

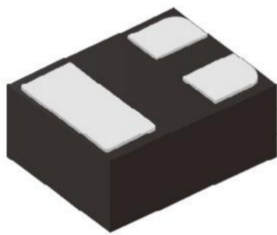
Product Summary

- V_{DS} -60 V
- I_{DS} (@ $V_{GS} = -10V$) -0.5 A
- $R_{DS(ON)}$ (@ $V_{GS} = -10V$) <4 Ω

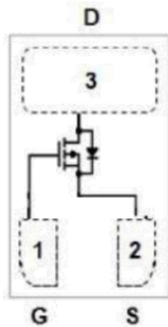
Application

- Reverse Battery protection
- Load switch
- Power management
- PWM Application

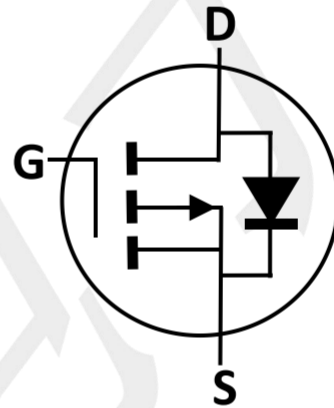
Package and Pin Configuration



DFN1006-3



Circuit diagram



Equivalent Circuit

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-0.5	A
Pulsed Drain Current (note1)	I_{DM}	-1	A
Maximum Power Dissipation	P_D	0.5	W
Operating Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

Thermal Characteristic

PARAMETER	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient(t≤10s)	$R_{\theta JA}$	250	°C/W
	PCB Mount (note2)		

notes 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. When mounted on 1" square PCB (FR4 material).

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

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	BV_{DSS}	-60	--	--	V
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-1.0	-1.5	-2.5	V
Gate-Source Leakage	$V_{DS}=0V, V_{GS}=\pm 20V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=-48V, V_{GS}=0V$	I_{DSS}	--	-0.1	-1	μA
	$V_{DS}=-48V, T_J=125^\circ\text{C}$		--	-10	-50	μA
Drain-Source On-State Resistance (Note 1)	$V_{GS}=-10V, I_D=-0.5A$	$R_{DS(on)}$	--	2.4	4.0	Ω
	$V_{GS}=-4.5V, I_D=-0.2A$		--	2.6	6.0	
	$V_{GS}=-2.5V, I_D=-0.05A$		--	4.5	13	
Dynamic (Note 2)						
Total Gate Charge (Note 3)	$V_{DS}=-35V,$ $I_D=-0.1A,$ $V_{GS}=-4.5V$	Q_g	--	11	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	0.3	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	0.2	--	
Input Capacitance	$V_{DS}=-25V,$ $V_{GS}=0V,$ $F=1.0\text{MHz}$	C_{iss}	--	51	--	pF
Output Capacitance		C_{oss}	--	15	--	
Reverse Transfer Capacitance		C_{rss}	--	2.2	--	
Switching						
Turn-On Delay Time (Note 3)	$V_{DD}=-25V,$ $I_D=-0.1A,$ $V_{GS}=-10V,$ $R_{GEN}=6\Omega$	$t_{d(on)}$	--	5.0	--	nS
Rise Time (Note 3)		t_r	--	19	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	52	--	
Fall Time (Note 3)		t_f	--	32	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	$V_{GS}=0V, I_{SD}=-0.5A$	V_{SD}	--	-0.96	-1.3	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	-0.5	A
Pulsed Current (Note 1)		I_{SM}	--	--	-1	A

Notes:

1. Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

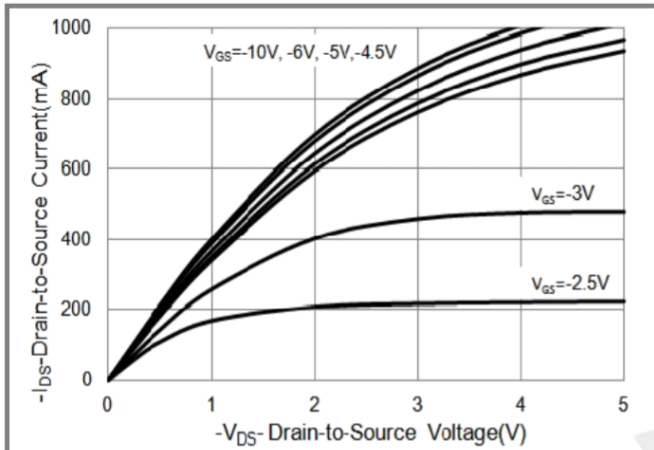


Fig.1 On-Region Characteristics

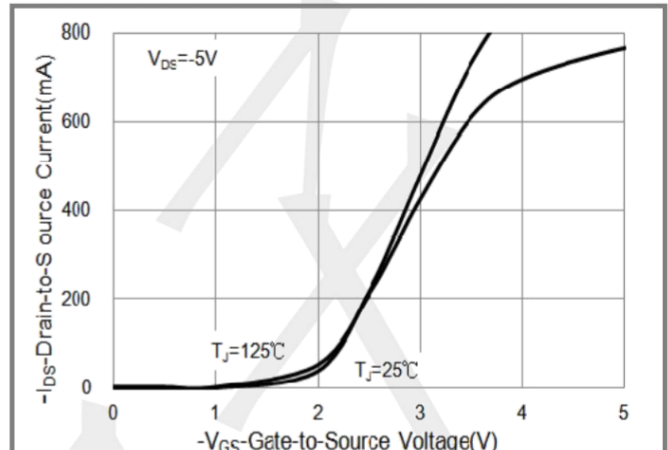


Fig.2 Transfer Characteristics

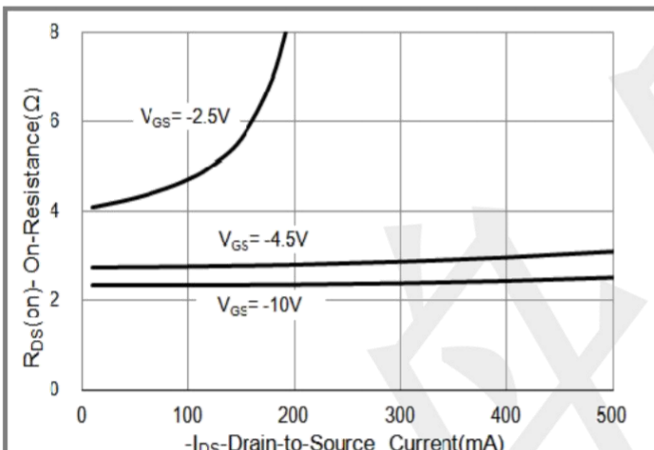


Fig.3 On-Resistance vs. Drain Current

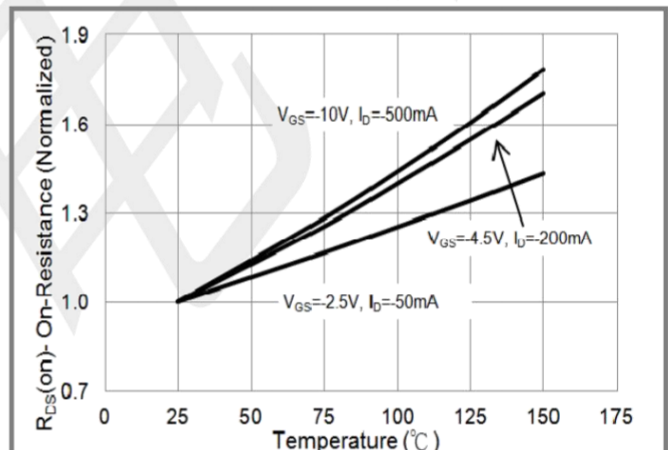


Fig.4 On-Resistance vs. Junction temperature

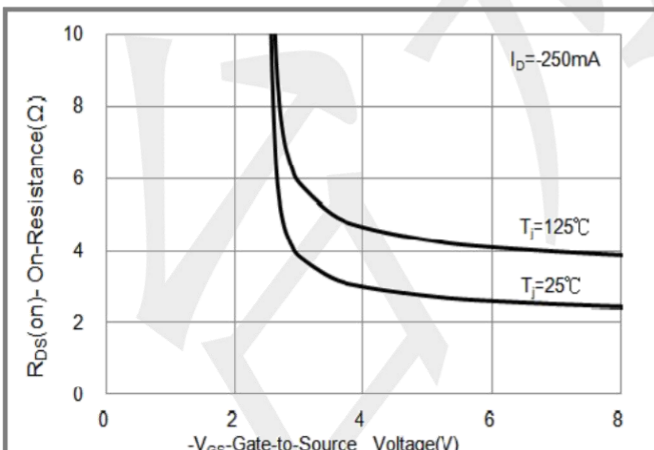


Fig.5 On-Resistance Variation with V_{GS}

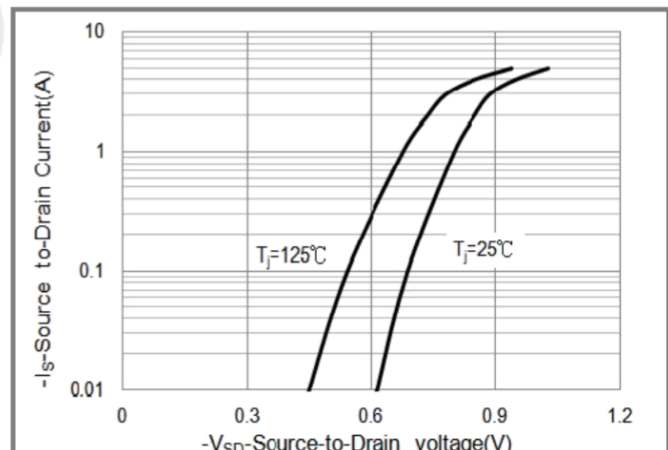
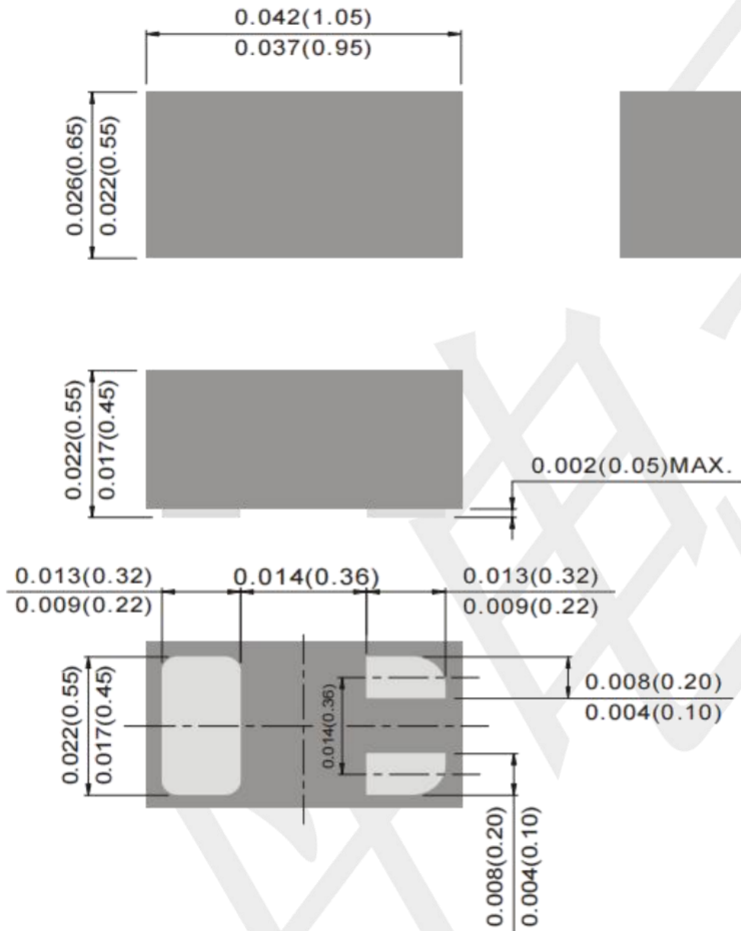


Fig.6 Body Diode Characteristics

Package Information Unit: inch(mm)

DFN 3L



Pad Layout Unit: inch(mm)

