

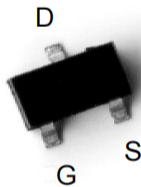
### Product Summary

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

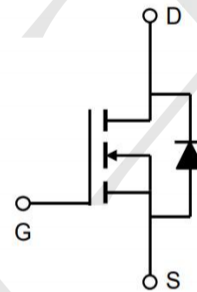
### Application

- 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)

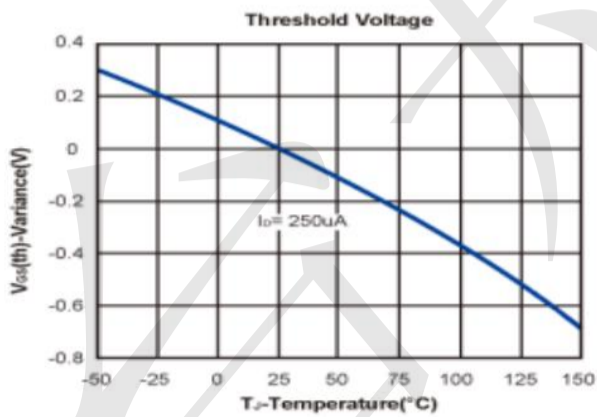
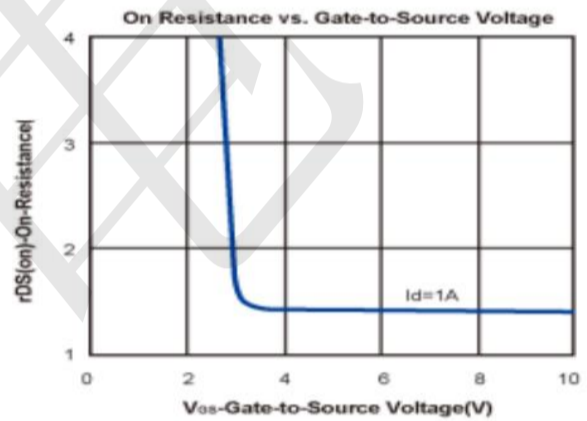
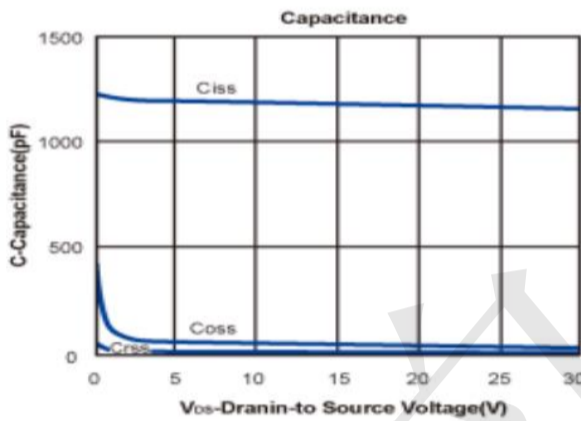
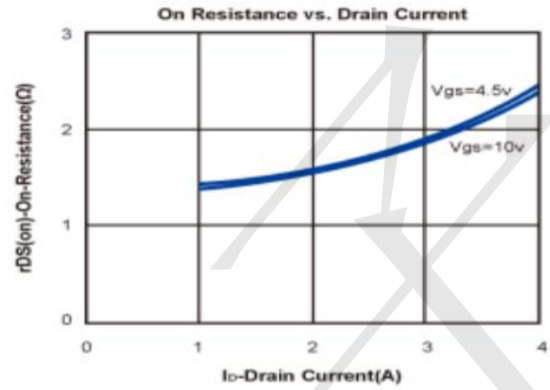
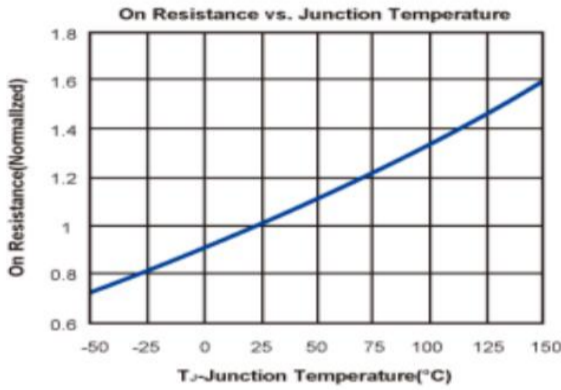
Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	250	V
Gate-Source Voltage	$V_{GS}$	±20	
Continuous Drain Current	$I_{D@TC=25^\circ\text{C}}$	2.0	A
Continuous Drain Current	$I_{D@TC=100^\circ\text{C}}$	1.0	
Pulsed Drain Current ①	$I_{DM}$	8	
Continuous Source Current	$I_S$	2	
Single Pulse Avalanche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

### Electrical Characteristics (@ T<sub>c</sub> = 25°C unless otherwise specified)

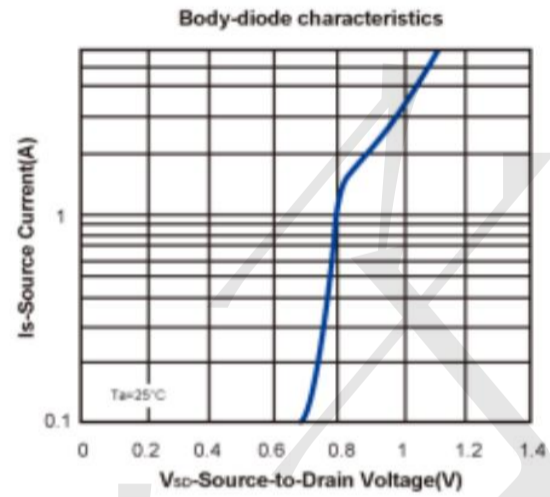
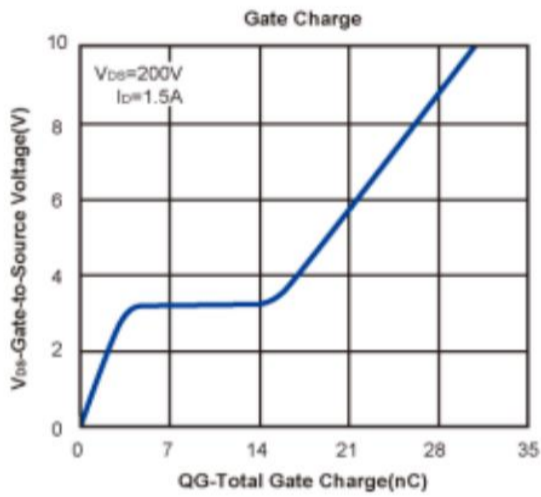
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static Parameters</b> ③						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = 250μA	250			V
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = 250μA	1.5	2.2	3	V
Gate-Body leakage Current	IGSS	VDS = 0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	IDSS	VDS = 150V, VGS = 0V			1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = 10V, ID = 4A		1.3	1.7	Ω
Forward Transconductance	gFs	VDS = 10V, ID = 4A		25		S
Diode Forward Voltage	VSD	IS = 1A, VGS = 0V			1.2	V
<b>Dynamic Parameters</b> ④						
Input Capacitance	Ciss	VDS = 15V, VGS = 0V, f = 1MHz		1097		pF
Output Capacitance	Coss			25		pF
Reverse Transfer Capacitance	Crss			14		pF
Total Gate Charge	Qg	VGS = 4.5V, VDS = 200V, ID = 1.5A		17		nC
Gate Source Charge	Qgs			3		nC
Gate Drain Charge	Qgd			12		nC
Gate Resistance	Rg	f = 1MHz		2.45		Ω
<b>Switching Parameters</b> ④						
Turn-On Delay Time	td(on)	VGS = 10V, VDD = 125V, RG = 6Ω, ID = 1A, RG = 1255 Ω		19		ns
Turn-On Rise Time	tr			4		ns
Turn-Off Delay Time	td(off)			48		ns
Turn-Off Fall Time	tf			13		ns



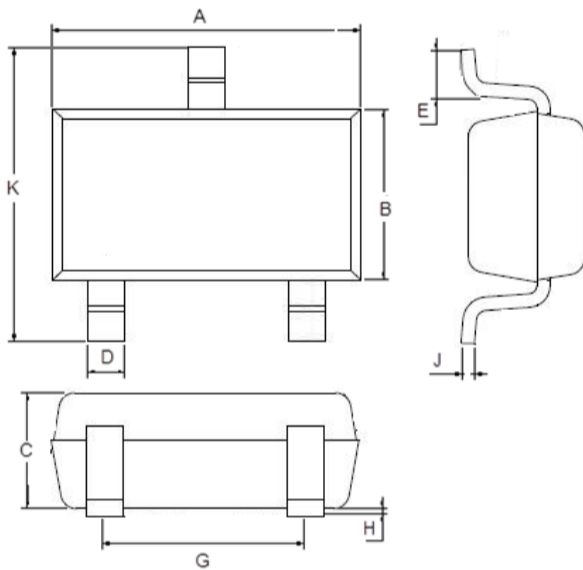
**Ratings and Characteristics Curves** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)



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**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)

