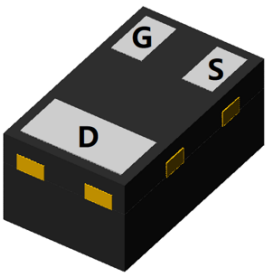
N-Channel Enhancement Mode Field Effect Transistor

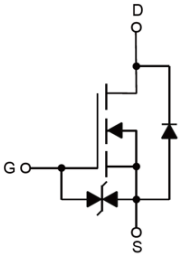


Top View



Bottom View

DFN1006-3L



Product Summary

- V_{DS} 20 V
- I_D 0.7 A
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜300 mohm
- $R_{DS(ON)}$(at V_{GS}=2.5V) ＜350 mohm
- $R_{DS(ON)}$(at V_{GS}=1.8V) ＜700 mohm
- ESD Protected Up to 2.0KV (HBM)

General Description

- Trench Power LV MOSFET technology
- High Power and current handing capability
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- PWM application
- Load switch

■ Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	20	V
Gate-source Voltage		V_{GS}	±12	V
Drain Current	T_A=25℃	I_D	0.7	A
	T_A=100℃		0.44	
Pulsed Drain Current [A]		I_{DM}	3	A
Total Power Dissipation [B]	T_A=25℃	P_D	0.9	W
	T_A=100℃		0.36	
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

■Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient [C]	Steady-State	$R_{\theta JA}$	110	138	℃/W

■ Ordering Information

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
A3134KB	F1	4A	10000	100000	400000	7“ reel

■ Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=250μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V			1	μA
		V_{DS}=20V,V_{GS}=0V, Tj=150℃			100	
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±10V, V_{DS}=0V			±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA	0.35	0.75	1.1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 4.5V, I_D=0.7A		180	300	mΩ
		V_{GS}= 2.5V, I_D=0.5A		260	350	
		V_{GS}= 1.8V, I_D=0.2A		490	700	
Diode Forward Voltage	V_{SD}	I_S=0.7A,V_{GS}=0V			1.2	V
Gate Resistance	Rg	f=1 MHz		50		Ω
Maximum Body-Diode Continuous Current	I_S				0.7	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHZ		56		pF
Output Capacitance	C_{oss}			20		
Reverse Transfer Capacitance	C_{rss}			2.5		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=4.5V,V_{DS}=10V,I_D=0.7A		1		nC
Gate Source Charge	Q_{gs}			0.28		
Gate Drain Charge	Q_{gd}			0.22		
Reverse Recovery Chrage	Q_{rr}	I_F=0.7A, di/dt=20A/us		0.4		
Reverse Recovery Time	t_{rr}			14.4		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=4.5V,V_{DD}=10V,R_G=10Ω,I_D=700mA		2		
Turn-on Rise Time	t_r			18.8		
Turn-off Delay Time	$t_{D(off)}$			10		
Turn-off Fall Time	t_f			23		

A. Repetitive rating; pulse width limited by max. junction temperature.
B. P_d is based on max. junction temperature, using junction-case thermal resistance.
C. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz. Copper, in the still air environment with T_A =25℃. The maximum allowed junction temperature of 150℃. The value in any given application depends on the user's specific board design.

■ Typical Performance Characteristics

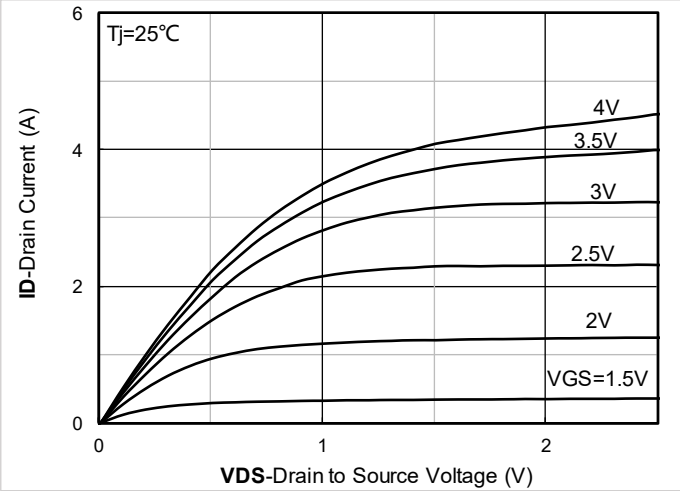


Figure 1. Output Characteristics

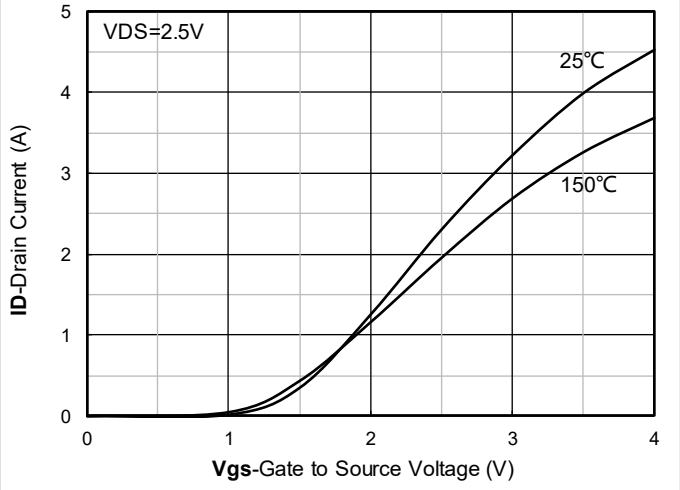


Figure 2. Transfer Characteristics

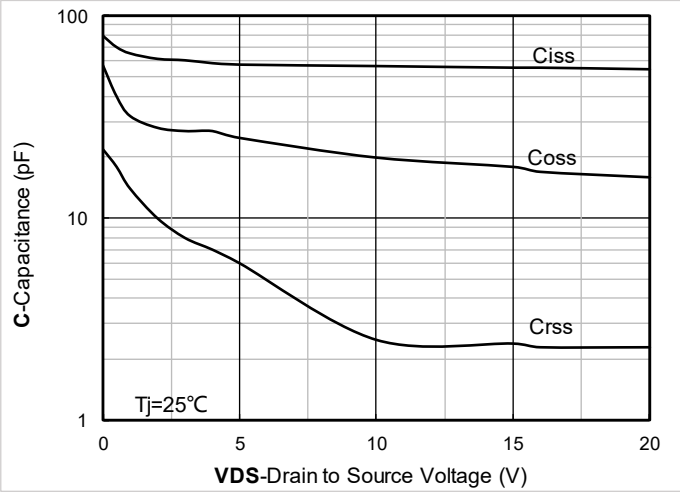


Figure 3. Capacitance Characteristics

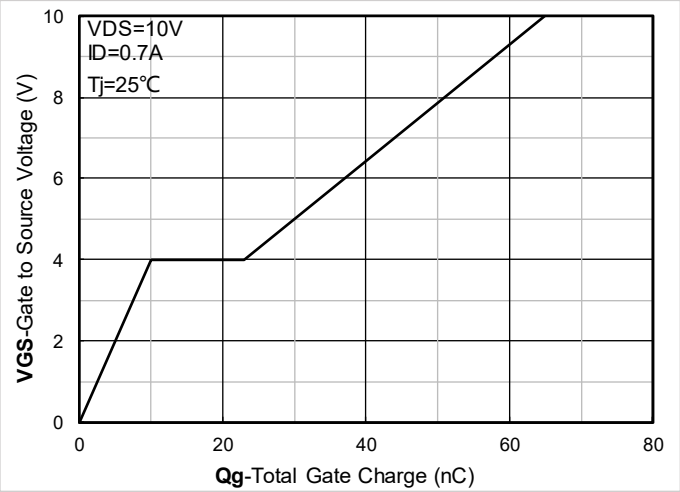


Figure 4. Gate Charge

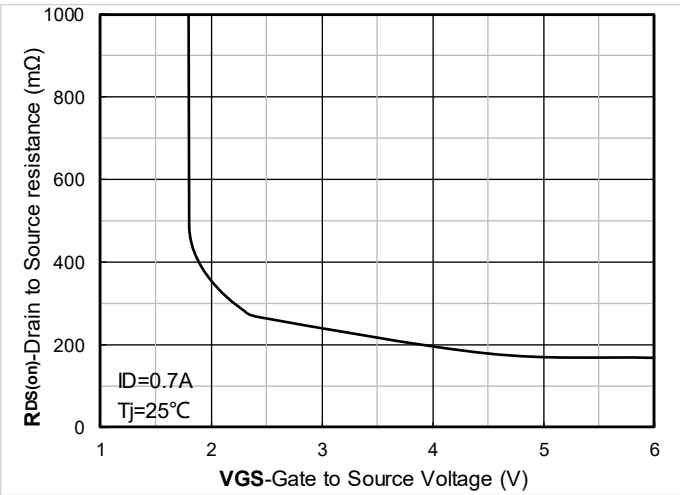


Figure 5. On-Resistance vs Gate to Source Voltage

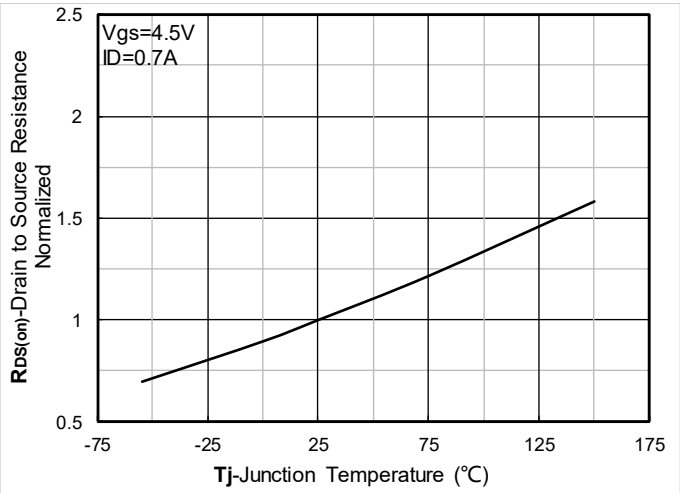


Figure 6. Normalized On-Resistance

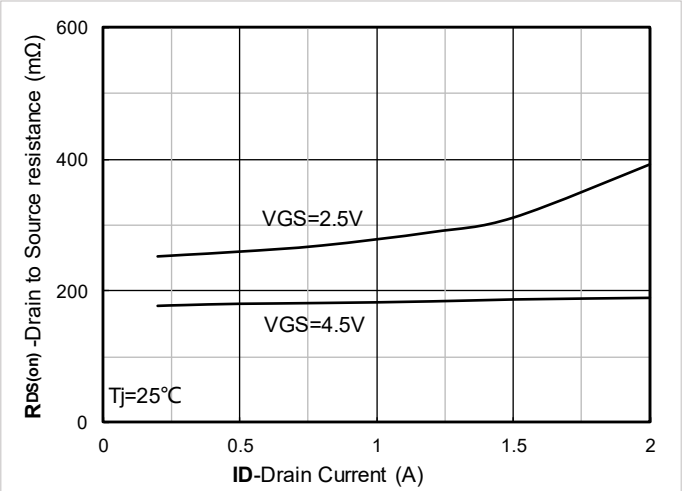


Figure 7. $R_{DS(on)}$ VS Drain Current

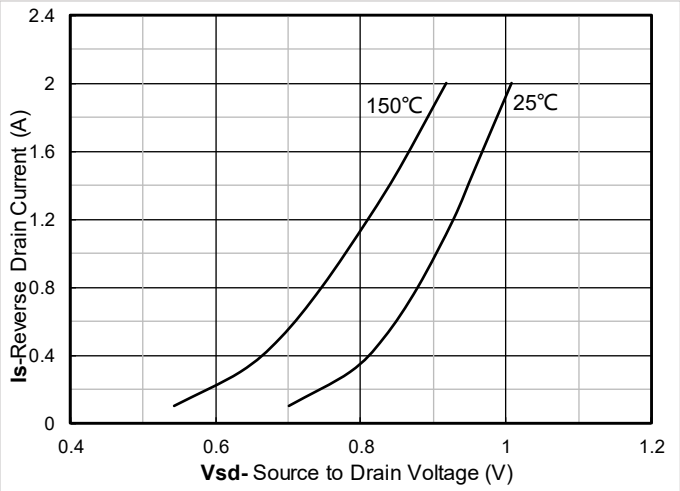


Figure 8. Forward characteristics of reverse diode

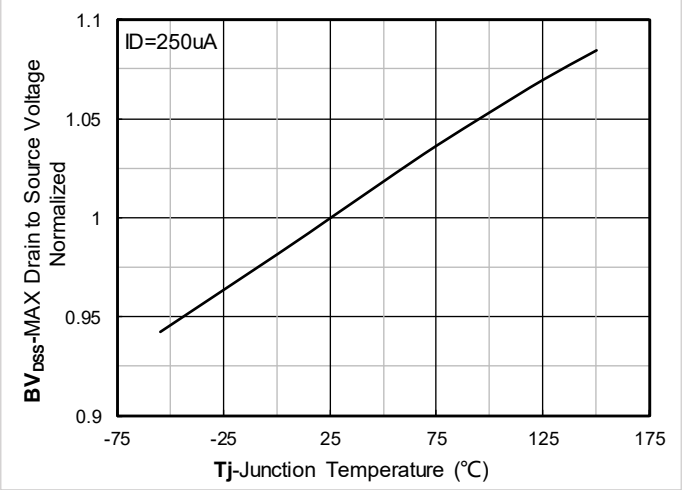


Figure 9. Normalized breakdown voltage

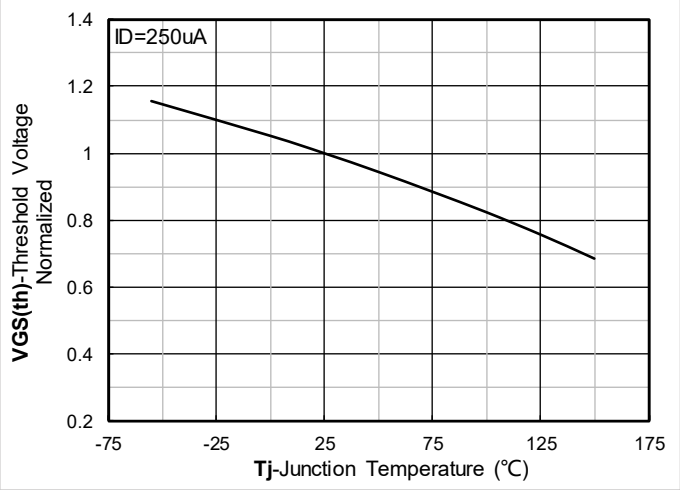


Figure 10. Normalized Threshold voltage

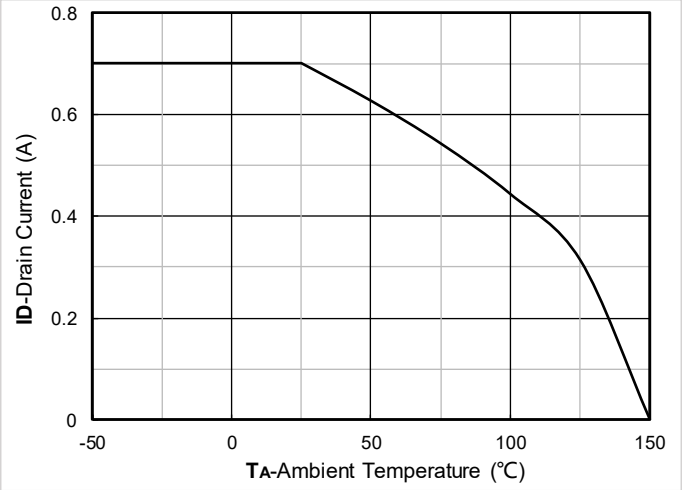


Figure 11. Current dissipation

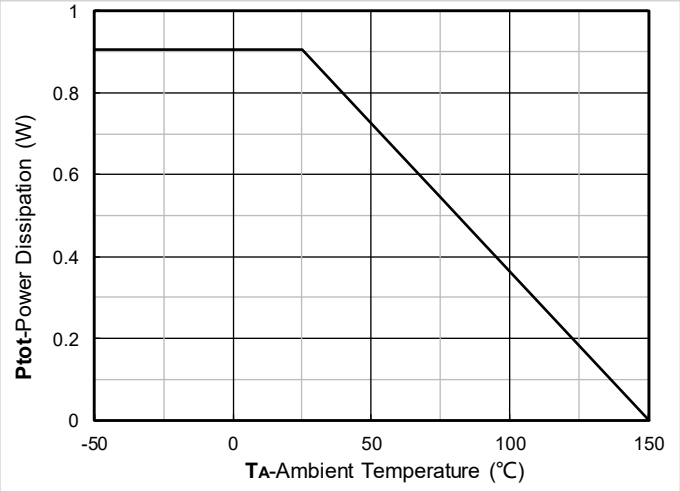


Figure 12. Power dissipation

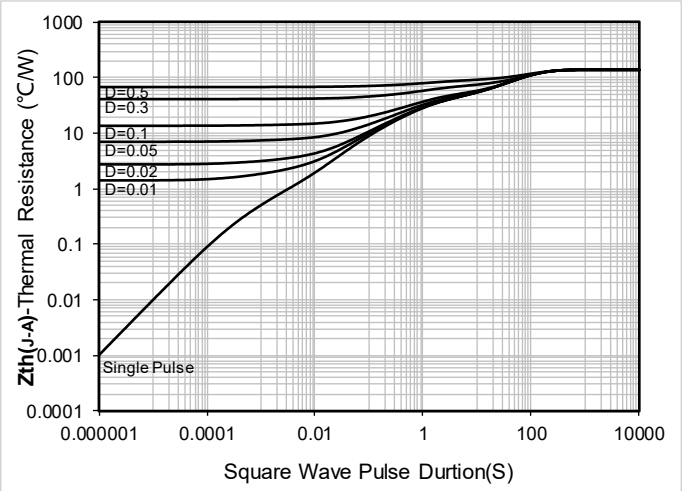


Figure 13. Maximum Transient Thermal Impedance

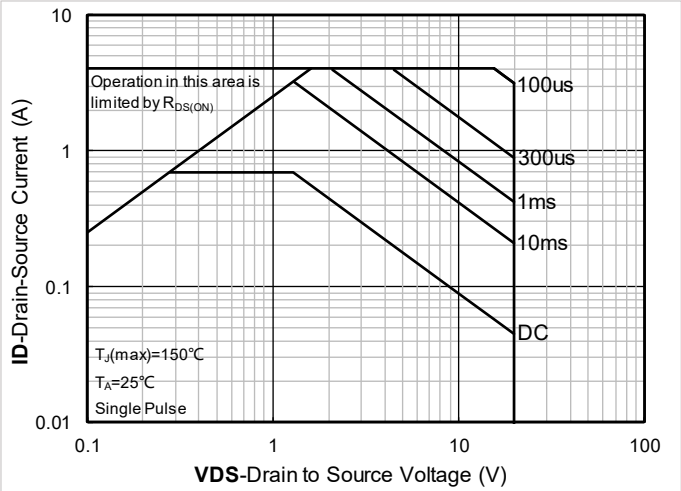
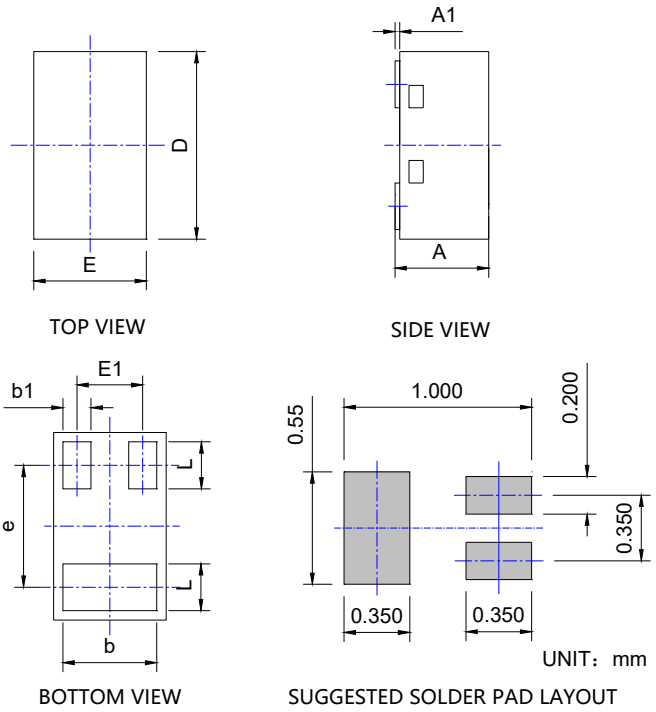


Figure 14. Safe Operation Area

■DFN1006-3L Package information



DIMENSIONS			
SYMBOL	Millimeter		
	MIN.	NOM.	MAX.
A	0.42	---	0.53
A1		0.025REF	
b	0.45	0.50	0.55
b1	0.10	0.15	0.20
D	0.95	1.00	1.05
E	0.55	0.60	0.65
E1		0.35BSC	
e		0.65BSC	
L	0.20	0.25	0.30

NOTE:
1.PACKAGE BODY SIZES EXCLUDE LEAD BURRS.
2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

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