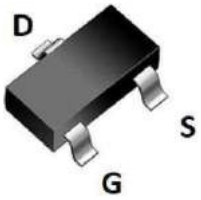
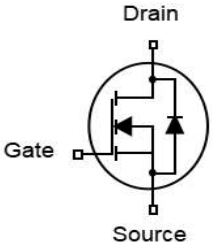
Features

- N-Channel
- High power and current handing capability
- Lead free product is acquired
- Surface mount package
- Pb free terminal plating
- RoHS compliant

V_{DS}	30	V
$R_{DS(on),TYP}$@ V_{GS}=10 V	26	mΩ
$R_{DS(on),TYP}$@ V_{GS}=4.5 V	39	mΩ
I_D	3.6	A

SOT-23





Part ID	Package Type	Marking	Packing
ZT2306	SOT-23	2306	3000pcs/Reel

Absolute Maximum Ratings T_A =25°C, unless otherwise specified

Symbol	Parameter		Rating	Unit
Common Ratings (T_C=25°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	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
T_L	Maximum Temperature for Soldering		300	°C
I_{DM}	Drain Current-Continuous@ Current-Pulsed (Note 1)	T_C =25°C	14.4	A
Mounted on Large Heat Sink				
I_D	Drain Current-Continuous	T_C =25°C	3.6	A
		T_C =100°C	2.3	A
P_D	Maximum Power Dissipation		1.3	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient (Note 2)		100	°C/W

Electrical Characteristics (T_J=25℃ 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	1.5	2.1	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=10V, I_D=3.6A	--	26	35	mΩ
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=4.5V,I_D=2.0A	--	39	50	mΩ
Dynamic Electrical Characteristics @ T_j = 25°C (unless otherwise stated) (Note 4)						
Ciss	Input Capacitance	V_{DS}=15V,V_{GS}=0V, f=1MHz	--	320	--	pF
Coss	OutputCapacitance		--	41	--	pF
Crss	ReverseTransferCapacitance		--	29	--	pF
Qg	Total Gate Charge	V_{DS}=15V,I_D=3.6A, V_{GS}=10V	--	6.8	--	nC
Qgs	Gate-SourceCharge		--	1.4	--	nC
Qgd	Gate-DrainCharge		--	1.5	--	nC
Switching Characteristics (Note 4)						
Td(on)	Turn-on Delay Time	V_{DS}=15V, I_D=3.6A, R_G=6Ω, V_{GS}=4.5V	--	12	--	ns
Tr	Turn-on Rise Time		--	49	--	ns
Td(off)	Turn-Off Delay Time		--	11	--	ns
Tf	Turn-Off Fall Time		--	19	--	ns
Source- Drain Diode Characteristics@ T_j = 25°C (unless otherwise stated)						
I_{SD}	Source-Drain Current (Body Diode)		--	--	3.6	A
V_{SD}	Forward on voltage (Note 3)	I_S=3.6A,V_{GS}=0V	--	--	1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

N- Channel Typical Characteristics

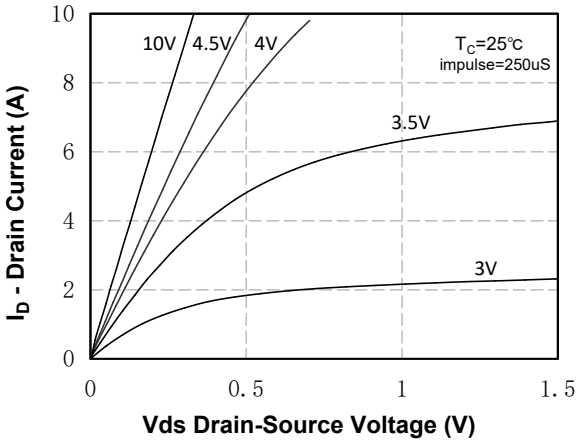


Figure 1. On-Region Characteristics

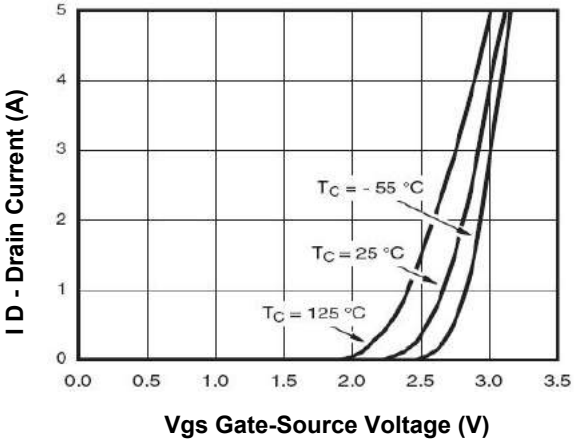


Figure 4. Transfer Characteristics

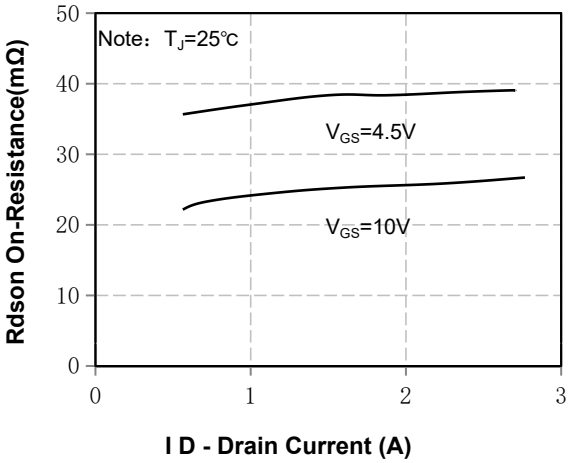


Figure 2. On-Resistance Variation vs Drain Current and Gate Voltage

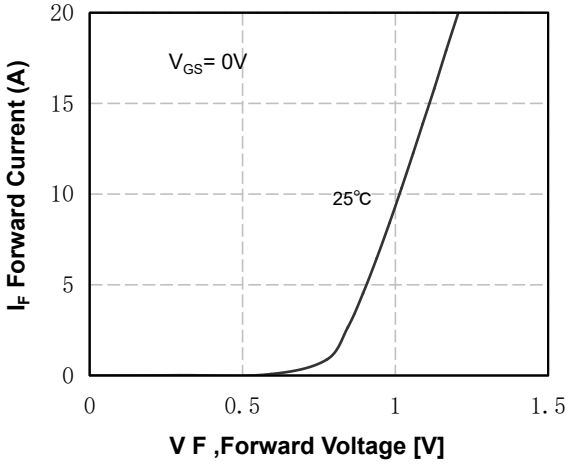


Figure 5. Body Diode Forward Voltage Variation with Source Current and Temperature

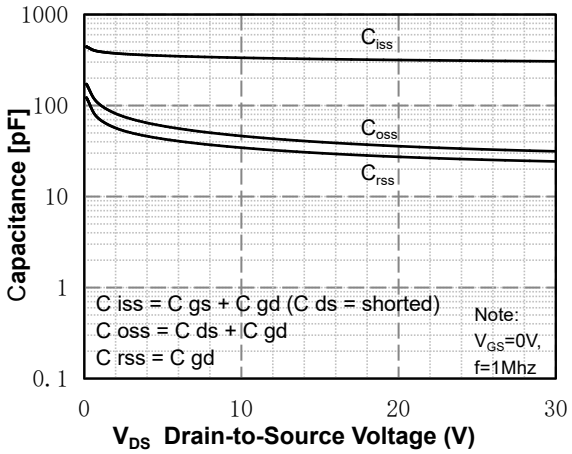


Figure 3. Capacitance Characteristics

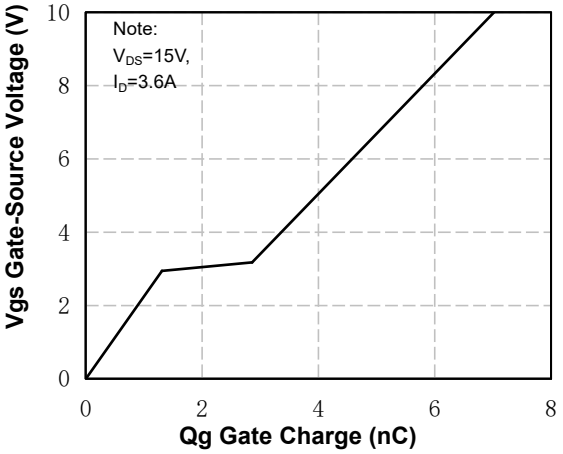


Figure 6. Gate Charge Characteristics

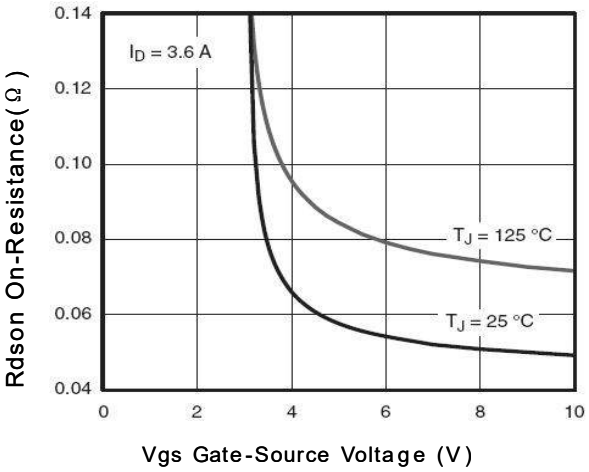


Figure 7. Rdson vs Vgs

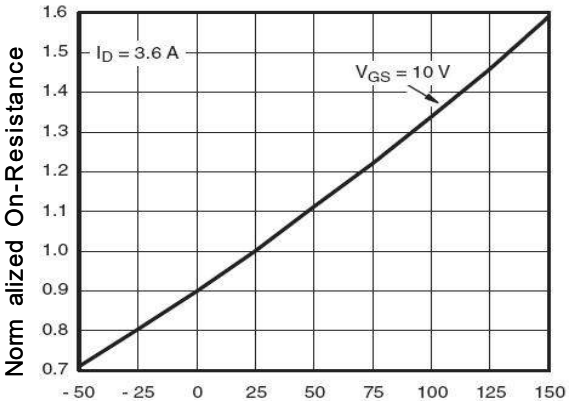


Figure 9. Drain-Source On-Resistance

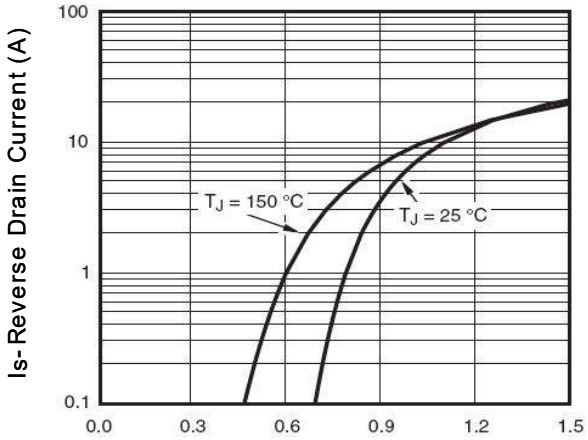


Figure 8. Source-Drain Diode Forward

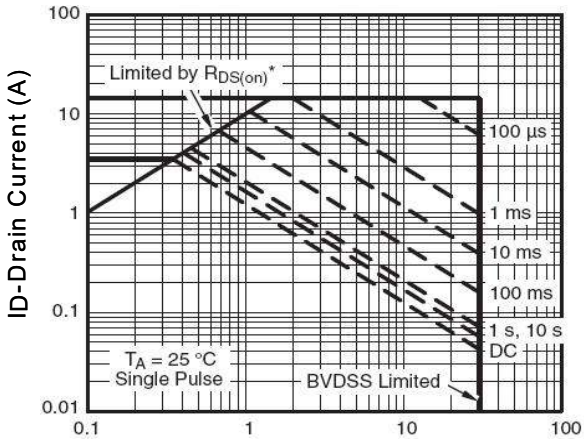


Figure10. Safe Operation Area

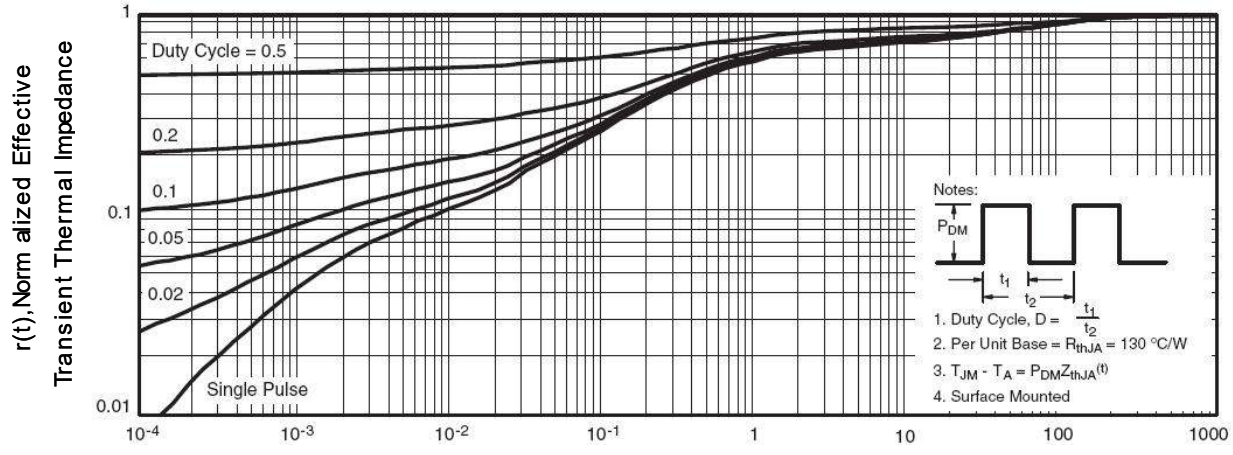
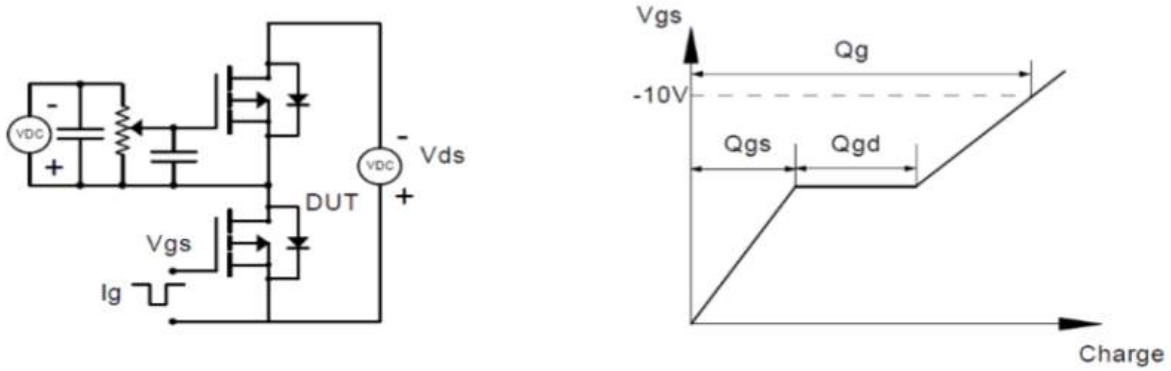


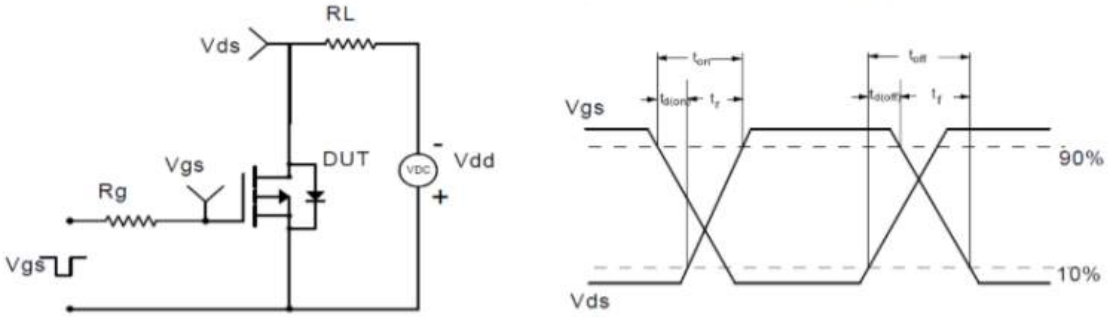
Figure 11. Normalized Maximum Transient Thermal Impedance

Test Circuit

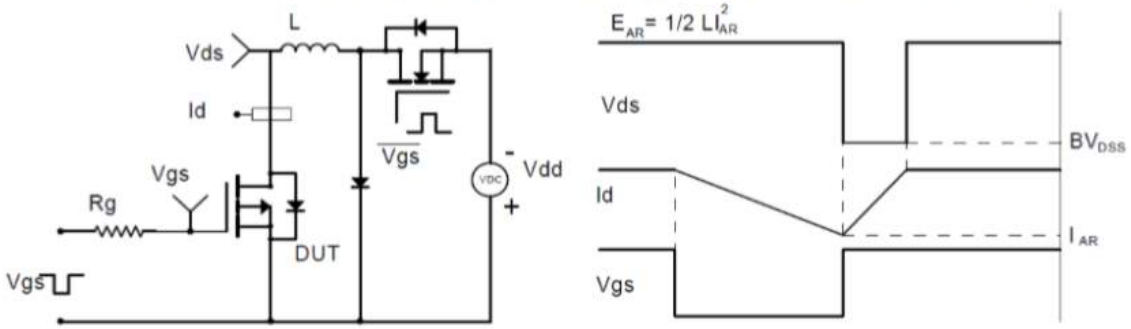
Gate Charge Test Circuit & Waveform



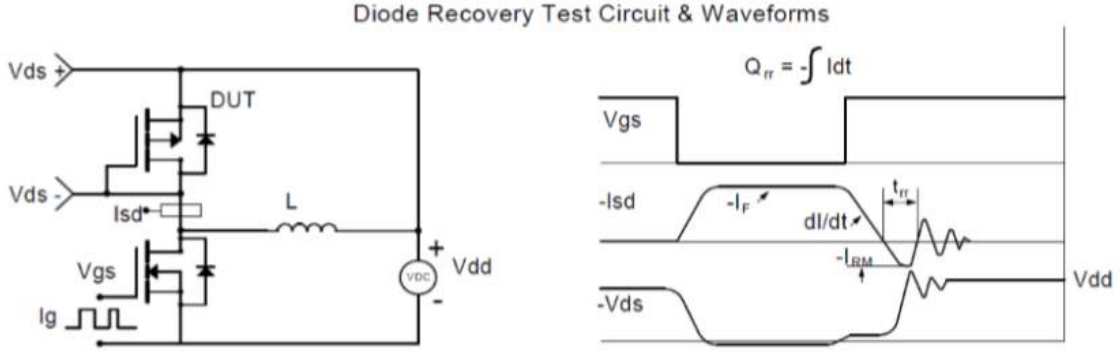
Resistive Switching Test Circuit & Waveforms



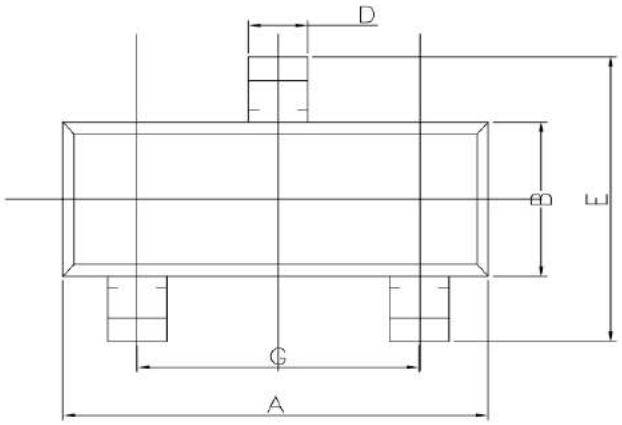
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

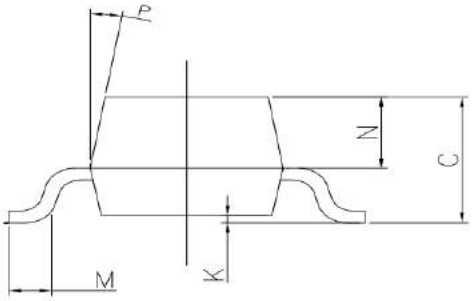


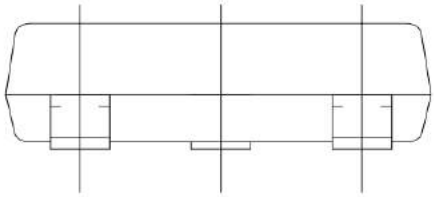
Diode Recovery Test Circuit & Waveforms



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

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