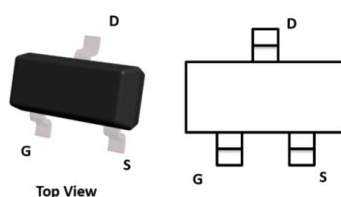


Features

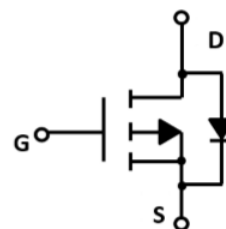
- -30V, -4.4A
- $R_{DS(ON)} = 55m\Omega$ (Max.) @ $V_{GS} = -10V$, $I_D = -4.4A$
- High Power and Current Handling Capability
- Lead Free Product is Acquired
- Surface Mount Package

Application

- PWM Application
- Load Switch
- Power Management

Package

SOT-23-3L
SFZ3401AT

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

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		± 12	V
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	-4.4	A
		$T_C = 100^\circ\text{C}$	-3.5	A
I_{DM}	Pulsed Drain Current ^{note1}		-27	A
P_D	Power Dissipation	$T_C = 25^\circ\text{C}$	1.5	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		82	$^\circ\text{C/W}$
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	$^\circ\text{C}$

*Drain current limited by maximum junction temperature

Electrical Characteristics $T_C=25^{\circ}\text{C}$ 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	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -24V, V _{GS} = 0V	-	-	-1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} = 0V, V _{GS} = ±10V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-0.7	-1	-1.3	V
R _{DS(on)}	Static Drain-Source On-Resistance ^{note2}	V _{GS} = -10V, I _D = -4.2A	-	-	55	mΩ
		V _{GS} = -4.5V, I _D = -4A	-	-	75	
		V _{GS} = -2.5V, I _D = -1A	-	-	90	
g _{FS}	Forward Transconductance	V _{DS} = -5V, I _D = -4.2A	-	10	-	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = -15V, V _{GS} = 0V, f = 1.0MHz	-	880	-	pF
C _{oss}	Output Capacitance		-	105	-	pF
C _{rss}	Reverse Transfer Capacitance		-	65	-	pF
Q _g	Total Gate Charge	V _{DD} = -15V, I _D = -4.2A, V _{GS} = -4.5V	-	8.5	-	nC
Q _{gs}	Gate-Source Charge		-	1.8	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	2.7	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} = -15V, I _D = -4.2A, R _{GEN} = 6Ω, 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
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-4.2	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-17	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S = -4.2A	-	-	-1.2	V
t _{rr}	Reverse Recovery Time	V _{GS} = 0V, I _F = -4.2A,	-	11	-	ns
Q _{rr}	Reverse Recovery Charge	di/dt =100A/μs	-	3.5	-	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.

Typical Performance Characteristics

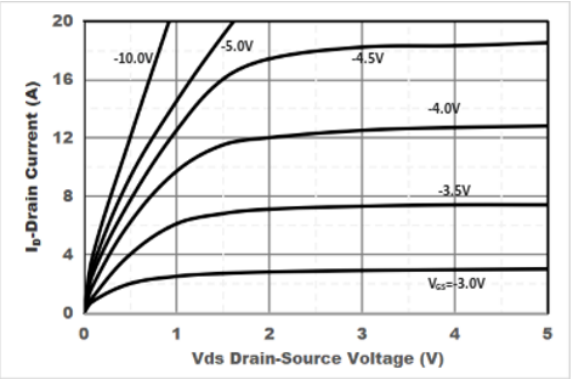


Figure 1. Output Characteristics

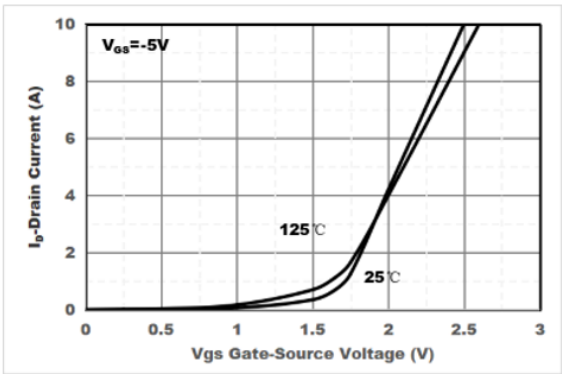


Figure 2. Transfer Characteristics

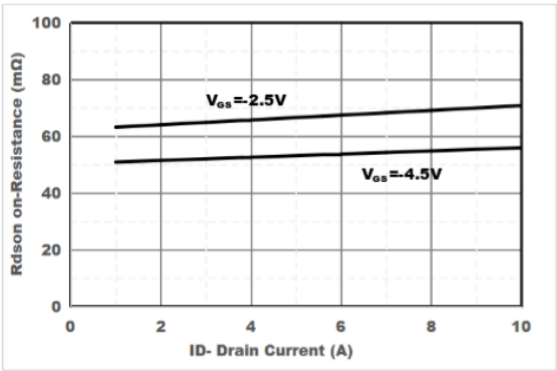


Figure 3. Drain-to-Source On Resistance

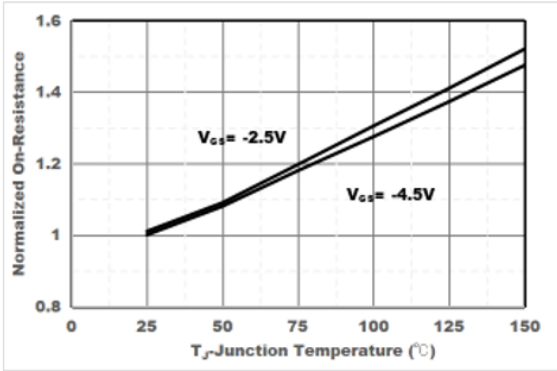


Figure 4. Drain-to-Source On Resistance

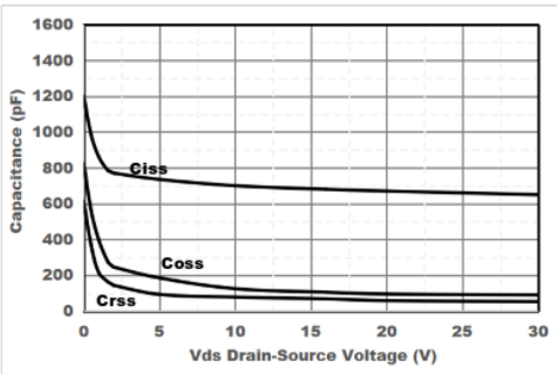


Figure 5. Capacitance Characteristics

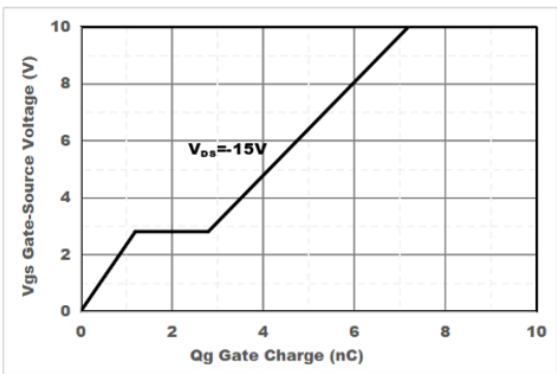


Figure 6. Gate Charge Characteristics

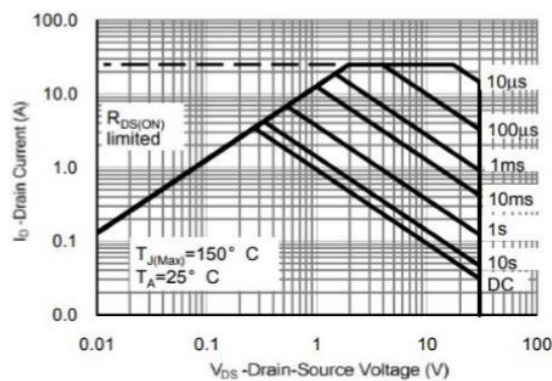


Figure 7. Maximum Safe Operating Area

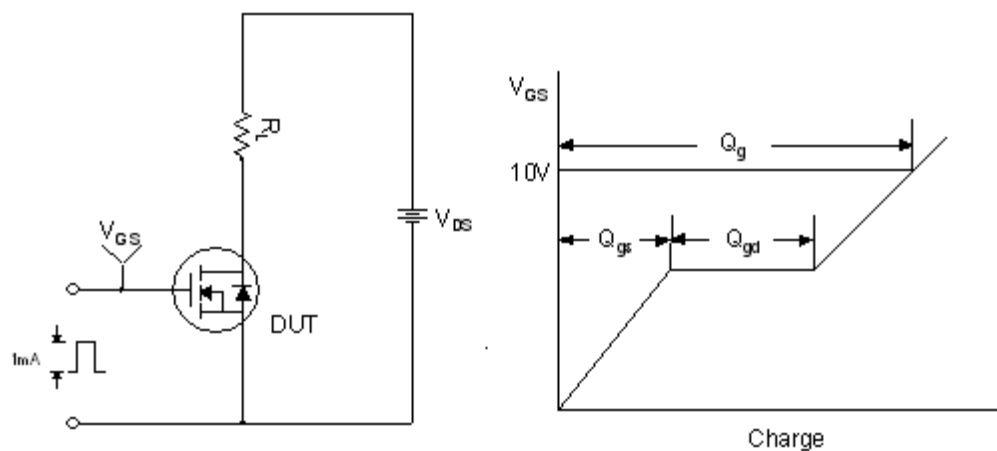


Figure 8. Gate Charge Test Circuit & Waveform

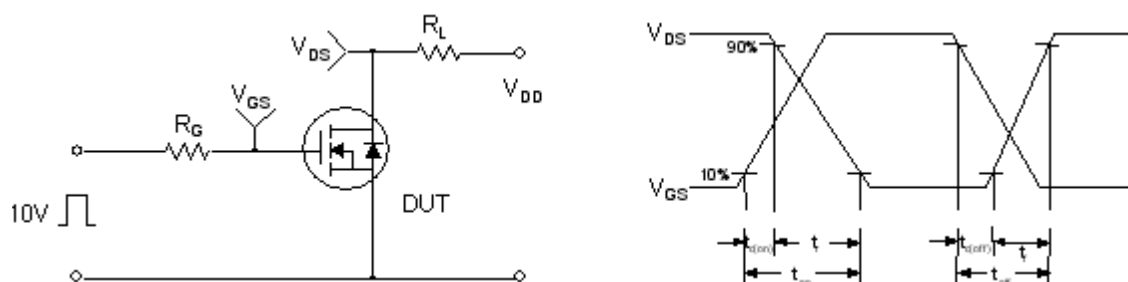


Figure 9. Resistive Switching Test Circuit & Waveforms

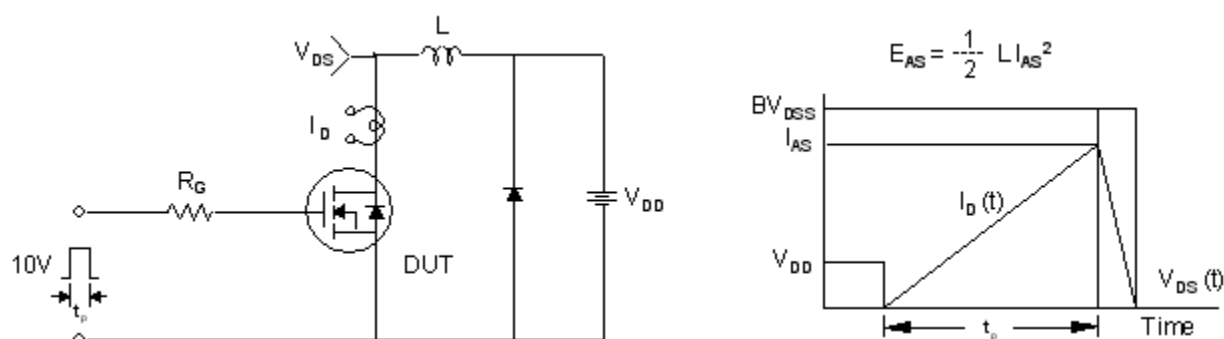
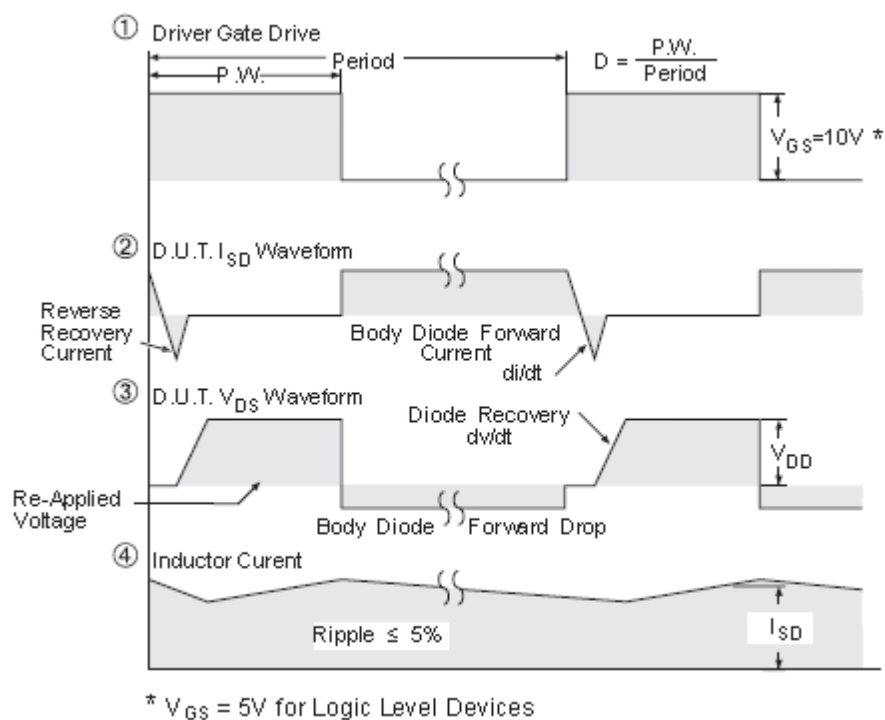
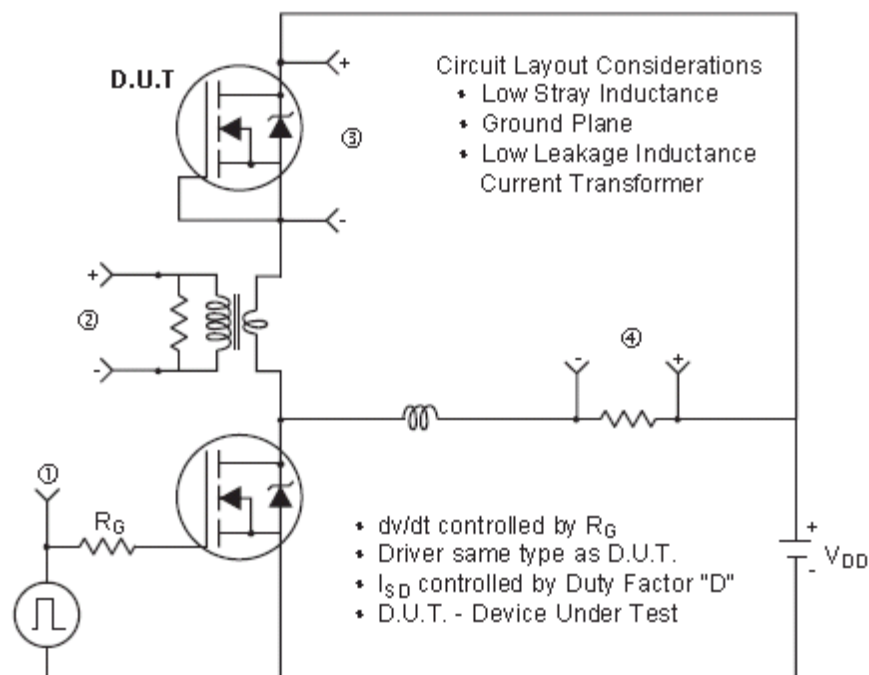
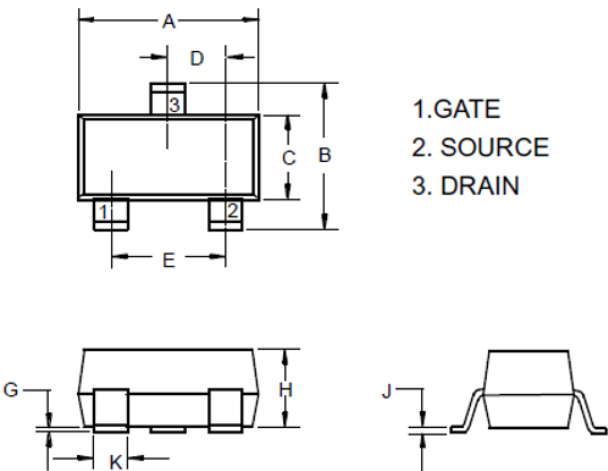


Figure 10. Unclamped Inductive Switching Test Circuit & Waveforms

Figure 11. Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)

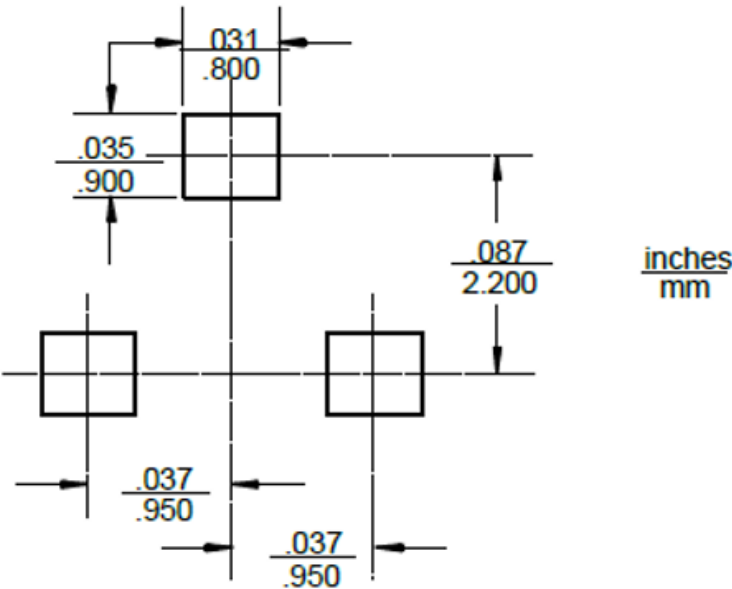
■ SOT-23 Package information

SOT-23-3L



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.113	.117	2.87	2.97	
B	.108	.112	2.75	2.85	
C	.061	.065	1.55	1.65	
D	.036	.038	.914	.965	
E	.073	.077	1.85	1.95	
G	.0016	.0039	.04	.100	
H	.044	.049	1.12	1.25	
J	.006	.007	.14	.17	
K	.013	.015	.34	.37	

■ SOT-23 Suggested Pad Layout



SFZ3401AT Product Description

Silicon P-Channel MOSFET



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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