

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	12mΩ@10V	15A
	15mΩ@4.5V	

Feature

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance

Application

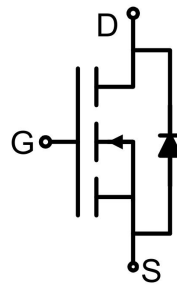
- DC-DC Converters
- Power management functions
- Industrial and Motor Drive application

Package

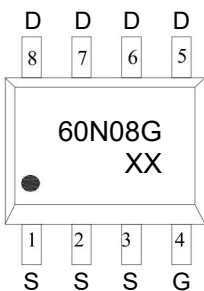


SOP-8

Circuit diagram



Marking



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	I _D	15	A
Pulsed Drain Current	I _{DM}	60	A
Power Dissipation	P _D	81	W
Thermal Resistance from Junction to Case	R _{θJC}	1.54	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

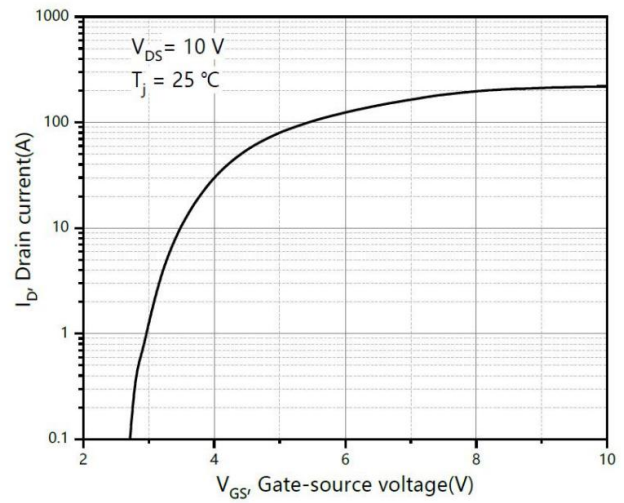
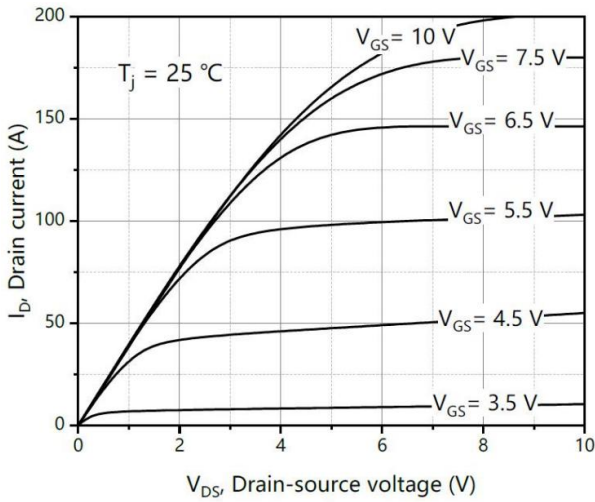
Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.9	1.6	2.5	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = 10V, I _D = 15A		7.5	12	mΩ
		V _{GS} = 4.5V, I _D = 10A		10	15	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		1204		pF
Output Capacitance	C _{oss}			194		
Reverse Transfer Capacitance	C _{rss}			10		
Total Gate Charge	Q _g	V _{DS} = 30V, V _{GS} = 10V, I _D = 15A		18		nC
Gate-Source Charge	Q _{gs}			3.8		
Gate-Drain Charge	Q _{gd}			4.2		
Turn-on delay time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V, I _D = 15A R _{GEN} = 2Ω		23.9		nS
Turn-on rise time	t _r			4.6		
Turn-off delay time	t _{d(off)}			37.8		
Turn-off fall time	t _f			6.4		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I _S				15	A
Diode Forward voltage	V _{SD}	V _{GS} = 0V, I _S = 15A			1.3	V
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = 15A di/dt = 100A/μs ¹⁾		42.6		nS
Reverse Recovery Charge	Q _{rr}			36.3		nC

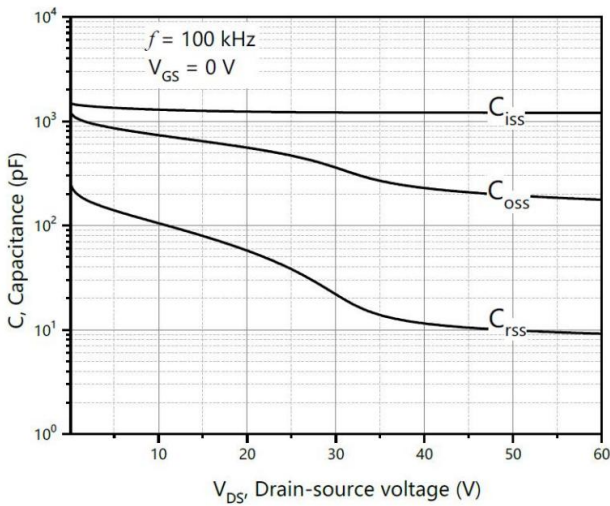
Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.

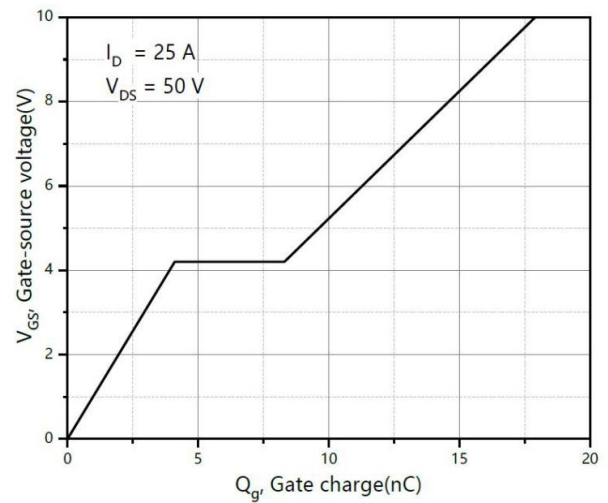
Typical Characteristics



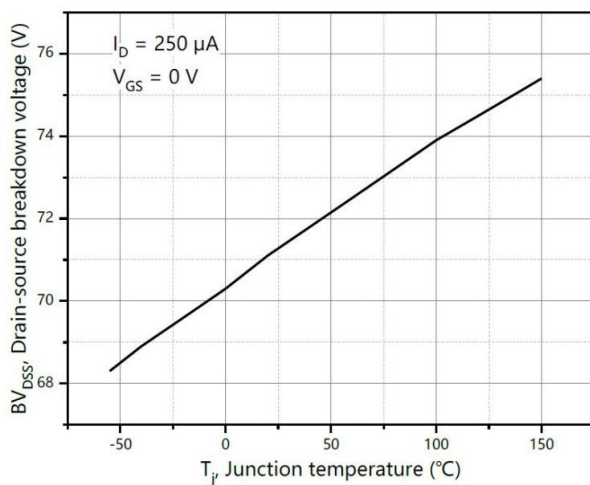
Output characteristics



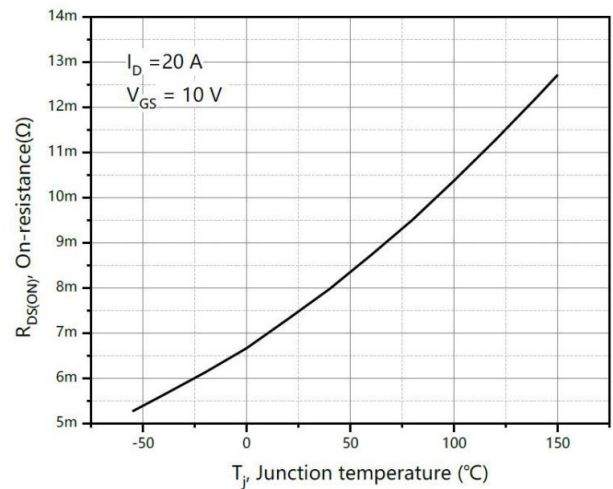
Transfer characteristics



Capacitances



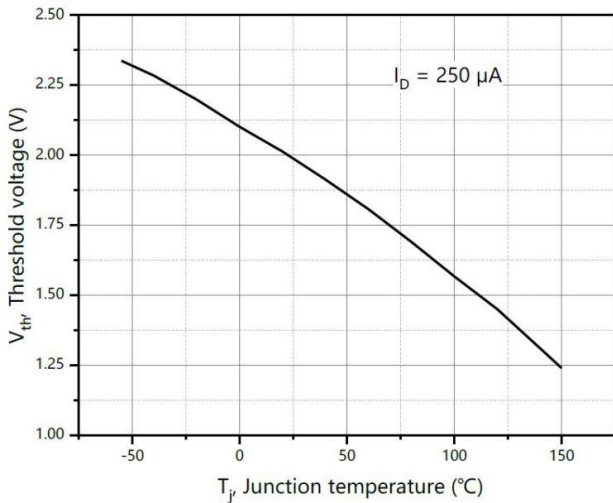
Gate charge



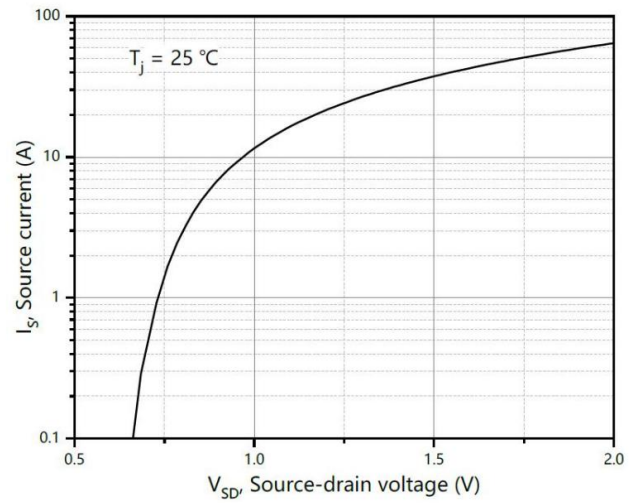
Drain-source breakdown voltage

Drain-source on-state resistance

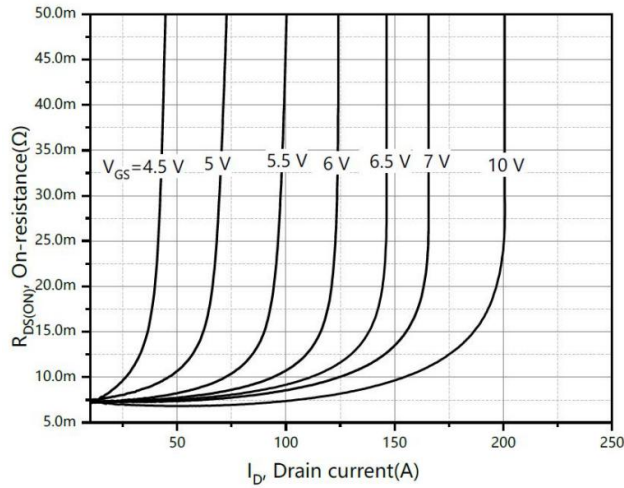
Typical Characteristics



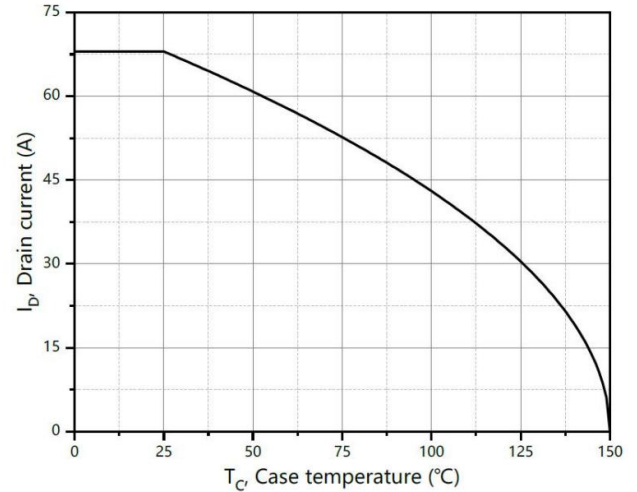
Threshold voltage



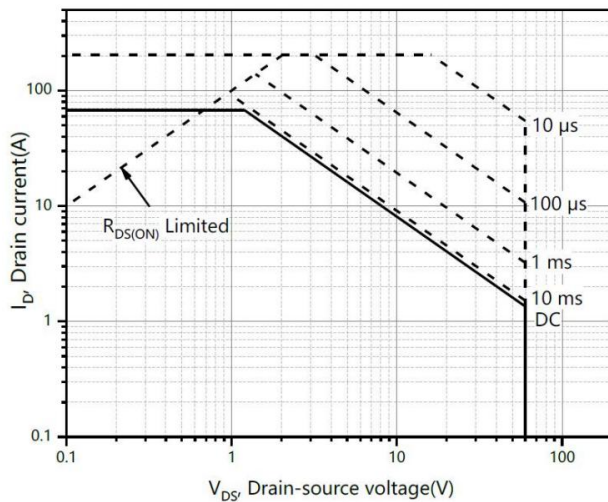
Forward characteristic of body diode



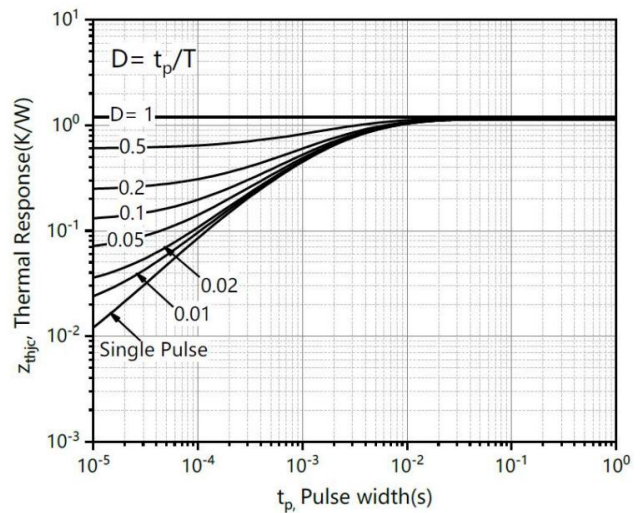
Drain-source on-state resistance



Drain current

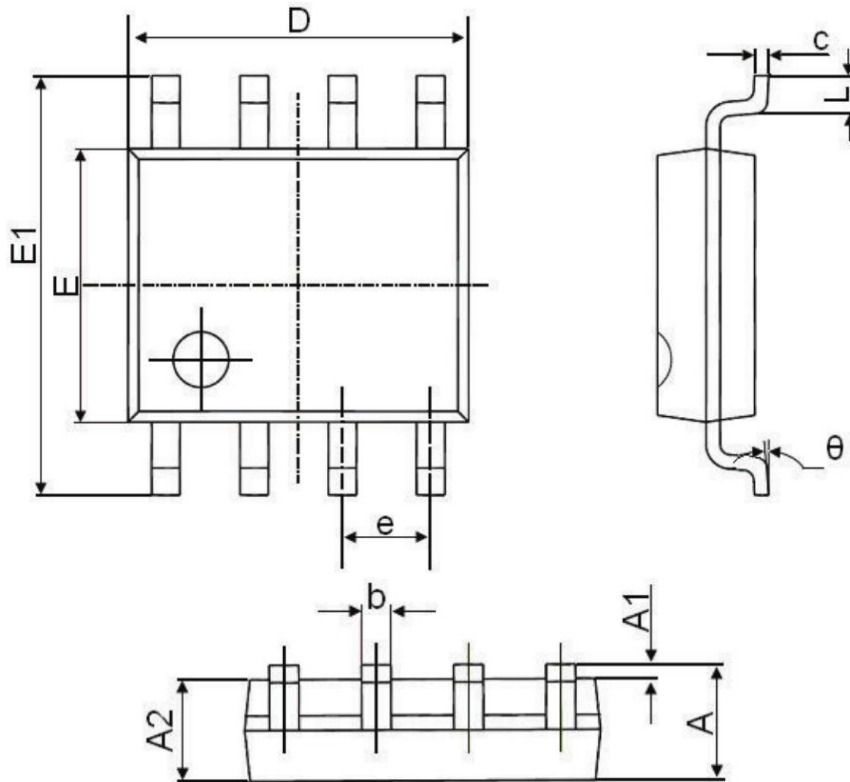


Safe operation area $T_c=25 \text{ }^\circ\text{C}$



Max. transient thermal impedance

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°