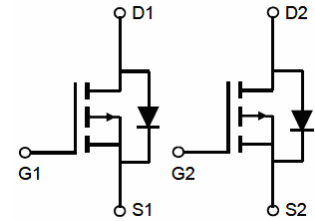
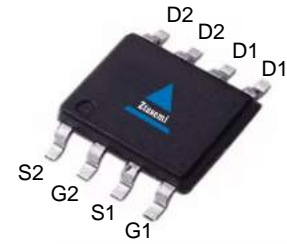


Features

- Dual P-Channel
- Advanced Trench Technology
- Excellent $R_{DS(on)}$ and Low Gate Charge
- Lead free product is acquired

V_{DS}	-30	V
$R_{DS(on),TYP@ V_{GS}=-10V}$	43	m Ω
$R_{DS(on),TYP@ V_{GS}=-4.5V}$	65	m Ω
I_D	-5.1	A

SOP-8


Part ID	Package Type	Marking	Packing
ZT4953	SOP-8	4953	4000pcs/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	± 20	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)	$T_C = 25^\circ\text{C}$ -20.4	A
Mounted on Large Heat Sink			
I_D	Drain Current-Continuous	$T_C = 25^\circ\text{C}$	-5.1 A
		$T_C = 100^\circ\text{C}$	-3.3 A
P_D	Maximum Power Dissipation	$T_C = 25^\circ\text{C}$	2.2 W
$R_{\theta JA}$	Thermal Resistance Junction-ambient		58 $^\circ\text{C/W}$

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} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.6	-2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-5A	--	43	55	mΩ
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-4A	--	65	90	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	568	--	pF
C _{oss}	Output Capacitance		--	96	--	pF
C _{rss}	Reverse Transfer Capacitance		--	73	--	pF
Q _g	Total Gate Charge	V _{DS} =-15V, I _D =-5.1A, V _{GS} =-10V	--	6.6	--	nC
Q _{gs}	Gate-Source Charge		--	0.9	--	nC
Q _{gd}	Gate-Drain Charge		--	1.3	--	nC
Switching Characteristics						
T _{d(on)}	Turn-on Delay Time	V _{DD} =-15V, I _D =-1A, R _G =2.5Ω, V _{GS} =-10V	--	14	--	ns
T _r	Turn-on Rise Time		--	60	--	ns
T _{d(off)}	Turn-Off Delay Time		--	18	--	ns
T _f	Turn-Off Fall Time		--	10	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _{SD}	Source-Drain Current (Body Diode)		--	--	-5.1	A
V _{SD}	Forward on voltage	I _S =-5.1A, V _{GS} =0V	--	--	1.2	V

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

Typical Performance Characteristics

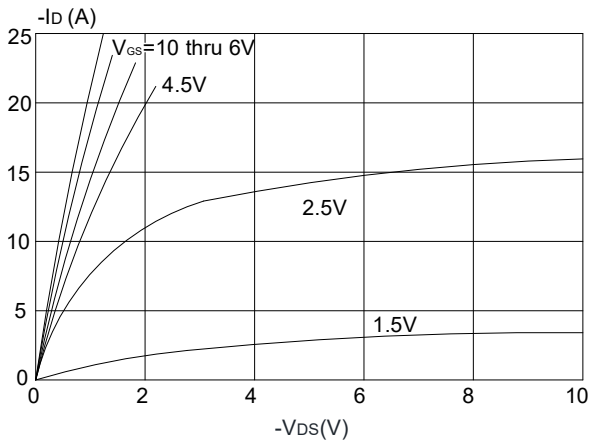


Figure 1: Output Characteristics

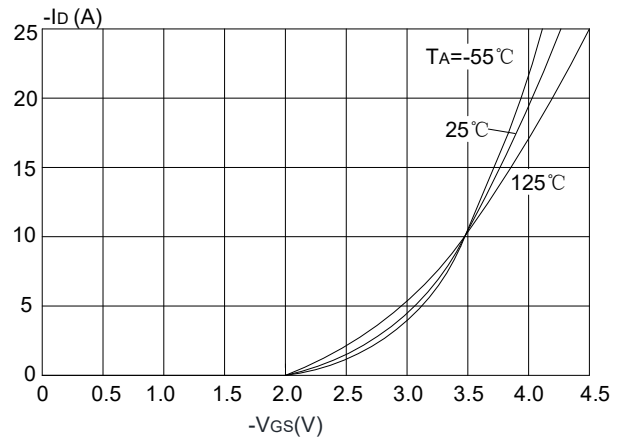


Figure 4: Typical Transfer Characteristics

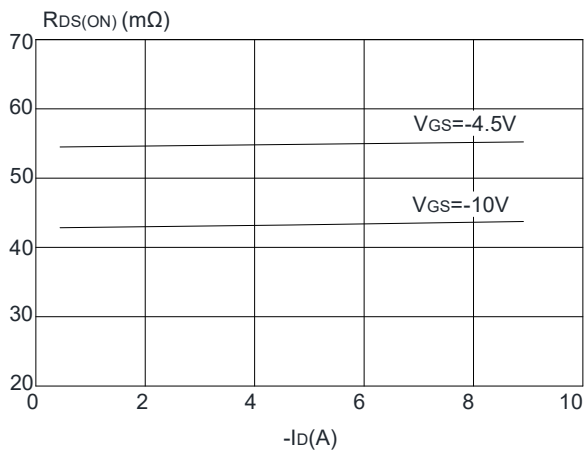


Figure 2: On-resistance vs. Drain Current

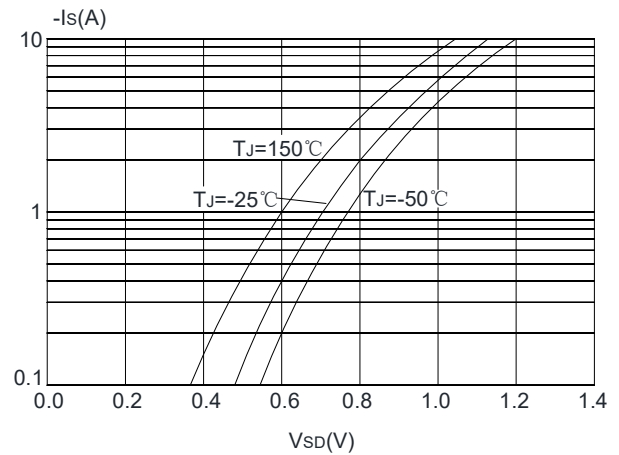


Figure 5: Body Diode Characteristics

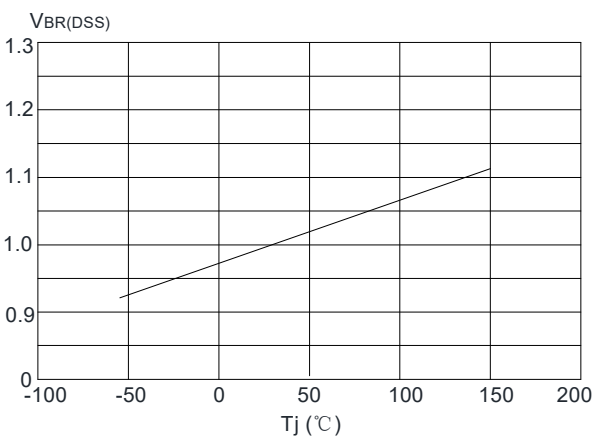


Figure 3: Normalized Breakdown Voltage vs. Junction Temperature

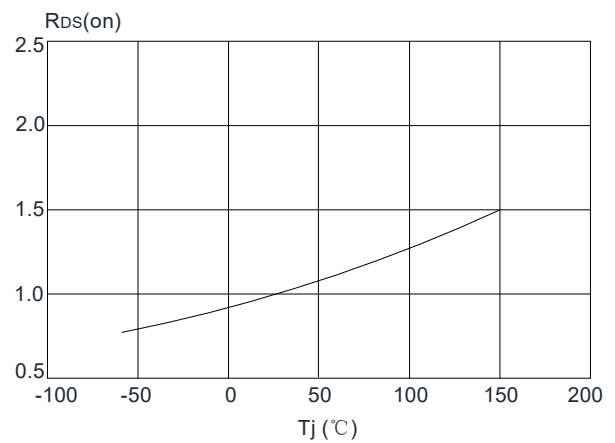


Figure 6: Normalized on Resistance vs. Junction Temperature

Typical Performance Characteristics

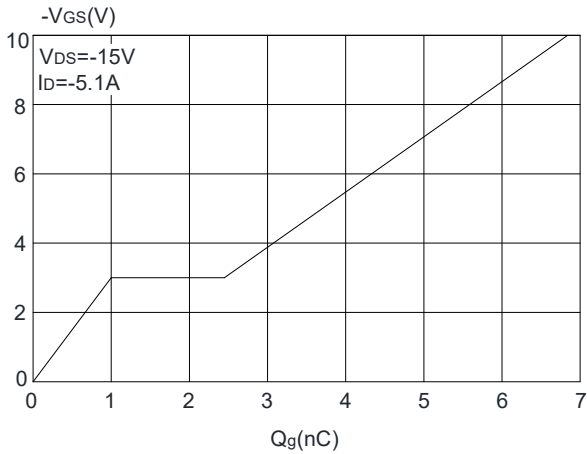


Figure 7: Gate Charge Characteristics

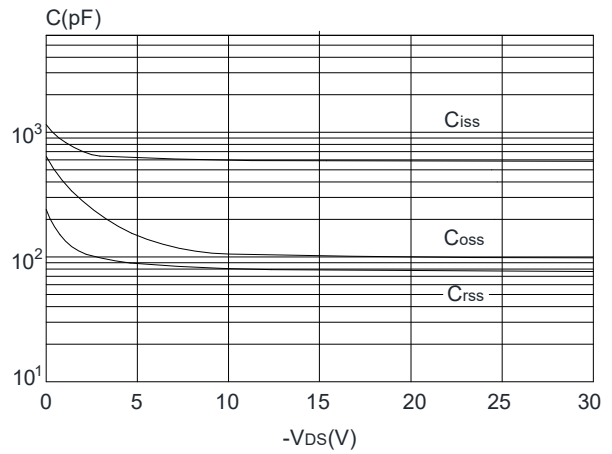


Figure 9: Capacitance Characteristics

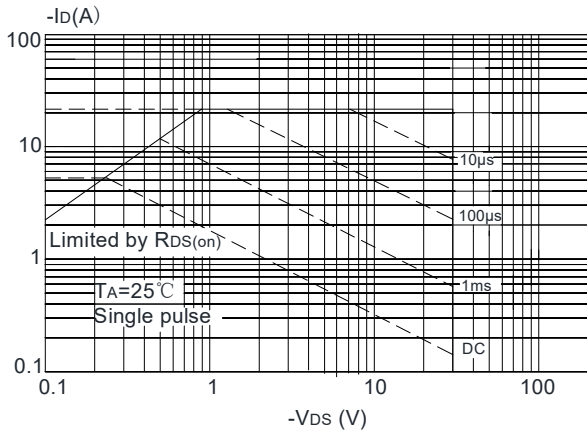


Figure 8: Maximum Safe Operating Area

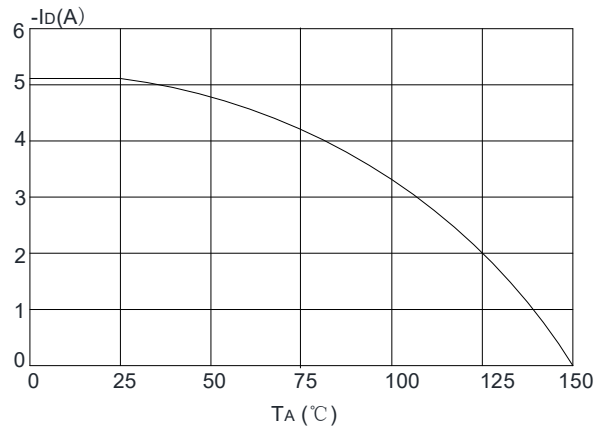


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

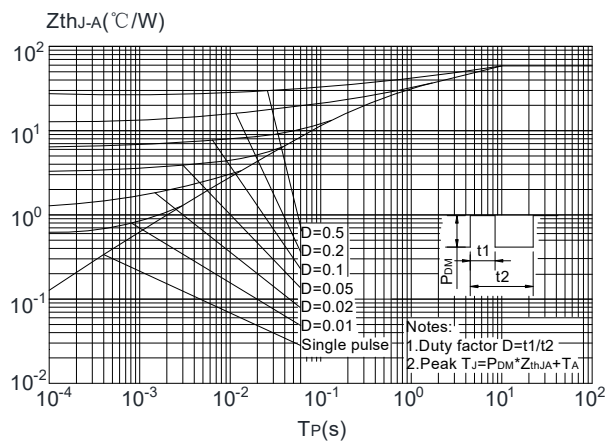
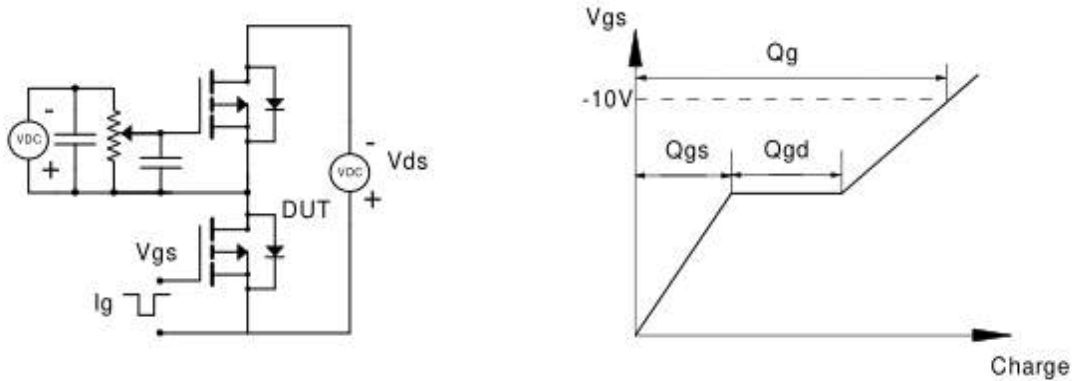


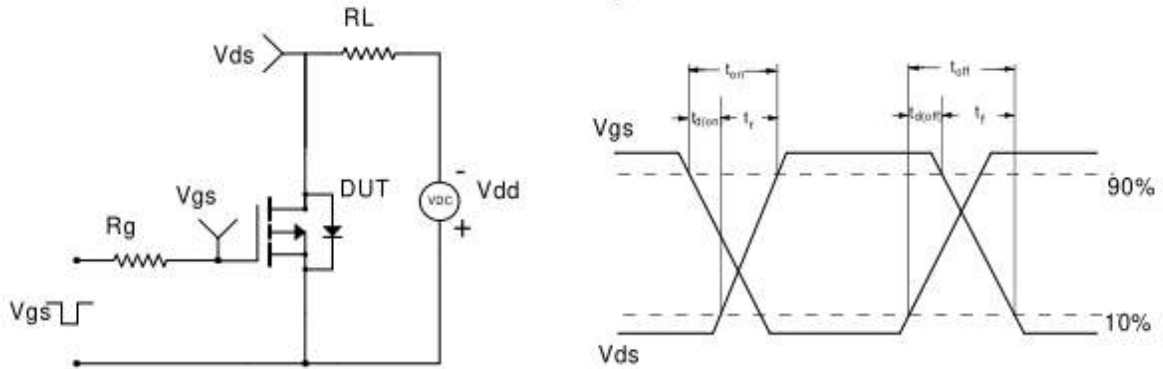
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

Test Circuit

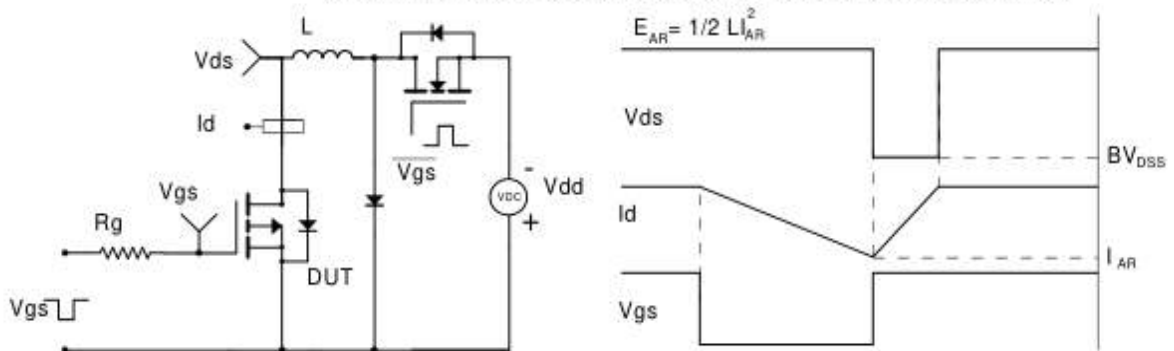
Gate Charge Test Circuit & Waveform



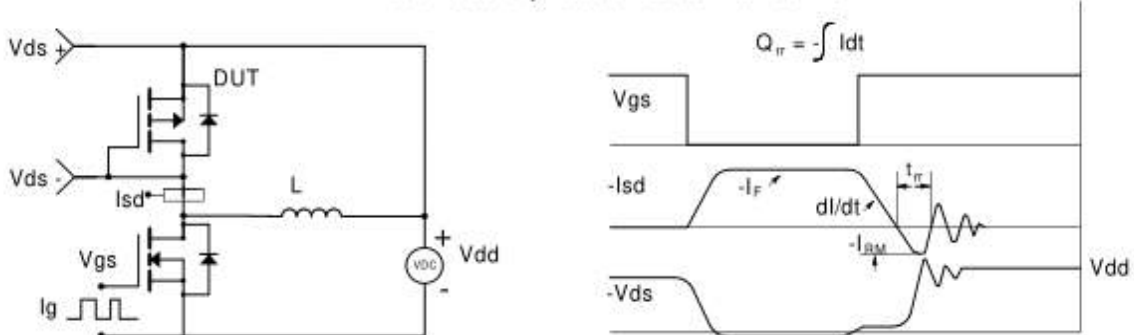
Resistive Switching Test Circuit & Waveforms



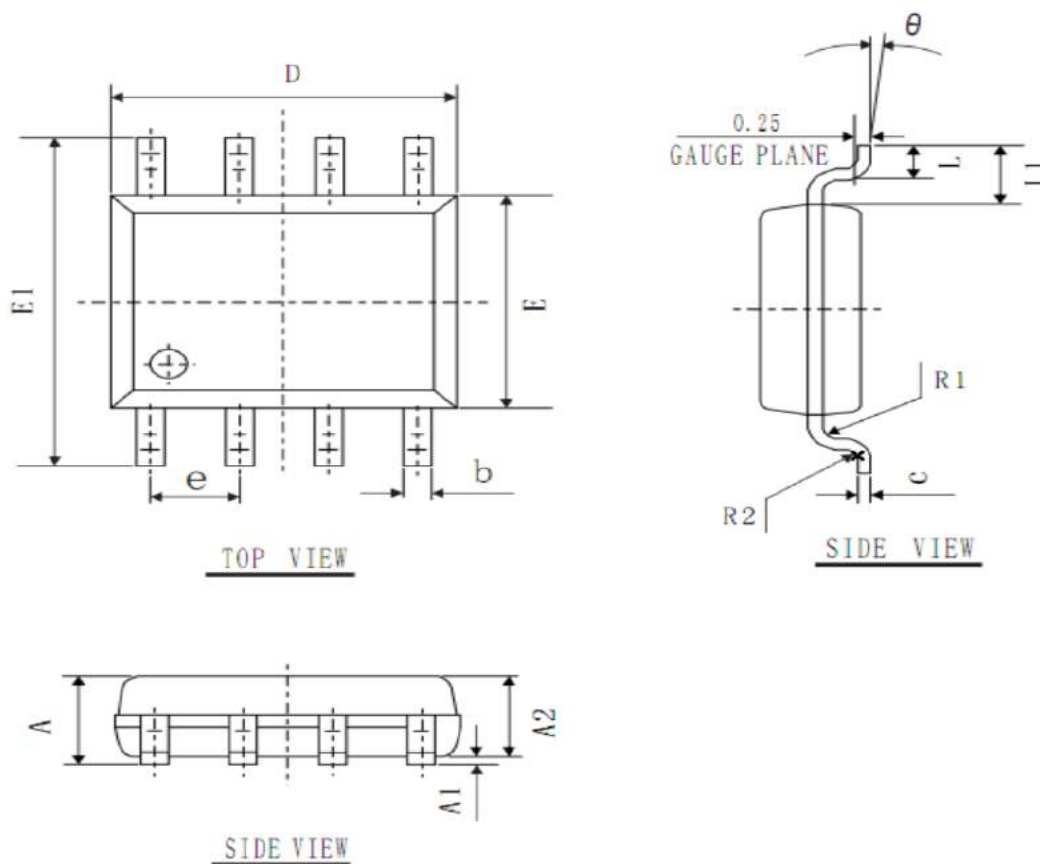
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



SOP-8 Package Information



COMMON DIMENSIONS
(UNITS OF MEASURE=mm)

SYMBOL	MIN	NOM	MAX
A	1.40	1.60	1.80
A1	0.05	0.15	0.25
A2	1.35	1.45	1.55
b	0.30	0.40	0.50
c	0.153	0.203	0.253
D	4.80	4.90	5.00
E	3.80	3.90	4.00
E1	5.80	6.00	6.20
L	0.45	0.70	1.00
θ	2°	4°	6°
L1	1.04 REF		
e	1.27 BSC		
R1	0.07 TYP		
R2	0.07 TYP		

Customer Service

Sales and Service:

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