

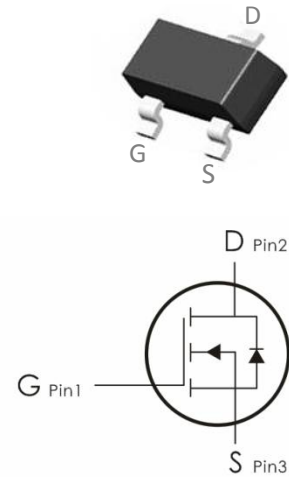
SDescription:

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) $V_{DS}=20V, I_D=2.3A, R_{DS(ON)} < 600m\Omega @ V_{GS}=4.5V$ (Typ: $47m\Omega$)
- 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.
- 6) MSL3



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DO2302G-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	± 10	V
I_D	Continuous Drain Current ¹	2.3	A
	Continuous Drain Current- $T_A=100^\circ C$ ¹	1.6	
I_{DM}	Pulsed Drain Current ²	9.2	
P_D	Power Dissipation	0.6	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	200	$^\circ C/W$

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} =± 10V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	Gate-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	0.4	0.7	1	V
R _{DS(ON)}	Drain-Source On Resistance ³	V _{GS} =4.5V, I _D =2A	---	47	60	m Ω
		V _{GS} =2.5V, I _D =1.5A	---	57	70	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	---	140	---	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	---	1.5	---	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	---	---	1.2	V
I _S	Continuous Drain Current	V _D =V _G =0V	---	---	1.9	A
I _{SM}	Pulsed Drain Current		---	---	7.6	A

Notes:

1. Computed continuous current assumes the condition of $T_{j,Max}$ while the actual continuous current depends on the thermal & electro-mechanical application board design
2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

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

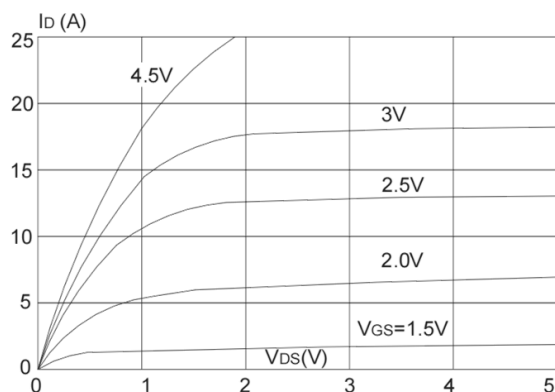


Fig1. Output Characteristics

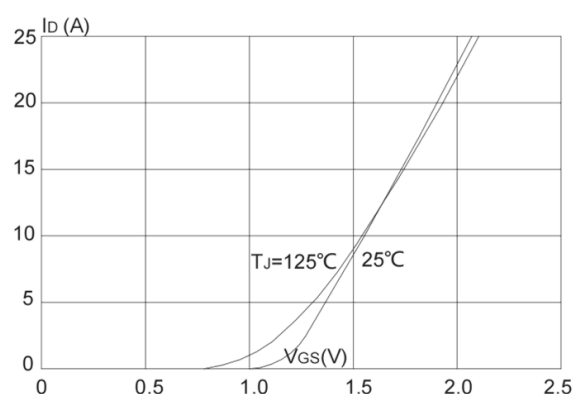


Fig2. Typical Transfer Characteristics

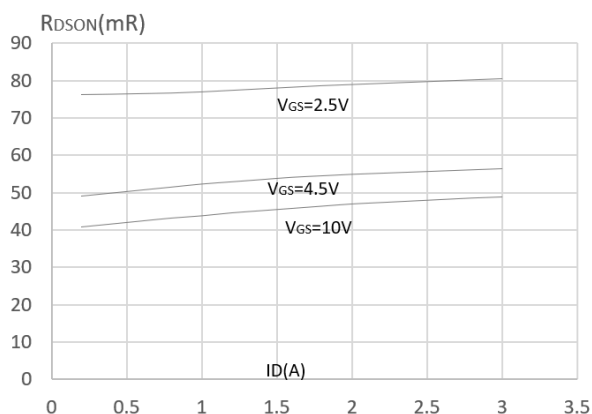


Fig3. On-resistance vs. Drain Current

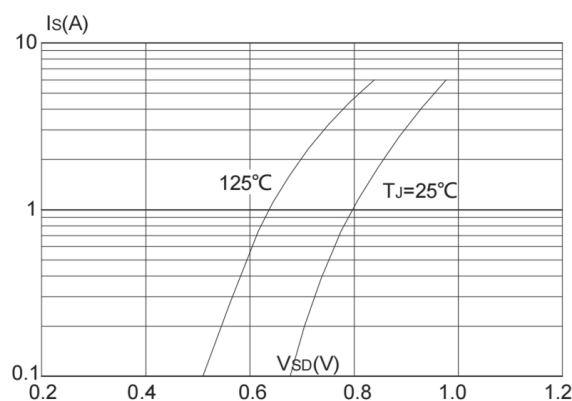


Fig4. Body Diode Characteristics

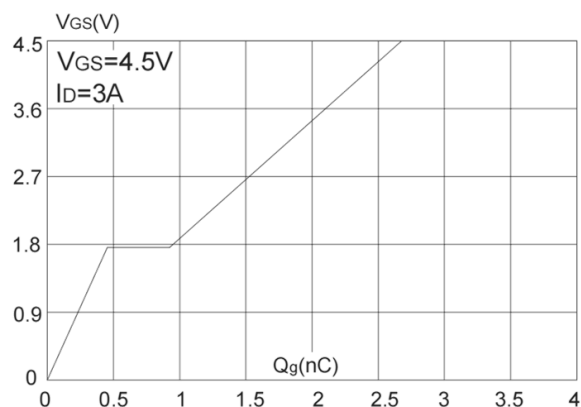


Fig5. Gate Charge Characteristics

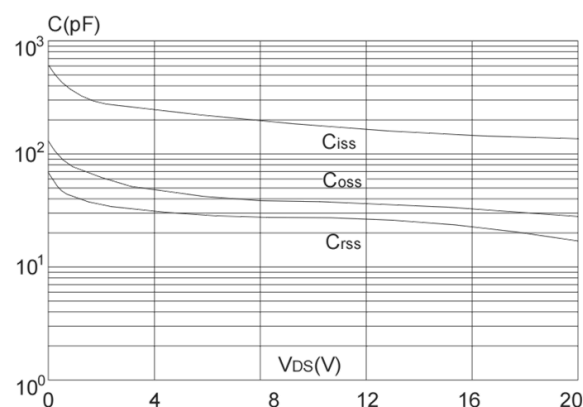


Fig6. Capacitance Characteristics

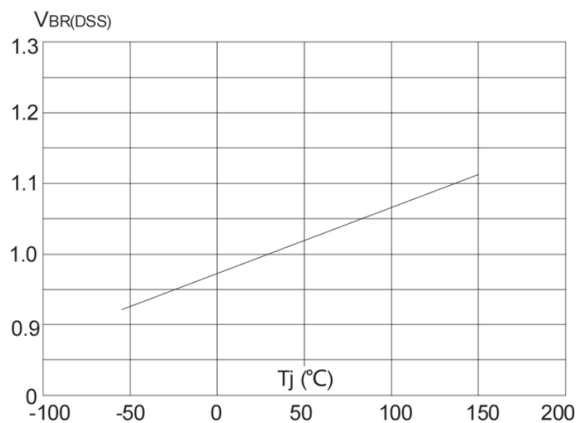


Fig7. Normalized Breakdown Voltage vs .
Junction Temperature

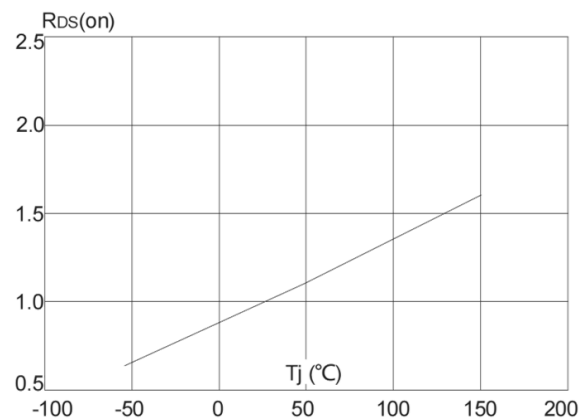


Fig8. Normalized on Resistance vs .
Junction Temperature

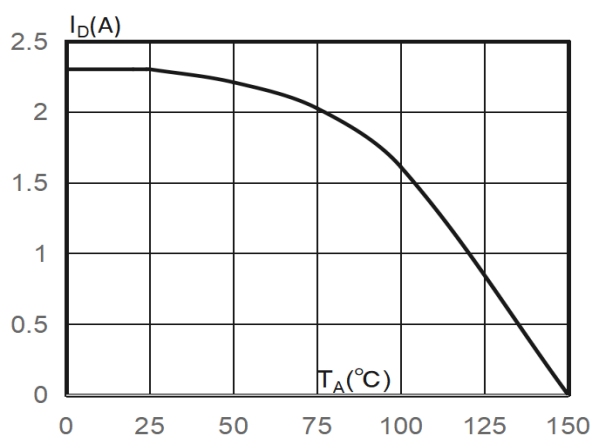


Fig9. Maximum Continuous Drain Current vs.
Case Temperature

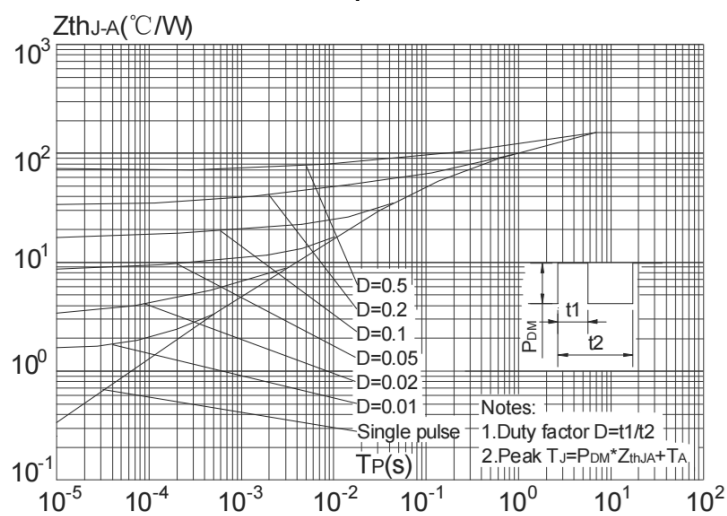
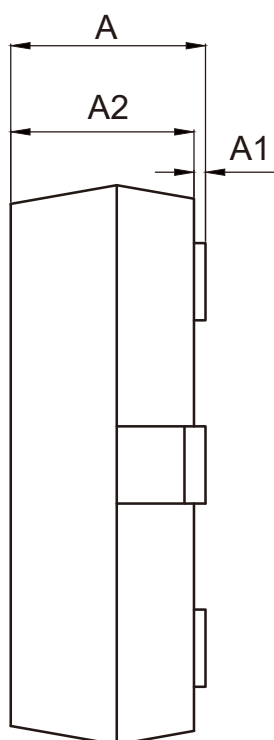
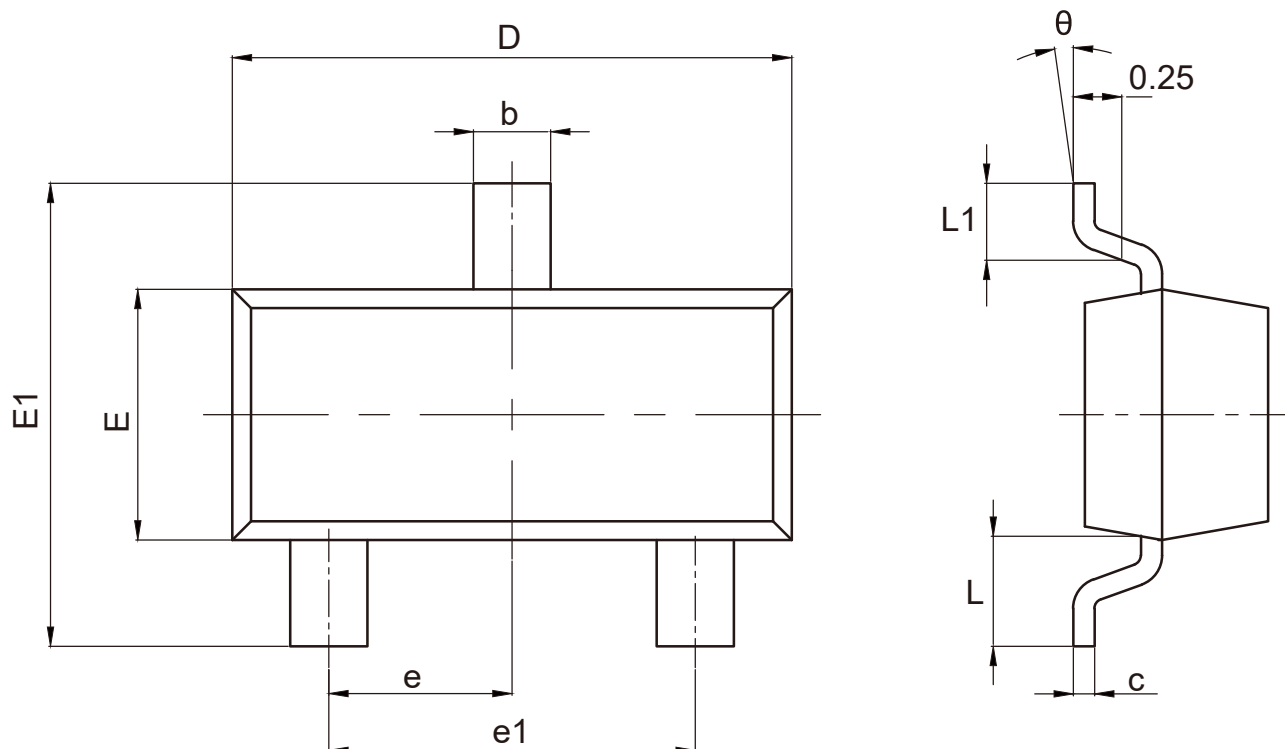


Fig10. Maximum Continuous Drain Current vs.
Case Temperature

SOT-23 Package Outline Data

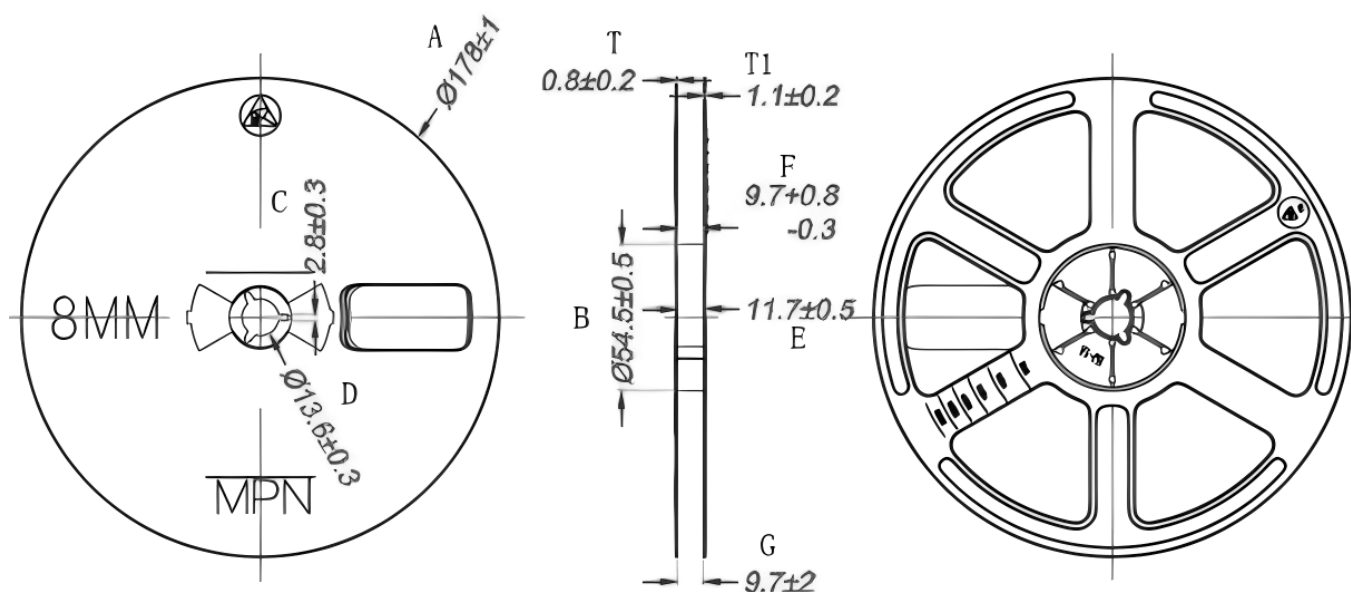


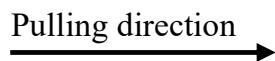
COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	0.900	--	1.150
A1	0.000	--	0.100
A2	0.900	--	1.050
c	0.100	--	0.200
b	0.300	0.400	0.500
D	2.800	2.900	3.000
E	1.200	--	1.400
E1	2.250	--	2.550
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.550REF		
L1	0.300	0.400	0.500
θ	0°	--	8°

Unit:mm

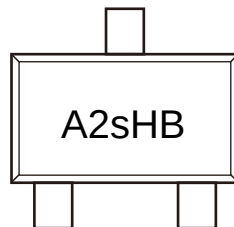
Tape & Reel Information

Dimensions in mm



Pulling direction 

Marking Information:



Previous Version

Version	Date	Subjects (major changes since last revision)
1.1	2026-02-08	Release of final version

Attention :

- Information furnished in this document is believed to be accurate and reliable. However, Shenzhen Doingter Semiconductor Co.,Ltd. assumes no responsibility for the consequences of use without consideration for such information nor use beyond it.
 - Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Shenzhen Doingter complies with the agreement. Products and information provided in this document have no infringement of patents.
 - Shenzhen Doingter assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information. This document supersedes and replaces all information previously supplied.
-  Is a registered trademark of Shenzhen Doingter Semiconductor Co., Ltd. Copyright © 2013 Shenzhen Doingter Semiconductor Co.,Ltd. Printed All rights reserved.