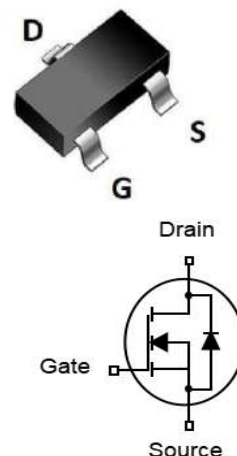


Features

- N-Channel
- Fast switching
- Very Low On-resistance $R_{DS(ON)}$
- Low C_{rss}
- 100% avalanche tested
- Improved dv/dt capability

V_{DS}	30	V
$R_{DS(on),TYP@ V_{GS}=10V}$	22	m Ω
$R_{DS(on),TYP@ V_{GS}=4.5V}$	24	m Ω
I_D	5	A

SOT-23


Part ID	Package Type	Marking	Packing
ZT3400	SOT-23	3400	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	$^\circ\text{C}$	
T_L	Maximum Temperature for Soldering	300	$^\circ\text{C}$	
I_{DM}	Drain Current-Continuous@ Current-Pulsed (Note 1)	$T_c = 25^\circ\text{C}$ 20	A	
Mounted on Large Heat Sink				
I_D	Drain Current-Continuous	$T_c = 25^\circ\text{C}$	5.0	A
		$T_c = 100^\circ\text{C}$	3.1	A
P_D	Maximum Power Dissipation	1.67	W	
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	75	$^\circ\text{C/W}$	

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	0.6	0.9	1.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =5.6A	--	22	33	mΩ
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =5A	--	24	37	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	--	431	--	pF
C _{oss}	Output Capacitance		--	43	--	pF
C _{rss}	Reverse Transfer Capacitance		--	35	--	pF
Q _g	Total Gate Charge	V _{DS} =15V, I _D =5A, V _{GS} =4.5V	--	5.4	--	nC
Q _{gs}	Gate-Source Charge		--	0.9	--	nC
Q _{gd}	Gate-Drain Charge		--	1.8	--	nC
Switching Characteristics						
T _{d(on)}	Turn-on Delay Time	V _{DS} =15V, R _G =5Ω, V _{GS} =10V	--	11	--	ns
T _r	Turn-on Rise Time		--	42	--	ns
T _{d(off)}	Turn-Off Delay Time		--	21	--	ns
T _f	Turn-Off Fall Time		--	9	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _{SD}	Source-Drain Current (Body Diode)		--	--	5	A
V _{SD}	Forward on voltage	I _S =5.0A, 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≤0.5%

N- Channel Typical Characteristics

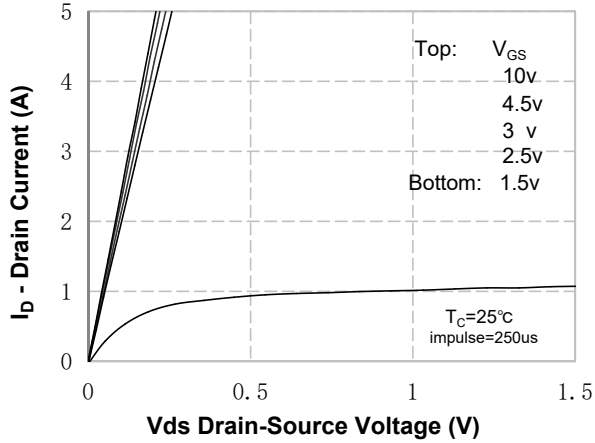


Figure 1. On-Region Characteristics

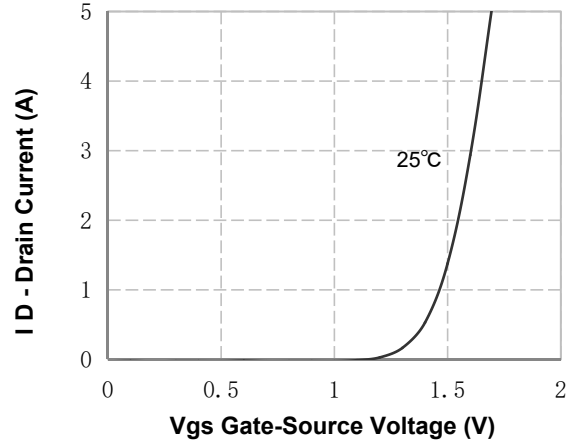


Figure 4. Transfer Characteristics

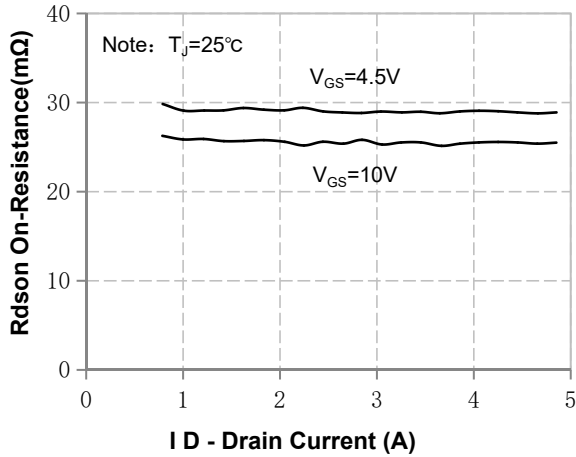


Figure 2. On-Resistance Variation vs Drain Current and Gate Voltage

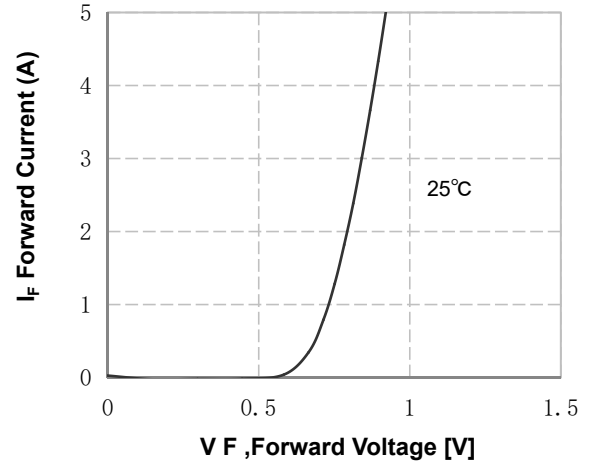


Figure 5. Body Diode Forward Voltage Variation with Source Current

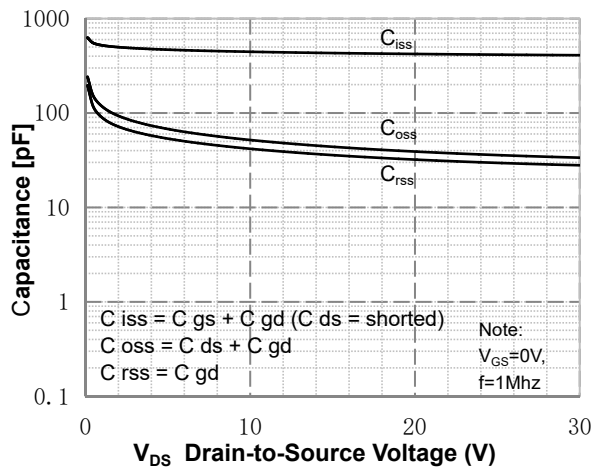


Figure 3. Capacitance Characteristics

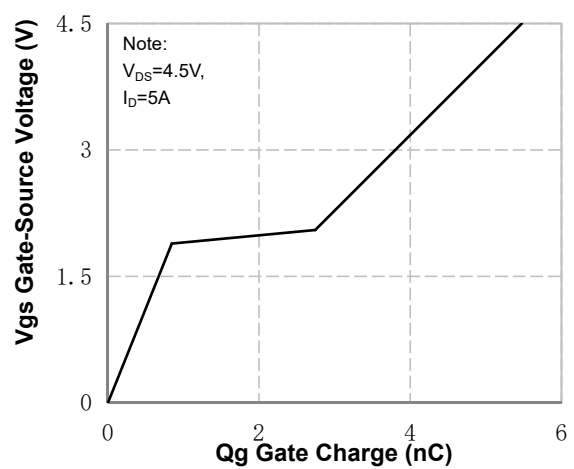


Figure 6. Gate Charge Characteristics

N- Channel Typical Characteristics (Continued)

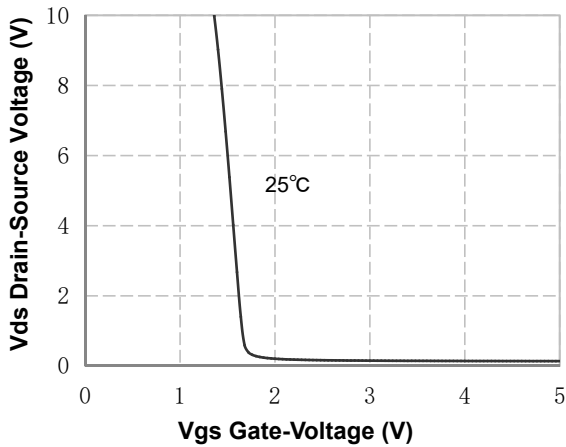


Figure 7. Vds Drain-Source Voltage vs Gate Voltage

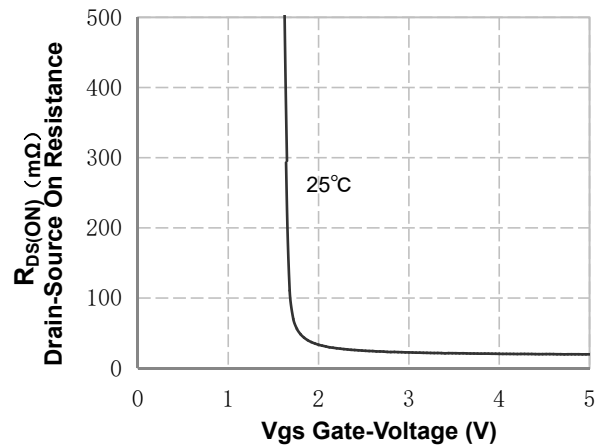


Figure 9. On-Resistance vs Gate Voltage

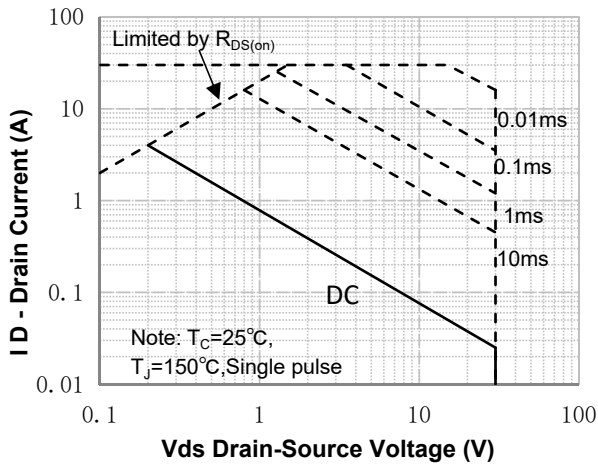


Figure 8. Maximum Safe Operating Area

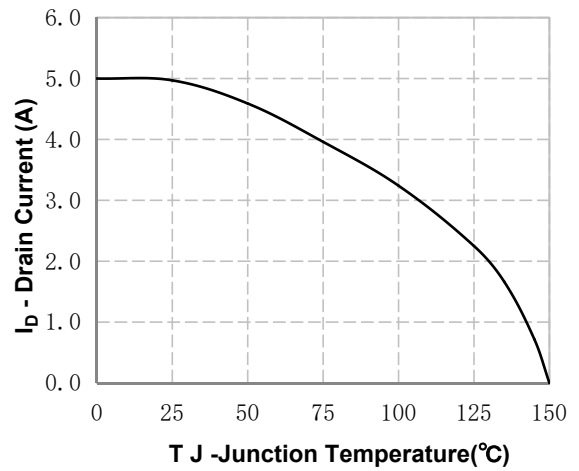


Figure 10. Maximum Continuous Drain Current vs Temperature

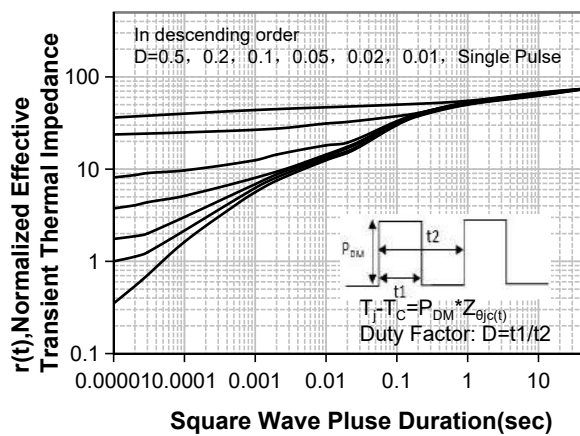
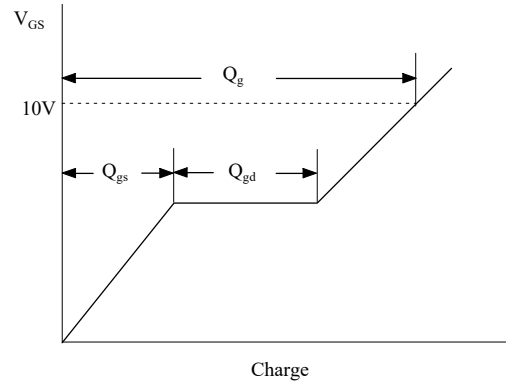
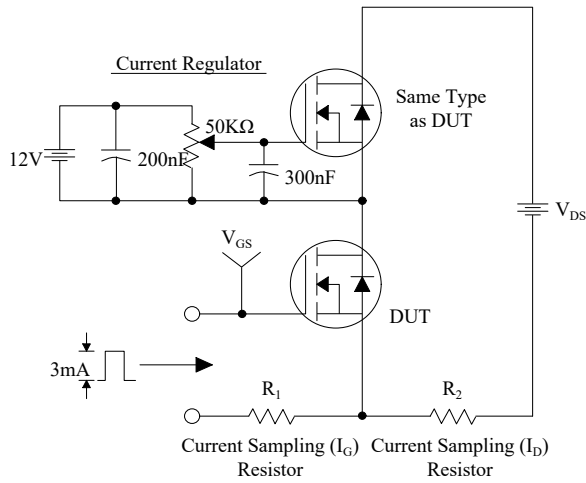
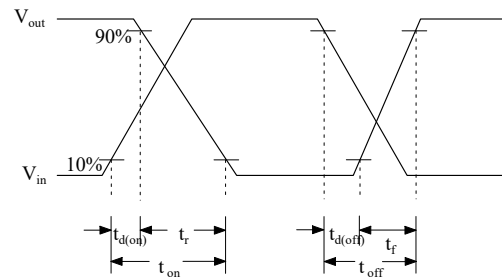
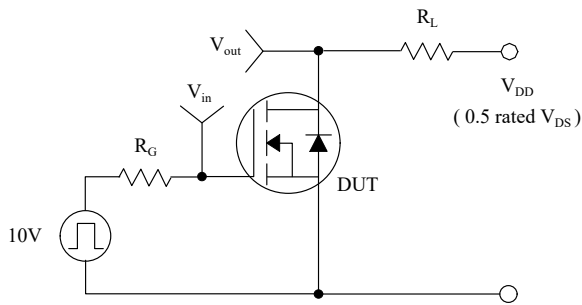


Figure 11. Transient Thermal Response Curve

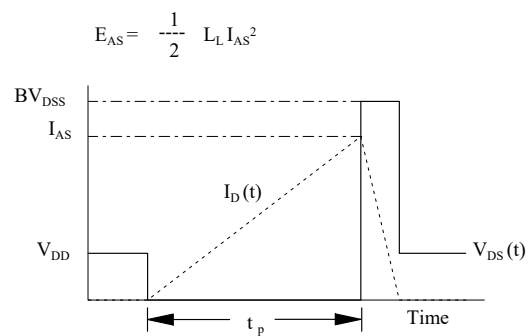
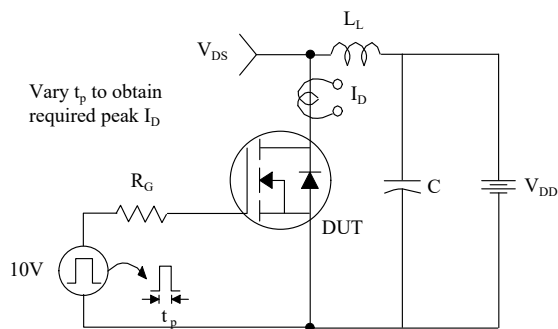
Gate Charge Test Circuit & Waveform



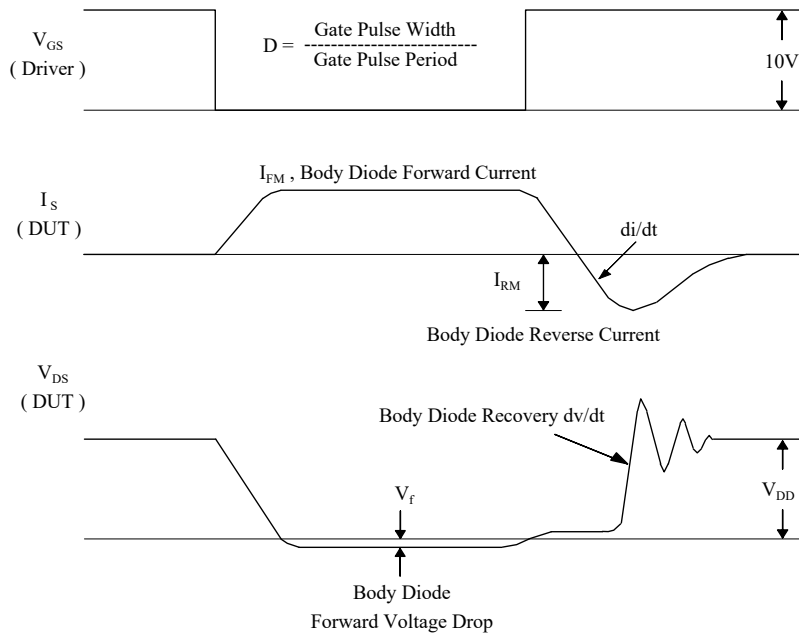
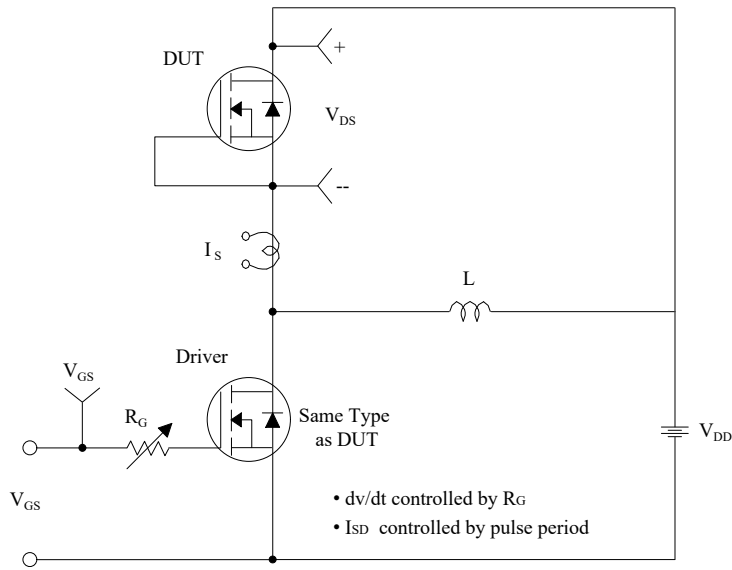
Resistive Switching Test Circuit & Waveforms



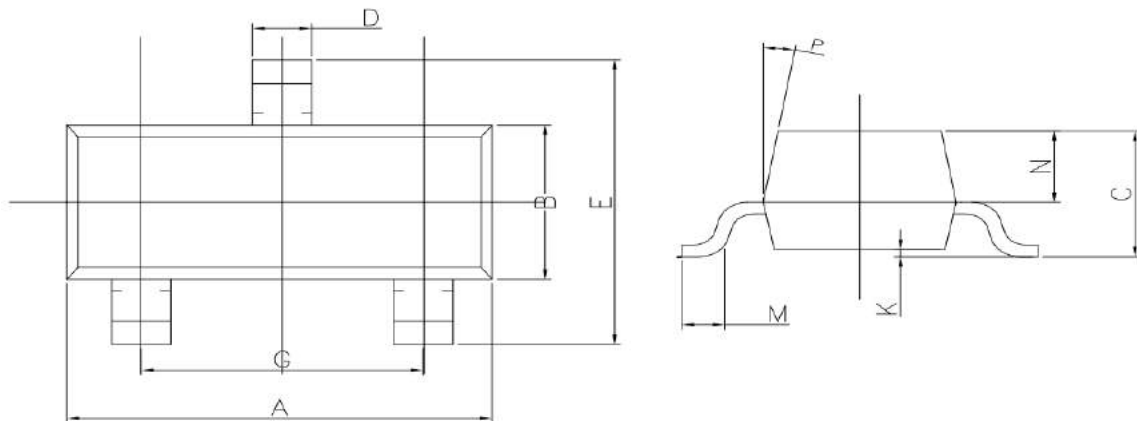
Unclamped Inductive Switching Test Circuit & Waveforms



Peak Diode Recovery dv/dt 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:

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