

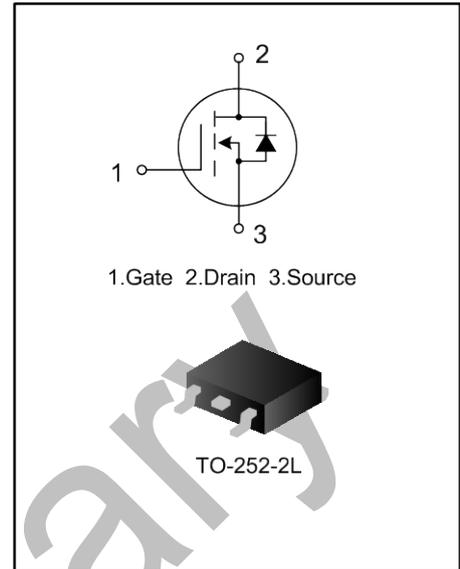
6A, 600V DP MOS POWER TRANSISTOR

DESCRIPTION

SVS6N60D 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

- ◆ 6A,600V, $R_{DS(on)(typ.)}=0.6\Omega@V_{GS}=10V$
- ◆ 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
SVS6N60D	TO-252-2L	SVS6N60D	Halogen free	Tube

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

Characteristics	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 30	V
Drain Current	I_D	$T_C=25^\circ\text{C}$	6.0
		$T_C=100^\circ\text{C}$	3.8
Drain Current Pulsed	I_{DM}	17.5	A
Power Dissipation ($T_C=25^\circ\text{C}$) - Derate above 25°C	P_D	50	W
		0.40	W/ $^\circ\text{C}$
Single Pulsed Avalanche Energy (Note 1)	E_{AS}	190	mJ
Operation Junction Temperature Range	T_J	$-55\sim+150$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55\sim+150$	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Ratings	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.5	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	110	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS (Unless otherwise noted , T_c=25°C)

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 =2A	--	0.6	0.75	Ω
Input Capacitance	C _{iSS}	f=1MHz, V _{gs} =0V, V _{ds} =25V	--	373	--	pF
Output Capacitance	C _{oss}		--	409	--	
Reverse Transfer Capacitance	C _{rss}		--	15.3	--	
Turn-on Delay Time	t _{d(on)}	V _{DD} =300V, V _{GS} =10V, R _G =25Ω, I _D =6A (Note 2,3)	--	8.73	--	ns
Turn-on Rise Time	t _r		--	24.87	--	
Turn-off Delay Time	t _{d(off)}		--	33.47	--	
Turn-off Fall Time	t _f		--	24.4	--	
Total Gate Charge	Q _g	V _{DD} =480V, V _{GS} =10V, I _D =6A (Note 2,3)	--	13.0	--	nC
Gate-Source Charge	Q _{gs}		--	2.48	--	
Gate-Drain Charge	Q _{gd}		--	6.94	--	

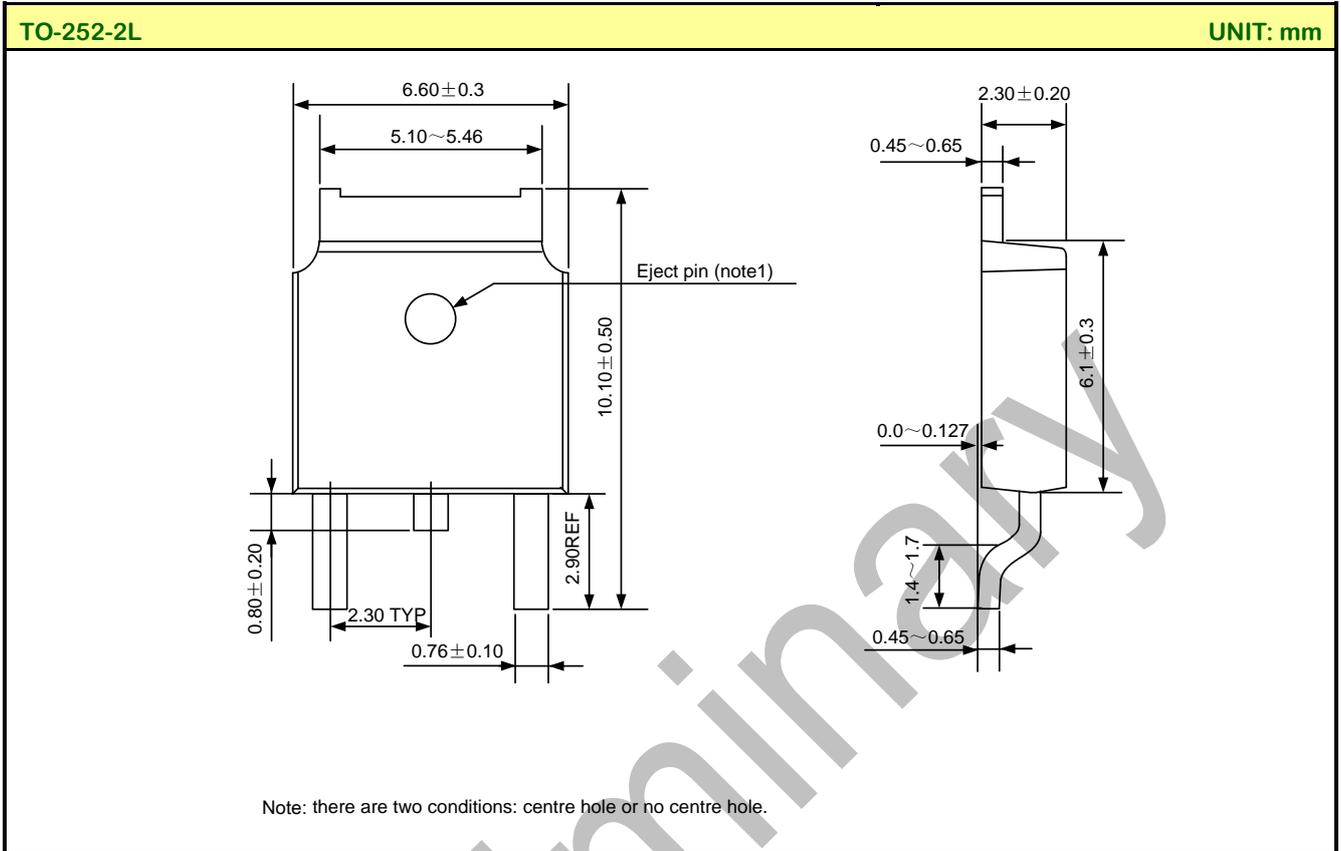
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	I _S	Integral Reverse P-N Junction Diode in the MOSFET	--	--	6.0	A
Pulsed Source Current	I _{SM}		--	--	17.5	
Diode Forward Voltage	V _{SD}	I _S =6.0A, V _{GS} =0V	--	--	1.4	V
Reverse Recovery Time	T _{rr}	I _S =6.0A, V _{GS} =0V, dI _F /dt=100A/μs	--	267	--	ns
Reverse Recovery Charge	Q _{rr}		--	2.32	--	μC

Notes:

- L=30mH, I_{AS}=3.5A, V_{DD}=50V, R_G=25Ω, starting T_J=25°C;
- Pulse Test: Pulse width ≤300μs, Duty cycle≤2%;
- Essentially independent of operating temperature.

PACKAGE OUTLINE



Disclaimer :

- Silan reserves the right to make changes to the information herein for the improvement of the design and performance without further notice! Customers should obtain the latest relevant information before placing orders and should verify that such information is complete and current.
- All semiconductor products malfunction or fail with some probability under special conditions. When using Silan products in system design or complete machine manufacturing, it is the responsibility of the buyer to comply with the safety standards strictly and take essential measures to avoid situations in which a malfunction or failure of such Silan products could cause loss of body injury or damage to property.
- Silan will supply the best possible product for customers!

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Revision History:

1. Preliminary

Preliminary