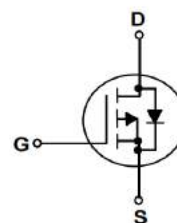
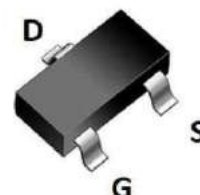


Features

- P-Channel
- Small Signal MOSFETs
- Trench LV MOSFET Technology

V_{DS}	-30	V
$R_{DS(on),TYP@ V_{GS}=-10V}$	40	m Ω
$R_{DS(on),TYP@ V_{GS}=-4.5V}$	46	m Ω
I_D	-4.2	A

SOT-23


Part ID	Package Type	Marking	Packing
ZT3401A	SOT-23	X1xG1x	3000pcs/Reel

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

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)			
V_{GS}	Gate-Source Voltage	± 12	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	-30	V
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
I_{DM}	Drain Current-Continuous@ Current-Pulsed (Note 1)	$T_C = 25^\circ\text{C}$ -25	A
Mounted on Large Heat Sink			
I_D	Drain Current-Continuous	$T_C = 25^\circ\text{C}$ -4.2	A
P_D	Maximum Power Dissipation	$T_C = 25^\circ\text{C}$ 1.2	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient (Note 2)	104	$^\circ\text{C/W}$

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J=25°C (unless otherwise stated)						
V(BR)DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V	--	--	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±12V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.5	-0.9	-1.3	V
R _{DS(on)}	Drain-Source On-State Resistance (Note 3)	V _{GS} =-10V, I _D =-4.2A	--	40	55	mΩ
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-4A	--	46	63	mΩ
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-2.5V, I _D =-1A	--	55	80	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note 4)						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	830	--	pF
C _{oss}	Output Capacitance		--	70	--	pF
C _{rss}	Reverse Transfer Capacitance		--	57	--	pF
R _g	Gate Resistance f=1MHz	f=1MHz	--	2.2	--	Ω
Q _g	Total Gate Charge	V _{DS} =-15V, I _D =-4.2A, V _{GS} =-4.5V	--	8	--	nC
Q _{gs}	Gate-Source Charge		--	1.8	--	nC
Q _{gd}	Gate-Drain Charge		--	2.7	--	nC
Switching Characteristics						
T _{d(on)}	Turn-on Delay Time	V _{DS} =-15V, I _D =4.2A, R _G =3Ω, V _{GS} =-10V	--	7	--	ns
T _r	Turn-on Rise Time		--	3	--	ns
T _{d(off)}	Turn-Off Delay Time		--	30	--	ns
T _f	Turn-Off Fall Time		--	12	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _{SD}	Source-Drain Current (Body Diode)		--	--	-4.2	A
V _{SD}	Forward on voltage (Note 3)	I _S =-4.2A, V _{GS} =0V	--	--	1.2	V

Notes:

1. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C
2. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

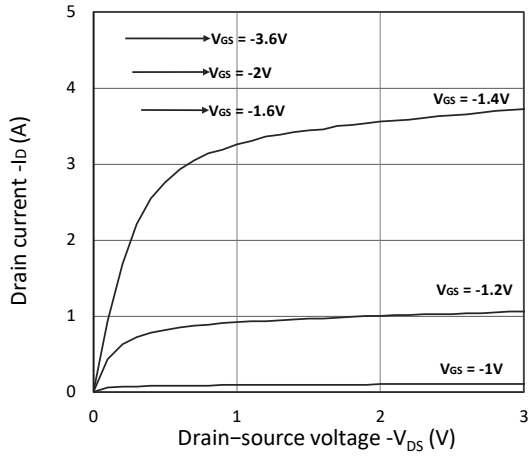


Figure 1. Output Characteristics

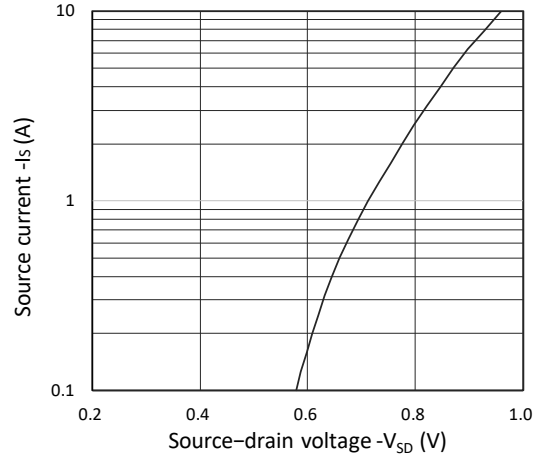


Figure 4. Forward Characteristics of Reverse

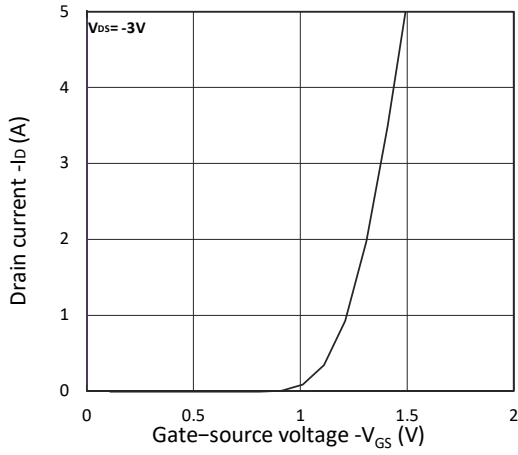


Figure 2. Transfer Characteristics

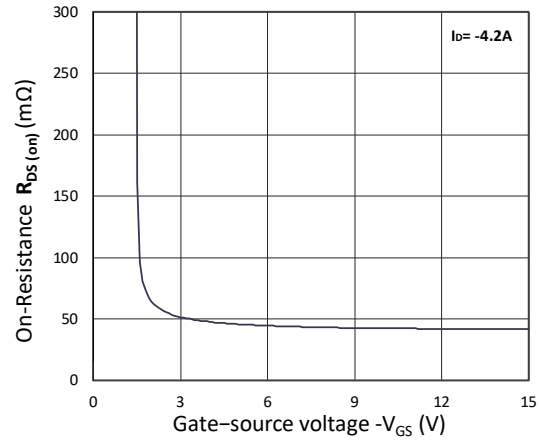


Figure 5. $R_{DS(on)}$ vs. V_{GS}

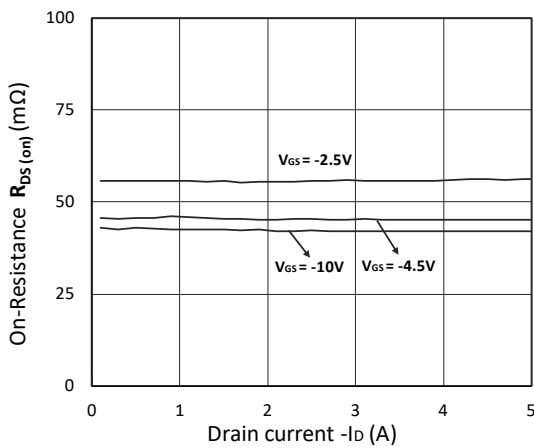


Figure 3. $R_{DS(on)}$ vs. I_D

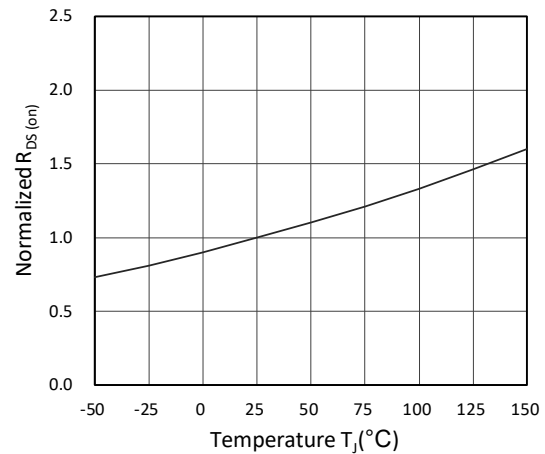


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

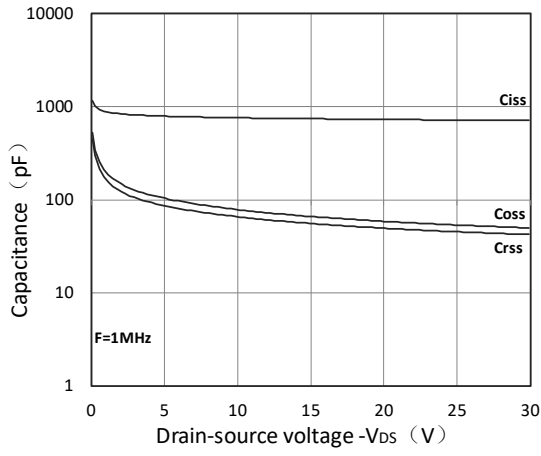


Figure 7. Capacitance Characteristics

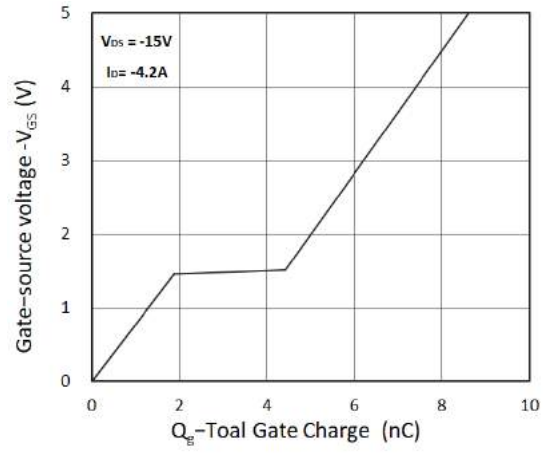
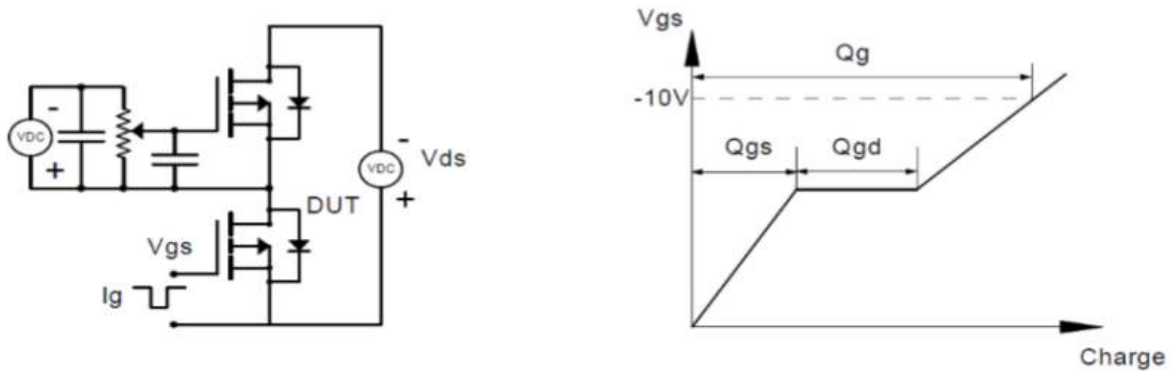


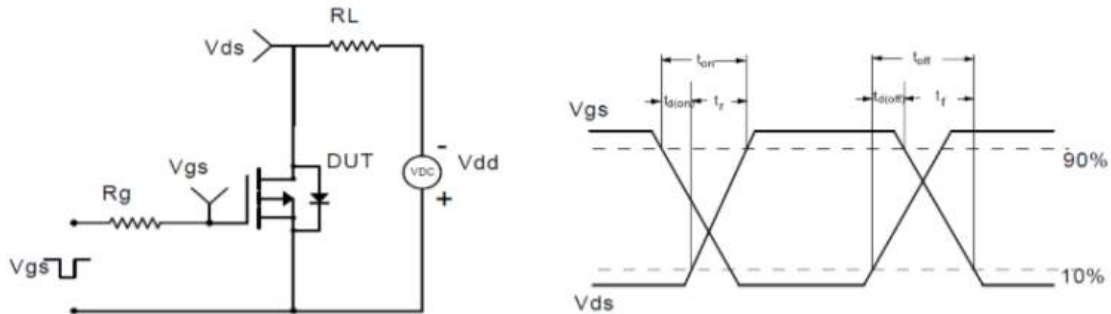
Figure 8. Gate Charge Characteristics

Test Circuit

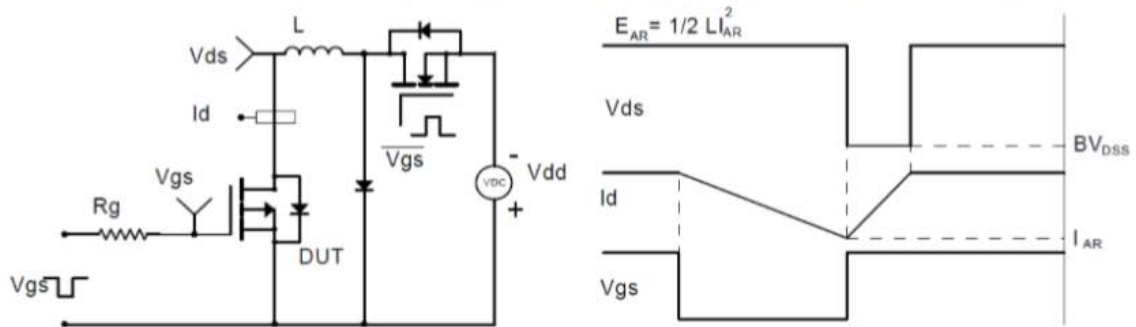
Gate Charge Test Circuit & Waveform



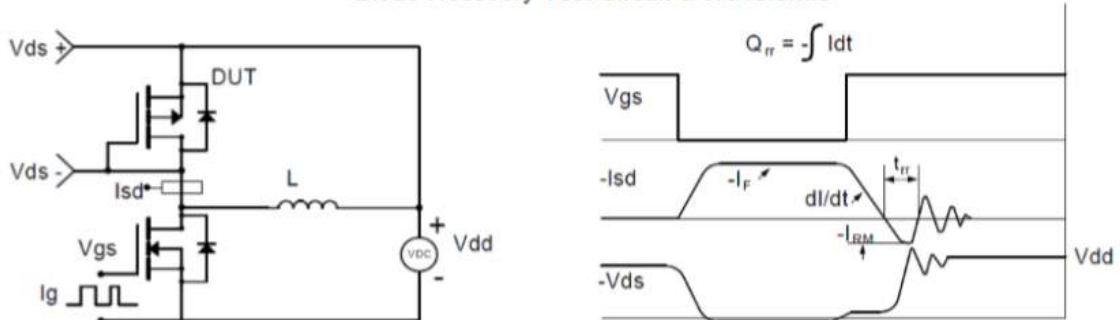
Resistive Switching Test Circuit & Waveforms



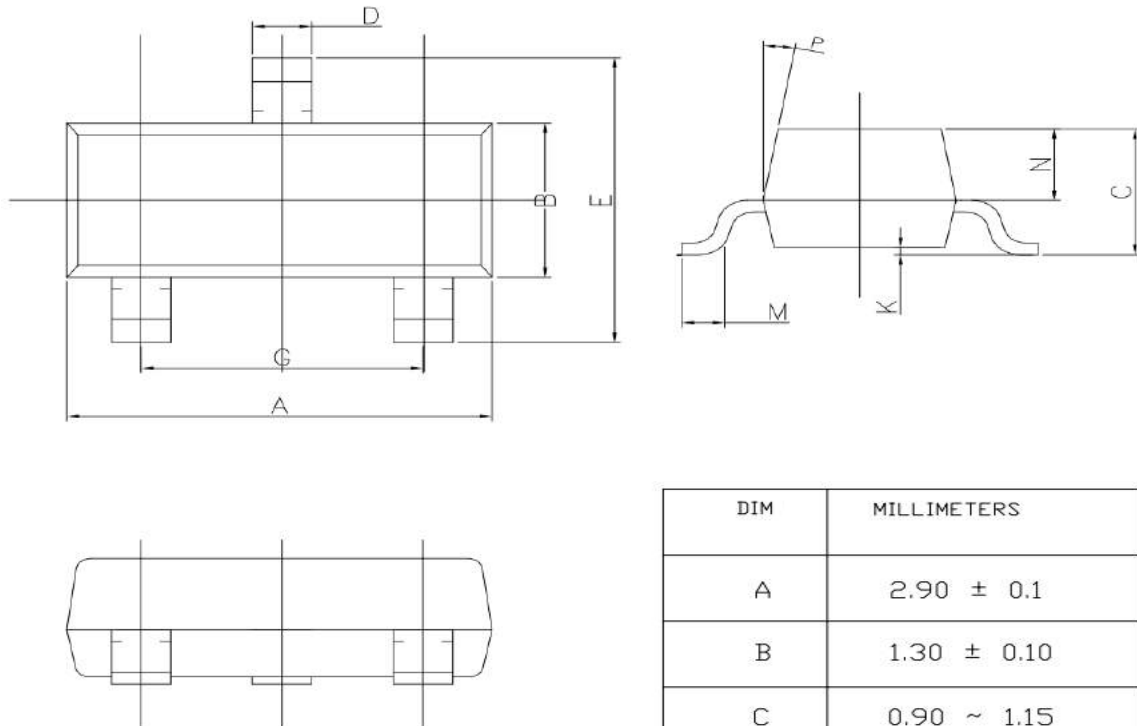
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



SOT-23 Package Information



DIM	MILLIMETERS
A	2.90 ± 0.1
B	1.30 ± 0.10
C	0.90 ~ 1.15
D	0.40 ± 0.1
E	2.40 ± 0.15
G	1.90 ± 0.10
K	0.00~0.10
M	0.30MIN
N	0.60 ± 0.10
P	10°TYP

Customer Service

Sales and Service:

zj@ztasemi.com