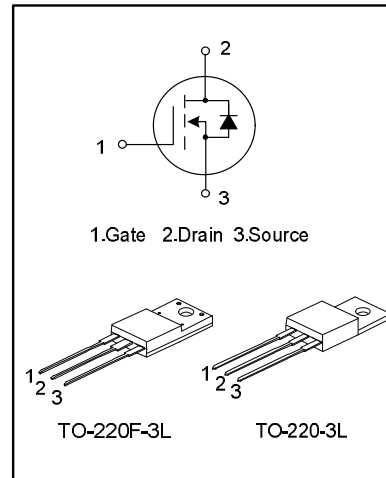


4A, 600V N-CHANNEL MOSFET
GENERAL DESCRIPTION

SVD4N60T/F is an N-channel enhancement mode power MOS field effect transistor which is produced using Silan proprietary S-Rin™ structure DMOS technology. The improved planar stripe cell and the improved guarding ring terminal have been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.

These devices are widely used in AC-DC power suppliers, DC-DC converters and H-bridge PWM motor drivers.


FEATURES

- * 4A,600V,RDS(on) (typ) =2.0Ω@VGS=10V
- * Low gate charge
- * Low Crss
- * Fast switching
- * Improved dv/dt capability

ORDERING SPECIFICATIONS

Part No.	Package	Marking	Shipping
SVD4N60T	TO-220-3L	SVD4N60T	50Unit/Tube
SVD4N60F	TO-220F-3L	SVD4N60F	50Unit/Tube

ABSOLUTE MAXIMUM RATINGS (Tc=25°C unless otherwise noted)

Parameter	Symbol	SVD4N60T	SVD4N60F	Unit
Drain-Source Voltage	VDS	600		V
Gate-Source Voltage	VGS	±30		V
Drain Current	ID	5.0		A
Power Dissipation(Tc=25°C) -Derate above 25°C	Pd	100	33	W
		0.8	0.26	W/°C
Single Pulsed Avalanche Energy (Note 1)	EAS	330		mJ
Repetitive Avalanche Energy (Note 2)	EAR	7.3		mJ
Operation Junction Temperature	TJ	-55~+150		°C
Storage Temperature	Tstg	-55~+150		°C

THERMAL CHARACTERISTICS

Parameter	Symbol	SVD4N60T	SVD4N60F	Unit
Thermal Resistance, Junction-to-Case	R θ JC	1.25	3.79	°C/W
Thermal Resistance, Junction-to-Ambient	R θ JA	62.5	62.5	°C/W

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

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain -Source Breakdown Voltage	BVDSS	VGS=0V, ID=250μA	600	--	--	V
Drain-Source Leakage Current	IDSS	VDS=600V, VGS=0V	--	--	10	μA
Gate-Source Leakage Current	IGSS	VGS=±30V, VDS=0V	--	--	±100	nA
Gate Threshold Voltage	VGS(th)	VGS= VDS, ID=250μA	2.0	--	4.0	V
Static Drain- Source On State Resistance	RDS(on)	VGS=10V, ID=2A	--	2.0	2.4	Ω
Input Capacitance	Ciss	VDS=25V, VGS=0V, f=1.0MHZ	--	672	--	pF
Output Capacitance	Coss		--	66	--	
Reverse Transfer Capacitance	Crss		--	4.7	--	
Turn-on Delay Time	td(on)	VDD=300V, ID=4.4A, RG=25Ω (Note 3,4)	--	27	--	ns
Turn-on Rise Time	tr		--	19	--	
Turn-off Delay Time	td(off)		--	160	--	
Turn-off Fall Time	tf		--	22	--	
Total Gate Charge	Qg	VDS=480V, ID=4.4A, VGS=10V (Note 3,4)	--	19.8	--	nC
Gate-Source Charge	Qgs		--	4	--	
Gate-Drain Charge	Qgd		--	7.2	--	

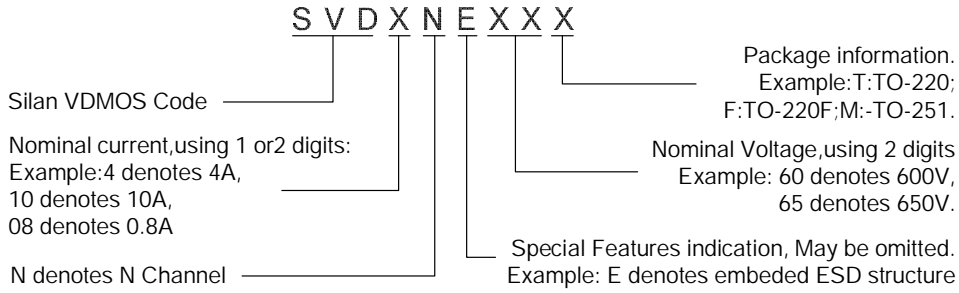
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	IS	Integral Reverse P-N Junction Diode in the MOSFET	--	--	4.0	A
Pulsed Source Current	ISM		--	--	16	
Diode Forward Voltage	VSD	IS=4.0A, VGS=0V	--	--	1.4	V
Reverse Recovery Time	Trr	IS=4.0A, VGS=0V, dIF/dt=100A/μs (Note 3)	--	300	--	ns
Reverse Recovery Charge	Qrr		--	2.2	--	μC

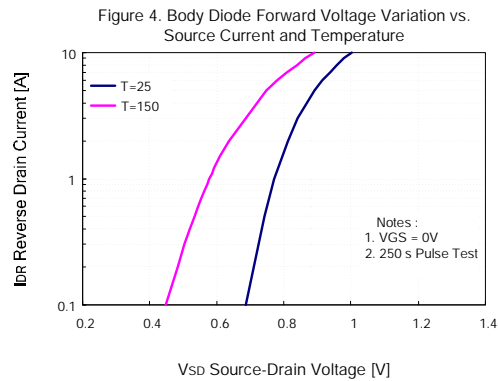
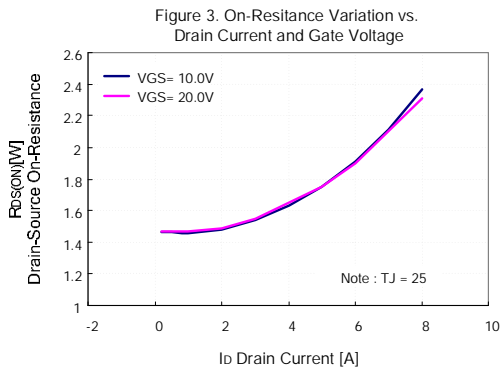
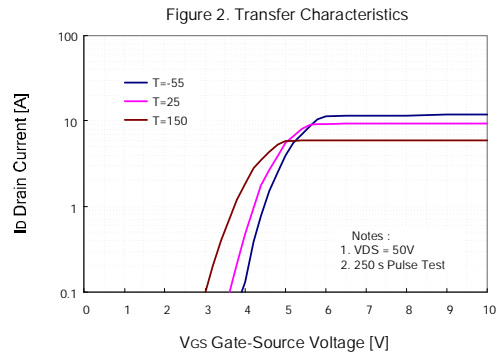
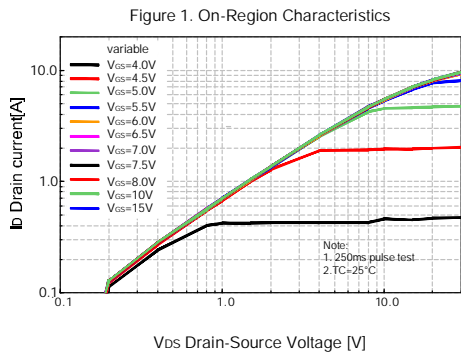
Notes:

- L=30mH, IAS=4.4A, VDD=85V, RG=25Ω, starting T_J=25°C;
- Repetitive Rating: Pulse width limited by maximum junction temperature;
- Pulse Test: Pulse width ≤300μs, Duty cycle ≤2%;
- Essentially independent of operating temperature.

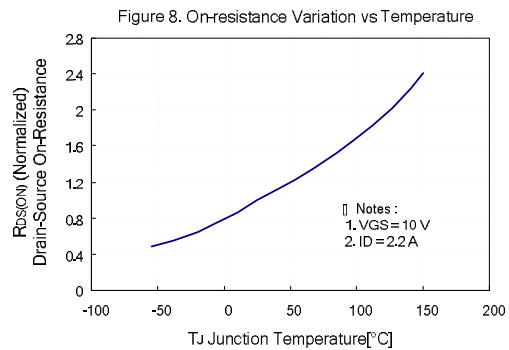
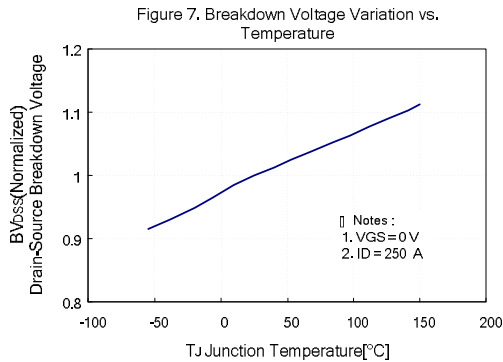
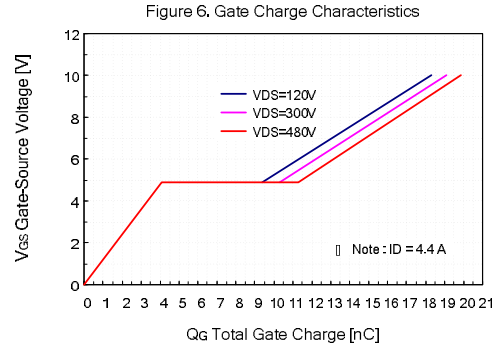
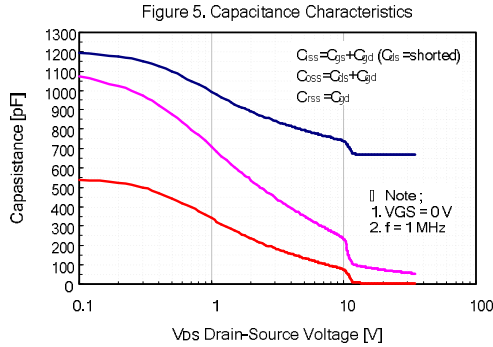
NOMENCLATURE



TYPICAL CHARACTERISTICS

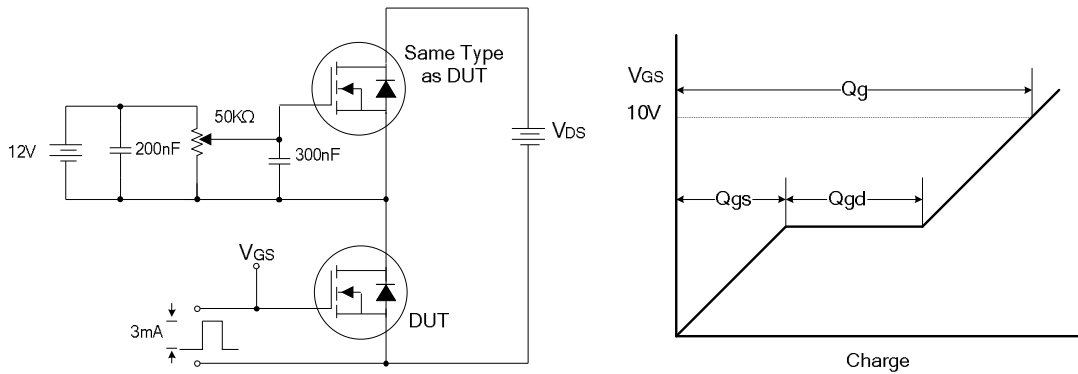


TYPICAL CHARACTERISTICS (continued)

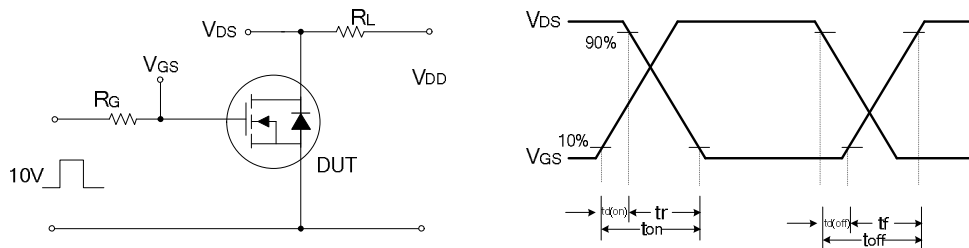


TYPICAL TEST CIRCUIT

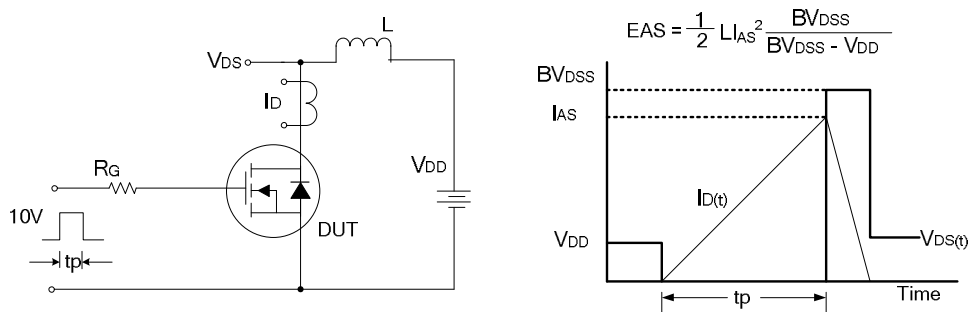
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveform



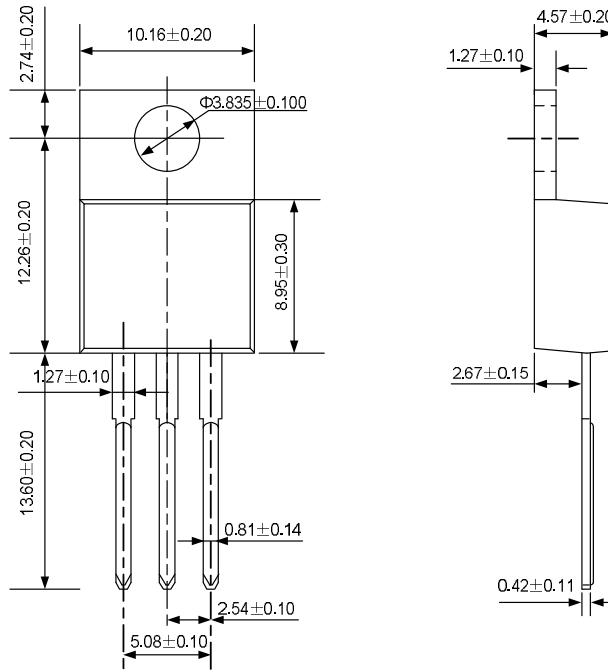
Unclamped Inductive Switching Test Circuit & Waveform



PACKAGE OUTLINE

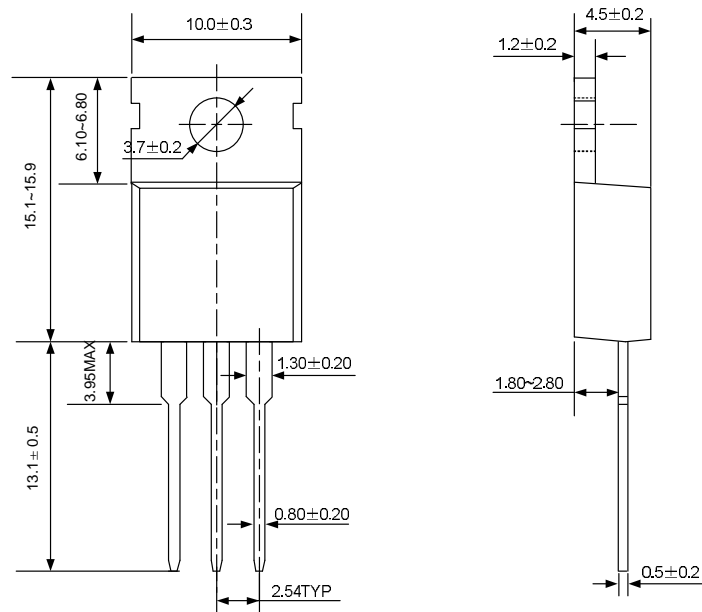
TO-220-3L(One)

UNIT: mm



TO-220-3L (Two)

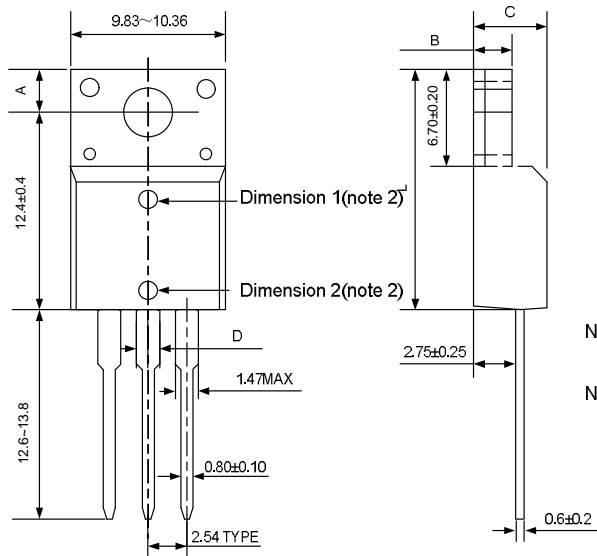
UNIT: mm



PACKAGE OUTLINE (continued)

TO-220F-3L(One)

UNIT: mm



Symbol(note1)	Dimension1	Dimension2
A	3.30±0.15	2.70±0.15
B	2.55±0.20	3.0±0.20
C	4.72±0.2	4.50±0.20
D	1.47MAX	1.75MAX
L	15.75±0.30	15.00±0.30

Note1: There may be two values for some products due to different plastic mould machine, so two dimensions of the same position are listed;
 Note2: When the product size is Dimension1, the thimble hole is on top of the surface; when the size is Dimension2, the center hole is on bottom of the surface.

TO-220F-3L (Two)

UNIT: mm

