

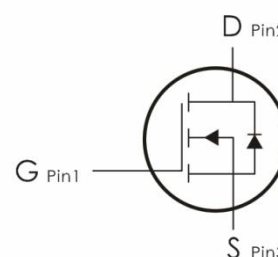
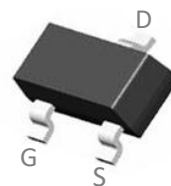
Description:

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) $V_{DS}=60V, I_D=3.2A, R_{DS(on)} < 100m\Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DO2310DA	2310D	SOT-23-3	3000pcs/Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_A=25^\circ\text{C}$	3.2	A
	Continuous Drain Current- $T_A=100^\circ\text{C}$	2.2	
I_{DM}	Pulse Drain Current Tested ¹	14	A
P_D	Power Dissipation- $T_A=25^\circ\text{C}$	1.7	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	73.5	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	60	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =60V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	Gate -Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	1	1.5	2.5	V
R _{DS(on)}	Drain-Source on-Resistance ²	V _{GS} =10V, I _D =3A	---	86	100	m Ω
		V _{GS} =4.5V, I _D =2A	---	94	120	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	325	---	pF
C _{oss}	Output Capacitance		---	85	---	
C _{rss}	Reverse Transfer Capacitance		---	15	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =30V, V _{GS} =10V, I _D =2A, R _{GEN} =3 Ω	---	13	---	ns
t _r	Rise Time		---	51	---	ns
t _{d(off)}	Turn-Off Delay Time		---	19	---	ns
t _f	Fall Time		---	12	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =30V, I _D =3A	---	5.1	---	nC
Q _{gs}	Gate-Source Charge		---	1.3	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	1.7	---	nC
Drain-Source Diode Characteristics						
I _S	Continuous Source Current	V _D =V _G =0V	---	---	3.2	A
I _{SM}	Pulsed Source Current	V _D =V _G =0V	---	---	14	A
V _{SD}	Forward Voltage	V _{GS} =0V , I _S =3A	---	---	1.2	V

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$

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

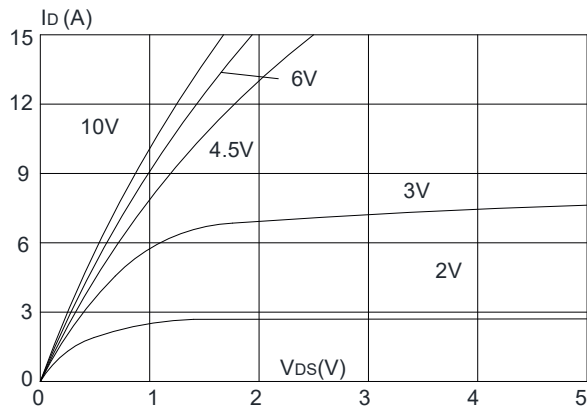


Figure 1: Output Characteristics

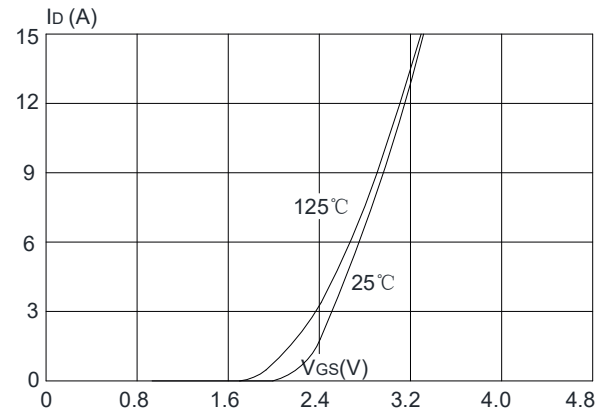


Figure 2: Typical Transfer Characteristics

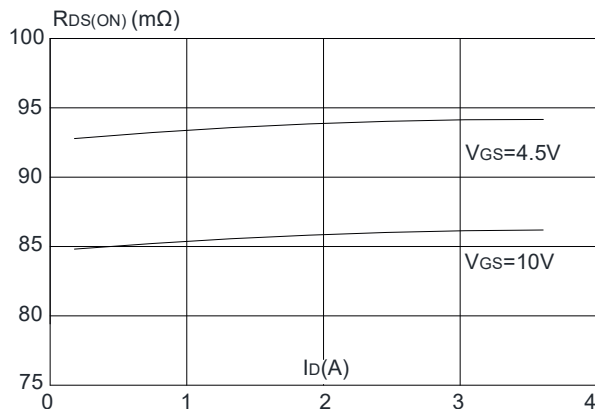


Figure 3: On-resistance vs. Drain Current

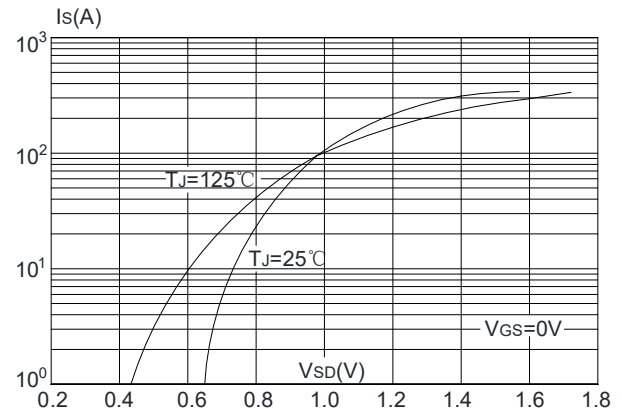


Figure 4: Body Diode Characteristics

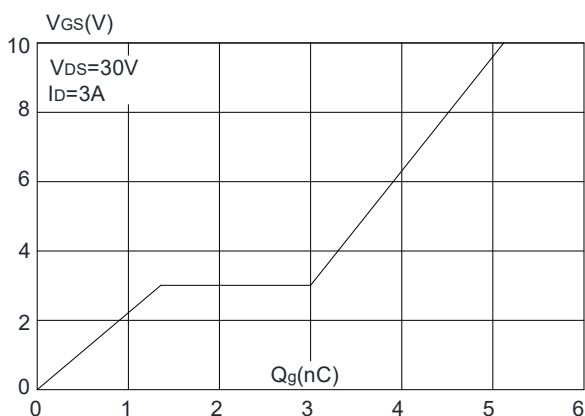


Figure 5: Gate Charge Characteristics

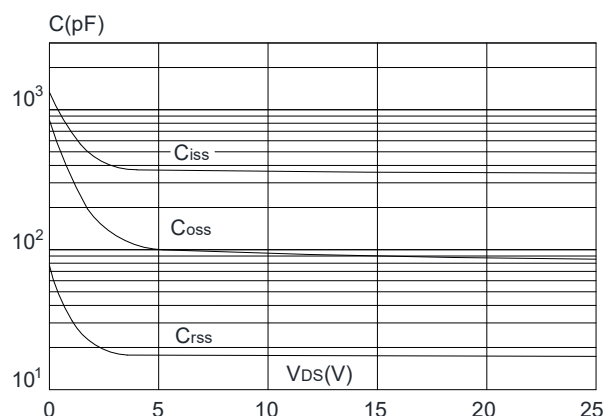


Figure 6: Capacitance Characteristics

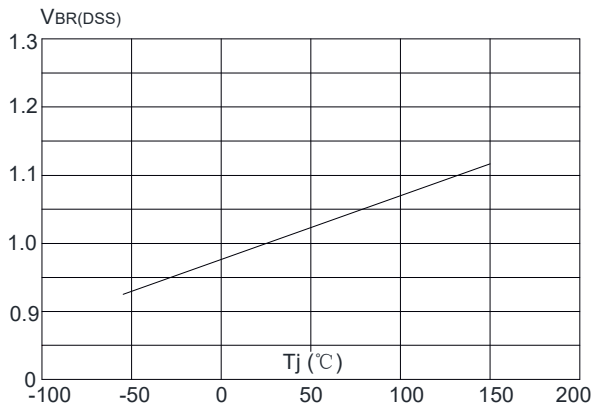


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

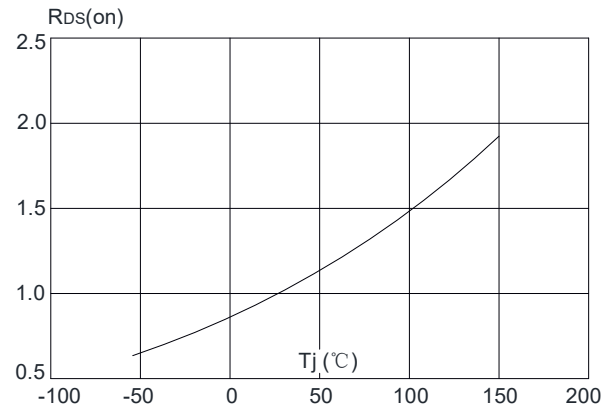


Figure 8: Normalized on Resistance vs. Junction Temperature

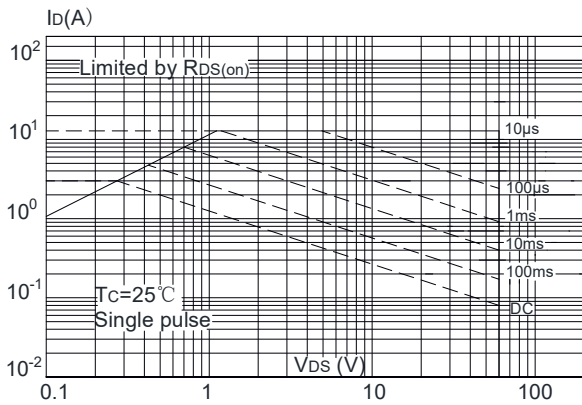


Figure 9: Maximum Safe Operating Area

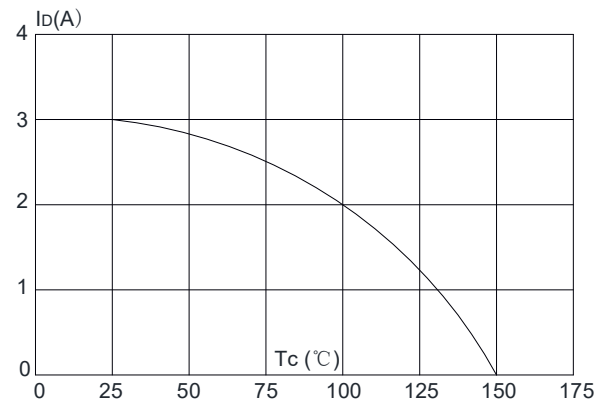


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

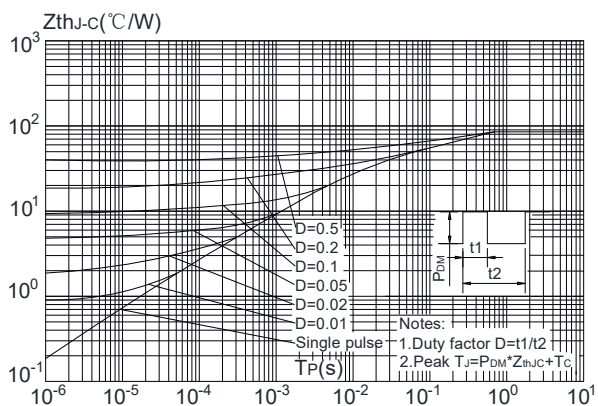
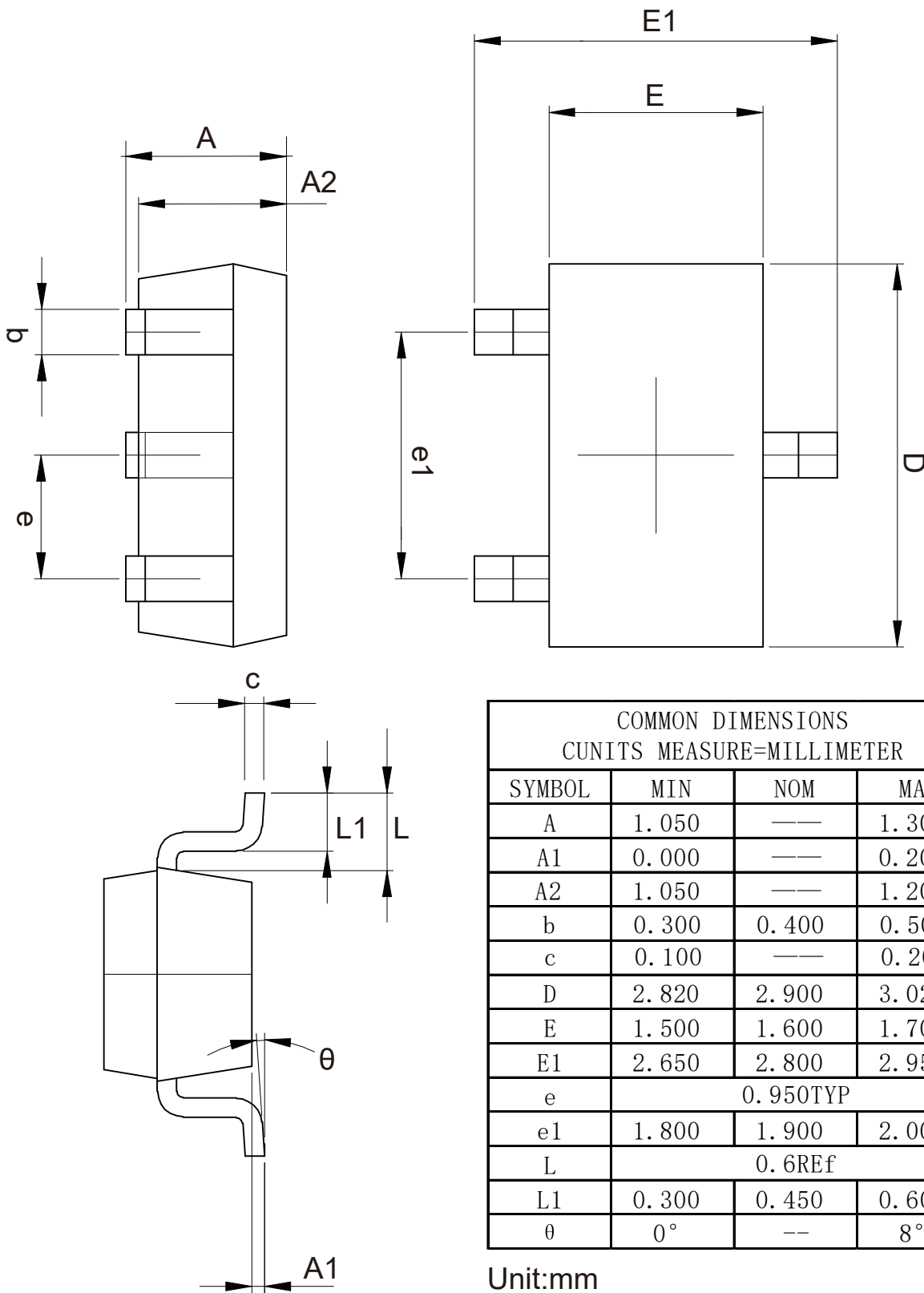
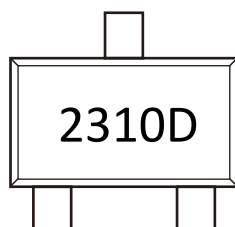


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

SOT-23-3 Package Outline Data



Marking Information:



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2024-06-10	Release of final version

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