

Description:

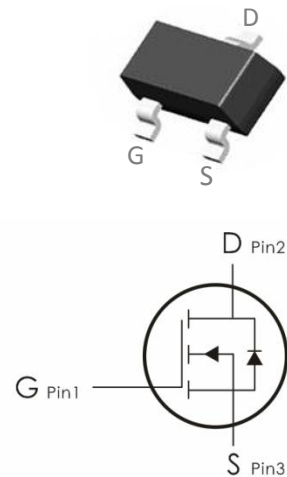
This N-Channel MOSFET uses advanced trench technology and

design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=20V, I_D=2.3A, R_{DS(on)} < 65m\Omega @ V_{GS}=4.5V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DO2302H-Q	A2sHB	SOT-23	3000 pcs/Reel

Absolute Maximum Ratings: ($T_A=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current	2.3	A
I_{DM}	Pulsed Drain Current	11	
P_D	Power Dissipation	1.15	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	40	$^\circ C/W$

Electrical Characteristics: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	20	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =20V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 12V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	0.5	0.67	1.2	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =4.5V, I _D =2A	---	53	65	m Ω
		V _{GS} =2.5V, I _D =1A	---	76	100	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	---	139	---	pF
C _{oss}	Output Capacitance		---	14	--	
C _{rss}	Reverse Transfer Capacitance		---	15	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =10V, I _D =2A, R _{ENG} =3 Ω ,V _{GS} =4.5V	---	7	---	ns
t _r	Rise Time		---	8	---	ns
t _{d(off)}	Turn-Off Delay Time		---	23	---	ns
t _f	Fall Time		---	5	---	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =10V, I _D =2A	---	1.47	---	nc
Q _{gs}	Gate-Source Charge		---	0.25	---	nc
Q _{gd}	Gate-Drain “Miller” Charge		---	0.76	---	nc
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =2A	---	0.9	1.2	V
I _S	Continuous Drain Curren	VD=VG=0V	---	---	2.3	A
I _{SM}	Pulsed Drain Current		---	---	11	A

Typical Characteristics: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

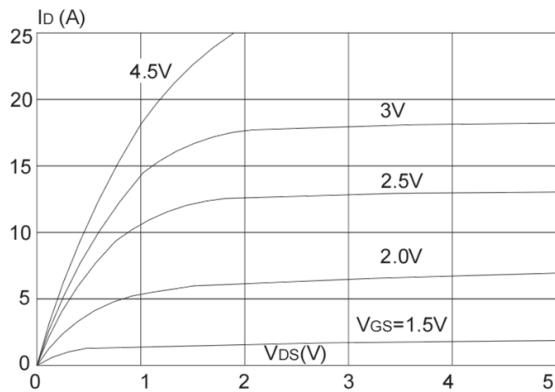


Fig1. Output Characteristics

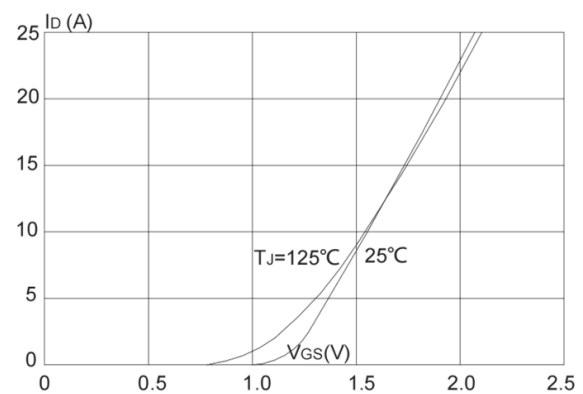


Fig2. Typical Transfer Characteristics

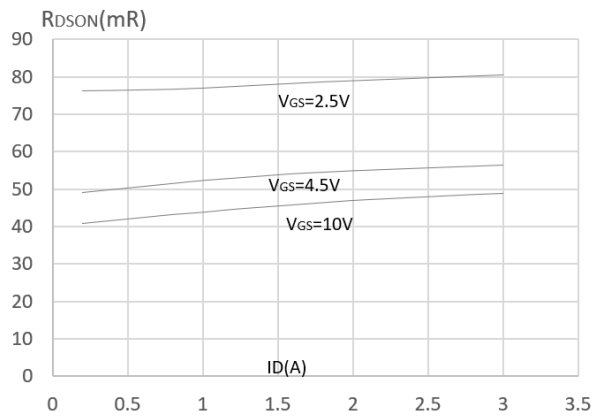


Fig3. On-resistance vs. Drain Current

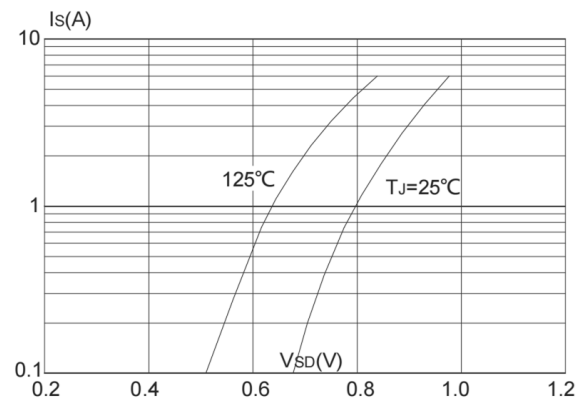


Fig4. Body Diode Characteristics

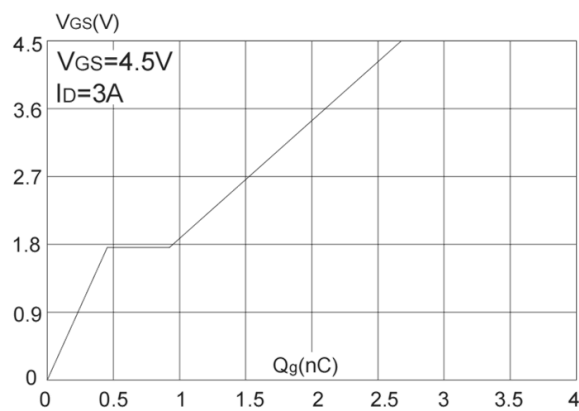


Fig5. Gate Charge Characteristics

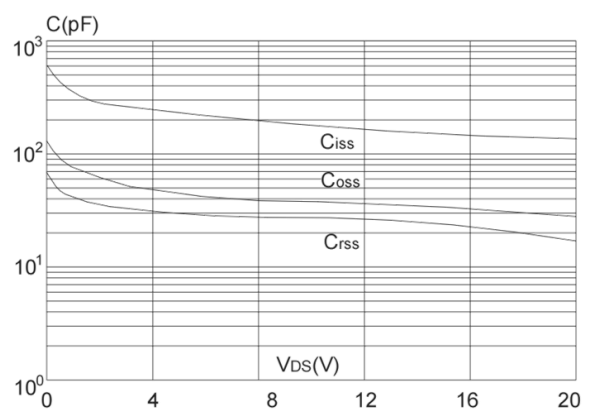
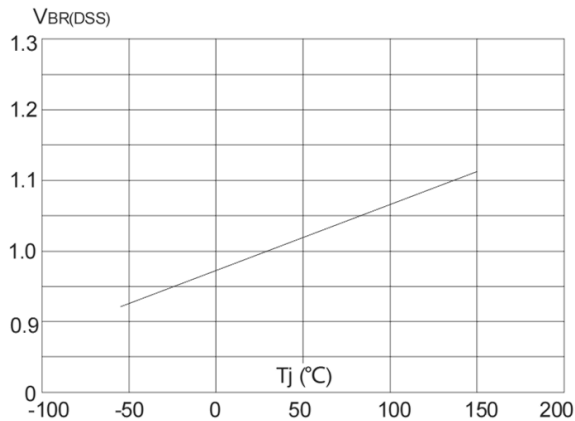
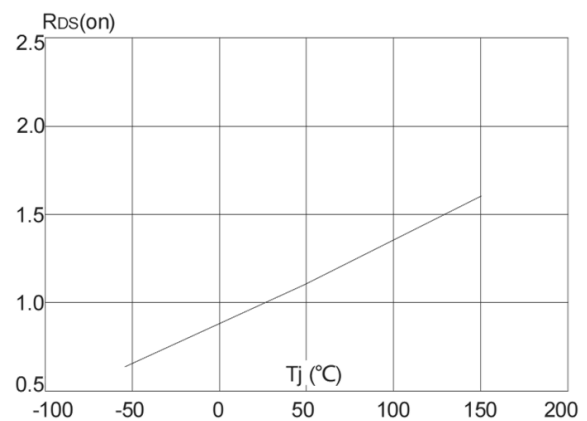


Fig6. Capacitance Characteristics



**Fig7. Normalized Breakdown Voltage vs .
Junction Temperature**



**Fig8. Normalized on Resistance vs .
Junction Temperature**

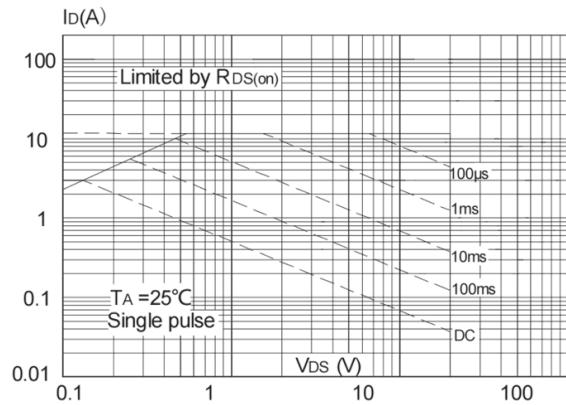
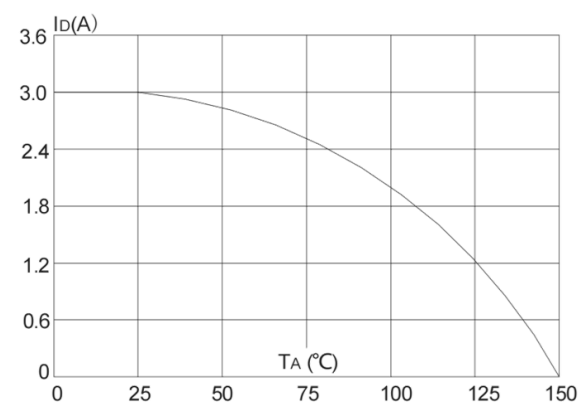
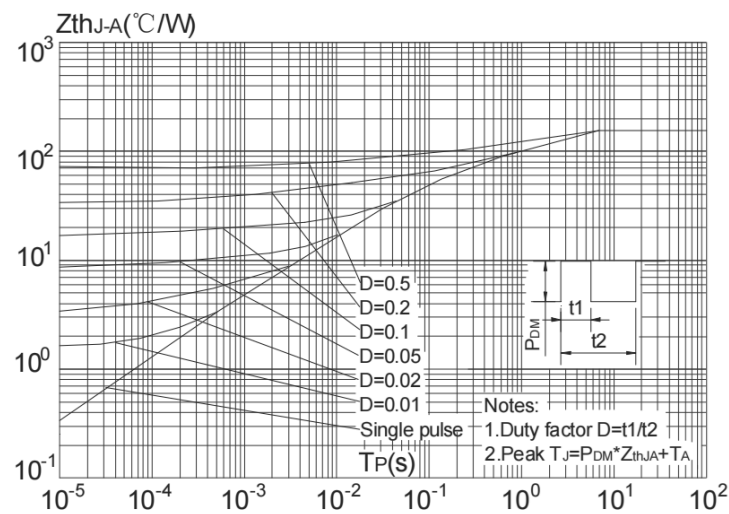


Fig9. Maximum Safe Operating Area

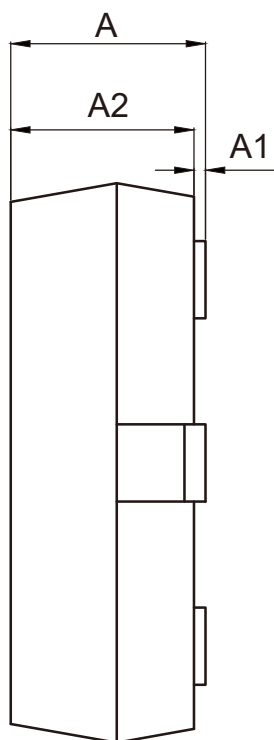
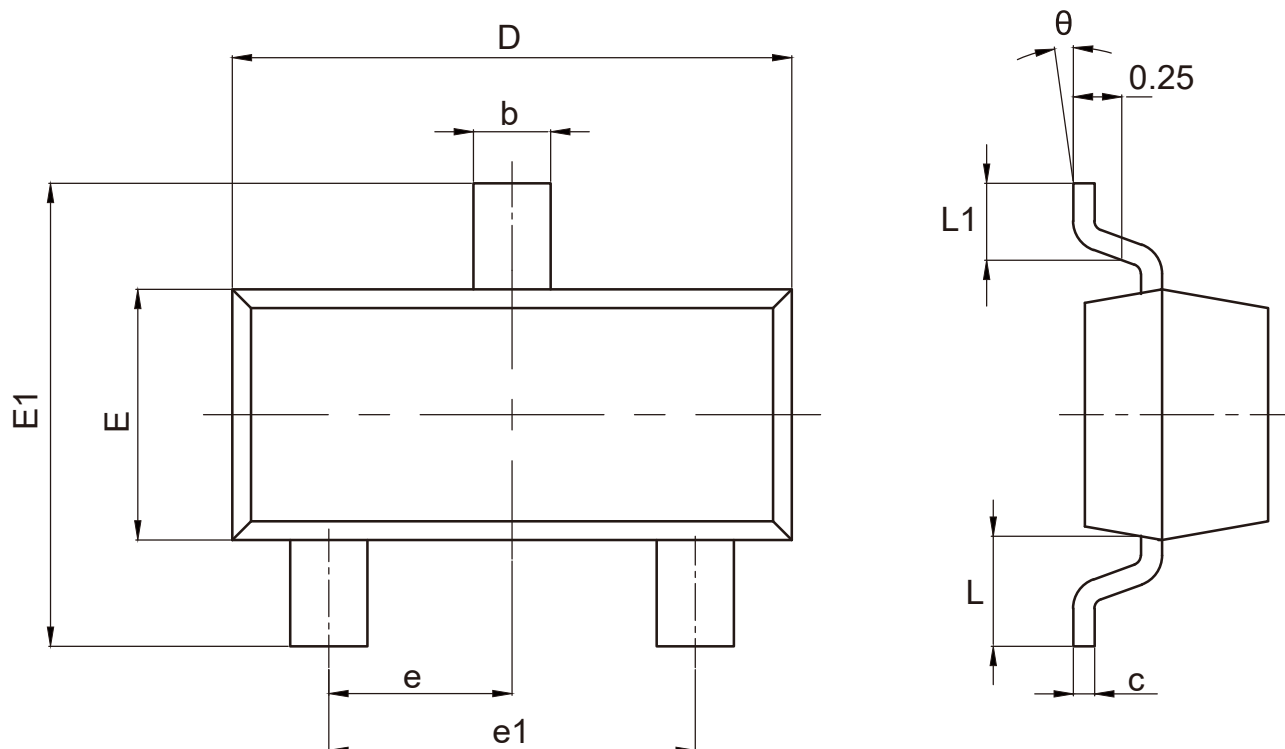


**Fig10. Maximum Continuous Drain Current vs.
Case Temperature**



**Fig11. Maximum Continuous Drain Current vs.
Case Temperature**

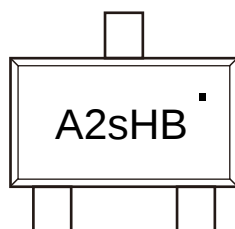
SOT-23 Package Outline Data



COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	0.900	--	1.150
A1	0.000	--	0.100
A2	0.900	--	1.050
c	0.100	--	0.200
b	0.300	0.400	0.500
D	2.800	2.900	3.000
E	1.200	--	1.400
E1	2.250	--	2.550
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.550REF		
L1	0.300	0.400	0.500
θ	0°	--	8°

Unit:mm

Marking Information:



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