AT2002ENC

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	380mΩ@4.5V	0.75A
	450mΩ@2.5V	

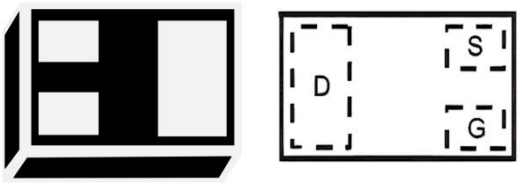
Feature

- High power and current handing capability
- Surface mount package
- ESD protected

Application

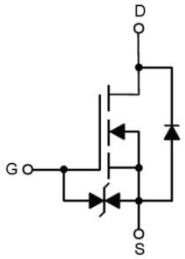
- Battery switch
- DC/DC converter

Package



DFN1006-3L

Circuit diagram



Marking

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	0.75	A
Pulsed Drain Current Tested	I_{DM}	3	A
Power Dissipation	P_D	0.15	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	℃/W
Operating Junction Temperature Range	T_J	-55 ~ +150	℃
Storage Temperature Range	T_{STG}	-55 ~ +150	℃

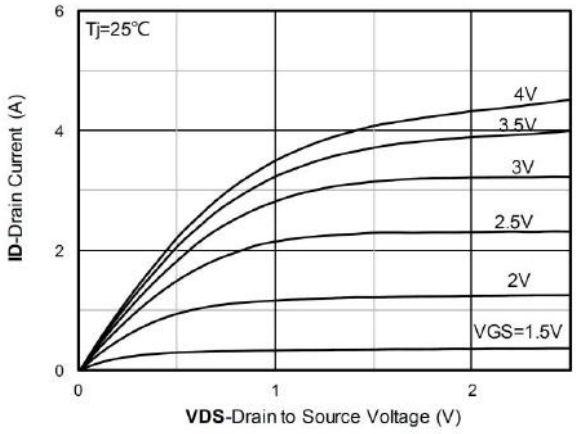
Electrical characteristics (T_A=25℃ unless otherwise noted)

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_{DS} =0V, V_{GS} =±12V			±10	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.3	0.65	1	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =4.5V, I_D =0.5A		250	380	mΩ
		V_{GS} =2.5V, I_D =0.5A		350	450	
Dynamic characteristics[1)]						
Input Capacitance	C_{iss}	V_{DS} =10V, V_{GS} =0V, f =1MHz		35		pF
Output Capacitance	C_{oss}			19		
Reverse Transfer Capacitance	C_{rss}			9		
Total Gate Charge	Q_g	V_{DS} =10V, V_{GS} =4.5V, I_D =0.5A		0.8		nC
Gate-Source Charge	Q_{gs}			0.3		
Gate-Drain Charge	Q_{gd}			0.16		
Turn-on delay time	$t_{d(on)}$	V_{DS} =10V, V_{GS} =4.5V, I_D =0.5A R_G =10Ω		4		nS
Turn-on rise time	t_r			19		
Turn-off delay time	$t_{d(off)}$			10		
Turn-off fall time	t_f			21		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				0.75	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =1A, T_J =25℃			1.2	V

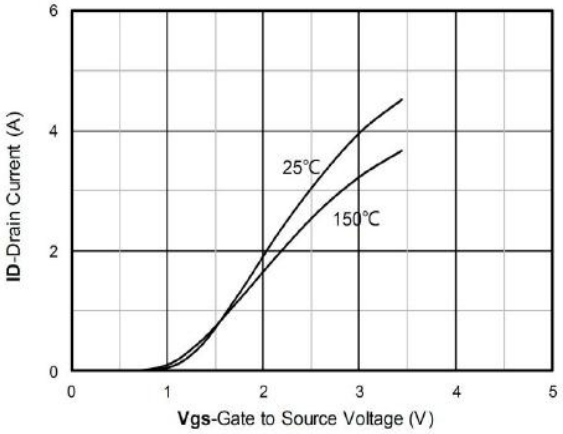
Notes:

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

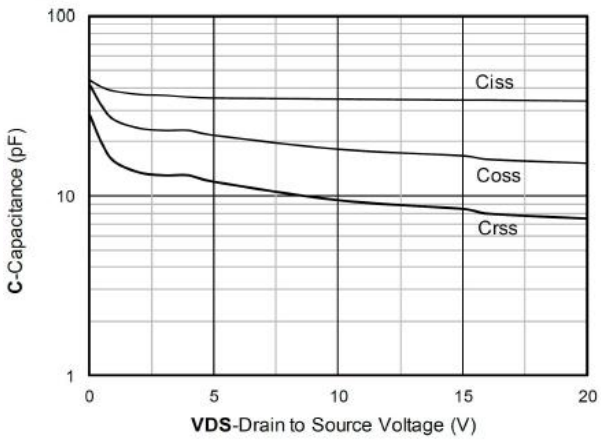
Typical Characteristics



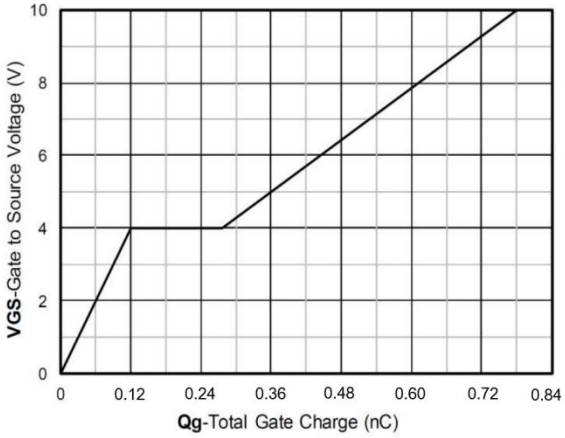
Output Characteristics



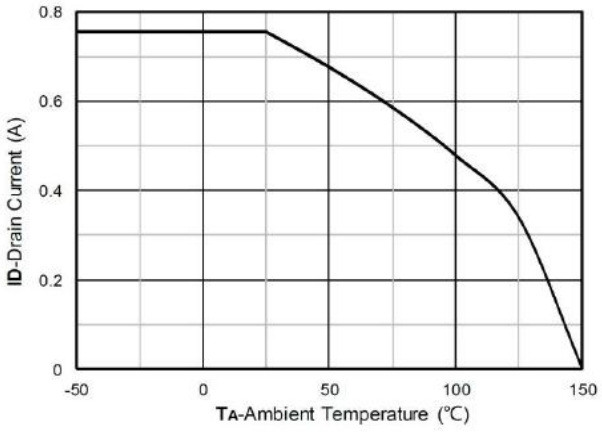
Transfer Characteristics



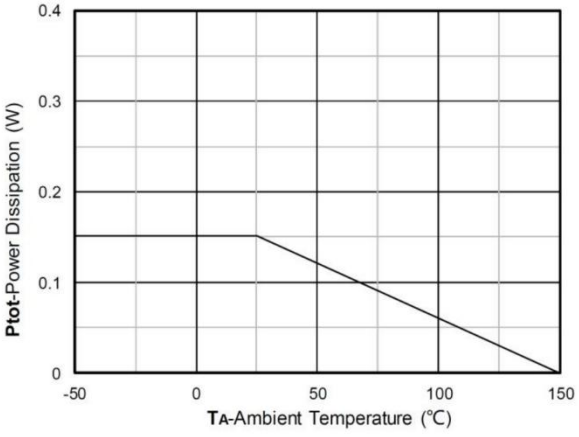
Capacitance Characteristics



Gate Charge

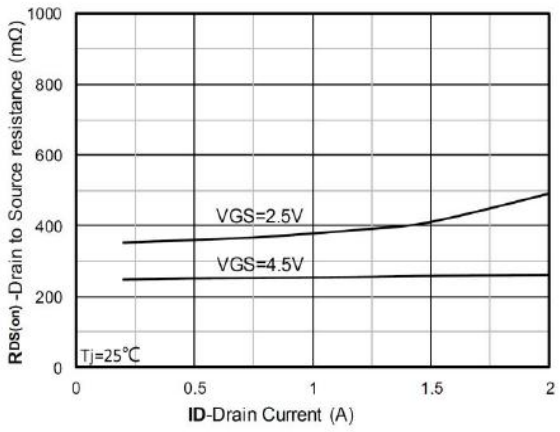


Current dissipation

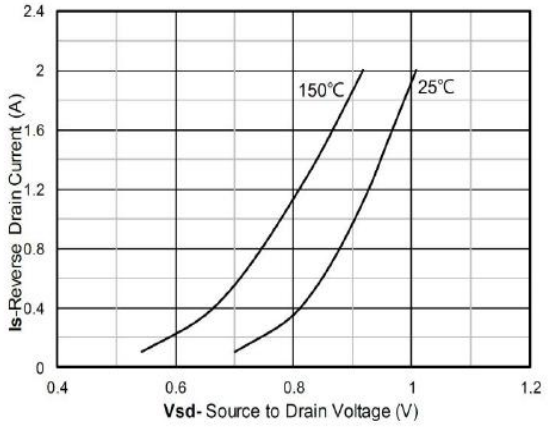


Power dissipation

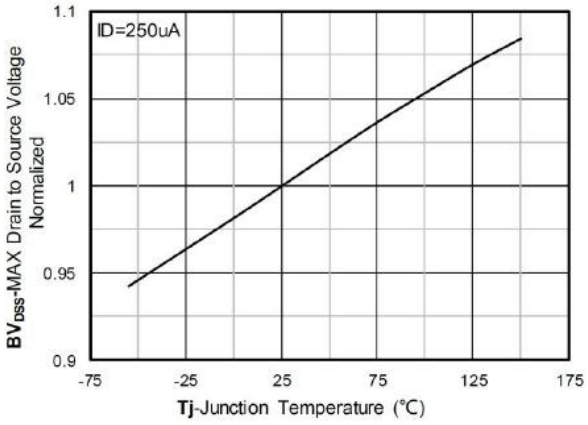
Typical Characteristics



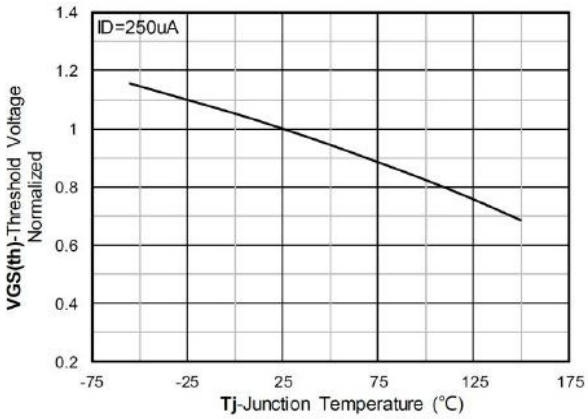
$R_{DS(on)}$ VS Drain Current



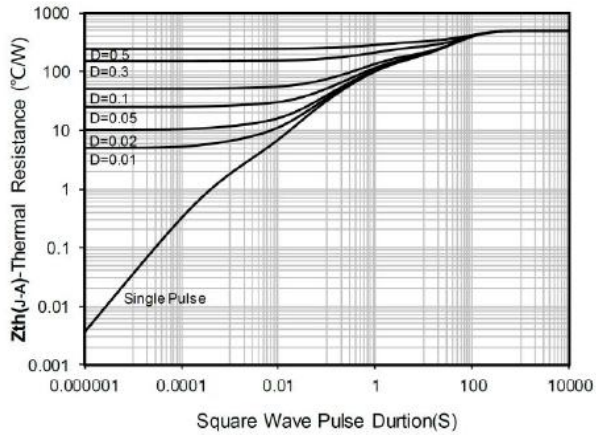
Forward characteristics of reverse diode



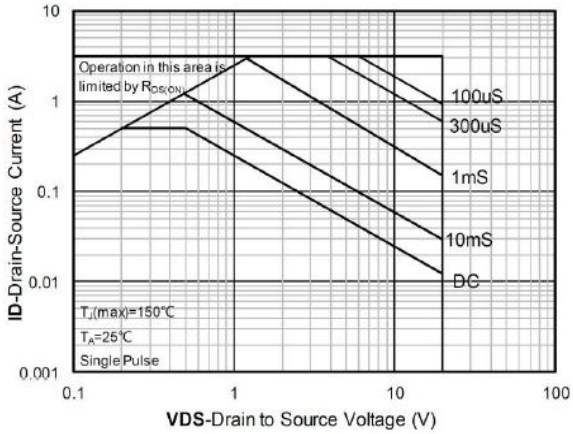
Normalized breakdown voltage



Normalized Threshold voltage

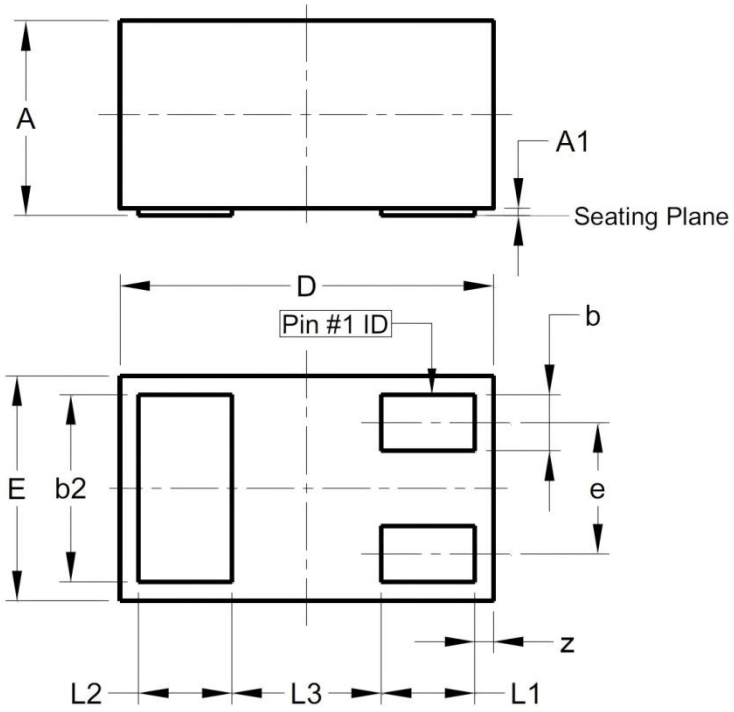


Maximum Transient Thermal Impedance



Safe Operation Area

DFN1006-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.470	0.550	0.019	0.022
A1	0.000	0.050	0.000	0.002
b	0.100	0.200	0.004	0.008
b2	0.450	0.550	0.018	0.022
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
e	0.350 BSC.		0.014 BSC.	
L1	0.200	0.300	0.008	0.012
L2	0.200	0.300	0.008	0.012
L3	0.400 REF.		0.016 REF.	
z	0.020	0.080	0.001	0.003