

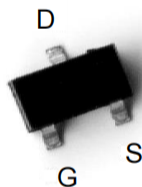
Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
250V	1.3Ω	2A

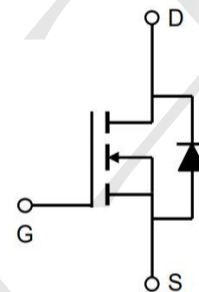
Application

- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

Package and Pin Configuration



Circuit diagram



Marking: 2N20

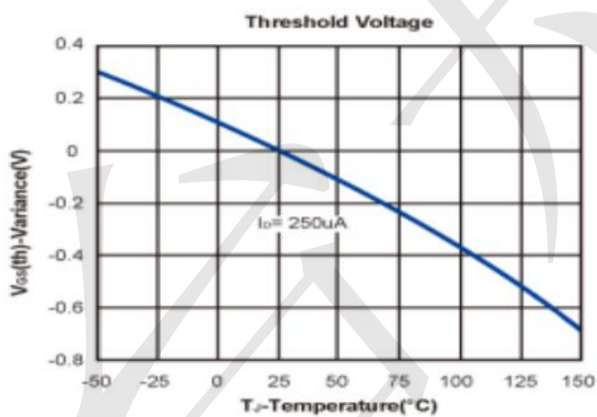
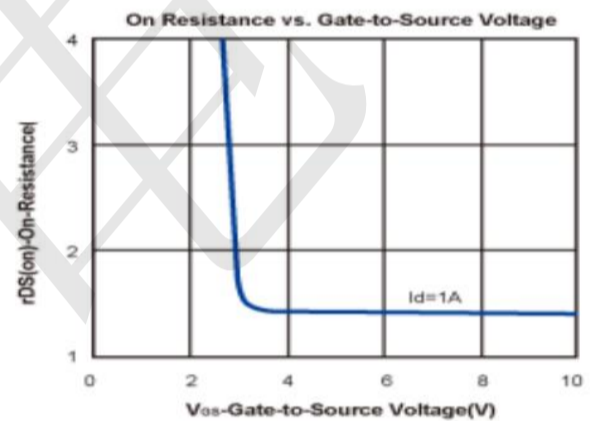
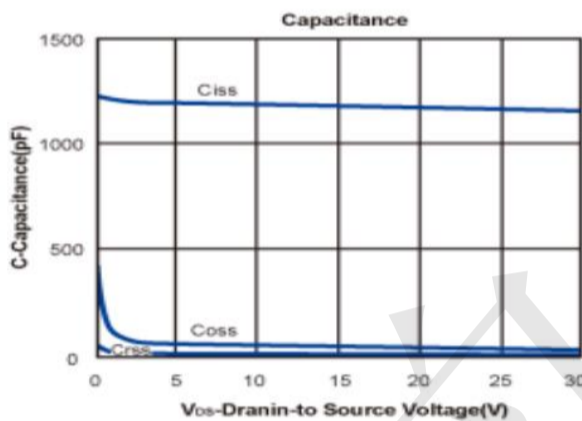
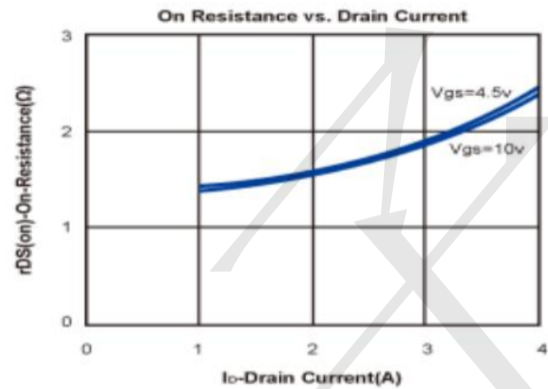
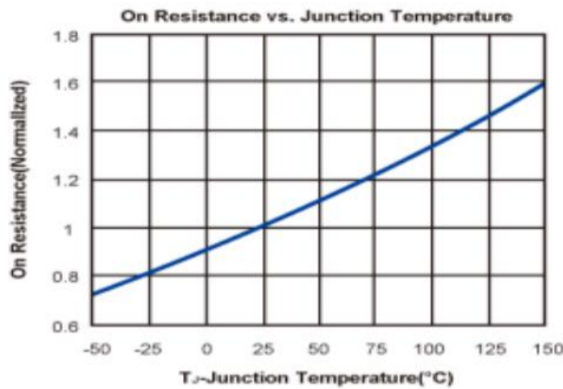
Maximum Ratings (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	250	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	$I_{D@TC=25^\circ\text{C}}$	2.0	A
Continuous Drain Current	$I_{D@TC=100^\circ\text{C}}$	1.0	
Pulsed Drain Current ①	I_{DM}	8	
Continuous Source Current	I_S	2	
Single Pulse Avalanche Energy	E_{AS}	1.25	mJ
Power Dissipation ②	P_D	1.5	W
Thermal Resistance from Junction to Ambient ($t \leq 5s$)	$R_{\theta JA}$	85	$^\circ\text{C/W}$
Operating Junction	T_J	$-55 \sim +150$	$^\circ\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +151$	

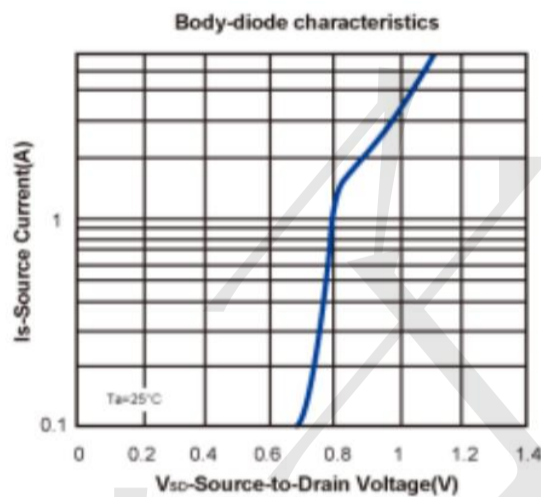
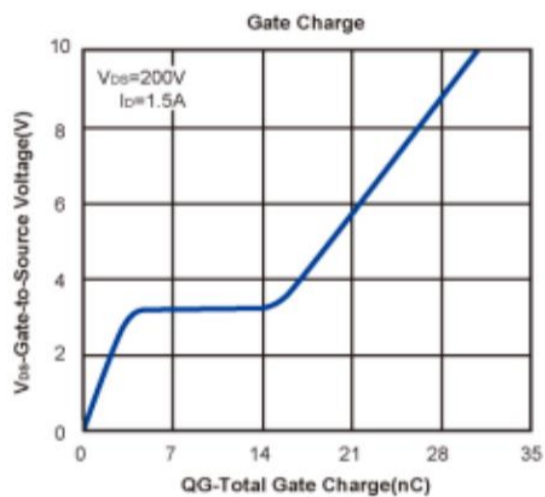
Electrical Characteristics (@ $T_c = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters ③						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	250			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.5	2.2	3	V
Gate-Body leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 150V, V_{GS} = 0V$			1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 4A$		1.3	1.7	Ω
Forward Transconductance	g_{Fs}	$V_{DS} = 10V, I_D = 4A$		25		S
Diode Forward Voltage	V_{SD}	$I_S = 1A, V_{GS} = 0V$			1.2	V
Dynamic Parameters ④						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		1097		pF
Output Capacitance	C_{oss}			25		pF
Reverse Transfer Capacitance	C_{rss}			14		pF
Total Gate Charge	Q_g	$V_{GS} = 4.5V, V_{DS} = 200V, I_D = 1.5A$		17		nC
Gate Source Charge	Q_{gs}			3		nC
Gate Drain Charge	Q_{gd}			12		nC
Gate Resistance	R_g	$f = 1MHz$		2.45		Ω
Switching Parameters ④						
Turn-On DelayTime	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 125V, R_G = 6\Omega, I_D = 1A, R_G = 1255\Omega$		19		ns
Turn-On Rise Time	t_r			4		ns
Turn-Off DelayTime	$t_{d(off)}$			48		ns
Turn-Off Fall Time	t_f			13		ns

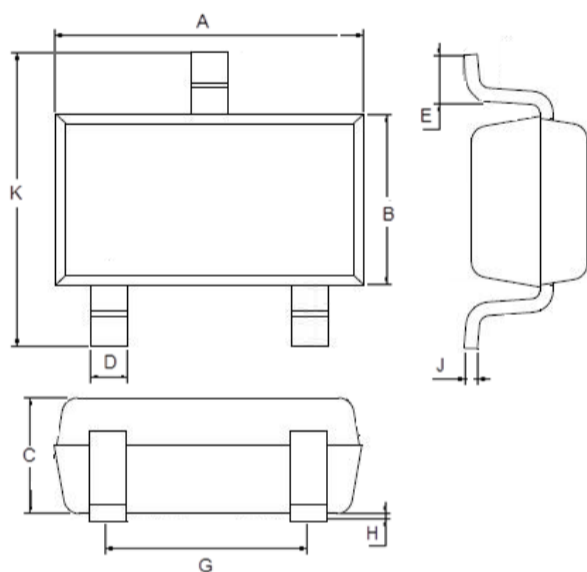
Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)



Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)



SOT23-3L Package Outline Dimensions (Unit: mm)



Dimension	Min.	Max.
A	2.80	3.00
B	1.50	1.70
C	1.00	1.20
D	0.35	0.45
E	0.35	0.55
G	1.80	2.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

Mounting Pad Layout (Unit: mm)

