

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	7.5mΩ@10V	68A
	10mΩ@4.5V	



合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

技术 品质 服务

www.siliup.com

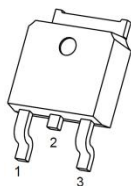
Feature

- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Excellent reliability and uniformity
- Fast switching and soft recovery

Application

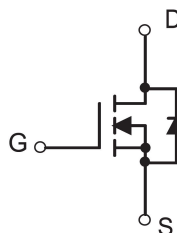
- PD charger
- Motor driver
- Switching voltage regulator
- DC-DC convertor
- Switched mode power supply

Package

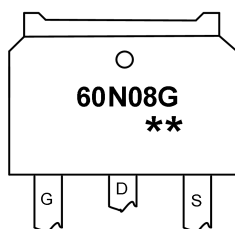


TO-252-2L(G:1 D:2 S:3)

Circuit diagram



Marking



60N08G
**

=Device Code
=Week Code

Order Information

Device	Package	Unite/Tape
SP60N08GTH	TO-252	2500

Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	60	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current ¹⁾ , TC=25 °C	I_D	68	A
Pulsed drain current ²⁾ , TC=25 °C	$I_{D, pulse}$	204	A
Power dissipation ³⁾ , TC=25 °C	P_D	81	W
Single pulsed avalanche energy ⁵⁾	E_{AS}	109	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	1.54	°C/W
Thermal resistance, junction-ambient ⁴⁾	$R_{\theta JA}$	62	°C/W
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

Electrical characteristics (Ta=25 °C, unless otherwise noted)

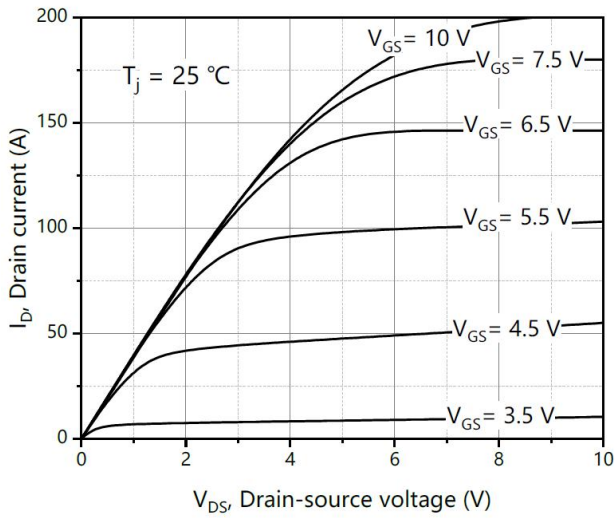
Parameter	Symbol	Test condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV _{DSS}	VGS=0 V, ID=250 μA	60			V
Gate-source leakage current	IGSS	VGS=±20 V			±100	nA
Drain-source leakage current	IDSS	VDS=60 V, VGS=0 V			1	μA
Gate threshold voltage	VGS(th)	VDS=VGS, ID=250 μA	1		2.5	V
Drain-source on-state resistance	RDS(ON)	VGS=10 V, ID=20 A		7.5	10	mΩ
		VGS=4.5V, ID=10 A		10	13	
Dynamic Characteristics						
Input capacitance	Ciss	VGS=0 V, VDS=50 V, f=100 kHz		1110		pF
Output capacitance	Coss			350		
Reverse transfer capacitance	Crss			12		
Total gate charge	Qg	VGS=10 V, VDS=50 V, ID=25 A		18.3		nC
Gate-source charge	Qgs			3.8		
Gate-drain charge	Qgd			3.2		
Switching Characteristics						
Turn-on delay time	td(on)	VGS=10 V, VDS=50 V, RG=2 Ω, ID=25 A		23.9		ns
Rise time	tr			4.6		
Turn-off delay time	td(off)			37.8		
Fall time	tf			6.4		
Body Diode Characteristics						
Diode forward voltage	VSD	IS=20 A, VGS=0 V			1.3	V
Reverse recovery time	trr	VR=50 V, IS=25 A, di/dt=100 A/μs		42.6		ns
Reverse recovery charge	Qrr			36.3		nC
Peak reverse recovery current	Irrm			1.4		A

Note:

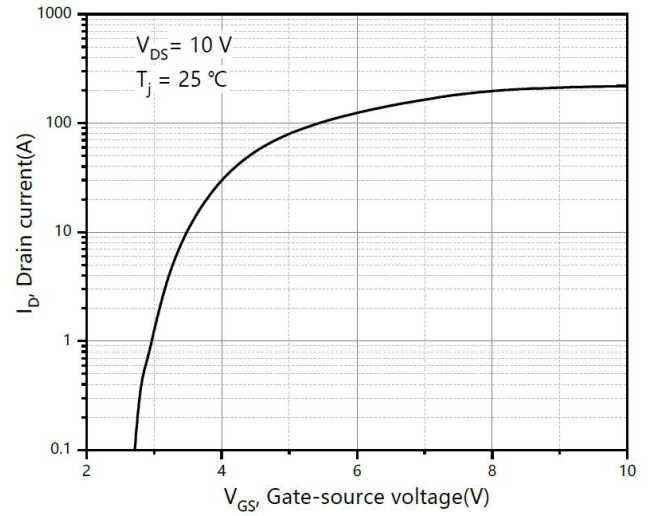
1. Calculated continuous current based on maximum allowable junction temperature.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. P_D is based on max. junction temperature, using junction-case thermal resistance.
4. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_a=25\text{ }^\circ\text{C}$.
5. $V_{DD}=30\text{ V}, V_{GS}=10\text{ V}, L=0.3\text{ mH}$, starting $T_j=25\text{ }^\circ\text{C}$.



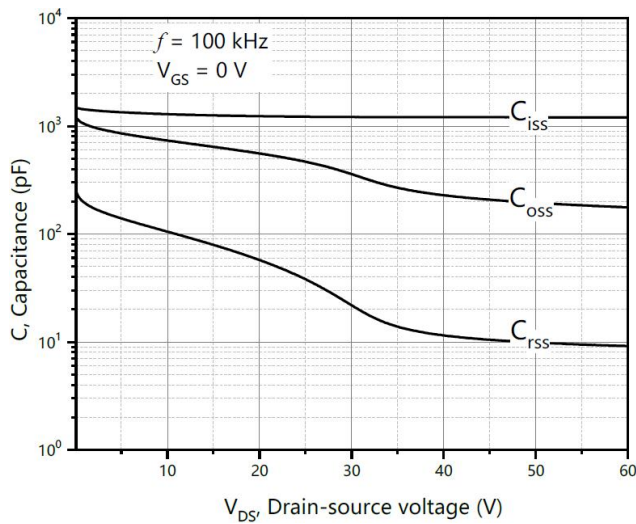
Typical Characteristics



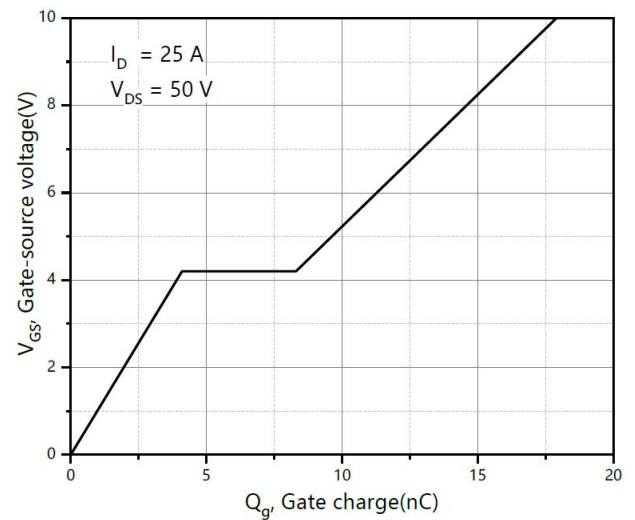
Output characteristics



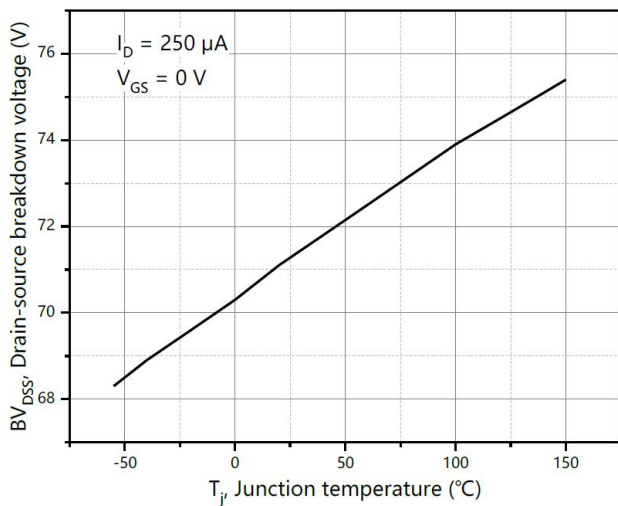
Transfer characteristics



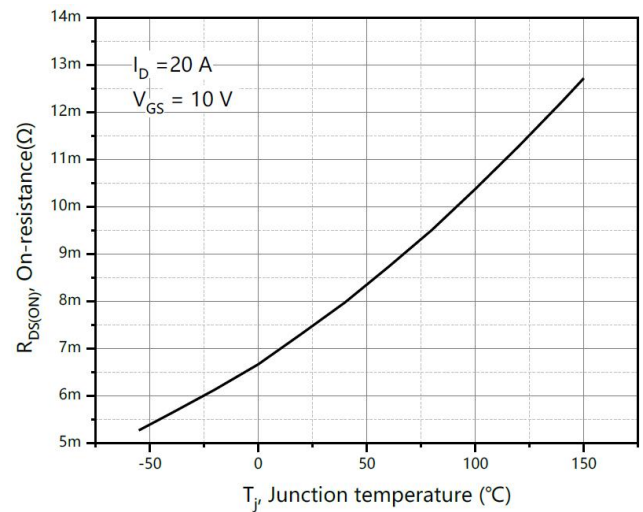
Capacitances



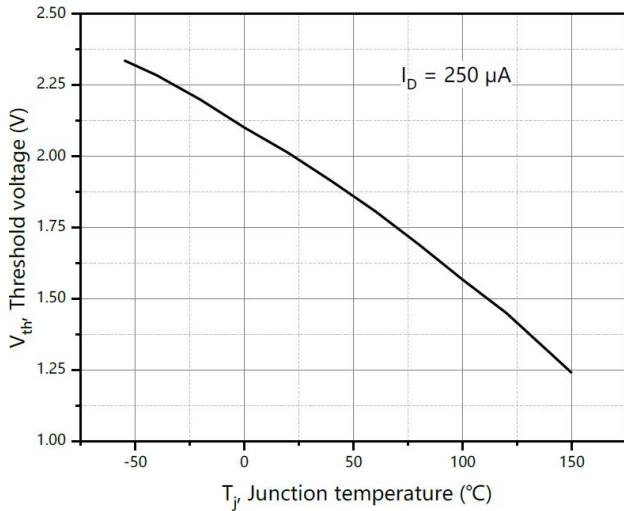
Gate charge



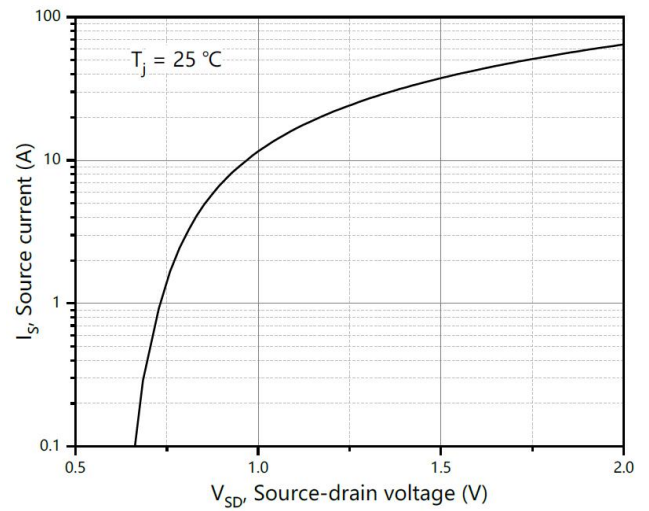
Drain-source breakdown voltage



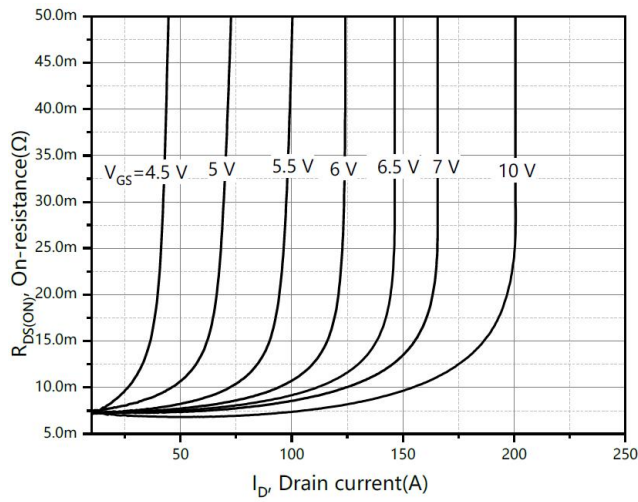
Drain-source on-state resistance



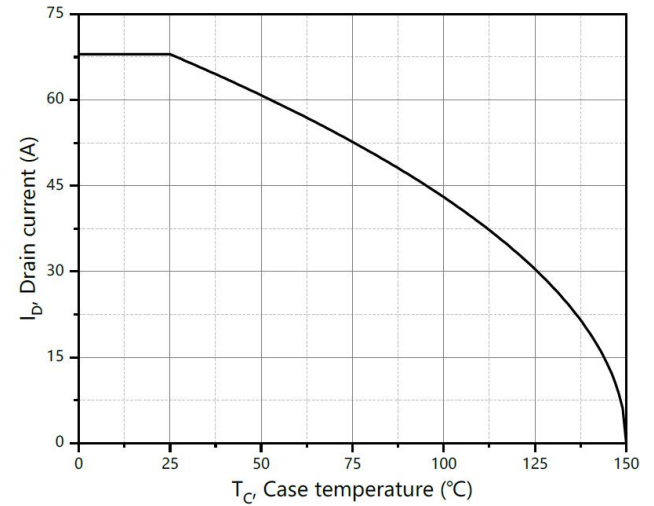
Threshold voltage



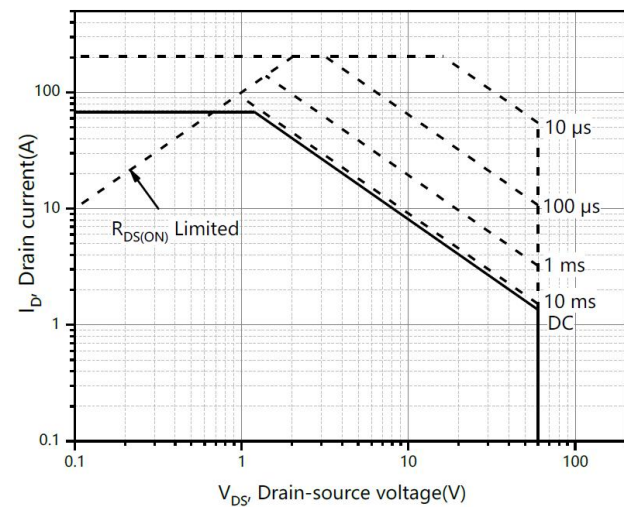
Forward characteristic of body diode



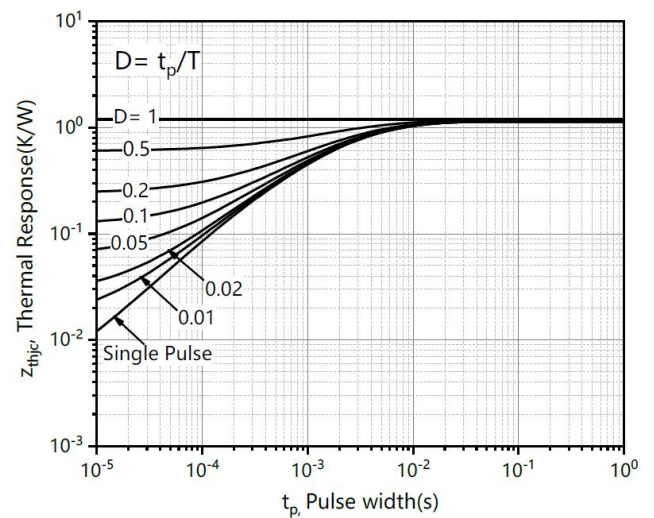
Drain-source on-state resistance



Drain current



Safe operation area $T_C = 25^{\circ}C$



Max. transient thermal impedance

