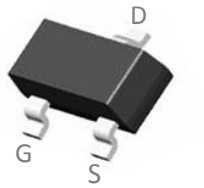
Description：

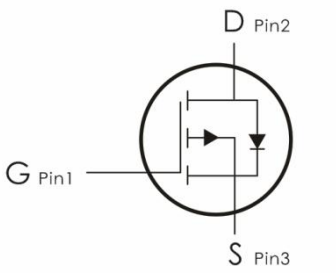
This P-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features：

1) V_{DS}=-15V,I_D=-5.5A,$R_{DS(ON)}$< 26mΩ @V_{GS}=-10V（Typ：20mΩ）
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity 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
DO2305A-C	2305A-C	SOT-23	3000 pcs/Reel

Absolute Maximum Ratings： (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-15	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Continuous Drain Current-T_A=25℃	-5.5	A
	Continuous Drain Current-T_A=70℃	-3	
I_{DM}	Pulsed Drain Current[1]	-16	
P_D	Power Dissipation	1.85	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient[2]	67.5	℃/W

Electrical Characteristics: (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	-15	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-15V	---	---	-1	μA
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=250μA	-0.4	-0.65	-1	V
$R_{DS(ON)}$	Drain-Source On Resistance[3]	V_{GS}=-4.5V,I_D=-4A	---	20	26	mΩ
		V_{GS}=-2.5V,I_D=-3A	---	25	33	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-4V, V_{GS}=0V, f=1MHz	---	760	---	pF
C_{oss}	Output Capacitance		---	160	---	
C_{rss}	Reverse Transfer Capacitance		---	150	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-4V, I_D=-3.3A, R_{ENG}=1Ω,V_{GS}=-4.5V	---	13.5	---	ns
t_r	Rise Time		---	34	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	33	---	ns
t_f	Fall Time		---	9	---	ns
Q_g	Total Gate Charge	V_{GS}=-4.5V, V_{DS}=-4V, I_D=-4.1A	---	8.2	---	nc
Q_{gs}	Gate-Source Charge		---	1.1	---	nc
Q_{gd}	Gate-Drain “Miller” Charge		---	1.5	---	nc
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=-4.1A	---	---	-1.2	V
I_S	Continuous Drain Curren	VD=VG=0V	---	---	-4.1	A
I_{SM}	Pulsed Drain Current		---	---	-16.4	A
Trr	Reverse Recovery Time	I_F=-4.1A,T_J=25℃ dI/dt=100A/us	---	20	---	ns
Qrr	Reverse Recovery Charge		---	9	---	nc

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. $R_{\theta JA}$ is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

Test Circuit :

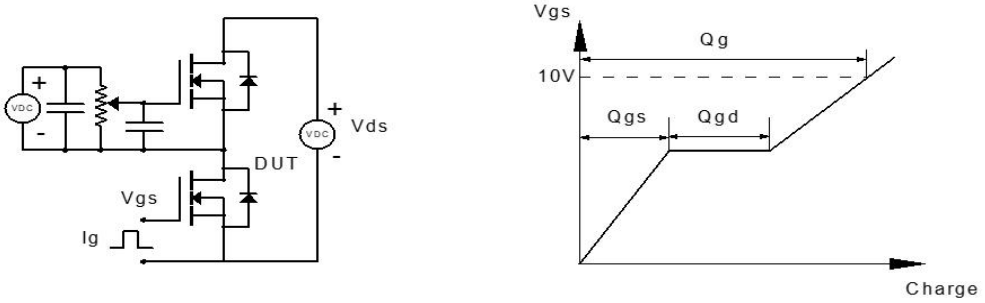


Figure 1: Gate Charge Test Circuit & Waveform

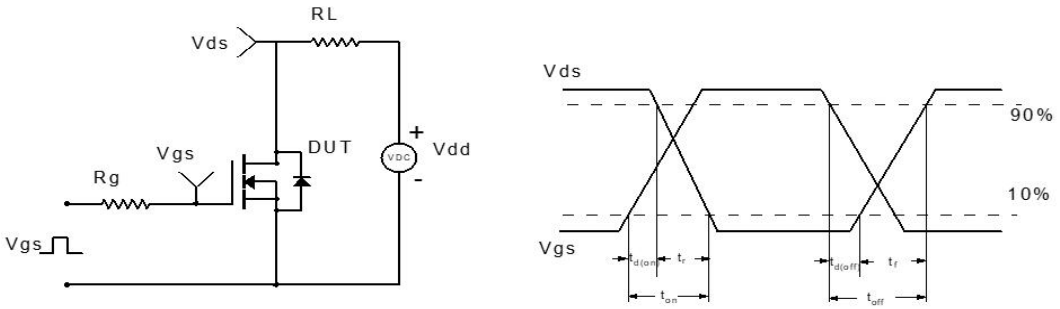


Figure 2: Resistive Switching Test Circuit & Waveform

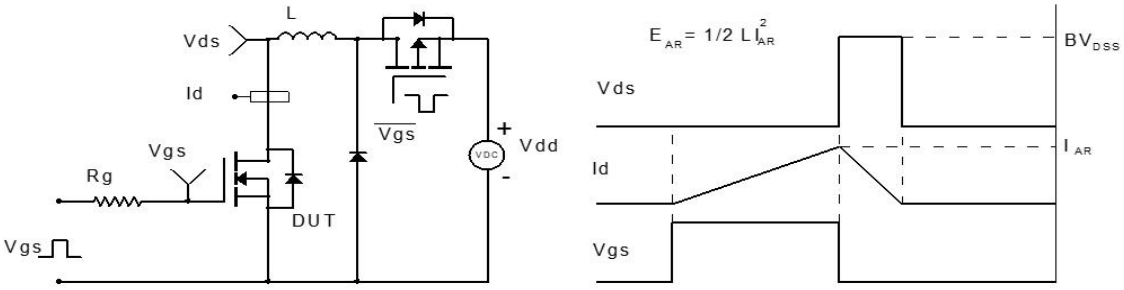


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

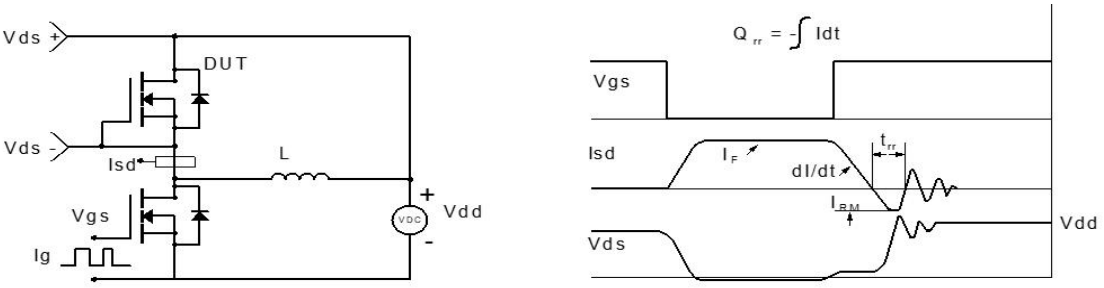
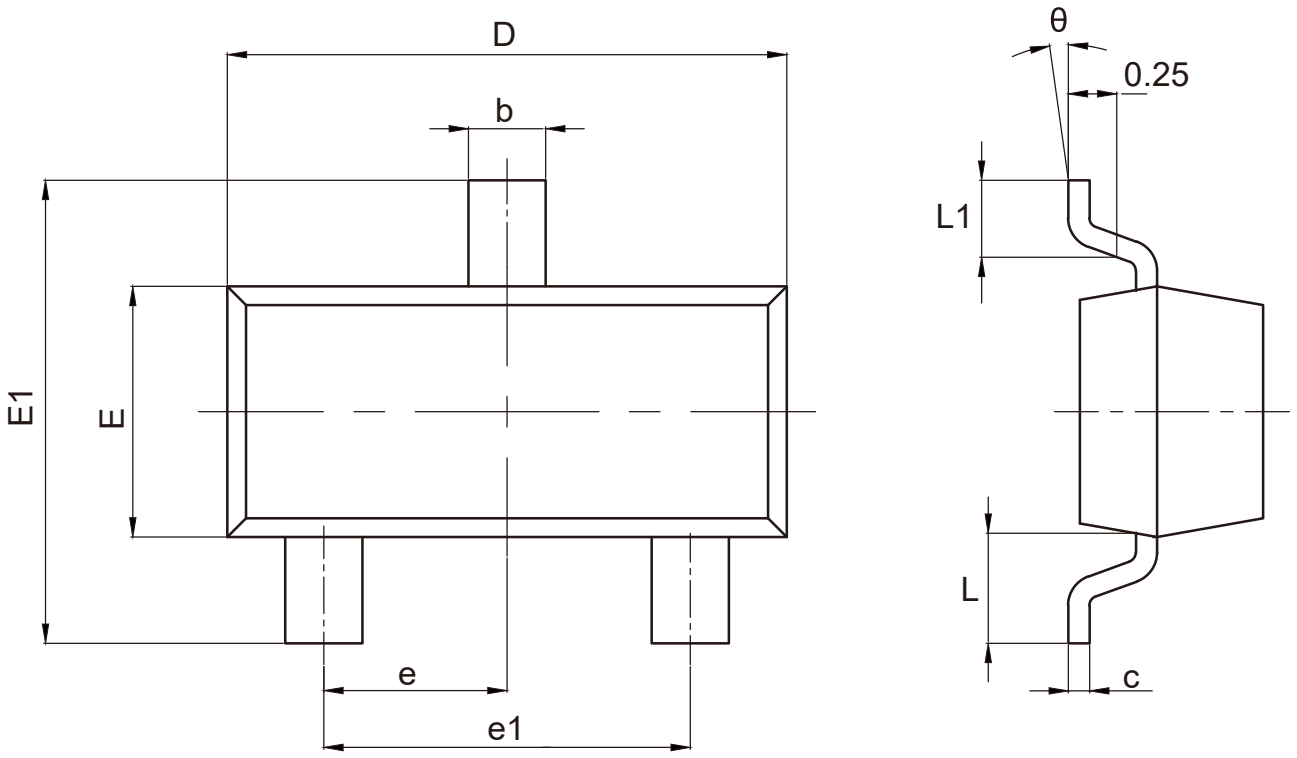
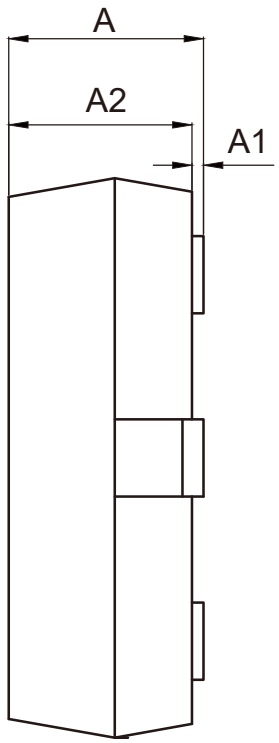


Figure 4: Diode Recovery Test Circuit & Waveform

SOT-23 Package Outline Data

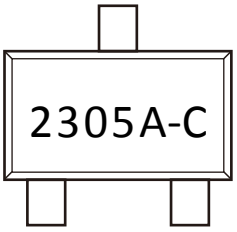




COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	0.900	--	1.150
A1	0.000	--	0.100
A2	0.900	--	1.050
c	0.100	--	0.200
b	0.300	0.400	0.500
D	2.800	2.900	3.000
E	1.200	--	1.400
E1	2.250	--	2.550
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.550REF		
L1	0.300	0.400	0.500
θ	0°	--	8°

Unit:mm

Marking Information：



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2024-04-02	Release of final version

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