

Product Summary

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

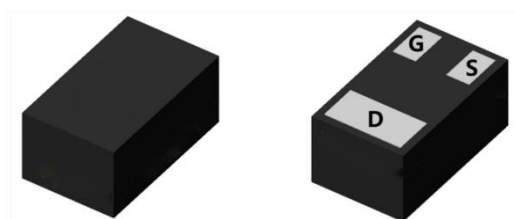
Feature

- High power and current handing capability
- Surface mount package

Application

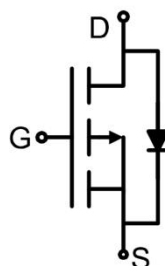
- Battery switch
- DC/DC converter

Package



DFN1006-3L

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ 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 Tested	I_{DM}	-4	A
Power Dissipation	P_D	0.15	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

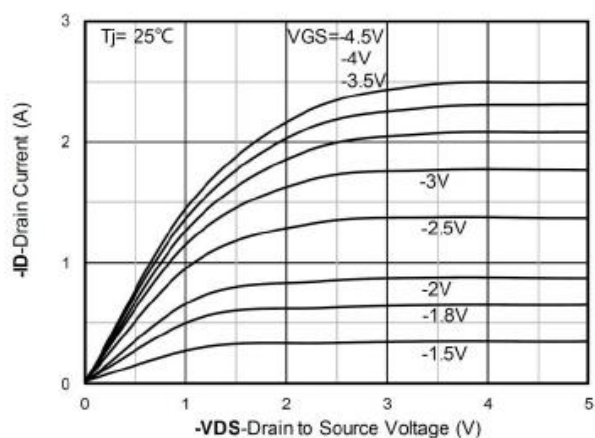
Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-16V, V_{GS}=0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.65	-1	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1A$		130	180	m Ω
		$V_{GS}=-2.5V, I_D=-0.5A$		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	$t_{d(on)}$	$V_{DS}=-10V, V_{GS}=-4.5V$ $R_G=3\Omega, R_L=5\Omega$		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 Continuous Current	I_S				-1	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=-1A, T_J=25^{\circ}C$			-1.2	V

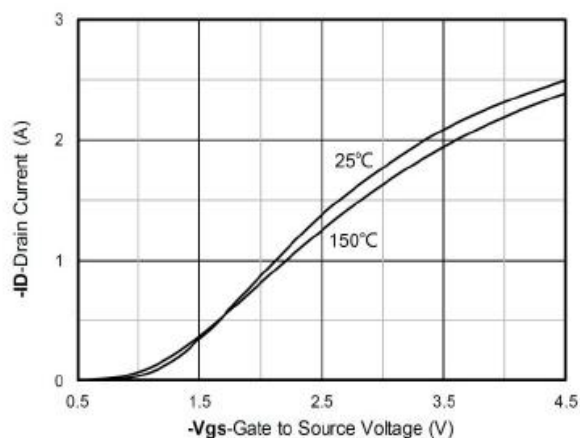
Notes:

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

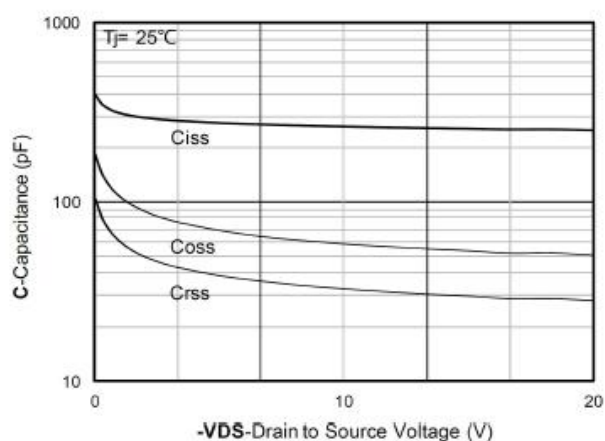
Typical Characteristics



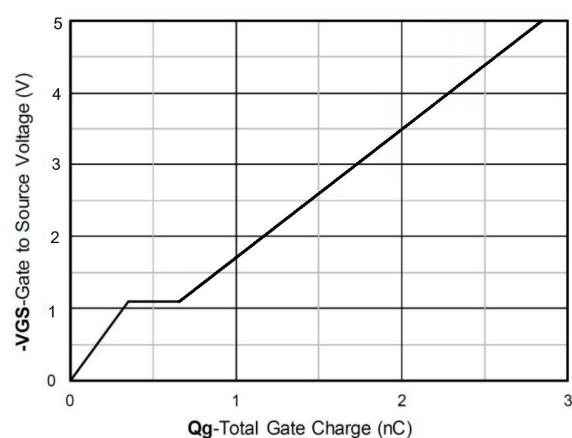
Output Characteristics



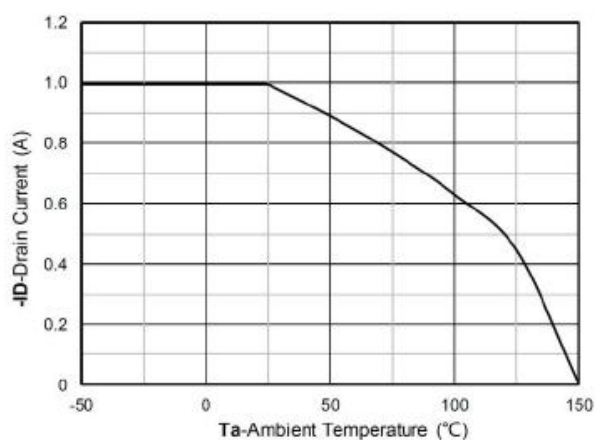
Transfer Characteristics



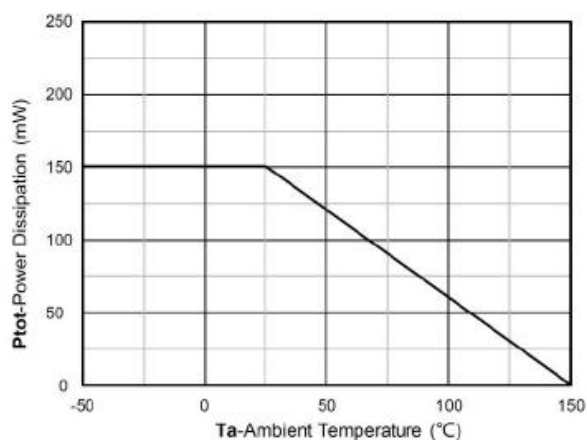
Capacitance Characteristics



Gate Charge

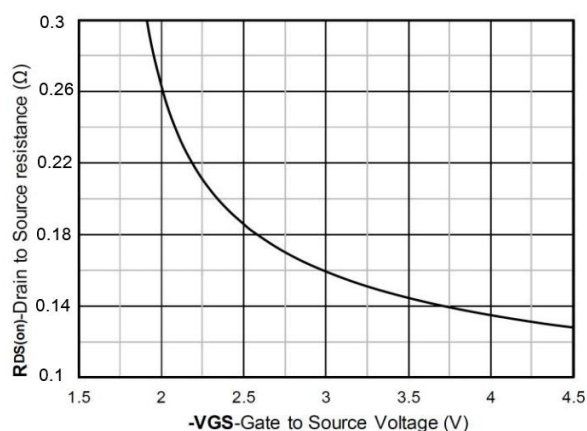


Current dissipation

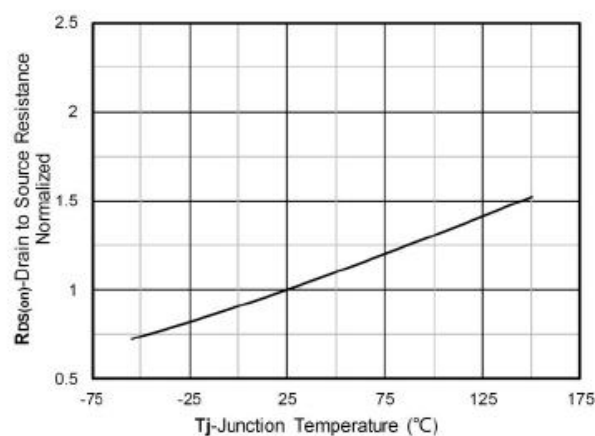


Power dissipation

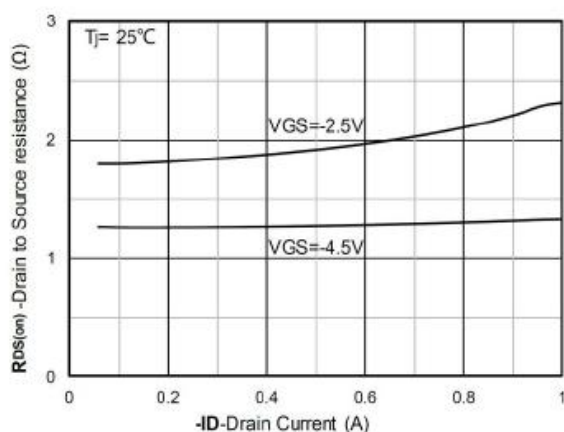
Typical Characteristics



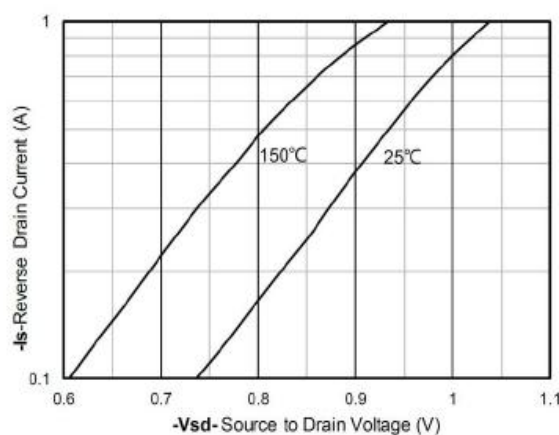
On-Resistance vs Gate to Source Voltage



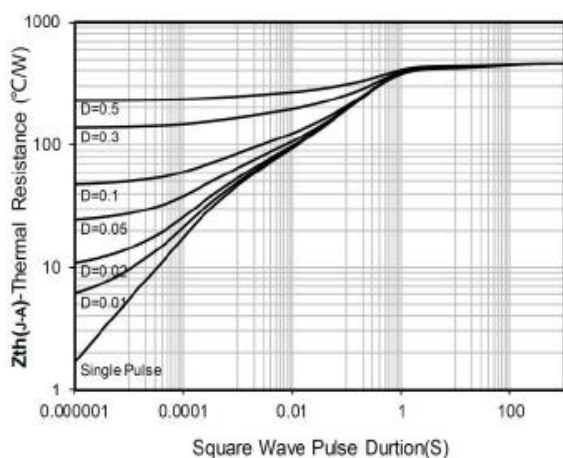
Normalized On-Resistance



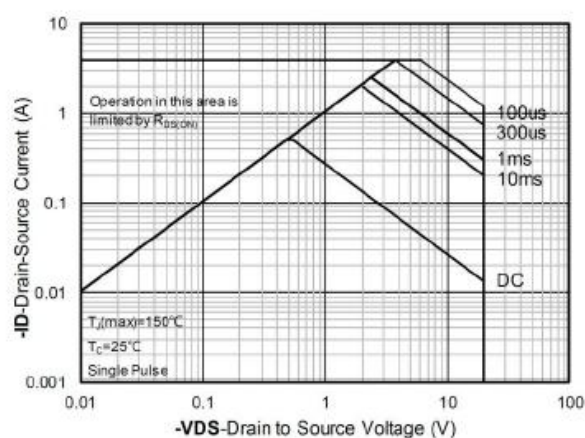
$R_{DS(on)}$ VS Drain Current



Forward characteristics of reverse diode

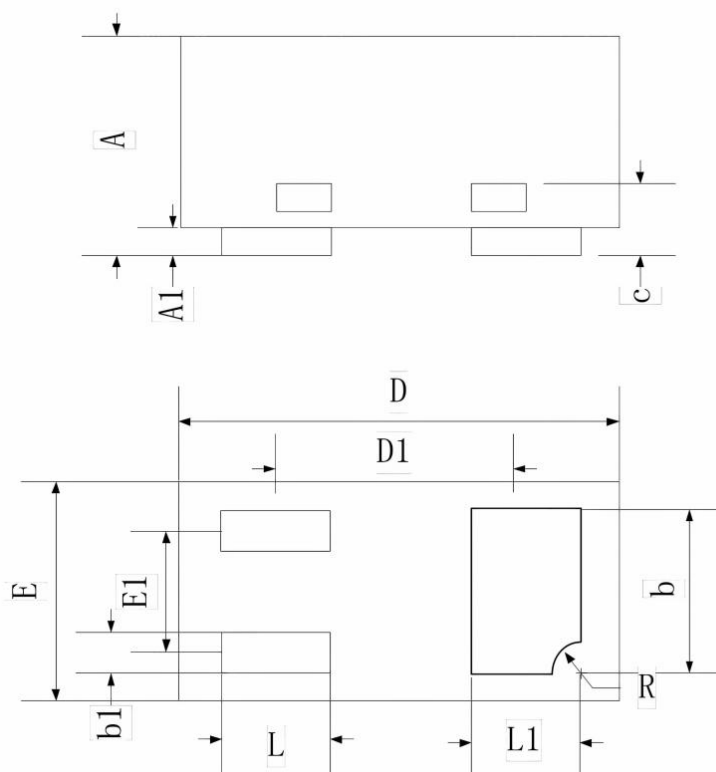


Maximum Transient Thermal Impedance



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 BSC.		0.026 BSC.	
E	0.550	0.650	0.022	0.026
E1	0.325 BSC.		0.013 BSC.	
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