sapcon®

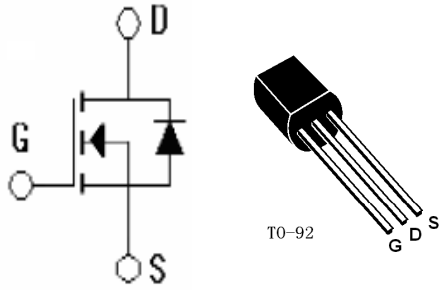
SVF1N60B

N-CHANNEL MOSFET

●Absoolute Maximum Rantings (Tc=25℃)

PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	VDSS	600	V
Drain Current-continuous	ID	0.5	A
Drain Current-pulse	IDM	2.0	A
Gate-Source Voltage	VGSS	±30	V
Power Dissipation	PD	3.0	W
Junction Temperature	Tj	150	℃
Storage Temperature	TsTg	-55~+150	℃

Package



● Electronic Characteristics(Tc=25℃)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	Typ	MAX	UNIT
Drain-Source Voltage	BVDSS	ID=250uA;VGS=0V	600	-	-	V
Zero Gate Voltage Drain Current	IDSS	VDS=600V,VGS=0V (TC=25℃)	-	-	10	uA
Gate-body leakage current.forward	IGSSF	VDS=0V,VGS=30V	-	-	100	nA
Gate-body leakage current.reverse	IGSSR	VDS=0V,VGS=-30V	-	-	-100	nA
Gate Threshold Voltage	VGS(th)	VDS=VGS,ID=250uA	2.0	-	4.0	V
Static Drain-Source On-Resistance	RDS(ON)	VGS=10V,ID=0.5A	-	11	15	Ω
Forward Transconductance	Gfs	VDS=40V,ID=0.5A	-	0.8	-	S
Input capacitance	Ciss	VDS=25V VGS=0V f=1.0MHZ	-	178	221	pF
Ouput capacitance	Coss		-	19	27	pF
Reverse transfer capacitance	Crss		-	3.7	4.8	pF

Electronic Characteristics

Single Pulsed Avalanche Energy	E_{AS}	47				MJ
Avalanche Current (note1)	I_{AR}	1.0				A
Repetitive Avalanche Current (note1)	E_{AR}	3.0				MJ
Peak Diode Recovery dv/dt(note 3)	dv/dt	4.2				v/ns
Swiching Characteristics						
Turn-On delay time	td(on)	V_{DD}=300V, I_D=1A, R_G=25Ω (note 4,5)	-	15	45	ns
Turn-On rise time	tf		-	46	105	ns
Turn-Off delay time	td(off)		-	26	62	ns
Turn-Off rise time	tf		-	37	82	ns
Total Gate Charge	Qg	V_{DS}=480V, I_D=1A, V_{GS}=10V (note 4,5)	-	6.1	7.2	nc
Gate-Source charge	Qgs		-	1.0	-	nc
Gate-Drain charge	Qgd		-	3.0	-	nc
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum continuous Drain-Source Diode Forward Current	Is		-	-	1.0	A
Maximum Pulsed Drain-Source Diode Forward Current	Ism		-	-	4.0	A
Drain-Source Diode Forward Voltage	V_{SDF}	V_{GS}=0V, Is=2.0A	-	-	1.0	V
Reverse recovery time	Trr	V_{GS}=0V, Is=1.0A dIF/dt=100A/us (note 4)	-	185	-	ns
Reverse recovery charge	Qrr		-	0.51	-	μc

Thermal Characteristic

Parameter	Symbol	Max	Unit
Thermal Resistance,Junction to case	Rth(j-c)	--	℃/W
Thermal Resistance,Junction to Ambient	Rth(j-a)	120	℃/W

Notes:

1：Pulse width limited by maximum junction temperature

2：L=59mH, I_{AS}=1.0A, V_{DD}=50V, R_G=25 Ω,Starting T_J=25℃

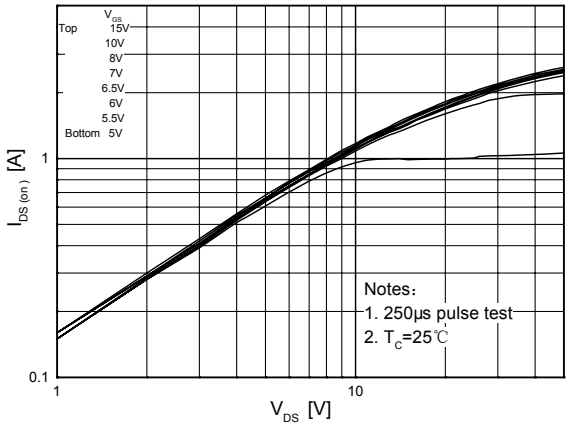
3：I_{SD} ≤10A,di/dt ≤200A/μs, VDD≤BV_{DSS}, Starting T_J=25℃

4：Pulse Test：Pulse Width ≤300μs, Duty Cycle≤2%

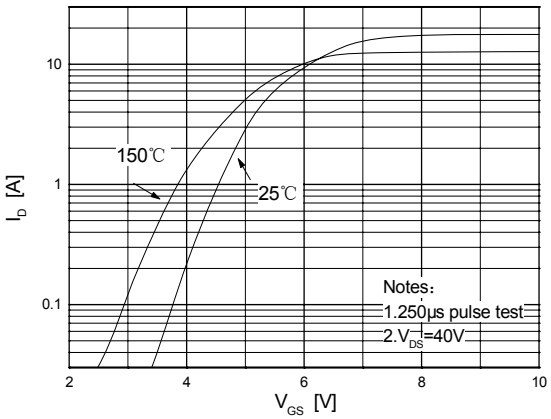
5：Essentially independent of operating temperature

ELECTRICAL CHARACTERISTICS (curves)

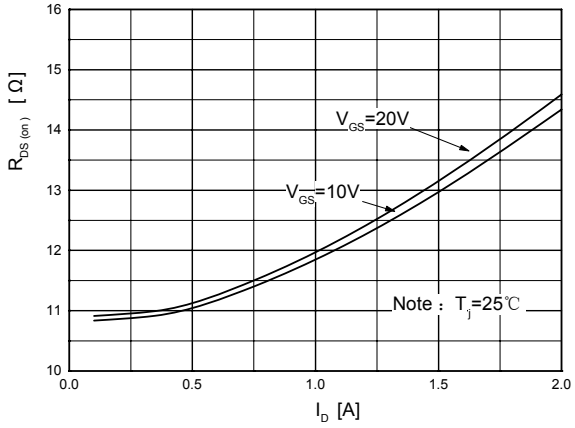
On-Region Characteristics



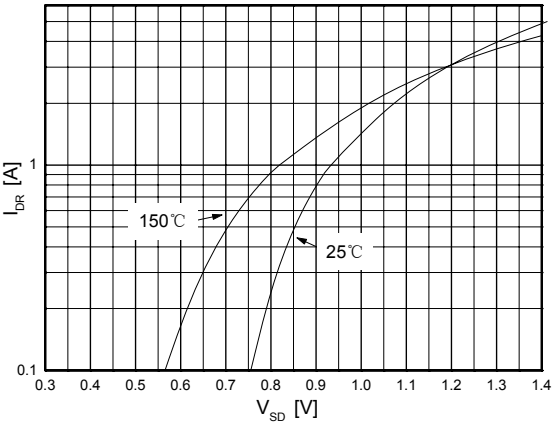
Transfer Characteristics



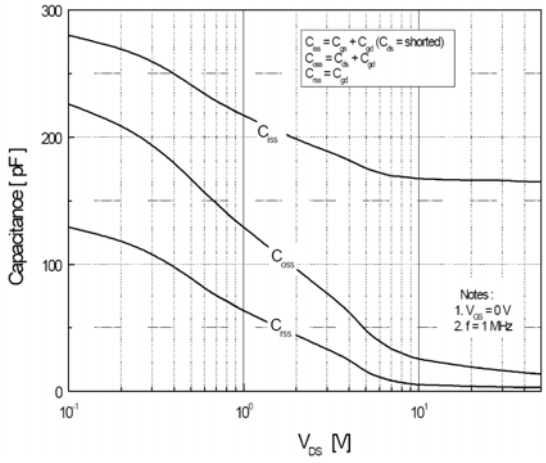
On-Resistance Variation vs. Drain Current and Gate Voltage



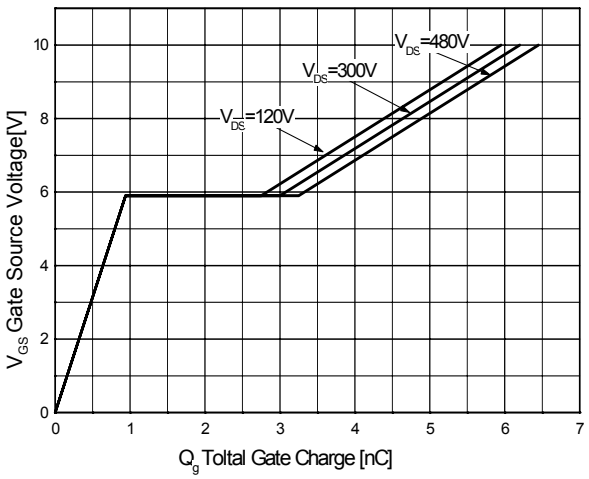
Body Diode Forward Voltage Variation vs. Source Current and Temperature



Capacitance Characteristics

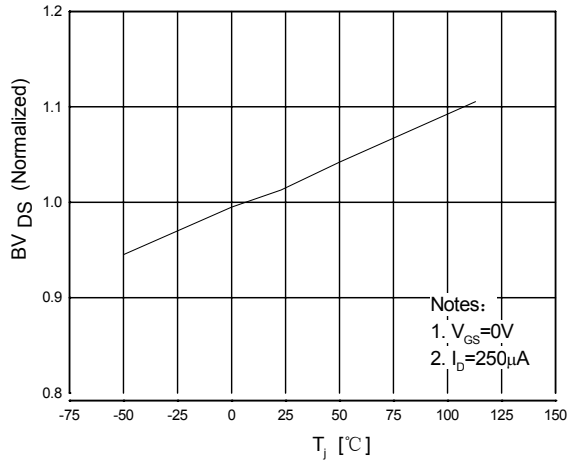


Gate Charge Characteristics

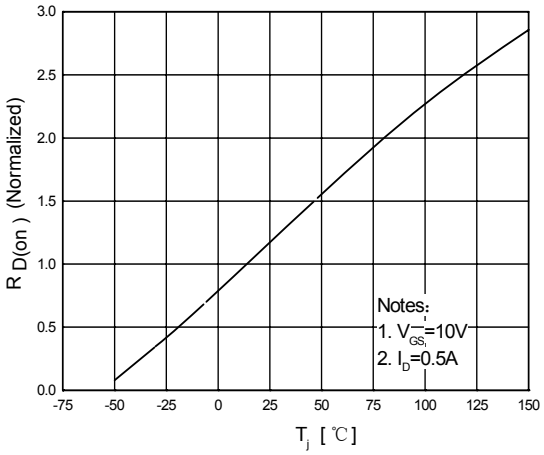


ELECTRICAL CHARACTERISTICS (curves)

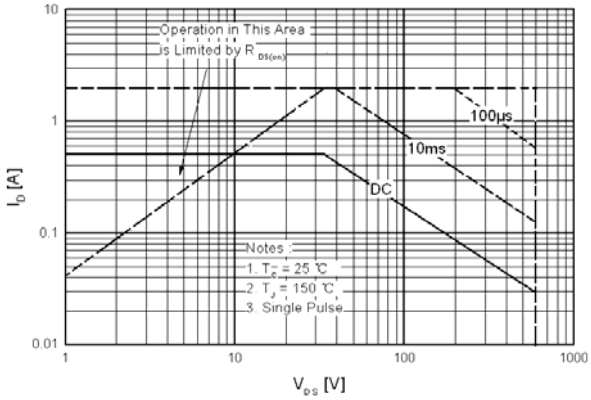
Breakdown Voltage Variation vs. Temperature



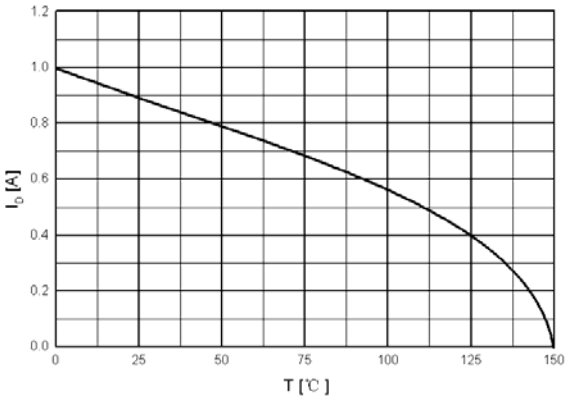
On-Resistance Variation vs. Temperature



Maximum Safe Operating Area For TO-92



Maximum Drain Current vs. Case Temperature



Transient Thermal Response Curve For TO-92