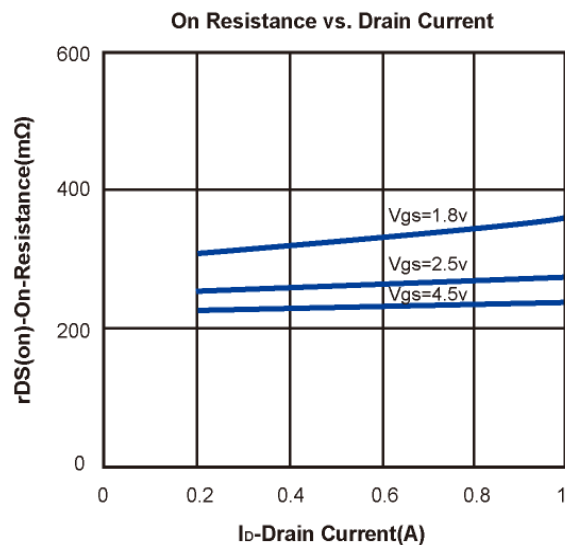
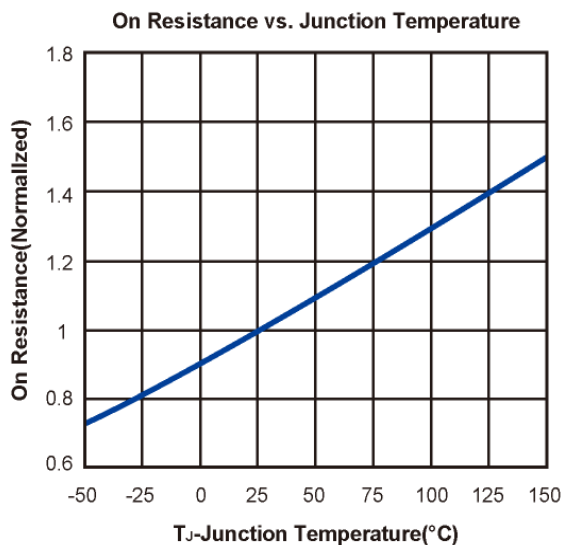
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	20			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	0.45		1.2	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±8V			±10	μA
I _{DSS}	Zero Gate Voltage Drain 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						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHZ		21		pF
C _{oss}	Output Capacitance			15		
C _{rss}	Reverse Transfer Capacitance			8		
Q _g	Total Gate Charge	V _{DS} =25V, V _{GS} =10V, I _D =0.22A		6.7		nC
Q _{gs}	Gate-Source Charge			1.2		
Q _{gd}	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
t _r	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.

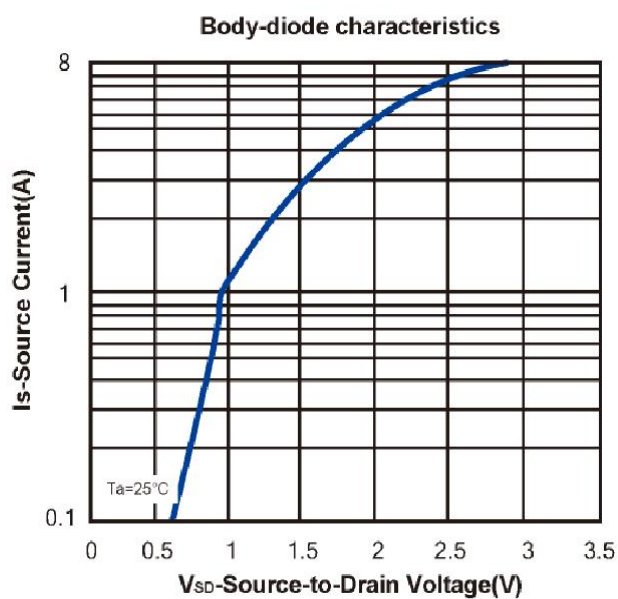
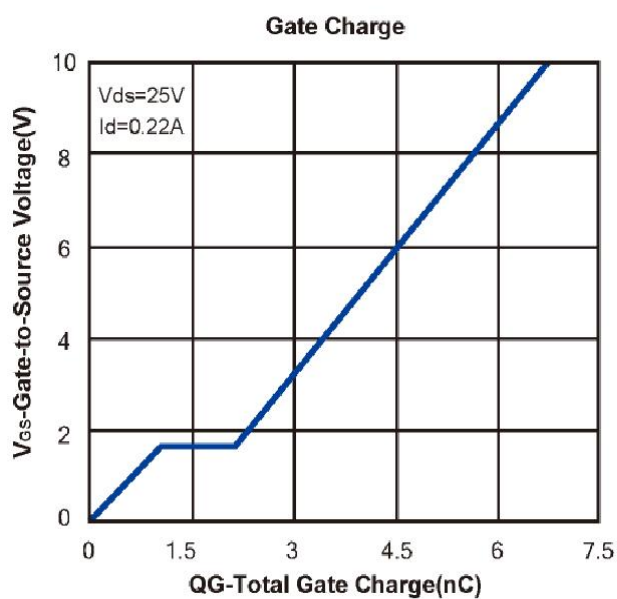
b. Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%.

c. Force mos reserves the right to improve product design, functions and reliability without notice.

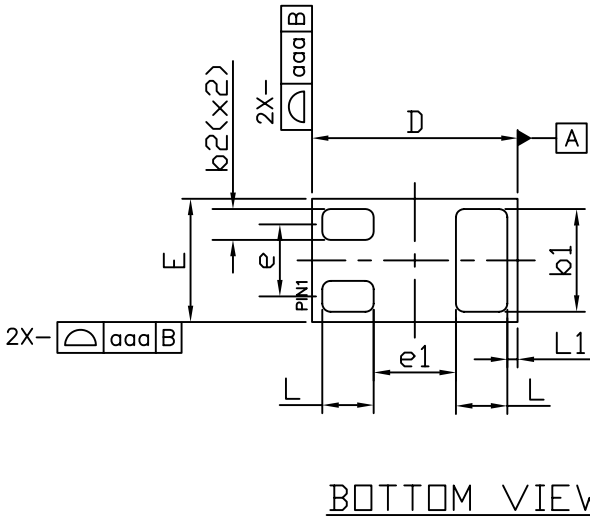
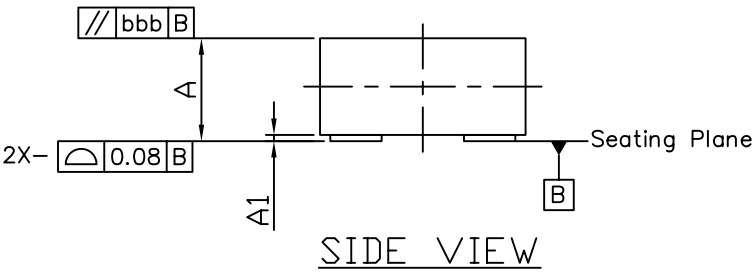
Typical Characteristics (T_J =25°C Noted)



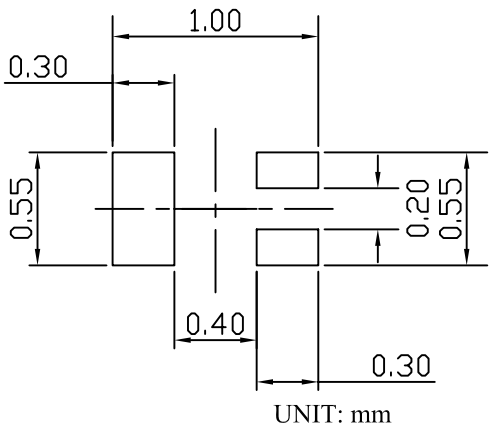
Typical Characteristics (T_J =25°C Noted)



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.