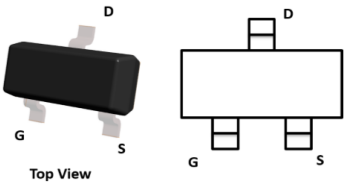
Features

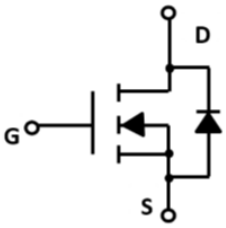
- 100V, 3A
- $R_{DS(ON)}$ =140mΩ (Max.) @ V_{GS} = 10V, I_D = 3A
- High Power and Current Handing Capability
- Lead Free Product is Acquired
- Surface Mount Package

Application

- PWM Application
- Load Switch
- Power Management

Package





SOT-23-3L

SFZ3N10AT

Absolute Maximum Ratings T_C=25℃ unless otherwise specified

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate-Source Voltage		± 20	V
I_D	Continuous Drain Current	T_C = 25℃	3	A
I_{DM}	Pulsed Drain Current note1		12	A
P_D	Maximum Power Dissipation	T_C = 25℃	17	W
E_{AS}	Single pulsed avalanche energy note5		1.2	mJ
R_{thC}	Thermal Resistance, From Junction To Case		7.4	℃/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient note2		62.5	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

*Drain current limited by maximum junction temperature

Electrical Characteristics T_C=25℃ unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	100	110	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 100V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
On Characteristics note3						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.95	3.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance note2	V_{GS} = 10V, I_D = 3A	-	115	140	mΩ
Dynamic Characteristics note4						
C_{iss}	Input Capacitance	V_{DS} = 50V, V_{GS} = 0V, f = 1.0MHz	-	206	-	pF
C_{oss}	Output Capacitance		-	28.9	-	pF
C_{rss}	Reverse Transfer Capacitance		-	1.4	-	pF
Q_g	Total Gate Charge	V_{DS} = 50V, I_D = 3A, V_{GS} = 10V	-	4.3	-	nC
Q_{gs}	Gate-Source Charge		-	1.5	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	1.1	-	nC
Switching Characteristics note4						
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 50V, I_{DS}=3A R_G = 2Ω, V_{GEN} = 10V	-	14.7	-	ns
t_r	Turn-On Rise Time		-	3.5	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	20.9	-	ns
t_f	Turn-Off Fall Time		-	2.7	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current note2		-	-	3	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	12	A
V_{SD}	Drain to Source Diode Forward Voltage note3	V_{GS} = 0V, I_S =3A	-	-	1.3	V
t_{rr}	Body Diode Reverse Recovery Time	V_{GS} = 0V, I_F = 3A, di/dt =100A/μs	-	32.1	-	ns
Q_{rr}	Body Diode Reverse Recovery Time Charge		-	39.4	-	nC
I_{rrm}	Peak Reverse Recovery Current		-	2.1	-	A

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
5. V_{DD}=50 V, R_G=50 Ω, L=0.3 mH, starting T_j=25 °C

Typical Performance Characteristics

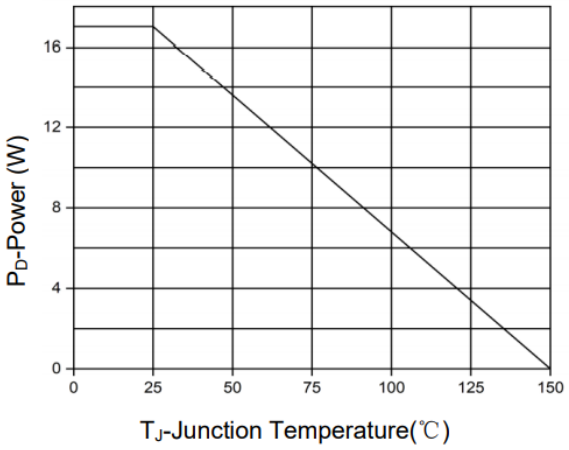


Figure 1. Power Dissipation

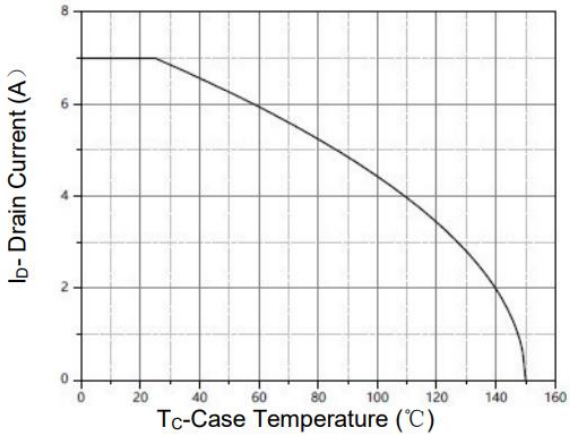


Figure 2. Drain Current

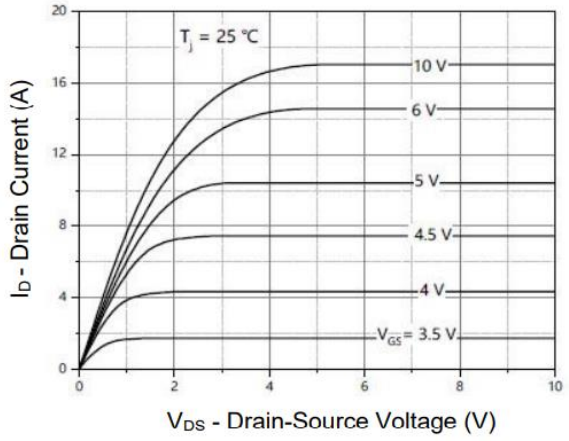


Figure 3. Output characteristics

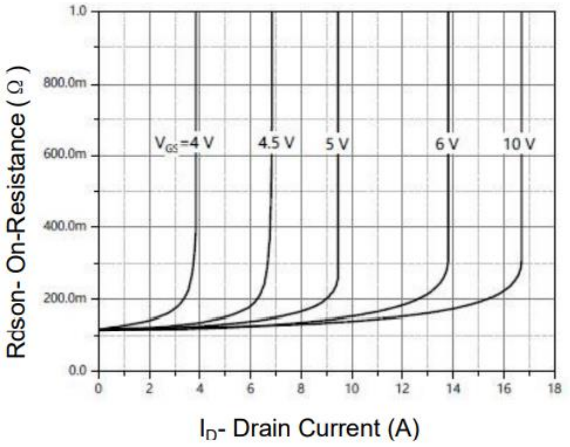


Figure 4. Drain-Source On-state resistance

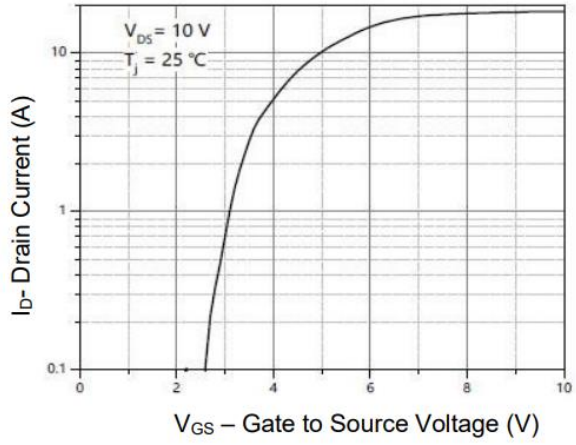


Figure 5. Transfer Characteristics

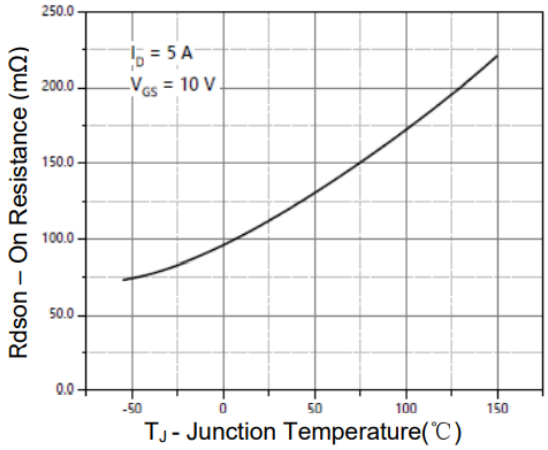


Figure 6. Drain-Source On-State Resistance

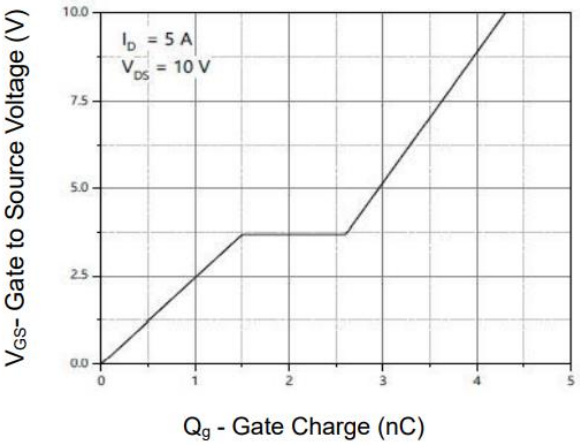


Figure 7. Gate Charge

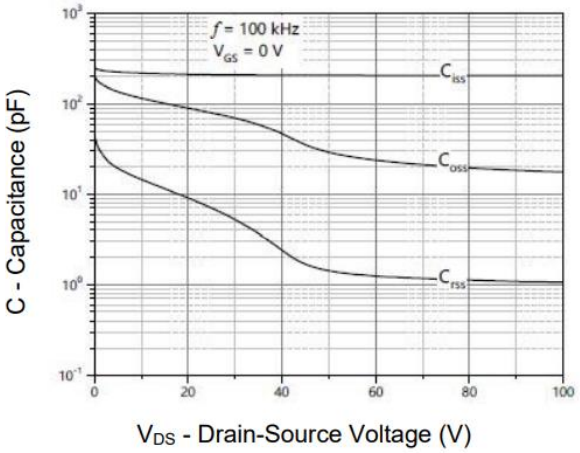


Figure 8. Capacitance vs Vds

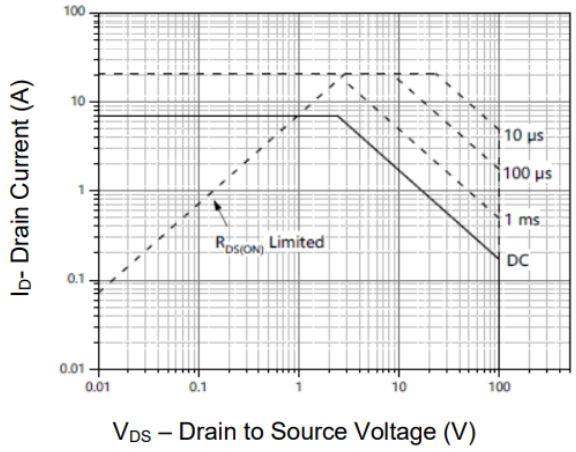


Figure 9. Safe Operation Area

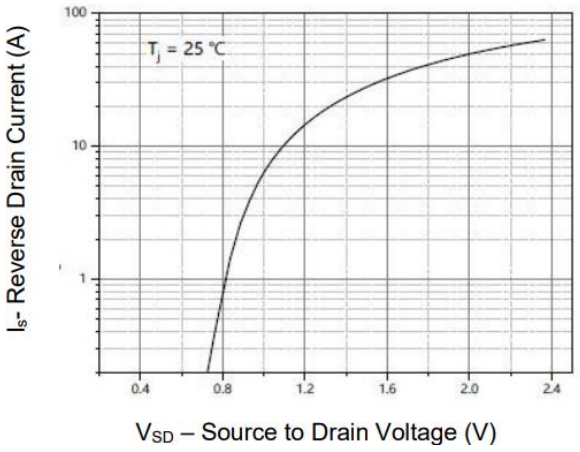


Figure 10. Source- Drain Diode Forward

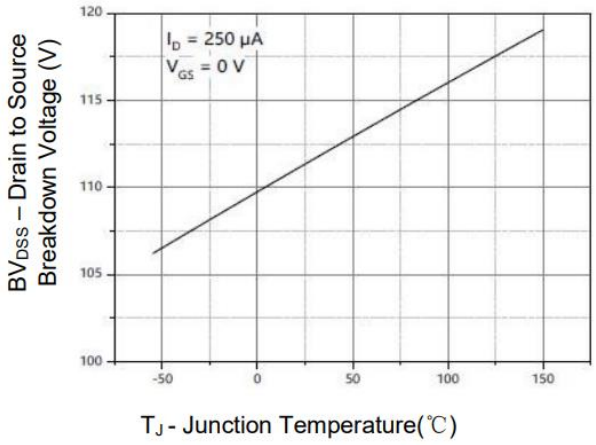


Figure 11. Drain-source breakdown voltage

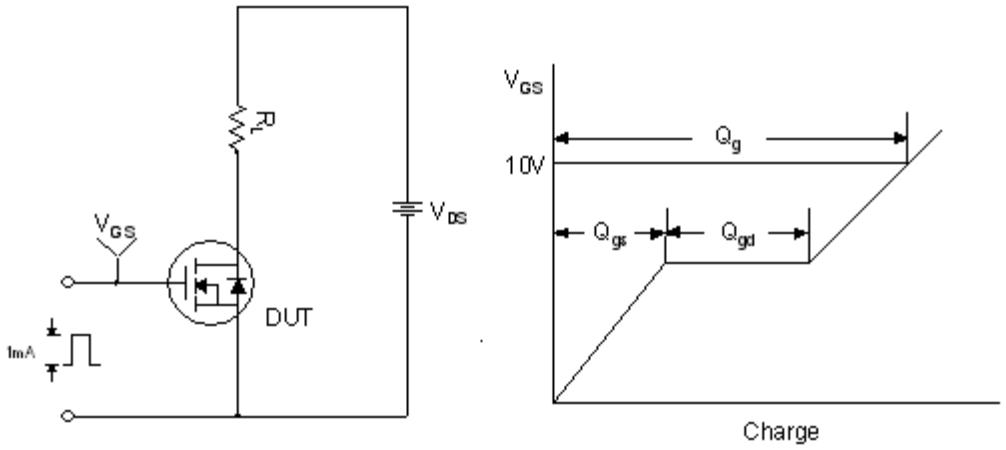


Figure 12. Gate Charge Test Circuit & Waveform

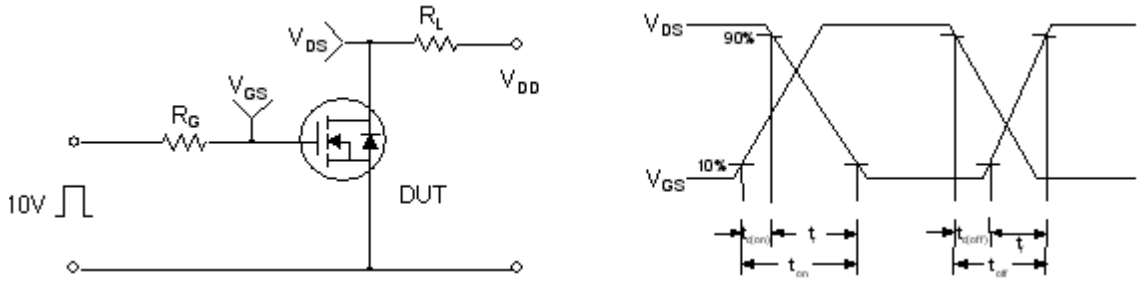


Figure 13. Resistive Switching Test Circuit & Waveforms

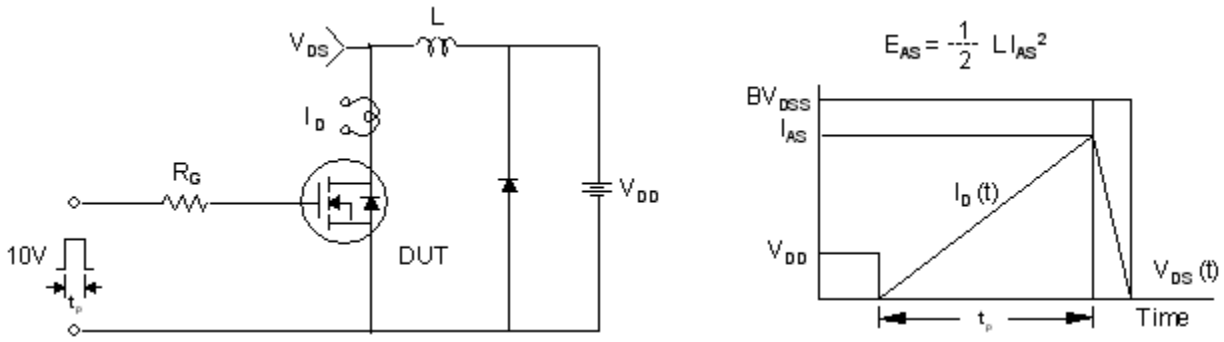


Figure 14. Unclamped Inductive Switching Test Circuit & Waveforms

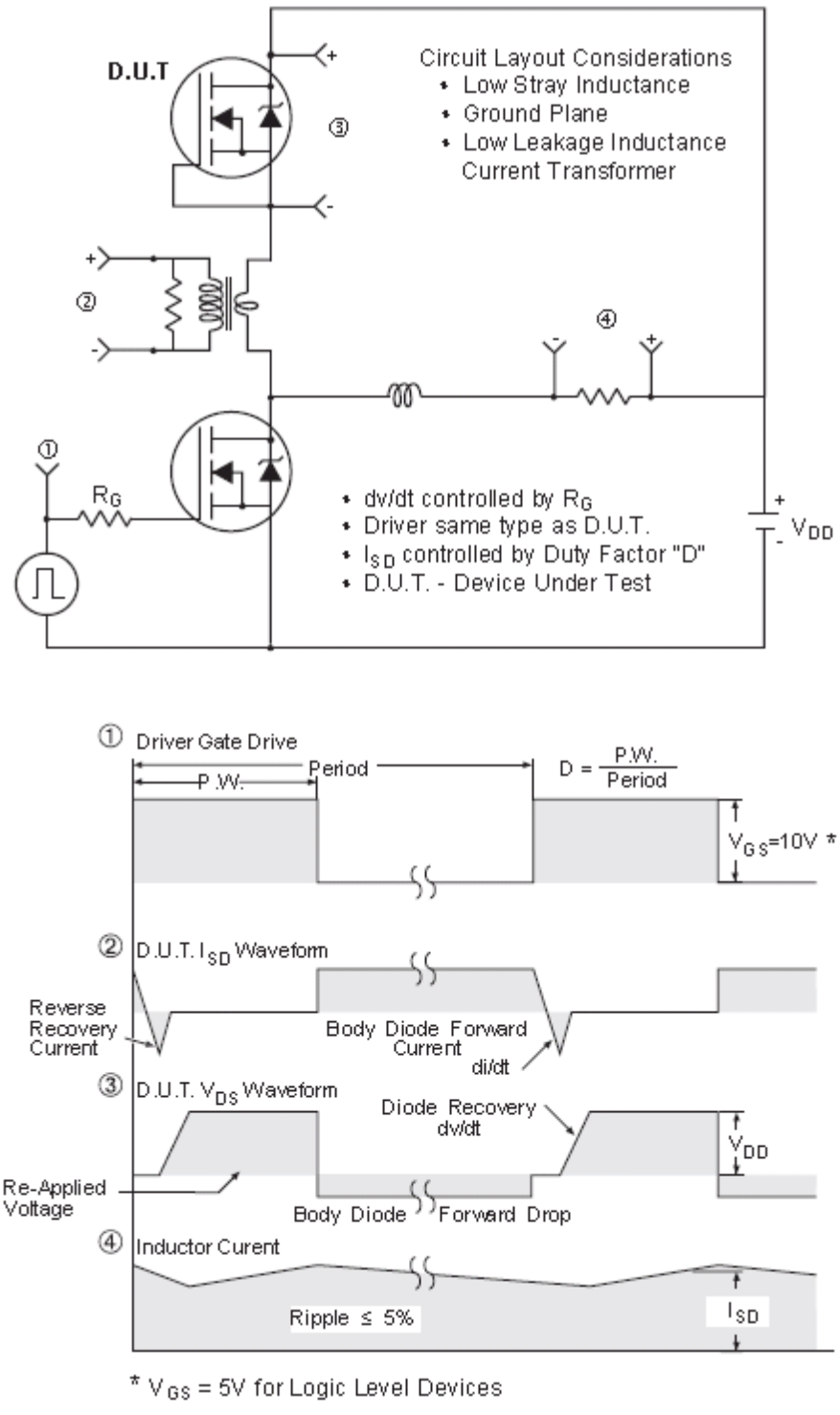
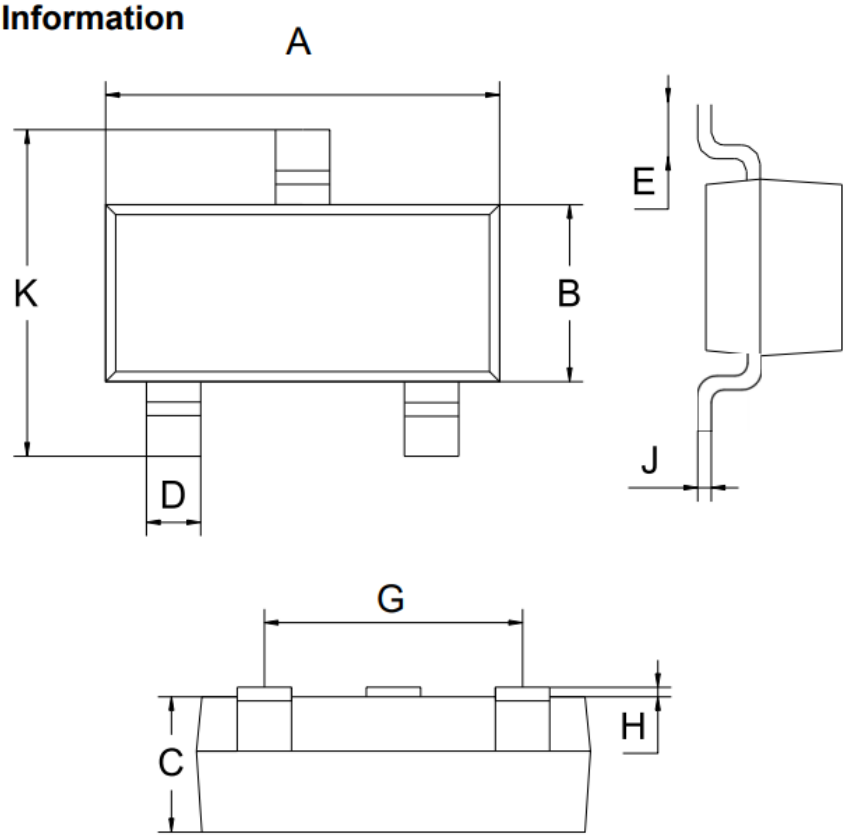


Figure 15. Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)

SOT-23-3L Package Information



SOT-23-3L			
Dim	MIN	NOM	MAX
A	2.80	2.90	3.00
B	1.50	1.60	1.70
C	1.00	1.10	1.20
D	0.30	0.40	0.50
E	0.25	0.40	0.55
G		1.90	
H	0.00	-	0.10
J	0.047	0.127	0.207
K	2.60	2.80	3.00
All Dimensions in mm			

NOTE:

1.We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.

2.Please do not exceed the absolute maximum ratings of the device when circuit designing.

3.Winsemi Microelectronics Co., Ltd reserved the right to make changes in this specification sheet and is subject to change without prior notice.

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