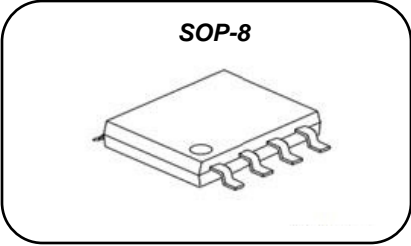


P-channel Enhanced mode SOP-8 MOSFET

Features

- Low $R_{DS(ON)}$ (Typ 43.5 mΩ) @ $V_{GS}=-10V$
- Low $R_{DS(ON)}$ (Typ 64mΩ) @ $V_{GS}=-4.5V$
- Low Gate Charge (Typ 19nC)
- Application: DC-DC Converter, Motor Control



BV_{DSS} : -30V
I_D : -5.3A
R_{DS(ON)} : 43.5 mΩ @V_{GS}=-10V

General Description

This power MOSFET is produced with advanced technology of SAMWIN. This technology enable the power MOSFET to have better characteristics, including fast switching time, low on resistance, low gate charge and especially excellent avalanche characteristics.



Order Codes

Item	Sales Type	Marking	Package	Packaging
1	SWK 9435	SW9435	SOP-8	REEL

Absolute maximum ratings

Symbol	Parameter	Value	Unit
V _{DSS}	Drain to source voltage	-30	V
I _D	Continuous drain current (@T _C =25°C)	-5.3*	A
I _{DM}	Drain current pulsed (note 1)	-20	A
V _{GS}	Gate to source voltage	±20	V
P _D	Total power dissipation (@T _C =25°C)	1.92	W
	Derating factor above 25°C	0.015	W/°C
T _{STG} , T _J	Operating junction temperature & storage temperature	-55 ~ + 150	°C

*. Drain current is limited by junction temperature.

Thermal characteristics

Symbol	Parameter	Value	Unit
R _{thja}	Thermal resistance, Junction to ambient	65	°C/W

*. The data tested bysurface mounted on a 1 inch² FR-4 board with 2OZ copper.

Electrical characteristic ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
Off characteristics						
BV _{DSS}	Drain to source breakdown voltage	V _{GS} =0V, I _D =-250uA	-30			V
I _{DSS}	Drain to source leakage current	V _{DS} =-24V, V _{GS} =0V			-1	uA
I _{GSS}	Gate to source leakage current, forward	V _{GS} =-20V, V _{DS} =0V			100	nA
	Gate to source leakage current, reverse	V _{GS} =20V, V _{DS} =0V			-100	nA
On characteristics						
V _{GS(TH)}	Gate threshold voltage	V _{DS} =V _{GS} , I _D =-250uA	-1		-3	V
R _{DS(ON)}	Drain to source on state resistance	V _{GS} =-10V, I _D = -5.3A		43.5	50	mΩ
		V _{GS} =-4.5V, I _D = -4.2A		64	90	mΩ
Dynamic characteristics						
C _{iss}	Input capacitance	V _{GS} =0V, V _{DS} =-15V, f=1MHz		845		pF
C _{oss}	Output capacitance			150		
C _{rss}	Reverse transfer capacitance			100		
t _{d(on)}	Turn on delay time	V _{DD} =-15V, R _L =15Ω ,I _D =-1A, V _{GEN} =-10V ,R _G =6Ω (note 2,3)		24		ns
t _r	Rising time			39		
t _{d(off)}	Turn off delay time			155		
t _f	Fall time			143		
Q _g	Total gate charge	V _{DS} =-25V, V _{GS} =-10V, I _D =-5.3A (note 2,3)		19		nC
Q _{gs}	Gate-source charge			2		
Q _{gd}	Gate-drain charge			6		

※. Notes

1. Repeative rating : pulse width limited by junction temperature.
2. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. Essentially independent of operating temperature.

Fig. 1. On-state characteristics

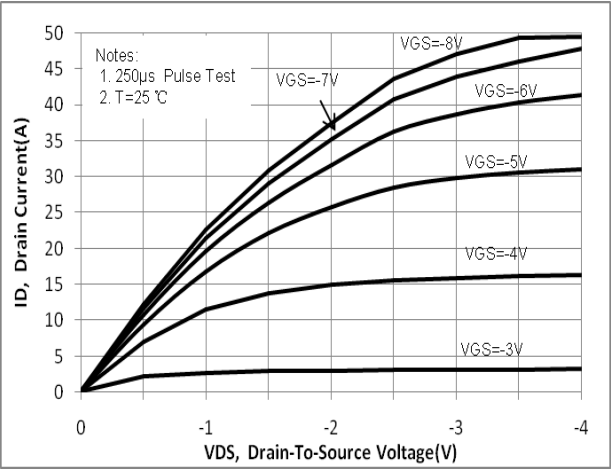


Fig. 2. On-resistance variation vs. drain current and gate voltage

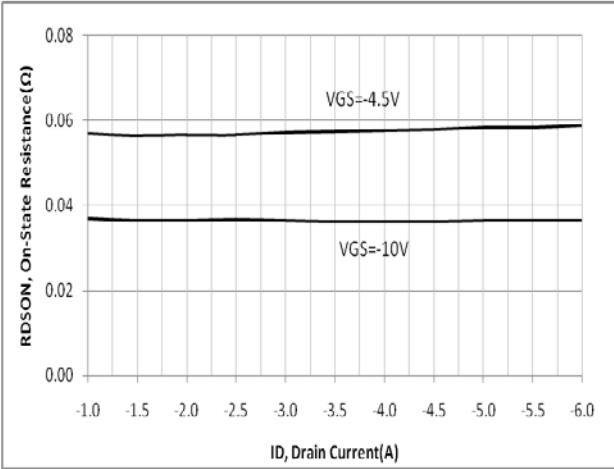


Fig. 3. Gate charge characteristics

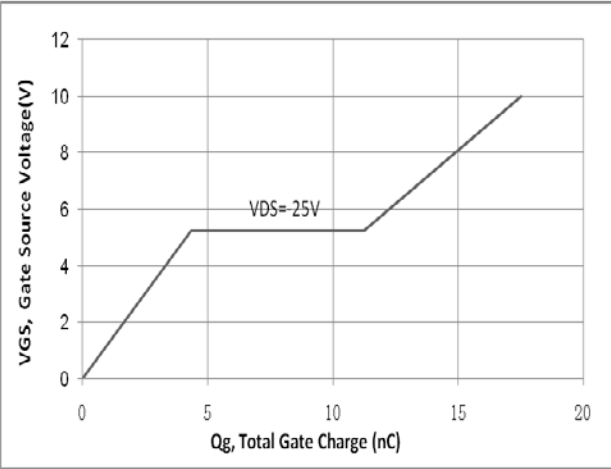


Fig. 4. Maximum safe operating area

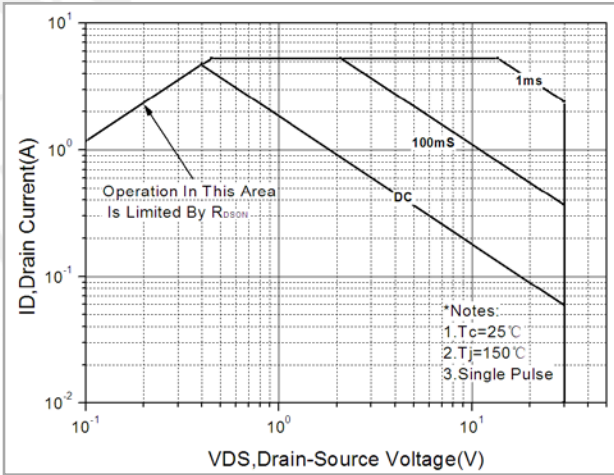


Fig. 5. Capacitance Characteristics

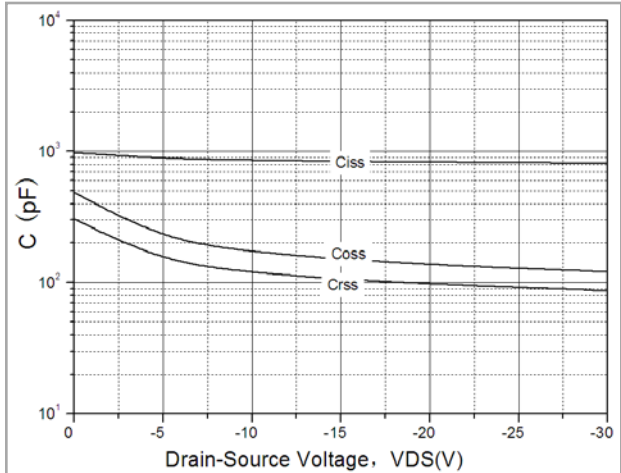


Fig. 6. Transient thermal response curve

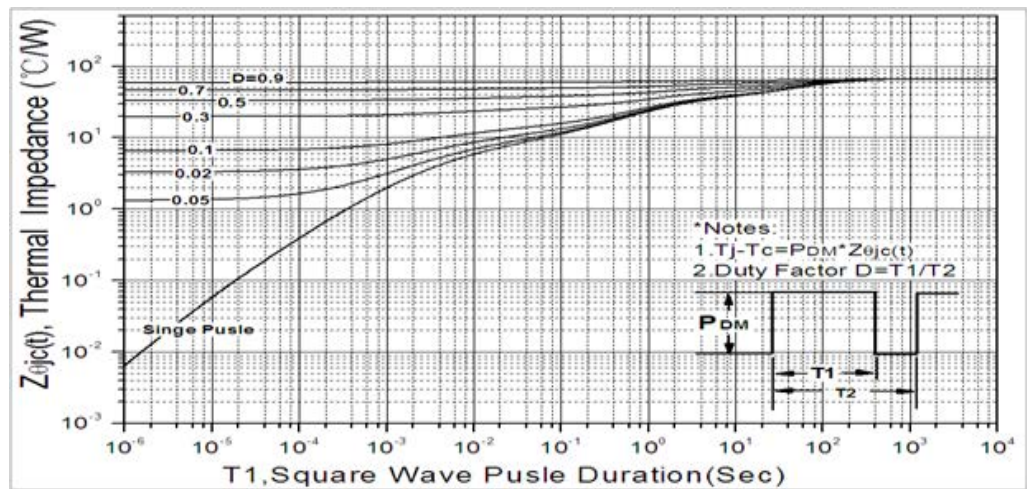


Fig. 7. Gate charge test circuit & waveform

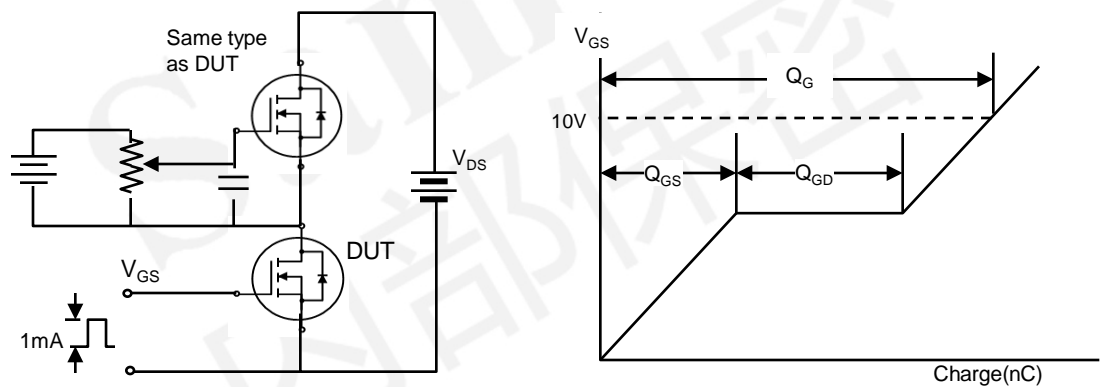
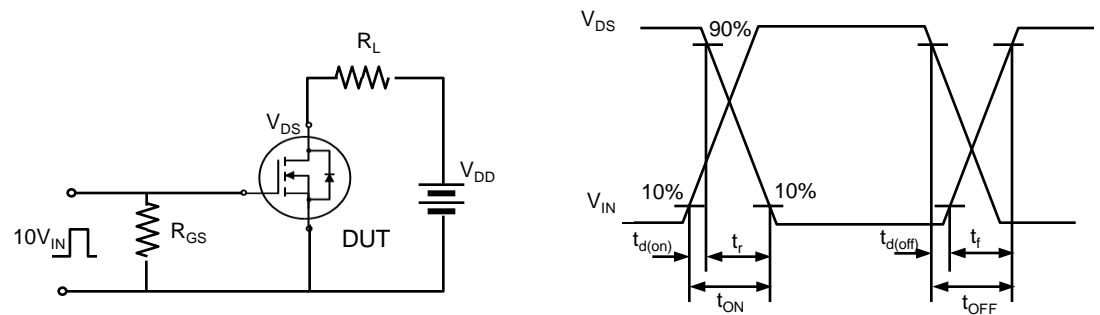



Fig. 8. Switching time test circuit & waveform



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DISCLAIMER

- * All the data & curve in this document was tested in XI'AN SEMIPOWER TESTING & APPLICATION CENTER.
- * This product has passed the PCT,TC,HTRB,HTGB,HAST,PC and Solderdunk reliability testing.
- * Qualification standards can also be found on the Web site (<http://www.semipower.com.cn>) 
- * Suggestions for improvement are appreciated, Please send your suggestions to samwin@samwinsemi.com