

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	90mΩ@4.5V	1.2A
	110mΩ@2.5V	

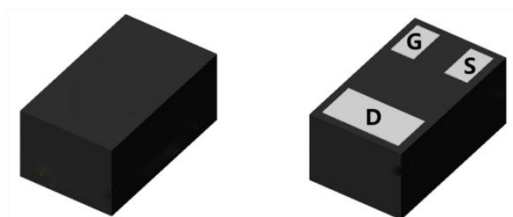
Feature

- High power and current handling capability
- Surface mount package

Application

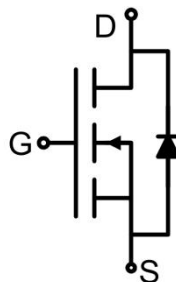
- Battery Switch
- DC/DC Converter

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	1.2	A
Pulsed Drain Current	I_{DM}	4.8	A
Power Dissipation	P_D	150	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

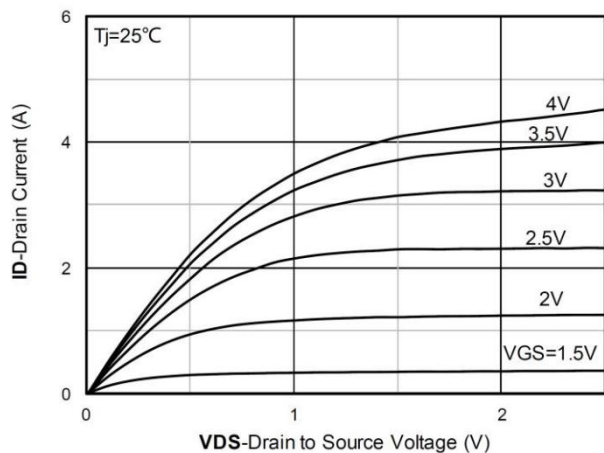
Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

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}	$V_{DS}=13V, V_{GS}=0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4	0.65	1.0	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=1A$		60	90	m Ω
		$V_{GS}=2.5V, I_D=0.5A$		70	110	
Dynamic characteristics ¹⁾						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		226		pF
Output Capacitance	C_{oss}			35		
Reverse Transfer Capacitance	C_{rss}			21		
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=1.2A$		4		nC
Gate Source Charge	Q_{gs}			0.85		
Gate Drain Charge	Q_{gd}			0.67		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=10V, V_{GS}=4.5V, I_D=1.2A$ $R_G=6\Omega$		7		nS
Turn-on Rise Time	t_r			55		
Turn-off delay time	$t_{d(off)}$			14		
Turn-off Fall Time	t_f			43		
Source-Drain Diode characteristics						
Body-Diode Continuous Current	I_S				1.2	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}C$			1.2	V

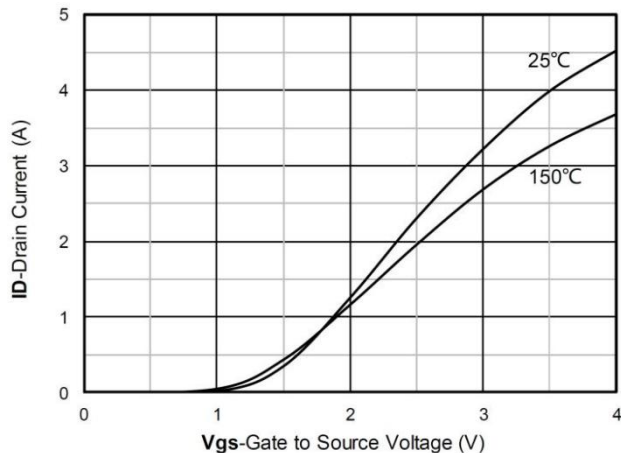
Notes:

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

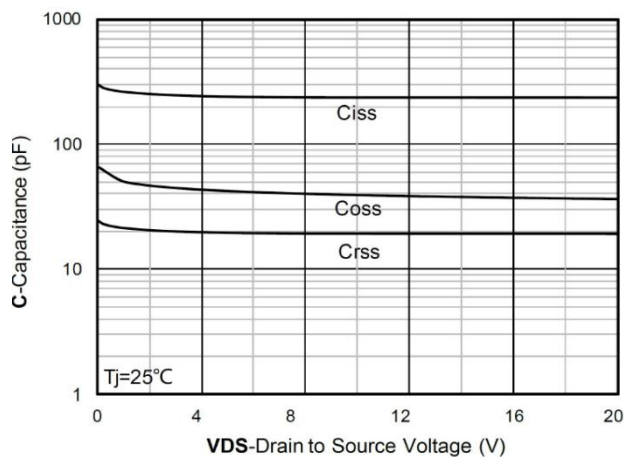
Typical Characteristics



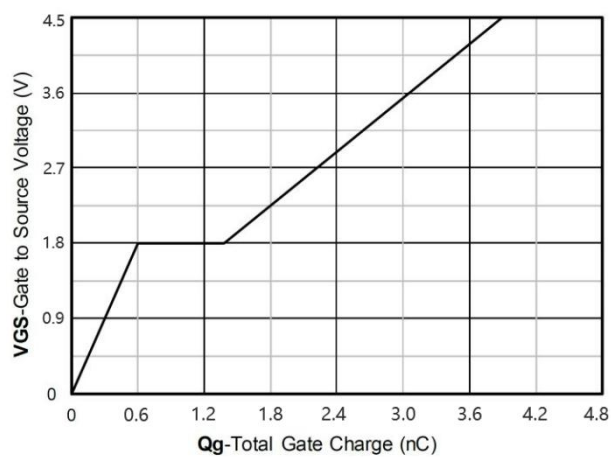
Output Characteristics



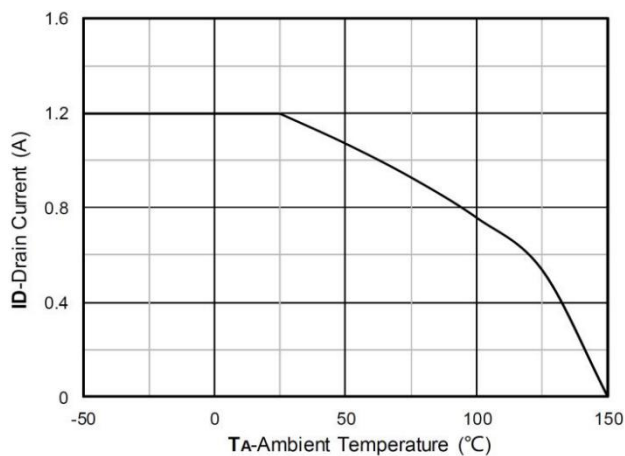
Transfer Characteristics



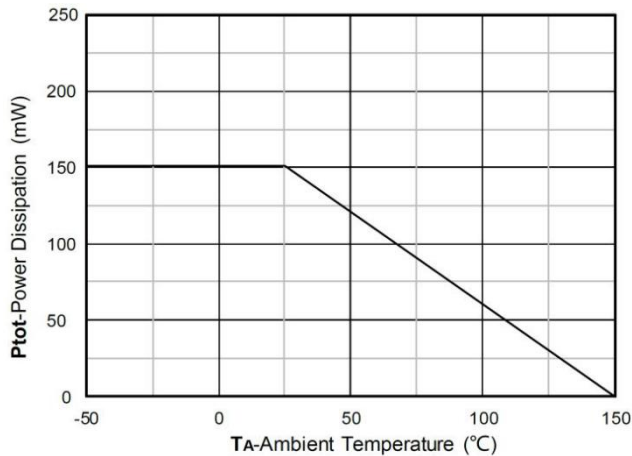
Capacitance Characteristics



Gate Charge

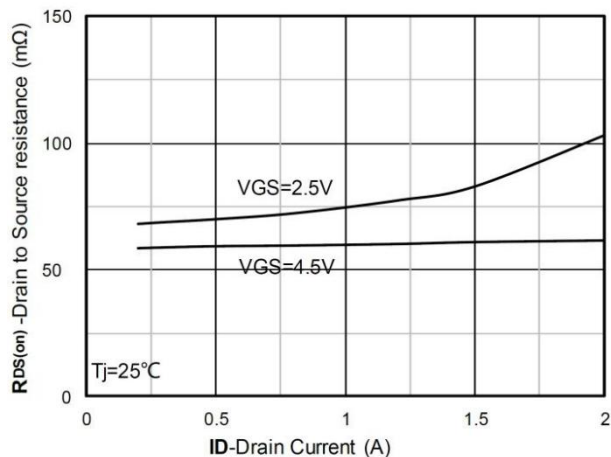


Current dissipation

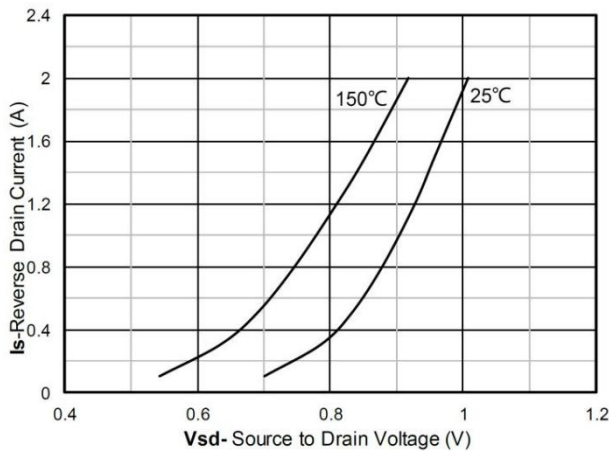


Power dissipation

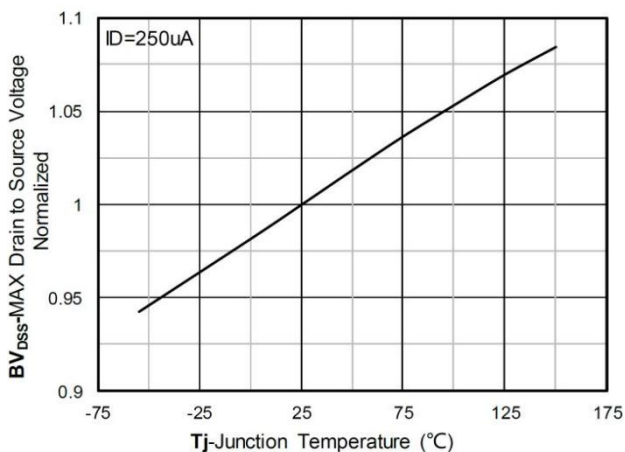
Typical Characteristics



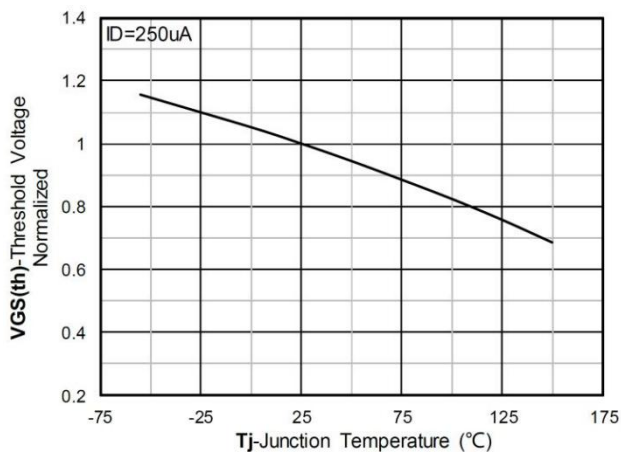
RDS(on) VS Drain Current



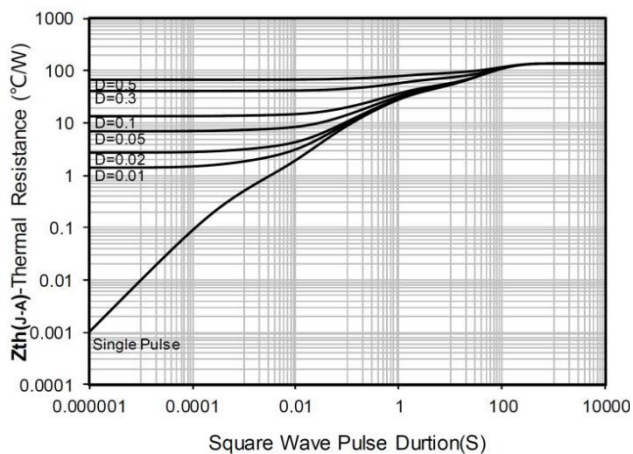
Forward characteristics of reverse diode



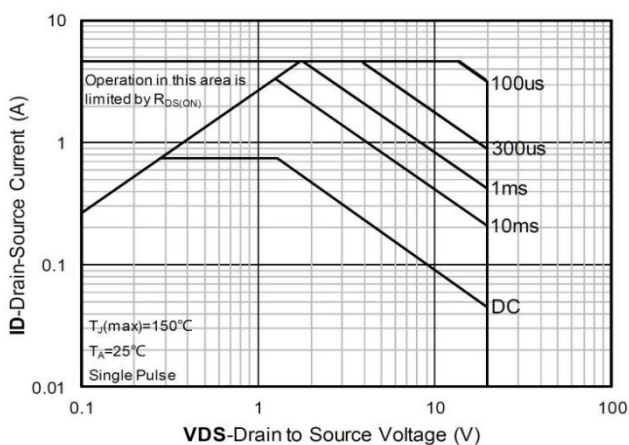
Normalized breakdown voltage



Normalized Threshold voltage

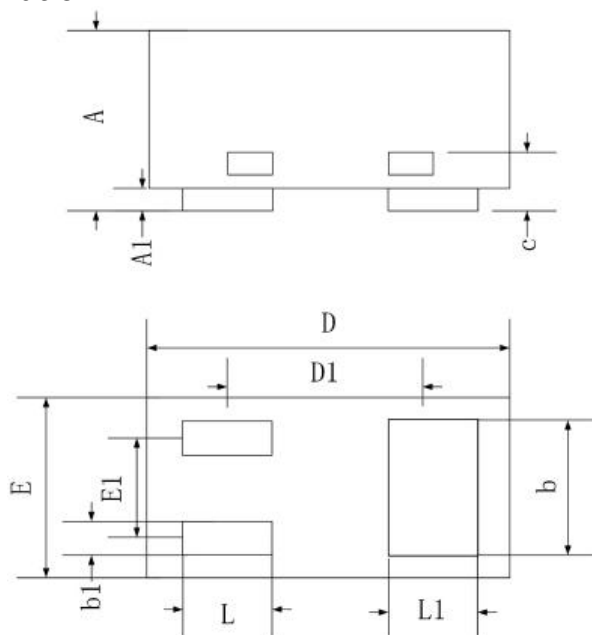


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-523 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 TYP.		0.026 TYP.	
E	0.550	0.650	0.022	0.026
E1	0.325 TYP.		0.013 TYP.	
L	0.200	0.300	0.008	0.012
L1	0.200	0.300	0.008	0.012