

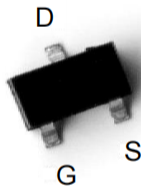
Product Summary

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

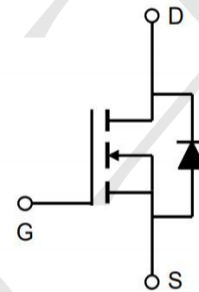
Application

- 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)

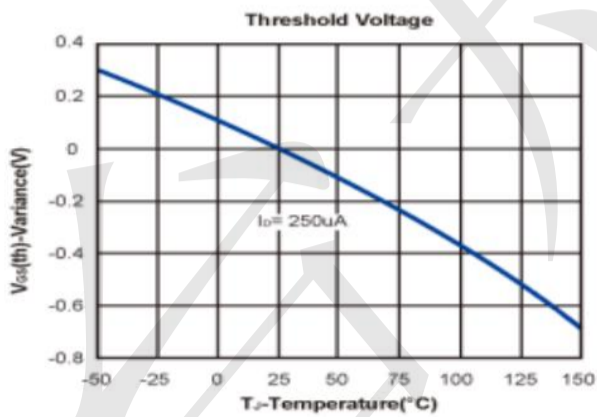
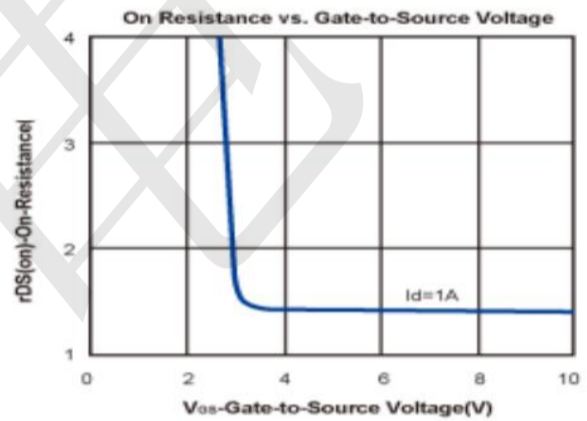
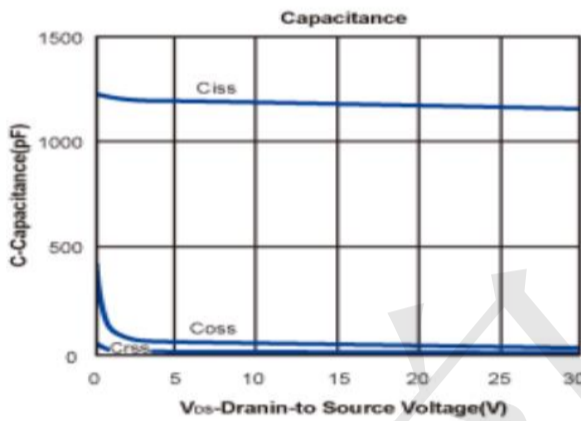
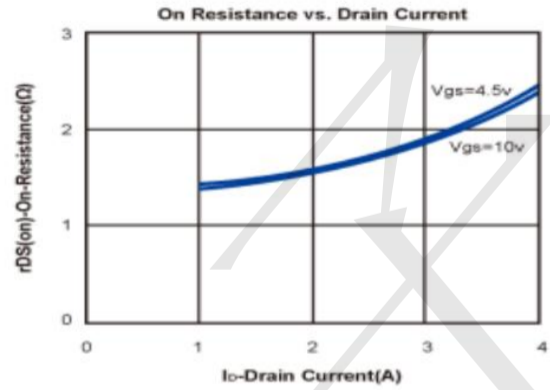
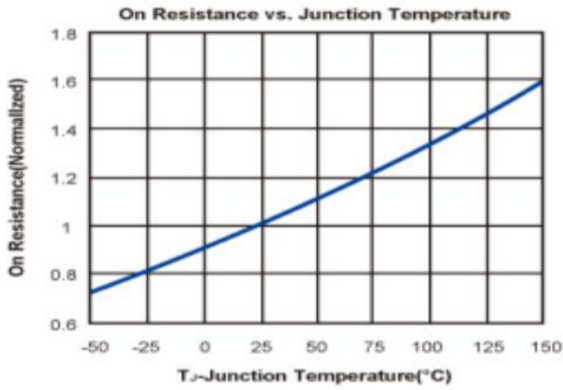
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	250	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	$I_{D@TC=25^\circ\text{C}}$	2.0	A
Continuous Drain Current	$I_{D@TC=100^\circ\text{C}}$	1.0	
Pulsed Drain Current ①	I_{DM}	8	
Continuous Source Current	I_S	2	
Single Pulse Avalanche 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 (@ $T_c = 25^\circ\text{C}$ unless otherwise specified)

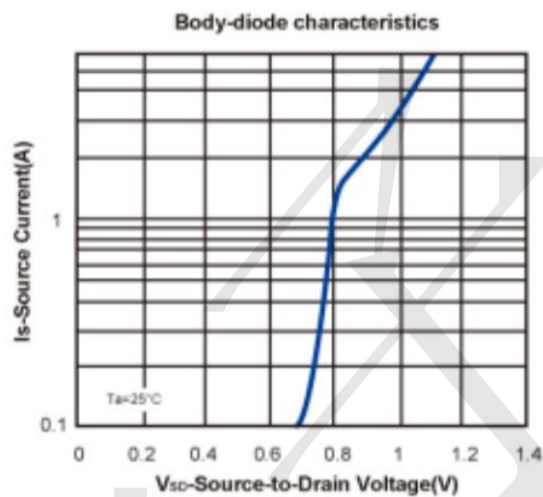
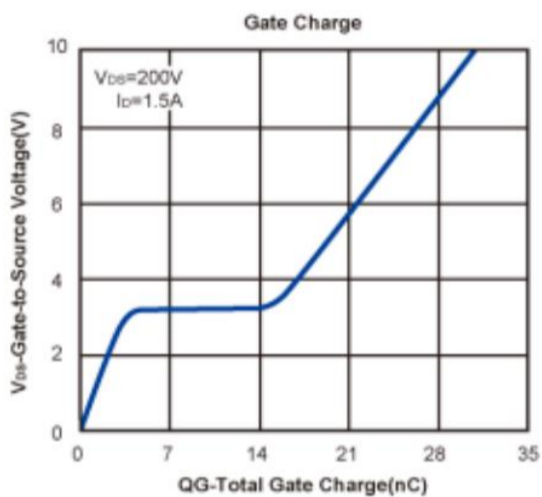
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters ③						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = 250 μ A	250			V
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = 250 μ A	1.5	2.2	3	V
Gate-Body leakage Current	IGSS	VDS = 0V, VGS = \pm 20V			\pm 100	nA
Zero Gate Voltage Drain Current	IDSS	VDS = 150V, VGS = 0V			1	μ A
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
Dynamic Parameters 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
Switching Parameters ④						
Turn-On Delay Time	td(on)	VGS = 10V, VDD = 125V, RG = 6 Ω , 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



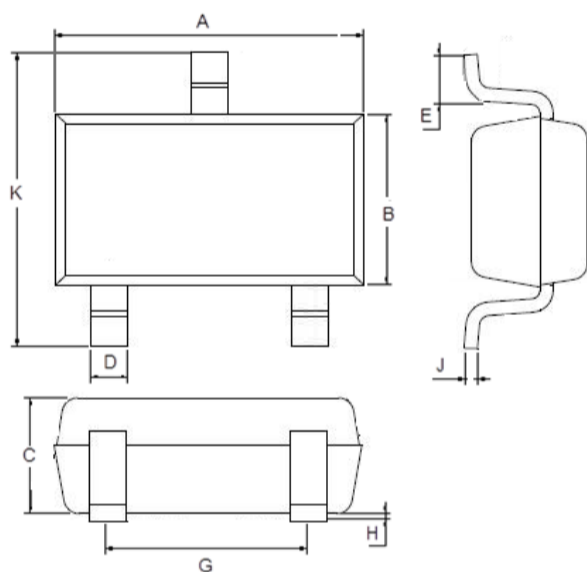
Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)



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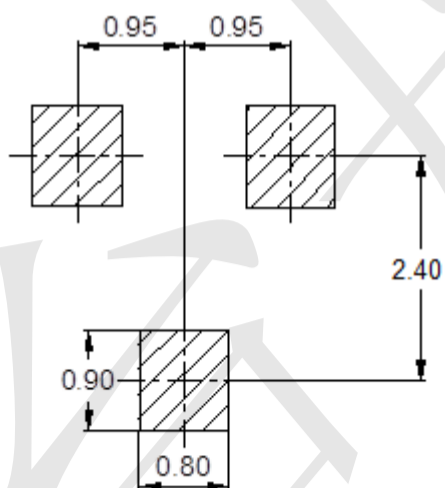


SOT23-3L Package Outline Dimensions (Unit: mm)



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)



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