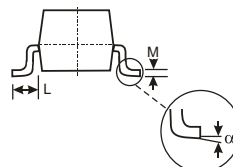
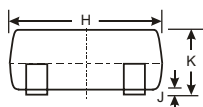
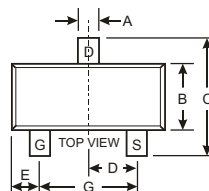


Features

- $V_{DS}=20V$.
- Super high density cell design for extremely low $R_{DS(ON)}$.
- Exceptional on-resistance and maximum DC current capability.
- We declare that the material of product compliance with RoHS requirements.



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

APPLICATIONS

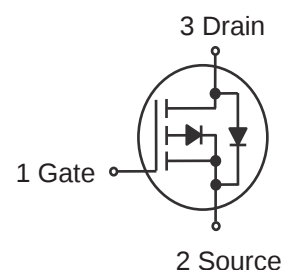
- Power Management in Notebook.
- Portable equipment.
- Battery powered system.
- Load switch.
- Marking Code:2301 OR A1SHB.

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current	I_D	-3.0	A
Peak Drain Current ¹⁾	I_{DM}	-10	A
Power Dissipation $T_A = 25^\circ\text{C}$ $T_A = 75^\circ\text{C}$	P_{tot}	0.9 0.57	W
Thermal Resistance from Junction to Ambient (PCB mounted) ²⁾	$R_{\theta JA}$	139	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

¹⁾ Repetitive Rating: Pulse width limited by the Maximum junction temperature.

²⁾ 1 in² 2oz Cu PCB board.



Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

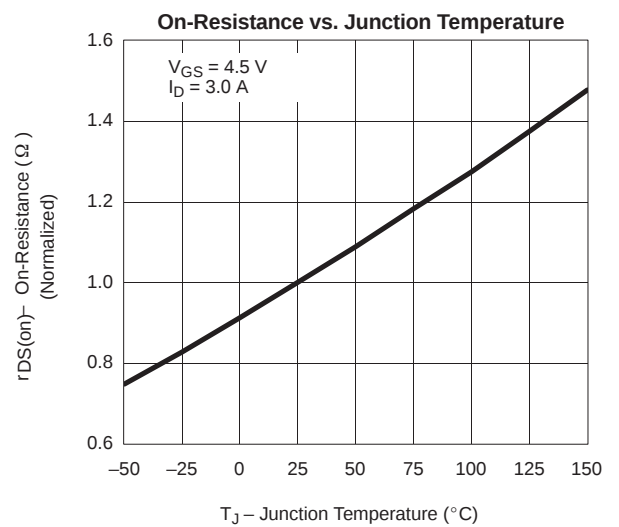
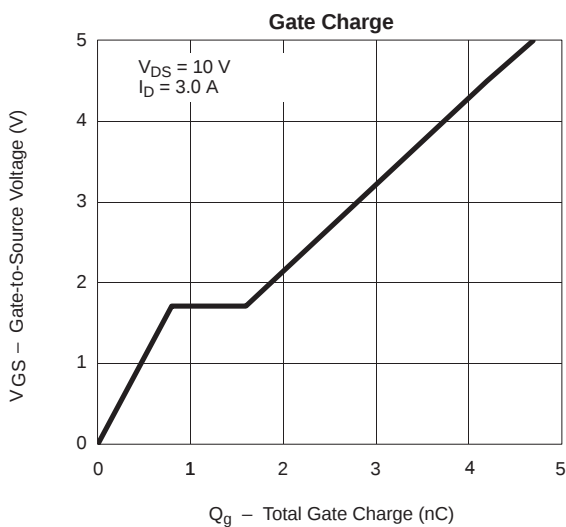
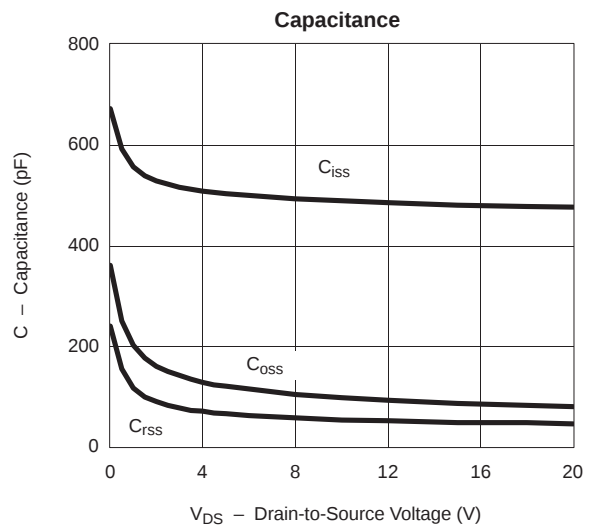
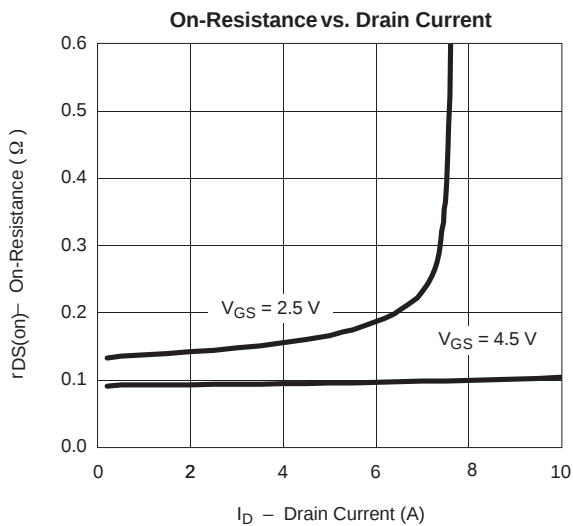
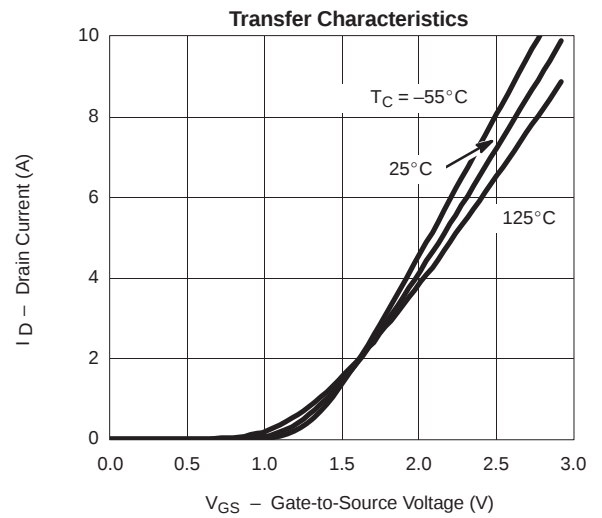
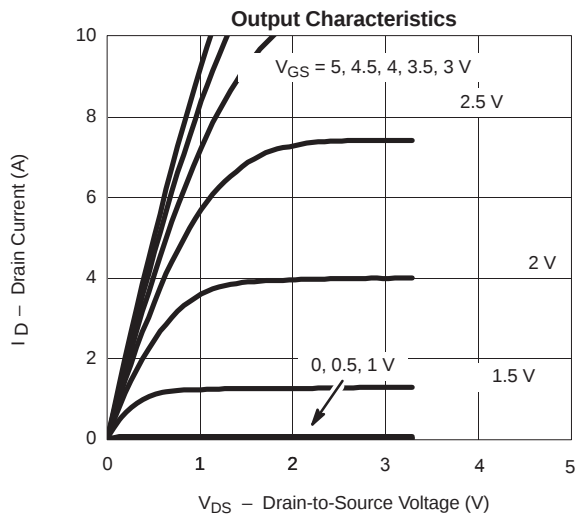
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = -250μA	-0.4	-0.7	-1.0	
Gate-source leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} =-4.5V, I _D =-3.0A		55	70	mΩ
		V _{GS} =-2.5V, I _D =-2.0A		70	100	
Forward transconductance ^a	g _{fs}	V _{DS} =-5V, I _D =-2.8A		5		S
Dynamic ^b						
Input capacitance	C _{iss}	V _{DS} =-10V,V _{GS} =0V,f =1MHz		841		pF
Output capacitance	C _{oss}			75		
Reverse transfer capacitance	C _{rss}			47		
Total gate charge	Q _g	V _{DS} =-10V,V _{GS} =-4.5V,I _D =-3A		5.5	10	nC
		V _{DS} =-10V,V _{GS} =-2.5V,I _D =-3A		3.3	6	
Gate-source charge	Q _{gs}			0.7		
Gate-drain charge	Q _{gd}			1.3		
Gate resistance	R _g	f =1MHz		6.0		Ω
Turn-on delay time	t _{d(on)}	V _{DD} =-10V, R _L =10Ω, I _D =-1A, V _{GEN} =-4.5V,R _g =1Ω		11	20	ns
Rise time	t _r			35	60	
Turn-off delay time	t _{d(off)}			30	50	
Fall time	t _f			10	20	
Drain-source body diode characteristics						
Continuous source-drain diode current	I _S	T _C =25°C			-3	A
Pulse diode forward current ^a	I _{SM}				-10	
Body diode voltage	V _{SD}	I _S =-0.7A		-0.8	-1.2	V

Notes :

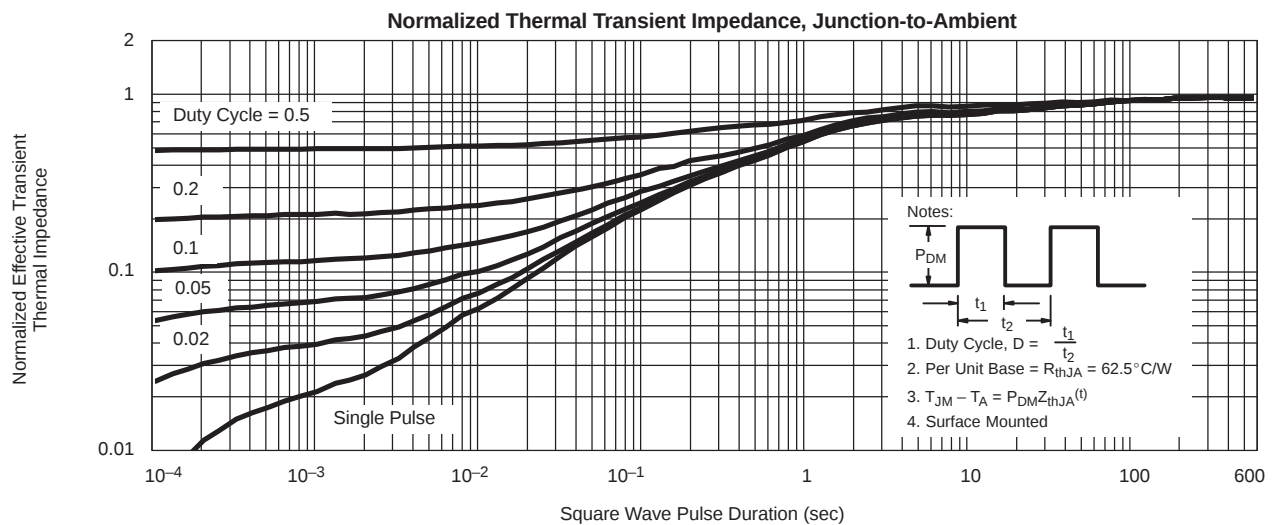
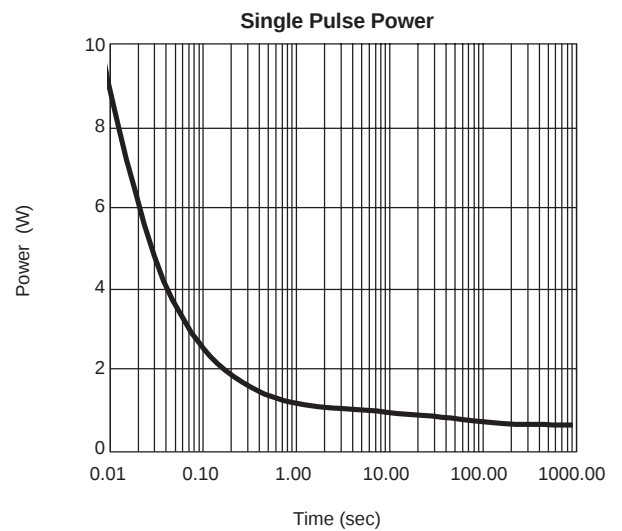
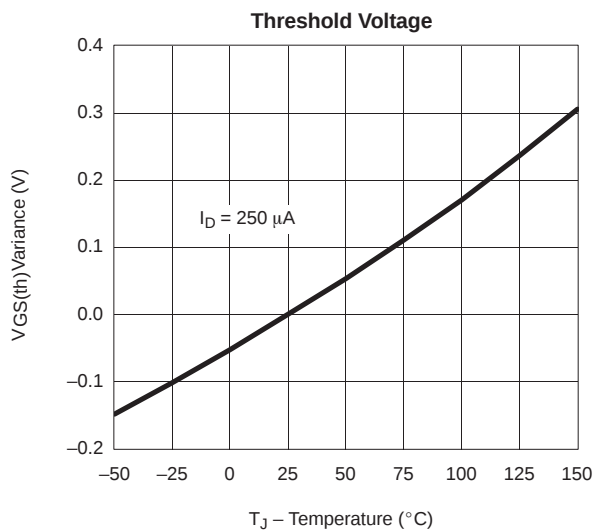
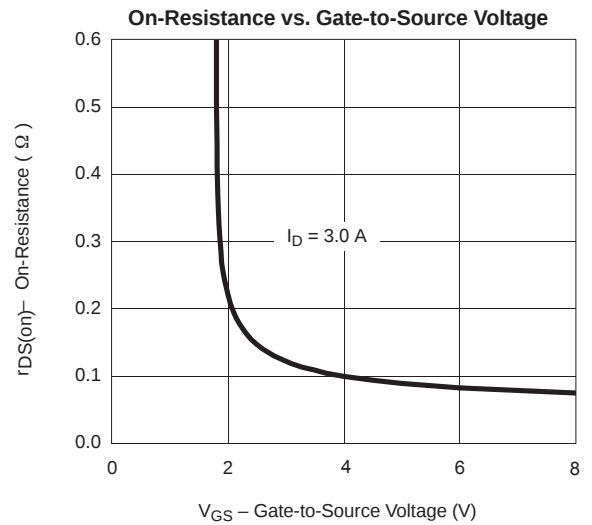
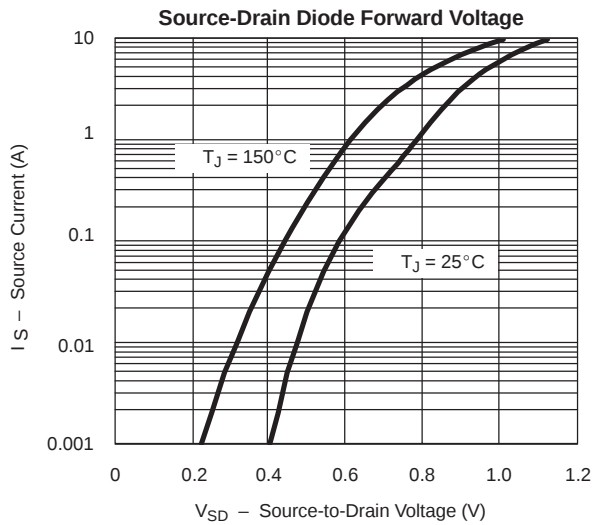
a. Pulse Test : Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.

b. Guaranteed by design, not subject to production testing.

TYPICAL TRANSIENT CHARACTERISTICS



TYPICAL TRANSIENT CHARACTERISTICS



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