AS2301N

P-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	180mΩ@-4.5V	-1A
	270mΩ@-2.5V	

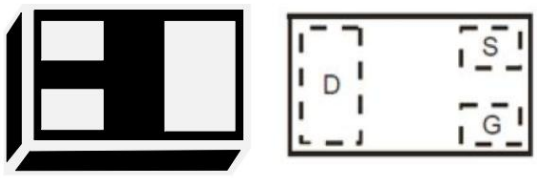
Feature

- High power and current handing capability

Application

- Battery Switch
- DC/DC Converter

Package



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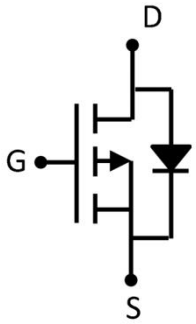
Circuit diagram



Marking

223

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}	±12	V
Continuous Drain Current	I_D	-1	A
Pulsed Drain Current	I_{DM}	-4	A
Power Dissipation	P_D	0.15	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

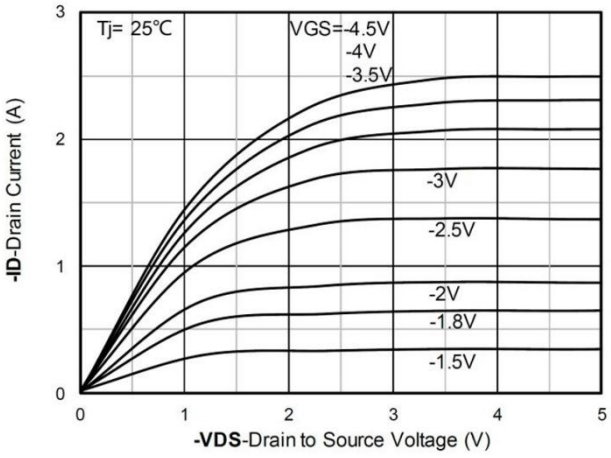
Electrical characteristics (T_A=25℃ unless otherwise noted)

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_{GS} =±12V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.4	-0.65	-1.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-1A		130	180	mΩ
		V_{GS} =-2.5V, I_D =-0.5A		180	270	
Dynamic characteristics[1)]						
Input Capacitance	C_{iss}	V_{DS} =-10V,V_{GS} =0V,f =1MHz		270		pF
Output Capacitance	C_{oss}			55		
Reverse Transfer Capacitance	C_{rss}			30		
Total Gate Charge	Q_g	V_{DS} =-10V,V_{GS} =-4.5V, I_D =-2A		2.7		nC
Gate-Source Charge	Q_{gs}			0.46		
Gate-Drain Charge	Q_{gd}			0.7		
Turn-on delay time	$t_{d(on)}$	V_{DD} =-10V, V_{GS} =-4.5V, R_L =5Ω, R_G=3Ω		10		nS
Turn-on rise time	t_r			5		
Turn-off delay time	$t_{d(off)}$			21		
Turn-off fall time	t_f			7		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=-1A,T_J=25℃			-1.2	V

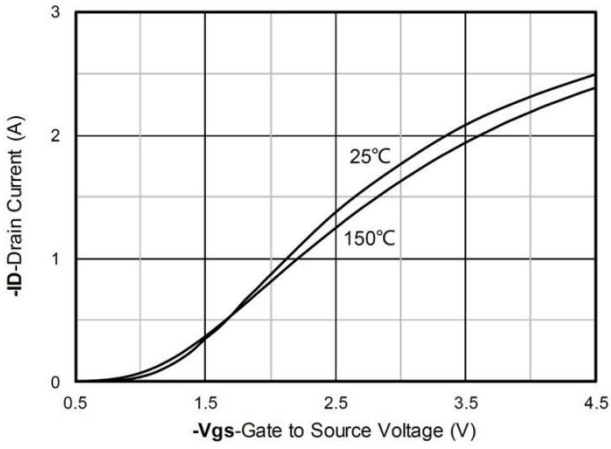
Notes:

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

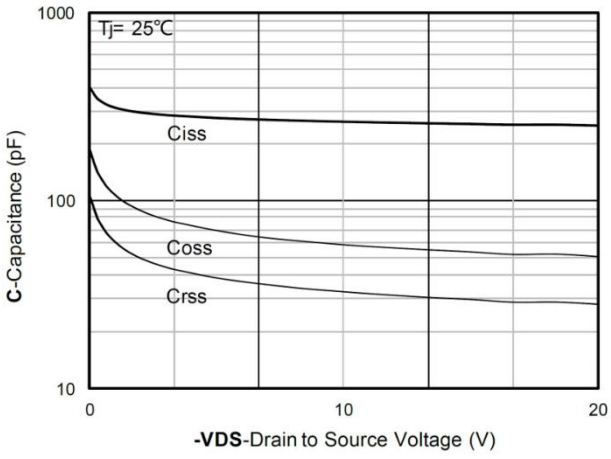
Typical Characteristics



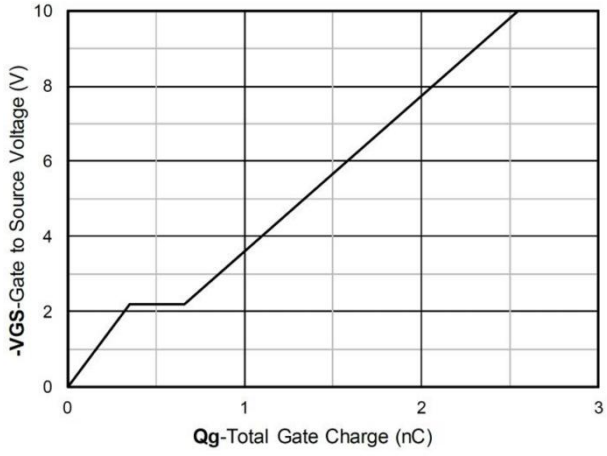
Output Characteristics



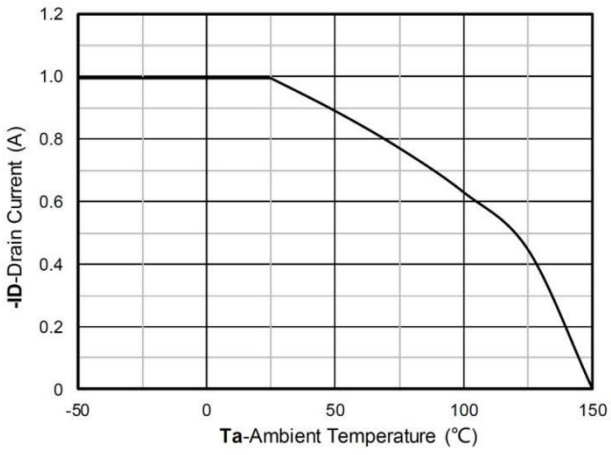
Transfer Characteristics



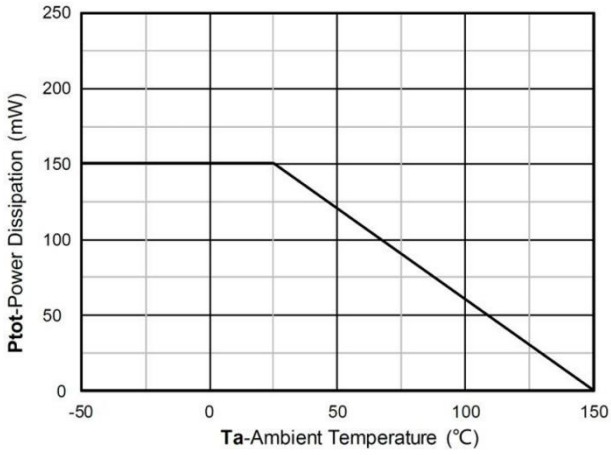
Capacitance Characteristics



Gate Charge

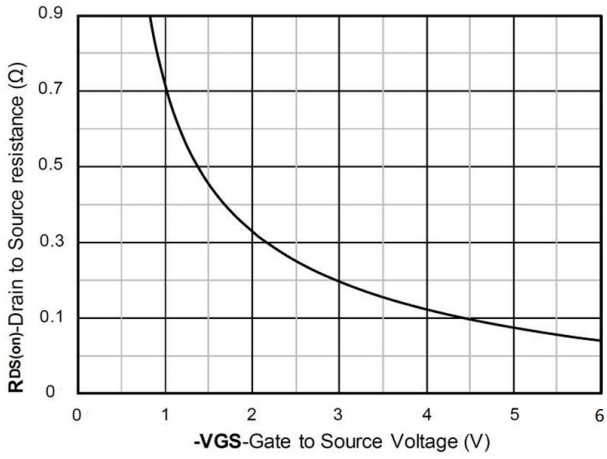


Current dissipation

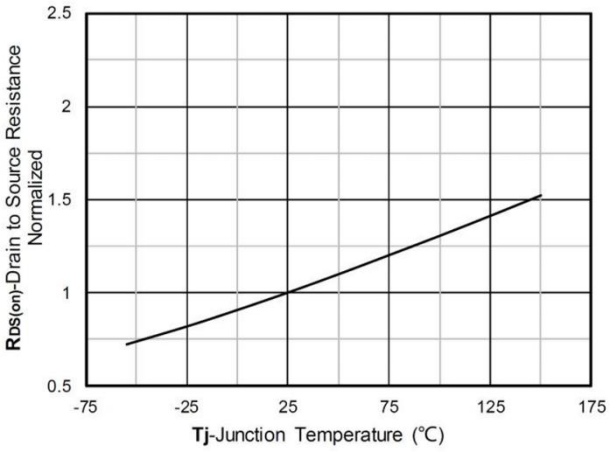


Power dissipation

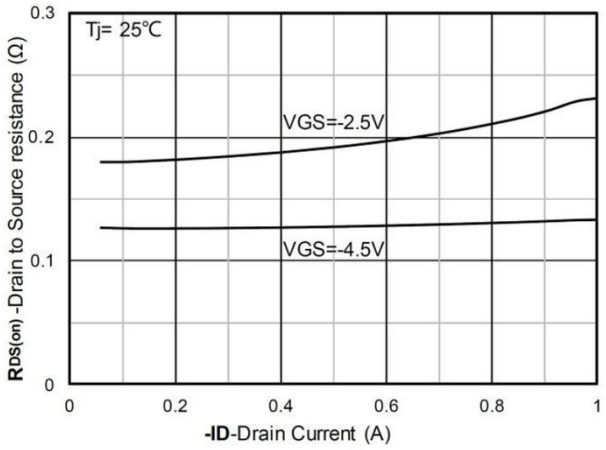
Typical Characteristics



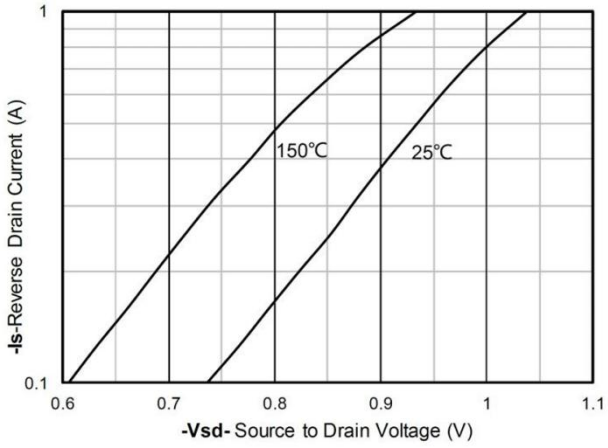
On-Resistance vs Gate to Source Voltage



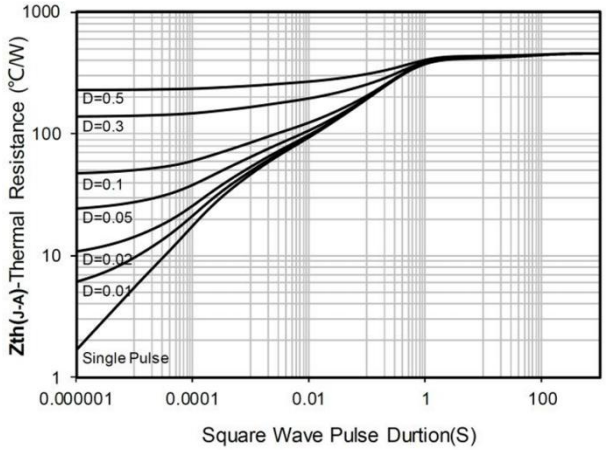
Normalized On-Resistance



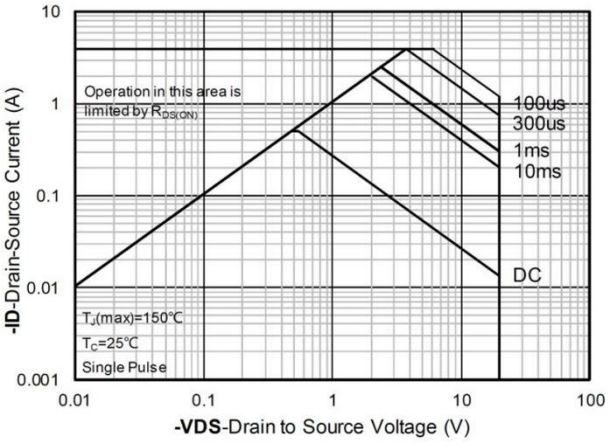
RDS(on) VS Drain Current



Forward characteristics of reverse diode

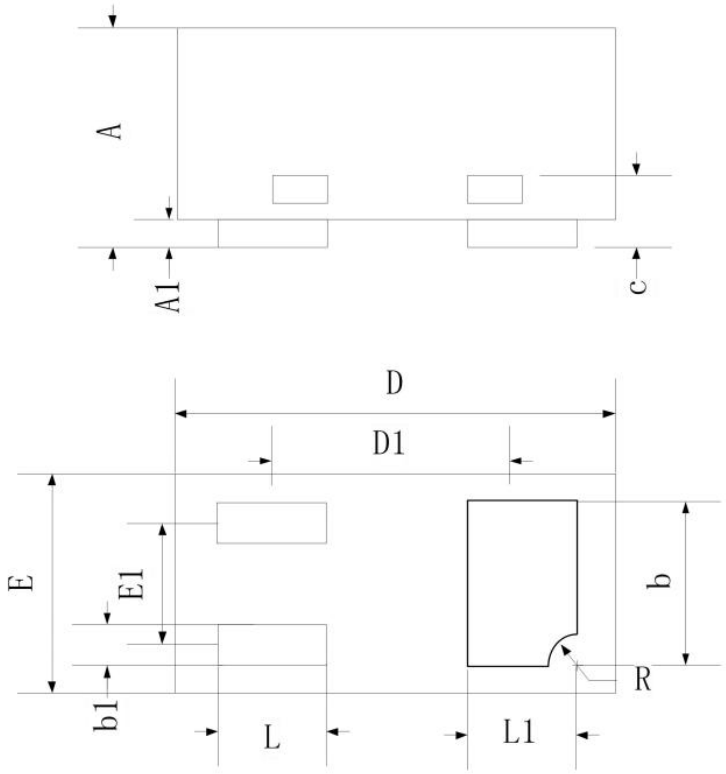


Maximum Transient Thermal Impedance



Safe Operation Area

DFN1006-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.460	0.510	0.018	0.020
A1	0.000	0.050	0.000	0.002
b	0.450	0.550	0.018	0.022
b1	0.100	0.200	0.004	0.008
c	0.080	0.180	0.003	0.007
D	0.950	1.050	0.037	0.041
D1	0.650		0.026	
E	0.550	0.650	0.022	0.026
E1	0.325		0.013	
L	0.200	0.300	0.008	0.012
L1	0.200	0.300	0.008	0.012
R	0.050	0.150	0.002	0.006