AT018SP020NSP

P-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	9mΩ@-4.5V	-18A
	12mΩ@-2.5V	

Feature

- Fast switching
- Low gate charge and Rdson

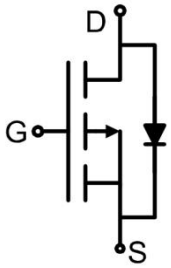
Application

- Power Switching Application
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

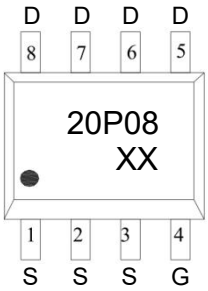
Package

SOP-8

Circuit diagram



Marking



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P-Channel Enhancement Mode MOSFET

Absolute maximum ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current	I_D	-18	A
Pulsed Drain Current	I_{DM}	-72	A
Power Dissipation	P_D	1.5	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	83	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

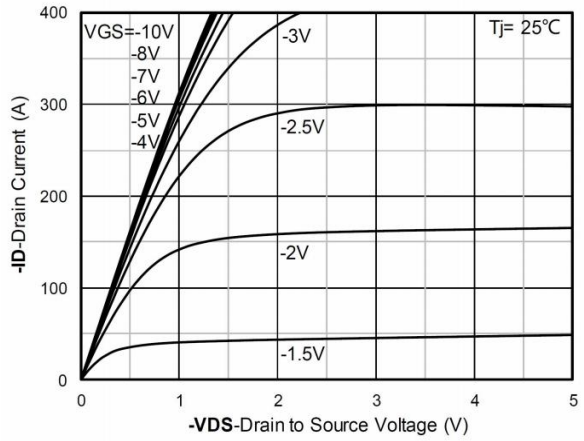
Electrical characteristics (T_A=25 ºC, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} =0V, I_D =-250μA	-20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-16V, V_{GS} =0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±8V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.5	-0.65	-1	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-10A		7.5	9	mΩ
		V_{GS} =-2.5V, I_D =-8A		9	12	
Dynamic characteristics[1)]						
Input Capacitance	C_{iss}	V_{DS} =-10V, V_{GS} =0V, f =1MHz		4600		pF
Output Capacitance	C_{oss}			460		
Reverse Transfer Capacitance	C_{rss}			459		
Total Gate Charge	Q_g	V_{DS} =-10V, V_{GS} =-4.5V I_D =-5A		46		nC
Gate-Source Charge	Q_{gs}			7.3		
Gate-Drain Charge	Q_{gd}			10		
Turn-on delay time	$t_{d(on)}$	V_{DS} =-10V, V_{GS} =-10V I_D =-5A, R_G =3Ω		8		nS
Turn-on rise time	t_r			59		
Turn-off delay time	$t_{d(off)}$			111		
Turn-off fall time	t_f			43		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				-18	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =-1A			-1.2	V
Reverse Recovery Time	T_{rr}	I_F =-5A, di/dt =-100A/μs T_J =25℃		24		nS
Reverse Recovery Charge	Q_{rr}			13		nC

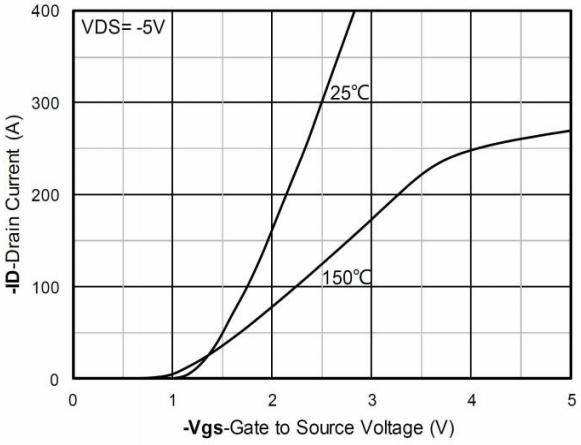
Notes:

1) Guaranteed by design, not subject to production testing.

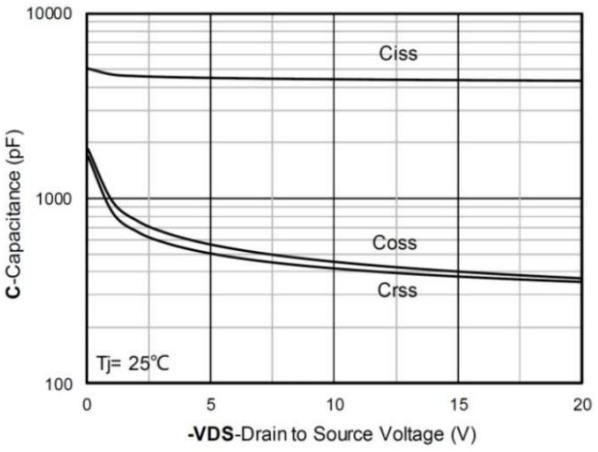
Typical Characteristics



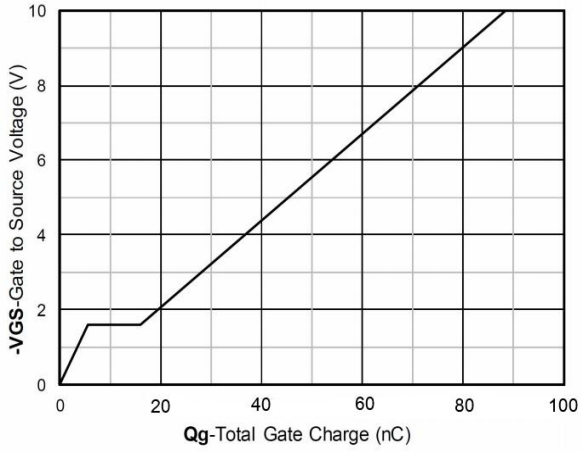
Output Characteristics



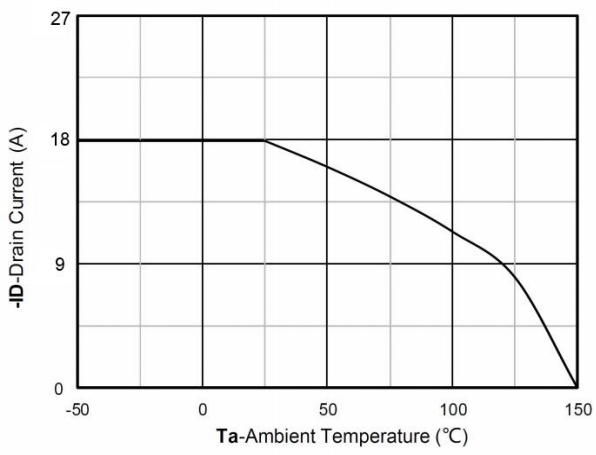
Transfer Characteristics



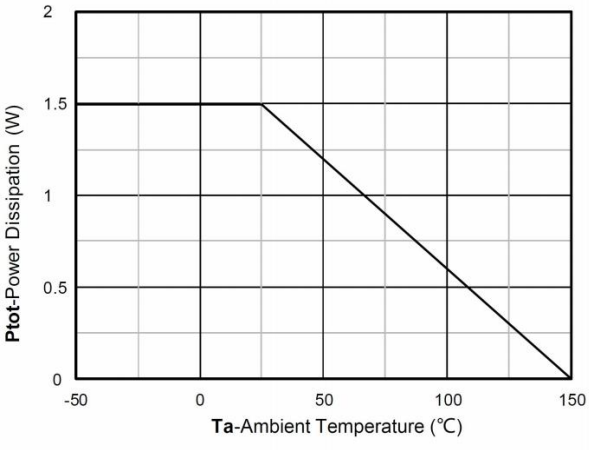
Capacitance Characteristics



Gate Charge

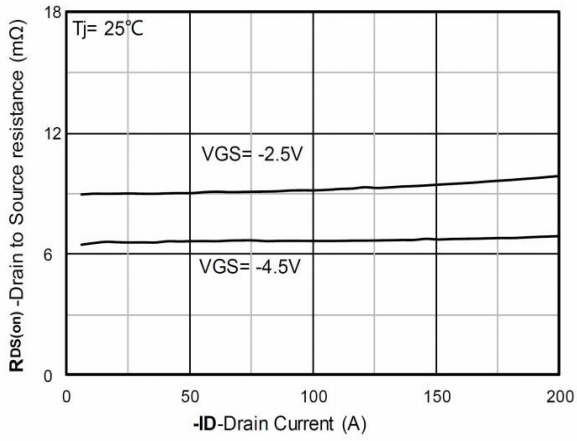


Current dissipation

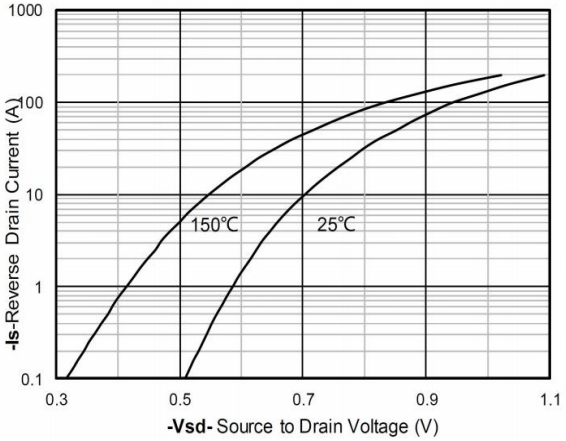


Power dissipation

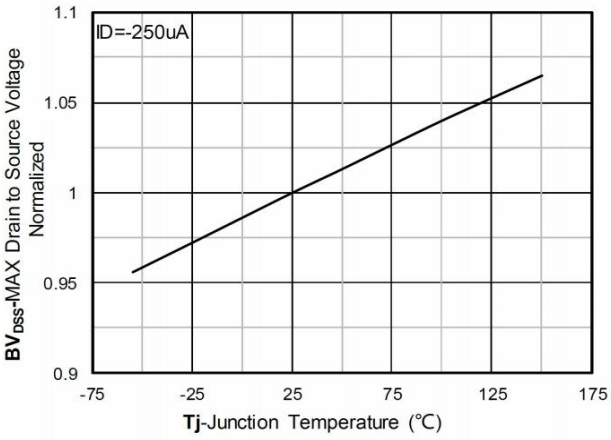
Typical Characteristics



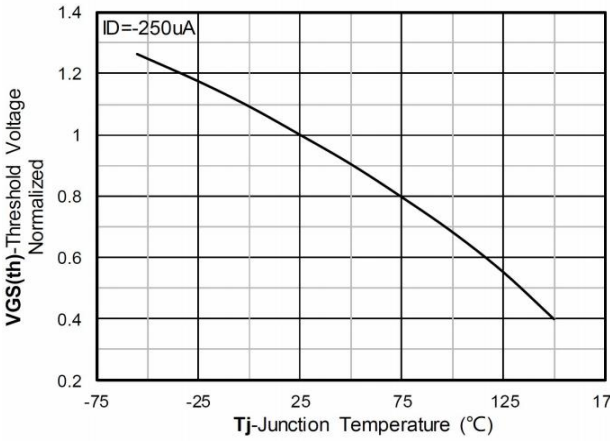
RDS(on) VS Drain Current



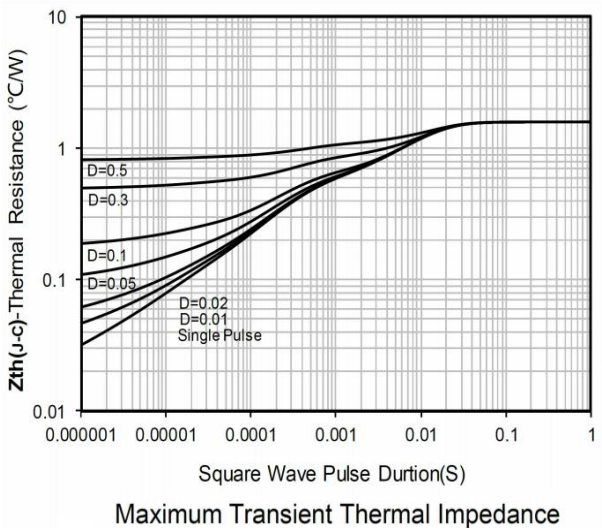
Forward characteristics of reverse diode



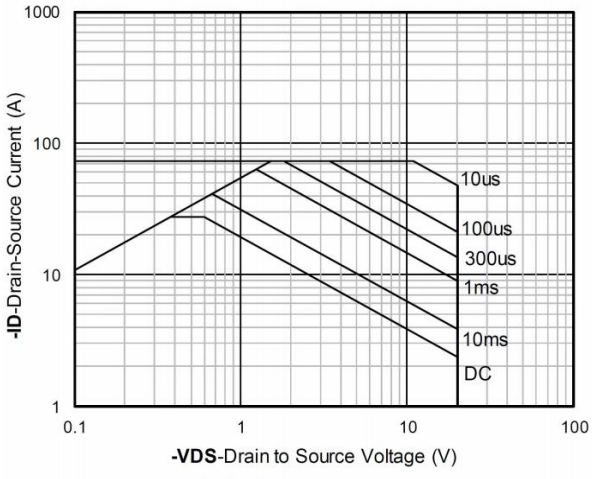
Normalized breakdown voltage



Normalized Threshold voltage

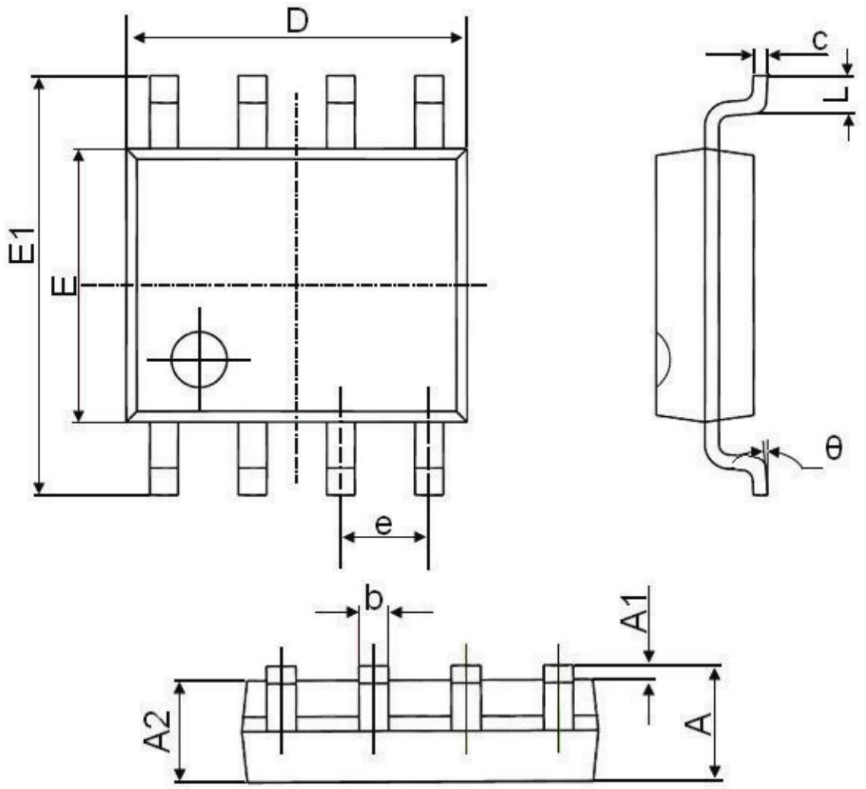


Maximum Transient Thermal Impedance



Safe Operation Area

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	4.800	5.000	0.050	0.197
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°