

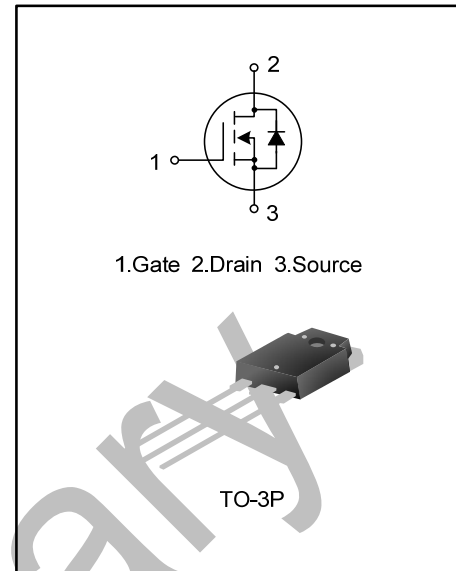
47A, 600V DP MOS POWER TRANSISTOR

GENERAL DESCRIPTION

SVS47N60PN is an N-channel enhancement mode high voltage power MOSFETs produced using the new platform of Silan's DP MOS technology. It achieves low conduction loss and switching losses. It leads the design engineers to their power converters with high efficiency, high power density, and superior thermal behavior. Furthermore, it's universal applicable, i.e., suitable for hard and soft switching topologies.

FEATURES

- 47A, 600V, $R_{DS(on)}(typ)=55m\Omega@V_{GS}=10V$
- New revolutionary high voltage technology
- Ultra low gate charge
- Periodic avalanche rated
- Extreme dv/dt rated
- High peak current capability



ORDERING INFORMATION

Part No.	Package	Marking	Material	Packing
SVS47N60PN	TO-3P	47N60PN	Pb free	Tube

ABSOLUTE MAXIMUM RATINGS ($T_C=25^{\circ}C$ unless otherwise noted)

Characteristics		Symbol	Ratings	Unit
Drain-Source Voltage		V _{DS}	600	V
Gate-Source Voltage		V _{GS}	±30	V
Drain Current	T _C =25°C	I _D	47	A
	T _C =100°C		30	
Drain Current Pulsed		I _{DM}	140	A
Power Dissipation(T _C =25°C) -Derate above 25°C		P _D	415	W
			3.32	W/°C
Single Pulsed Avalanche Energy (Note 1)		E _{AS}	2103	mJ
Operation Junction Temperature Range		T _J	-55~+150	°C
Storage Temperature Range		T _{stg}	-55~+150	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Ratings	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.3	$^{\circ}C/W$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	50	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS (T_c=25°C unless otherwise noted)

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain -Source Breakdown Voltage	B _{VDSS}	V _{GS} =0V, I _D =250μA	600	--	--	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =600V, V _{GS} =0V	--	--	1.0	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±30V, V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250μA	2.0	--	4.0	V
Static Drain-Source On State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A	--	55	70	mΩ
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	--	3646	--	pF
Output Capacitance	C _{oss}		--	2330	--	
Reverse Transfer Capacitance	C _{rss}		--	90	--	
Turn-on Delay Time	t _{d(on)}	V _{DD} =380V, V _{GS} =13V, R _G =1.8Ω, I _D =47A (Note 2,3)	--	18.8	--	ns
Turn-on Rise Time	t _r		--	39.3	--	
Turn-off Delay Time	t _{d(off)}		--	87.0	--	
Turn-off Fall Time	t _f		--	46.6	--	
Total Gate Charge	Q _g	V _{DD} =380V, V _{GS} =10V, I _D =47A (Note 2,3)	--	86.6	--	nC
Gate-Source Charge	Q _{gs}		--	15.4	--	
Gate-Drain Charge	Q _{gd}		--	40.2	--	

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	I _S	Integral Reverse P-N Junction Diode in the MOSFET	--	--	47	A
Pulsed Source Current	I _{SM}		--	--	140	
Diode Forward Voltage	V _{SD}	I _S =4.0A, V _{GS} =0V	--	--	1.4	V
Reverse Recovery Time	T _{rr}	I _S =4.0A, V _{GS} =0V, dI _F /dt=100A/μs	--	640	--	ns
Reverse Recovery Charge	Q _{rr}		--	25	--	μC

Notes:

1. L=30mH, I_{AS}=11A, V_{DD}=100V, R_G=25Ω, starting T_J=25°C;
2. Pulse Test: Pulse width ≤300μs, Duty cycle ≤2%;
3. Essentially independent of operating temperature.

TYPICAL CHARACTERISTICS

Figure 1. Typ. Output characteristic

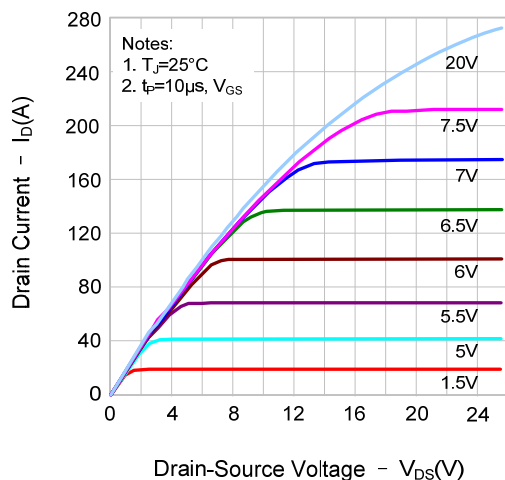


Figure 2. Typ. Drain-Source onresistance

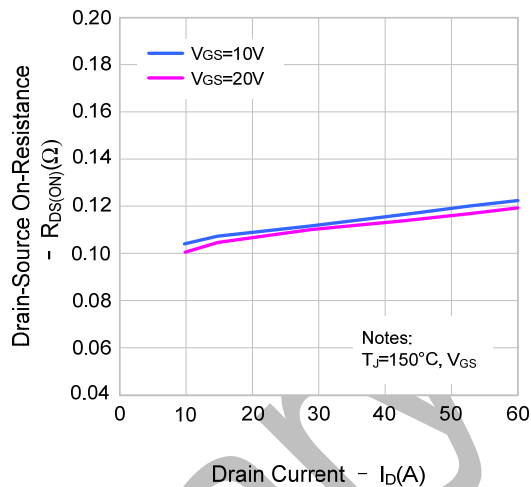


Figure 3. Drain-Source on-state resistance

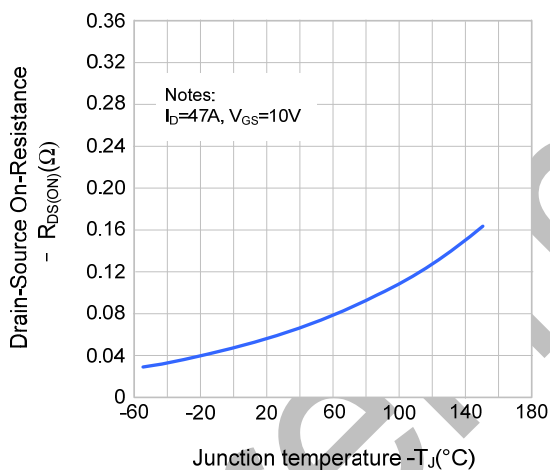


Figure 4. Drain-source breakdown voltage

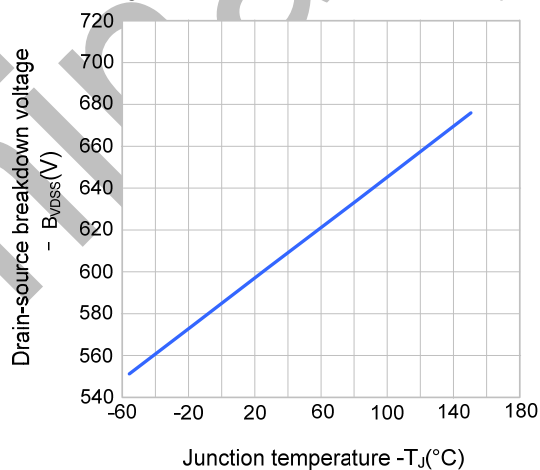


Figure 5. Capacitance Characteristics

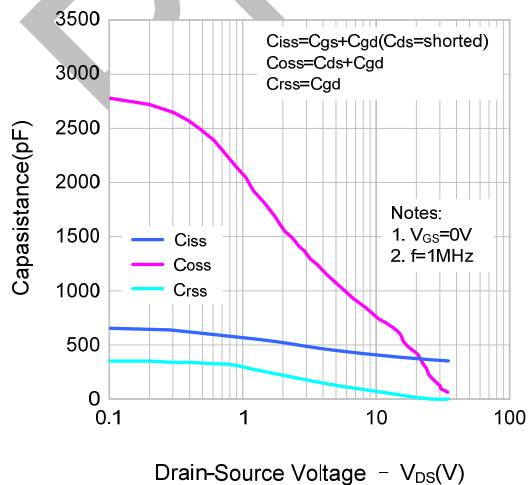
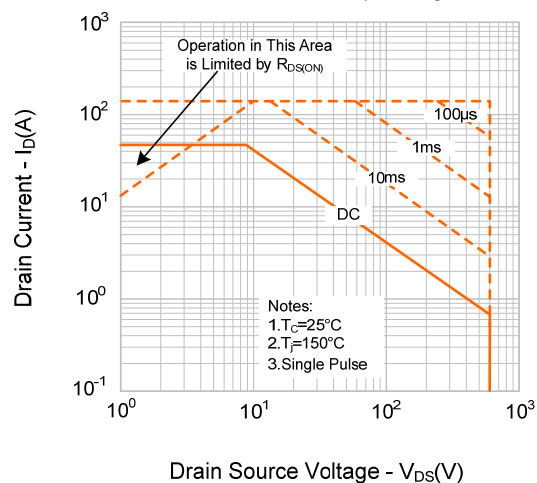


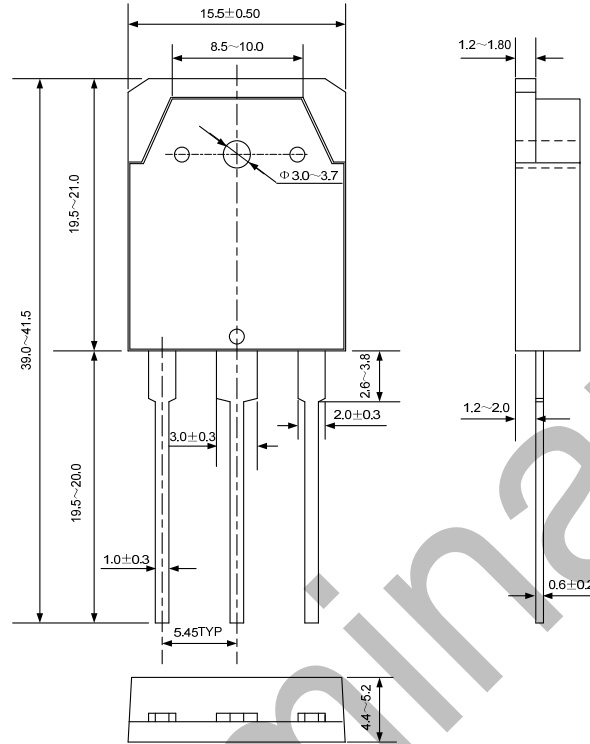
Figure 6. Max. Safe Operating Area



PACKAGE OUTLINE

TO-3P

UNIT: mm



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Part No.:	SVS47N60PN	Document Type:	Datasheet
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Revision History:

1. Preliminary

Preliminary