

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	7.5mΩ@10V	15A
	9mΩ@4.5V	

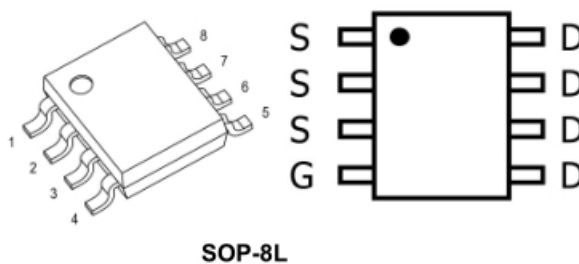
Feature

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

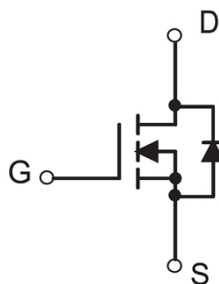
Applications

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

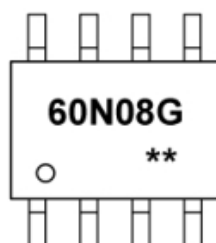
Package



Circuit diagram



Marking



60N08G =Device Code
****** =Week Code

Absolute maximum ratings

(T_a=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⁾ , T _C =25 °C	I _D	15	A
Pulsed drain current ²⁾ , T _C =25 °C	I _{D, pulse}	60	A
Continuous diode forward current ¹⁾ , T _C =25 °C	I _S	15	A
Diode pulsed current ²⁾ , T _C =25 °C	I _{S, pulse}	60	A
Power dissipation ³⁾ , T _C =25 °C	P _D	81	W
Single pulsed avalanche energy ⁵⁾	E _{AS}	91	mJ
Thermal resistance, junction-case	R _{θJC}	1.54	°C/ W
Thermal resistance, junction-ambient ⁴⁾	R _{θJA}	62	°C/ W
Operation and storage temperature	T _{STG, T_J}	-55 to 150	°C

Electrical characteristics

(T_A=25°C, unless otherwise noted)

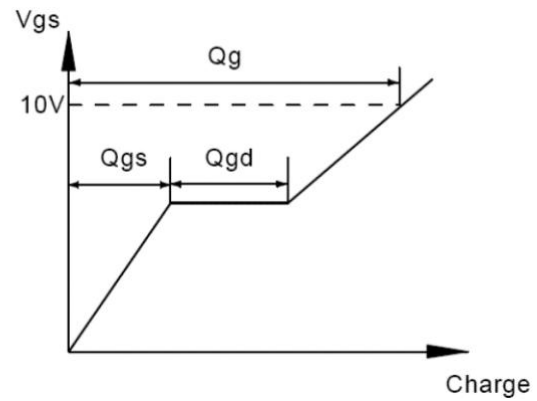
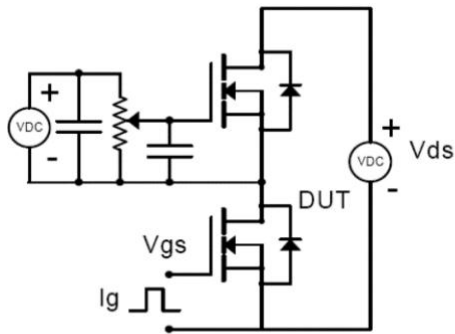
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	60			V
Gate-source leakage current	I _{GSS}	V _{GS} = ±20V			±100	uA
Drain-source leakage current	I _{DSS}	V _{DS} =60V,V _{GS} = 0V			1	uA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.6	2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		7.5	9.5	mΩ
		V _{GS} =4.5V, I _D =10A		9	12	
Dynamic Characteristics Reverse						
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =50V, f=100KHz		1204		pF
Output capacitance	C _{oss}			194.1		
Reverse transfer capacitance	C _{rss}			9.9		
Total gate charge	Q _g	V _{GS} =10V ,V _{DS} =50V , I _D =25A		17.9		pF
Gate-source charge	Q _{gs}			3.8		
Gate-drain charge	Q _{gd}			4.2		
Gate plateau voltage	V _{plateau}			4.2		V
Switching Characteristics						
Turn-On Delay Time	T _{d(on)}	V _{GS} =10V, V _{DS} =50V, R _G =2Ω, I _D =25A		23.9		nS
Rise Time	T _r			4.6		
Turn-Off Delay Time	T _{d(off)}			37.8		
Fall Time	t _f			6.4		
Drain-Source Body Diode Characteristics						
Diode forward voltage	V _{SD}	V _{GS} =0V ,I _S =20A			1.3	V
Reverse recovery time	t _{rr}	V _R =50 V, I _S =25 A, di/dt=100 A/μs		42.6		ns
Reverse recovery charge	Q _{rr}			36.3		nC
Peak reverse recovery current	I _{rrm}			1.4		A

Note :

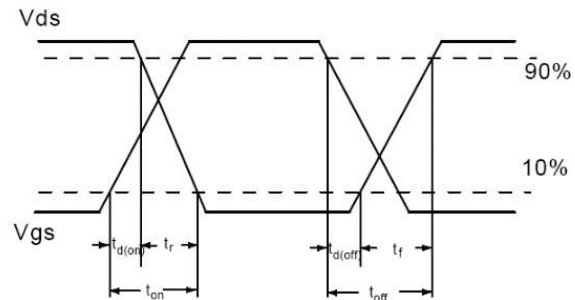
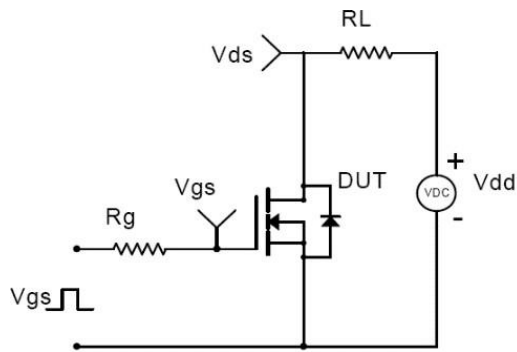
1. Calculated continuous current based on maximum allowable junction temperature.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. Pd is based on max. junction temperature, using junction-case thermal resistance.
4. The value of RθJA is measured with the device mounted on 1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

Test circuits and waveforms

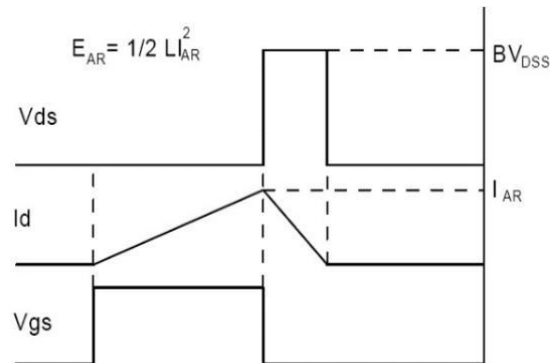
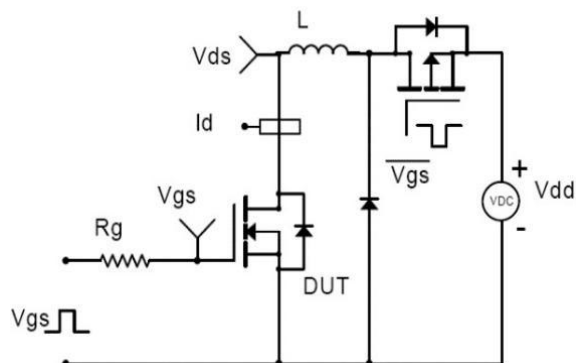
- Gate charge test circuit & waveform



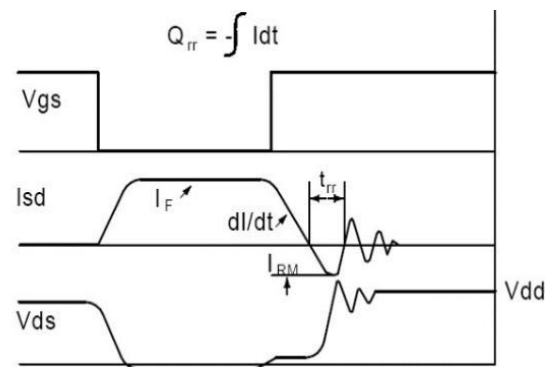
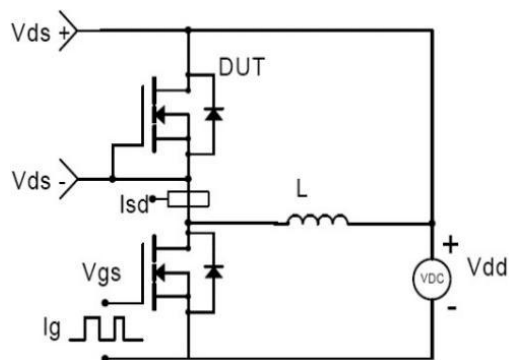
- Switching time test circuit & waveforms



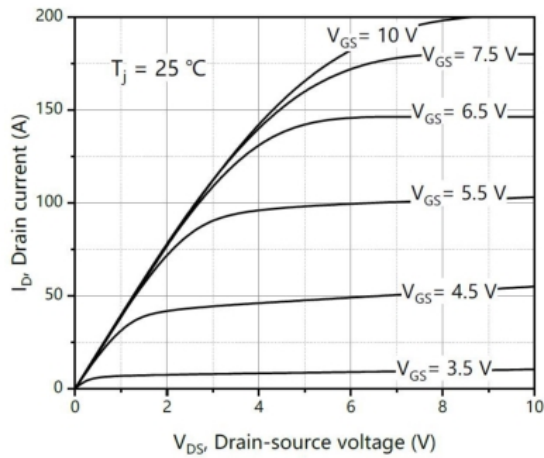
- Unclamped inductive switching (UIS) test circuit & waveforms



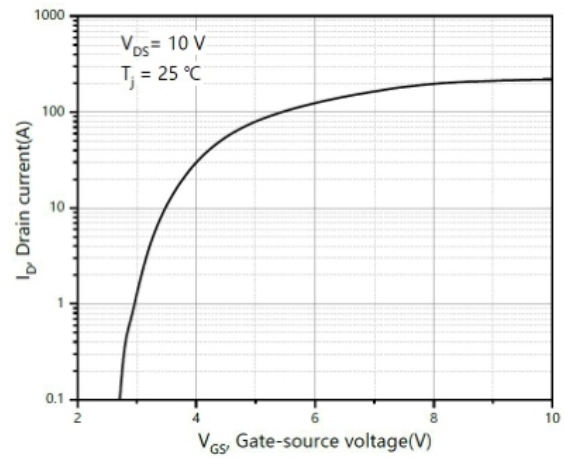
- Diode reverse recovery test circuit & waveforms



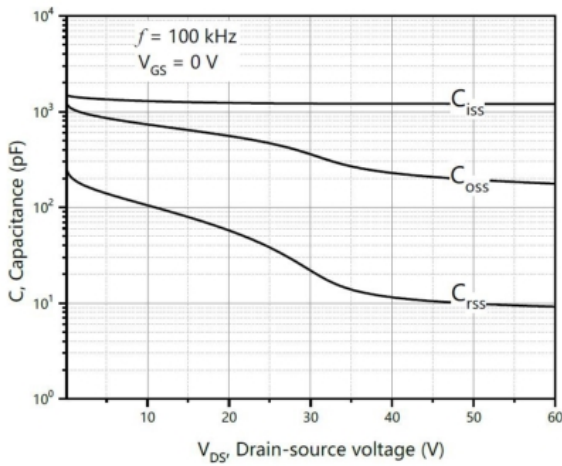
Typical Characteristics



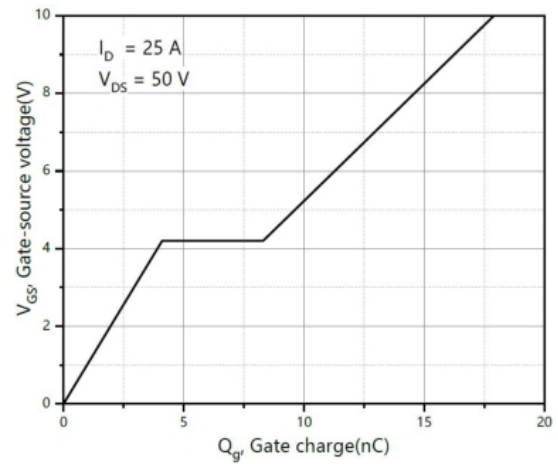
Output characteristics



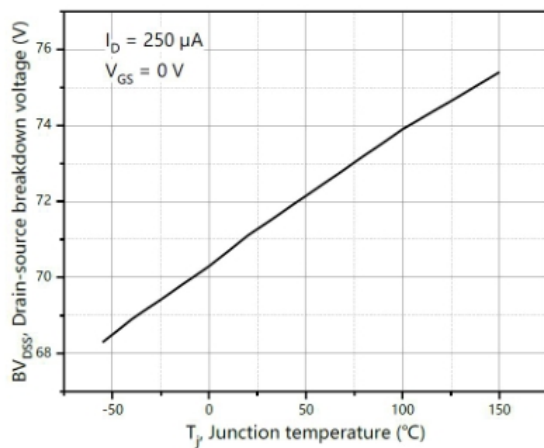
Transfer characteristics



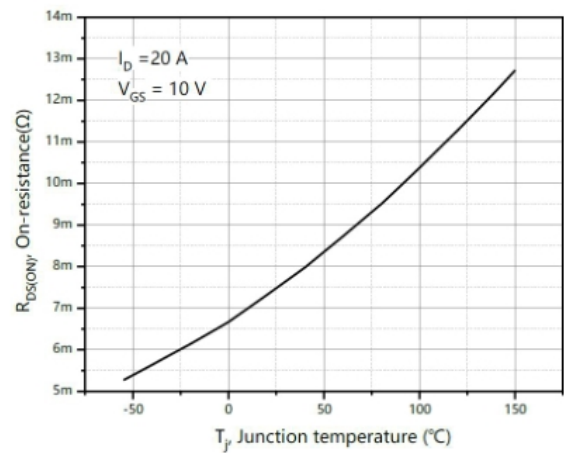
Capacitances



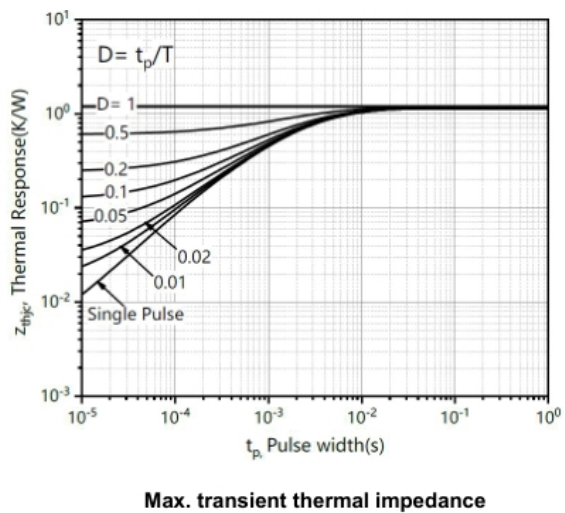
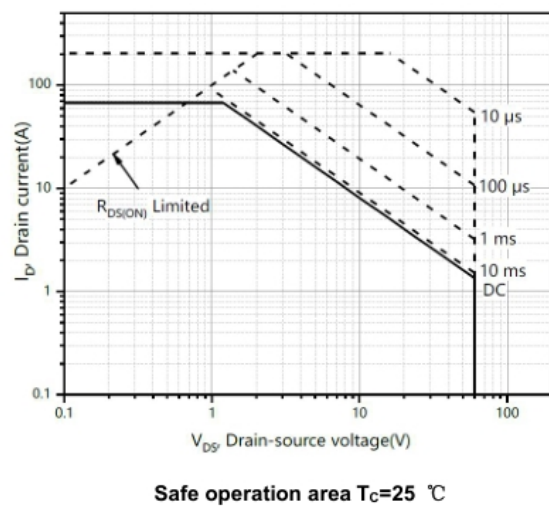
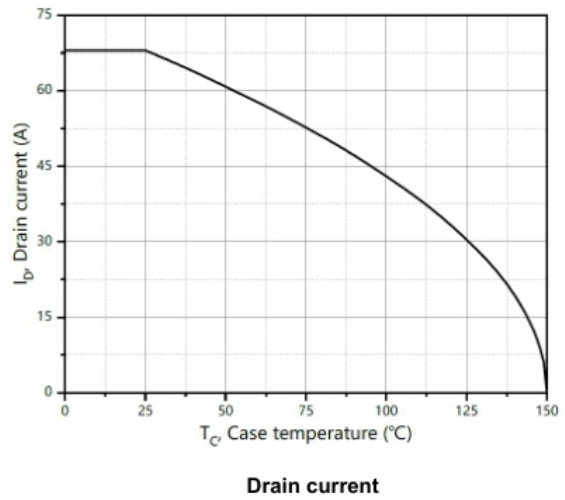
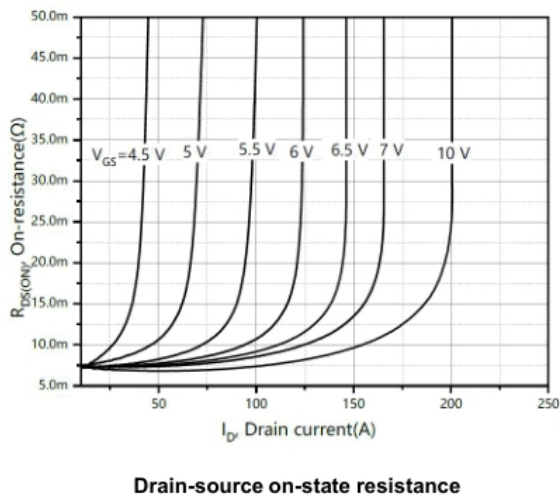
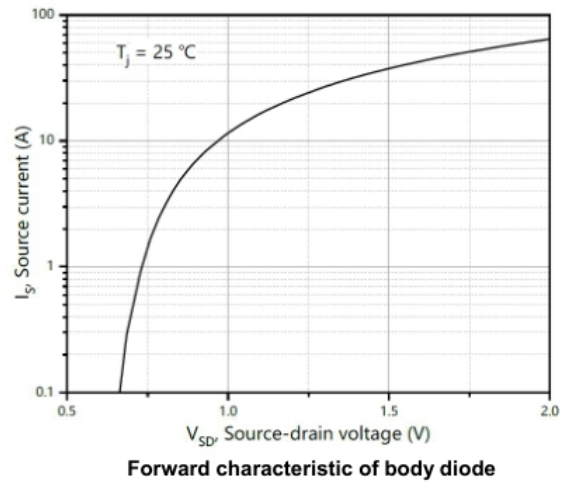
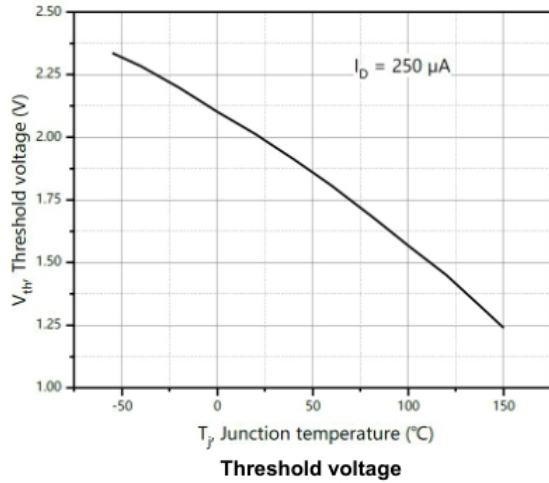
Gate charge



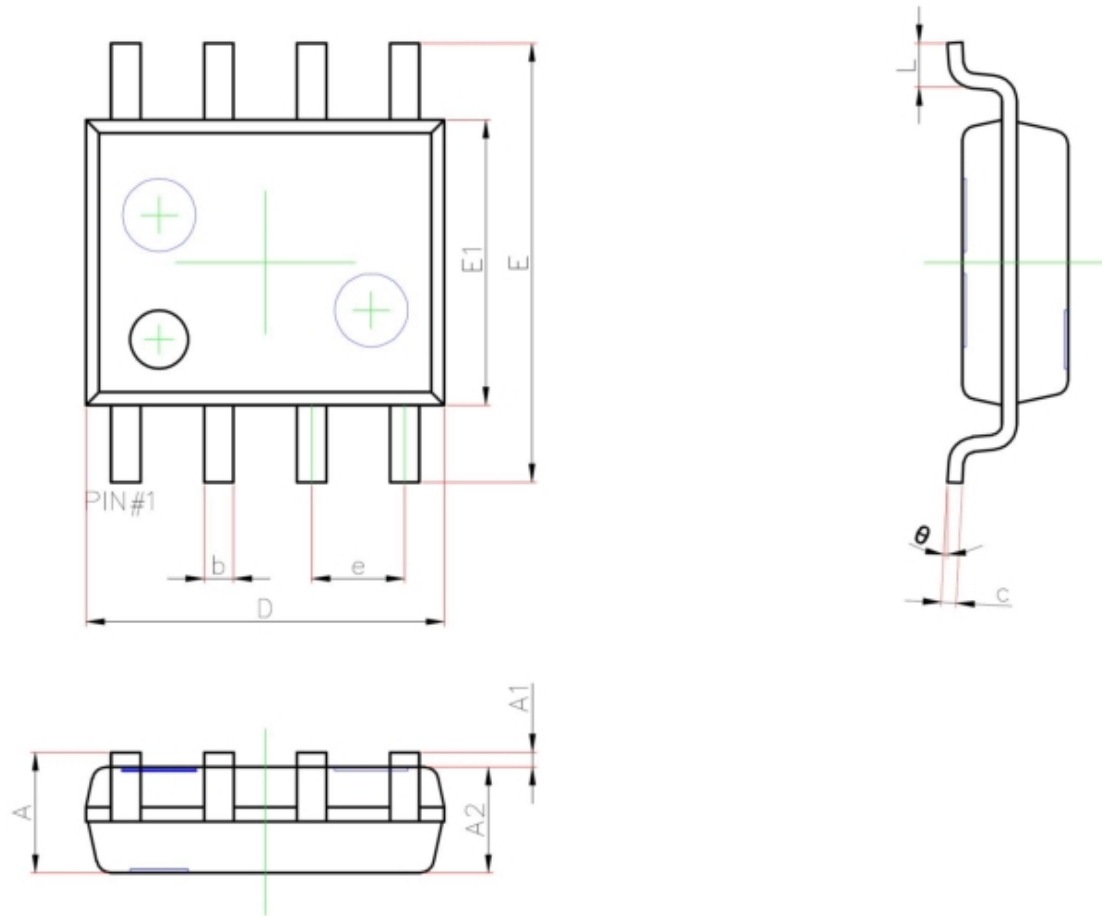
Drain-source breakdown voltage



Drain-source on-state resistance



SOP-8 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.80	5.00
e	1.27 REF.	
E	5.80	6.20
E1	3.80	4.00
L	0.40	1.27
θ	0°	8°