SWR30N10

100V Single N-Channel Enhancement-Mode MOSFET

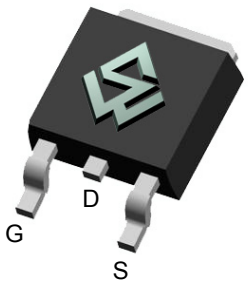
General Description

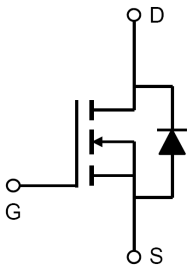
- Low Rdson.
- Fully characterized Avalanche voltage and current.
- EAS 100% Test

Product Summary

- BV_{DSS} 100V
- $R_{DS(on)}$ @VGS = 10V < 45mΩ
- $R_{DS(on)}$ @VGS = 4.5V < 75mΩ

TO-252 D-PAK





Absolute Maximum Ratings (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current (T_A=25ºC)	I_D	30	A
Drain Current (T_C=100ºC)		15	A
Pulsed Drain Current [a]	I_{DM}	80	A
Single Pulse Avalanche energy [b]	E_{AS}	40	mJ
Power Dissipation	P_D	43	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	ºC

Thermal Characteristics

Parameter	Symbol	Maximum	Units
Thermal Resistance, Junction-to-Case [c]	$R_{\theta JC}$	3.0	ºC/W
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	50	ºC/W

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Electrical Characteristics (T_A = 25°C unless otherwise noted)						
Symbol	**Parameter**	**Conditions**	**Min**	**Typ**	**Max**	**Units**
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V , I_D = 250uA	100			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 100V , V_{GS} = 0V			1	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS} , I_D = 250uA	1	-	2.5	V
$R_{DS(ON))}$	Drain-Source On-State Resistance	V_{GS} = 10V , I_D = 5A		32	45	mΩ
		V_{GS} = 4.5V , I_D = 3A		38	75	mΩ
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS} = 0V , I_S = 12.5A		0.85	1.3	V
I_S	Maximum Body-Diode Continuous Current				30	A
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = 50V , V_{GS} = 0V f = 1.0MHz		2420		pF
C_{oss}	Output Capacitance			120		pF
C_{rss}	Reverse Transfer Capacitance			80		pF
Switching Characteristics						
Q_g	Total Gate Charge	V_{DS} = 50V , I_D = 10A V_{GS} = 10V		55		nC
Q_{gs}	Gate-Source Charge			9		nC
Q_{gd}	Gate-Drain Charge			8		nC
$t_{D(ON)}$	Turn-On Delay Time	V_{DD} = 50V , ID = 1A V_{GS} = 10 V R_{GEN} = 6.8 ohm		12		ns
t_r	Turn-On Rise Time			42		ns
$t_{D(OFF)}$	Turn-Off Delay Time			58		ns
t_f	Turn-Off Fall Time			45		ns

a. Repetitive rating, Pulse width limited by junction temperature $T_{J(MAX)}$=150 ºC. Ratings are based on low frequency and duty cycles to keep initial T_J=25 ºC

b. EAS Condition: T_J=25 ºC,VDD=15V,VG=10V,L=10mH,Rg=25Ω

c. The value of $R_{\theta Jc}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C. The value in any given application depends on the user's specific board design.

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Typical Characteristics

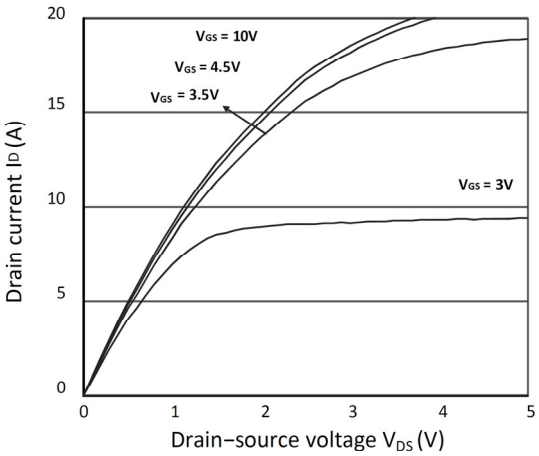

Figure 1. Output Characteristics

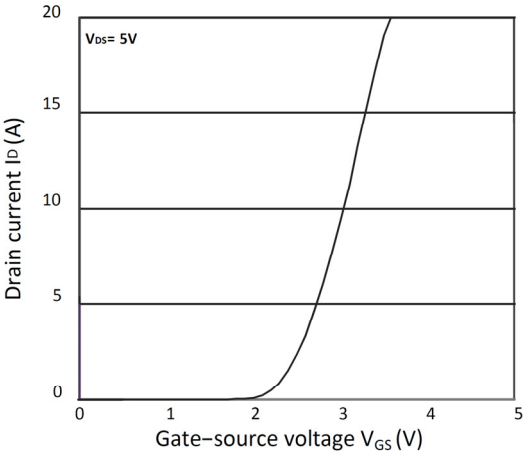

Figure 2. Transfer Characteristics

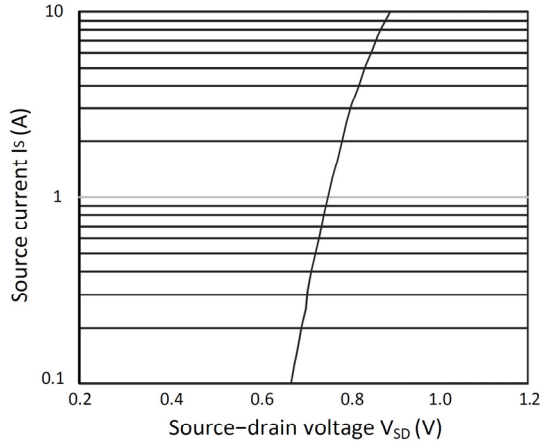

Figure 3. Forward Characteristics of Reverse

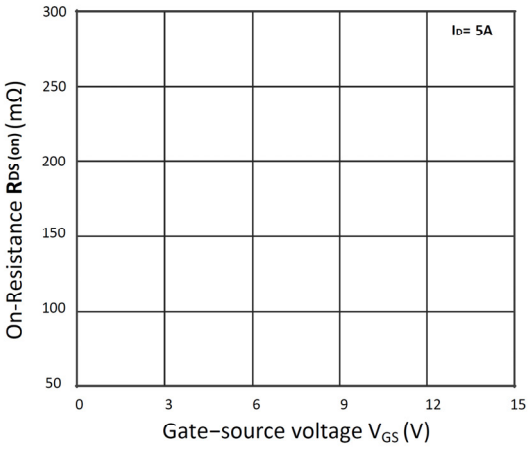

Figure 4. $R_{DS(ON)}$ vs. V_{GS}

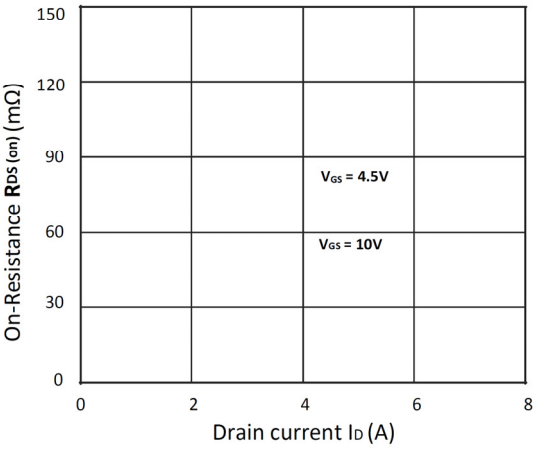

Figure 5. $R_{DS(ON)}$ vs. I_D

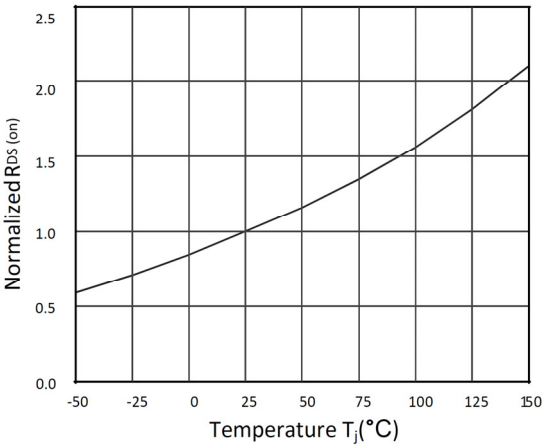

Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

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Typical Characteristics

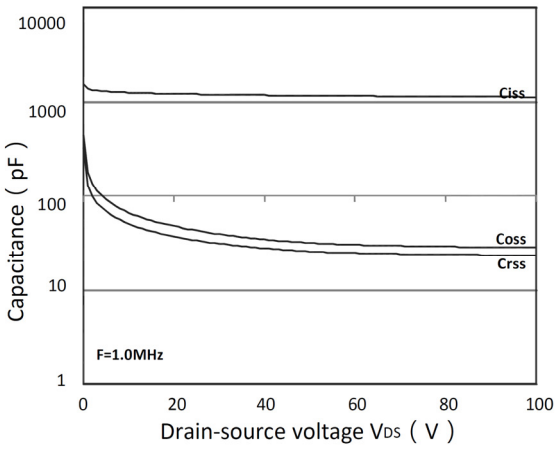

Figure 7. Capacitance Characteristics

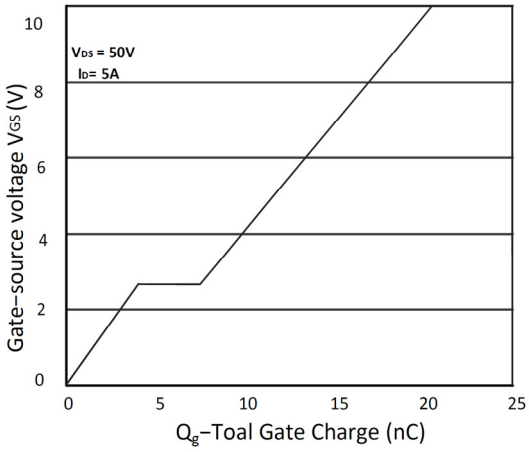

Figure 8. Gate Charge Characteristics

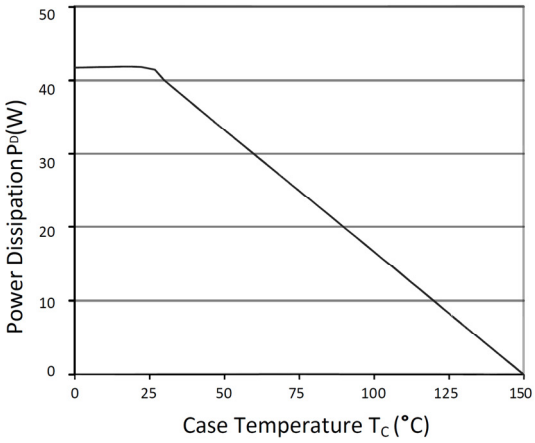

Figure 9. Power Dissipation

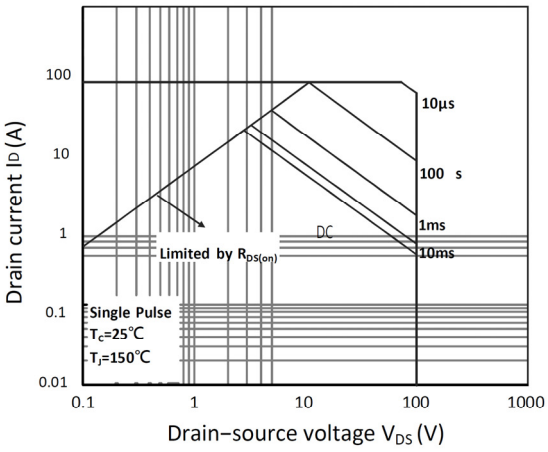

Figure10. Safe Operating Area

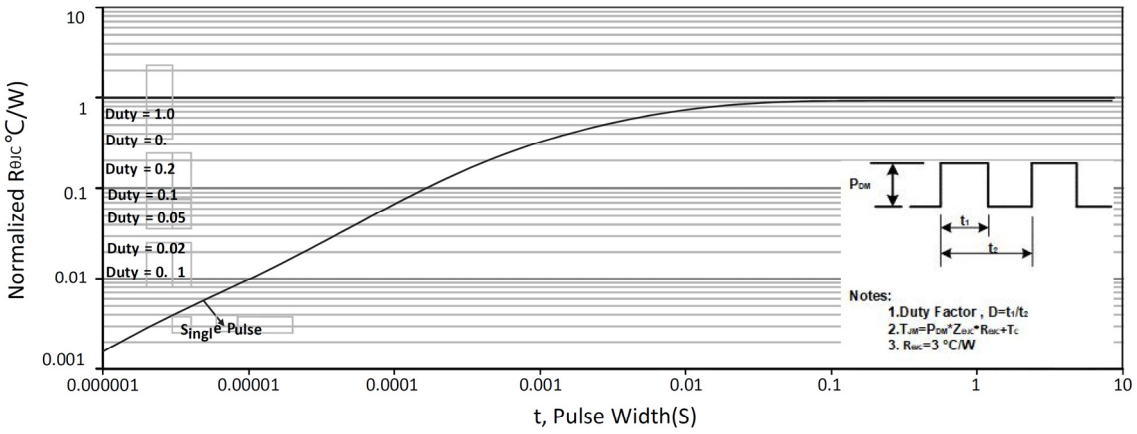

Figure 11. Normalized Maximum Transient Thermal Impedance

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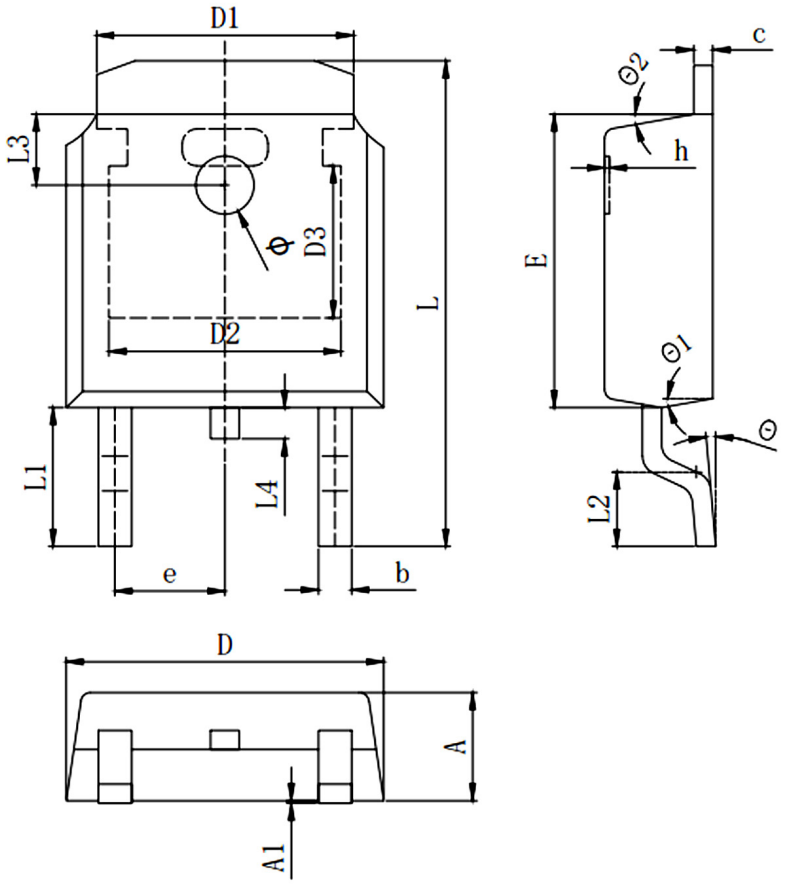
TO-252 D-PAK Package



Symbols	Millimeters		
	MIN.	Mom.	MAX.
A	2.200	2.300	2.400
A1	0.000		0.127
b	0.640	0.690	0.740
c(电镀后)	0.460	0.520	0.580
D	6.500	6.600	6.700
D1	5.334 REF		
D2	4.826 REF		
D3	3.166REF		
E	6.000	6.100	6.200
e	2.286 TYP		
h	0.000	0.100	0.200
L	9.900	10.100	10.300
L1	2.888 REF		
L2	1.400	1.550	1.700
L3	1.600 REF		
L4	0.600	0.800	1.000
Φ	1.100	1.200	1.300
θ	0°		8°
θ1	9° TYP		
θ2	9° TYP		

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>>SiliconWisdom(矽睿半导体)

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