

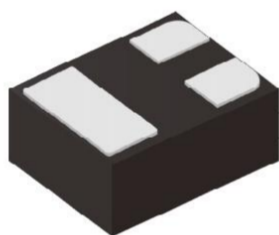
Product Summary

- V_{DS} -20 V
- I_{DS} (@ $V_{GS} = -4.5V$) -2.5 A
- $R_{DS(ON)}$ (@ $V_{GS} = -4.5V$) <92m Ω (Typ)

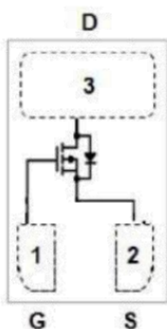
Application

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

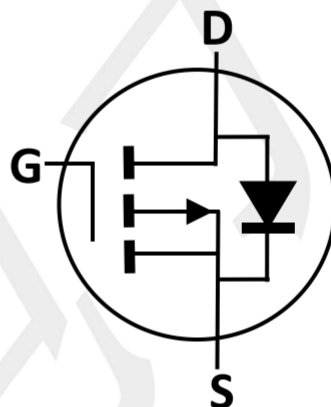
Package and Pin Configuration



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}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	-2.5	A
Pulsed Drain Current (note1)	I_{DM}	-6.0	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)	PCB Mount (note2)	$R_{\theta JA}$	250	°C/W

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°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	BV _{DSS}	-20	--	--	V
Gate-Source Threshold Voltage	V _{DS} =V _{GS} , I _D = -250μA	V _{GS(th)}	-0.4	-0.7	-1.0	V
Gate-Source Leakage	V _{DS} =0V, V _{GS} = ±12V	I _{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V _{DS} = -20V, V _{GS} =0V	I _{DSS}	--	-0.1	-1	μA
	V _{DS} = -20V, T _J =125°C		--	-10	-50	μA
Drain-Source On-State Resistance (Note 1)	V _{GS} = -4.5V, I _D = -1.0A	R _{DS(on)}	--	92	120	mΩ
	V _{GS} = -2.5V, I _D = -1.0A		--	115	160	
Dynamic (Note 2)						
Total Gate Charge (Note 3)	V _{DS} = -20V, I _D = -0.1A, V _{GS} = -4.5V	Q _g	--	3.0	--	nC
Gate-Source Charge (Note 3)		Q _{gs}	--	0.2	--	
Gate-Drain Charge (Note 3)		Q _{gd}	--	0.8	--	
Input Capacitance	V _{DS} = -20V, V _{GS} = 0V, F= 1.0MHz	C _{iss}	--	248	--	pF
Output Capacitance		C _{oss}	--	31	--	
Reverse Transfer Capacitance		C _{rss}	--	29	--	
Switching						
Turn-On Delay Time (Note 3)	V _{DD} = -20V, I _D = -0.1A, V _{GS} = -4.5V, R _{GEN} = 6Ω	t _{d(on)}	--	5.0	--	nS
Rise Time (Note 3)		t _r	--	5.0	--	
Turn-Off Delay Time (Note 3)		t _{d(off)}	--	54	--	
Fall Time (Note 3)		t _f	--	35	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V _{GS} = 0V, I _{SD} = -1.0A	V _{SD}	--	-0.96	-1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I _S	--	--	-2.5	A
Pulsed Current (Note 1)		I _{SM}	--	--	-6.0	A

Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

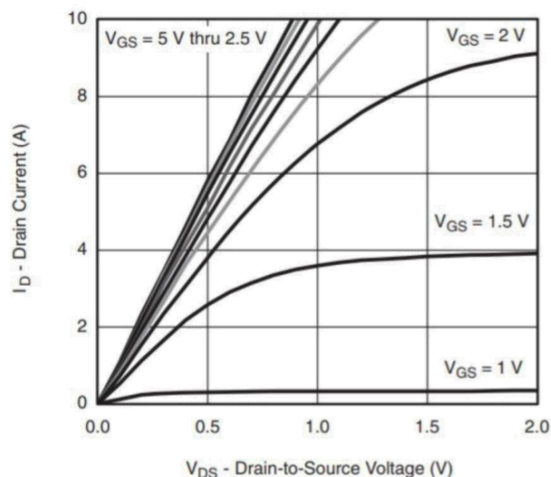


Fig.1 Typical Output Characteristics

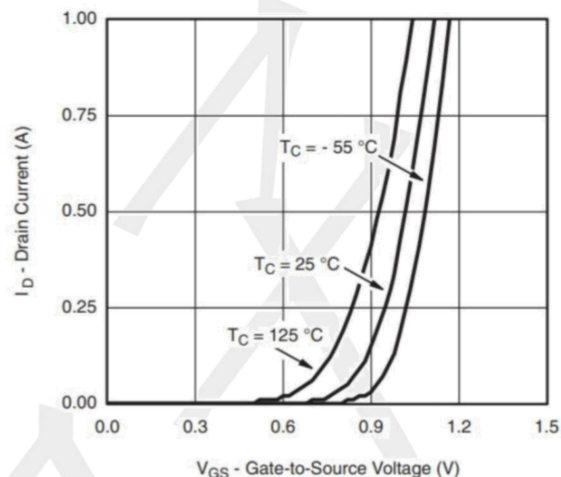


Fig.2 Transfer Characteristics

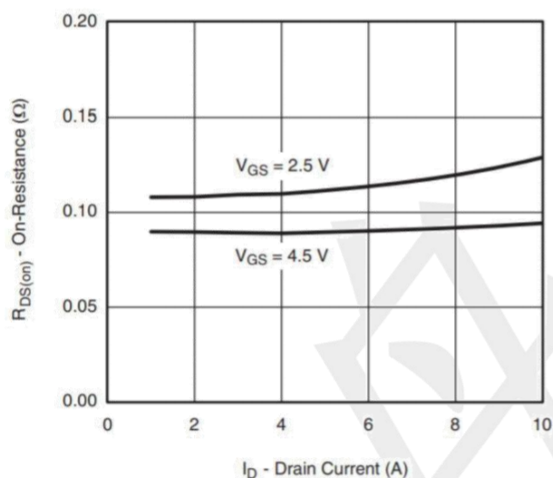


Fig.3 On-Resistance vs Drain Current & Gate Voltage

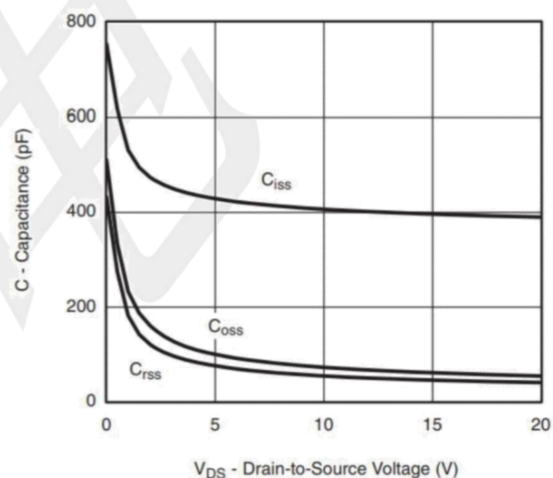


Fig.4 Capacitance Characteristics

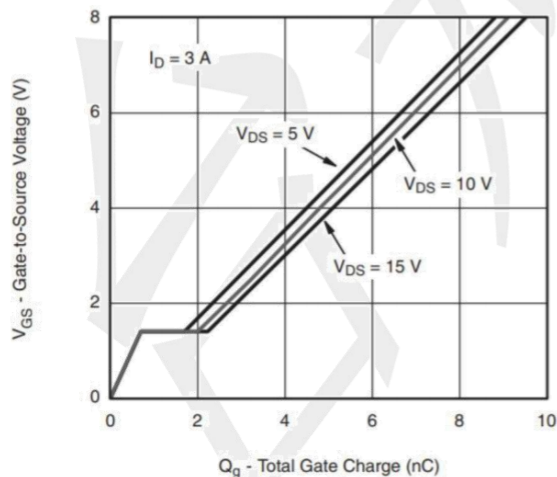


Fig.5 Gate Charge Characteristics

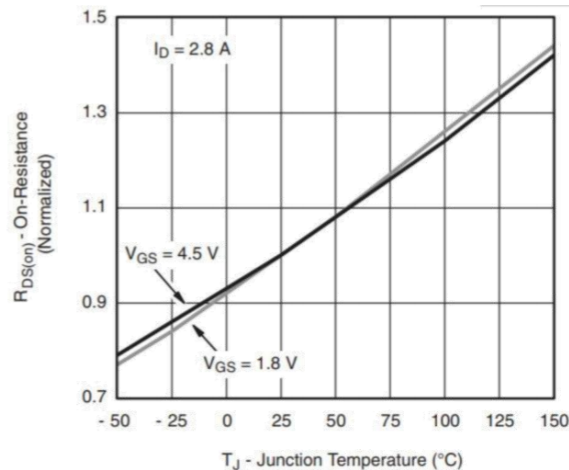
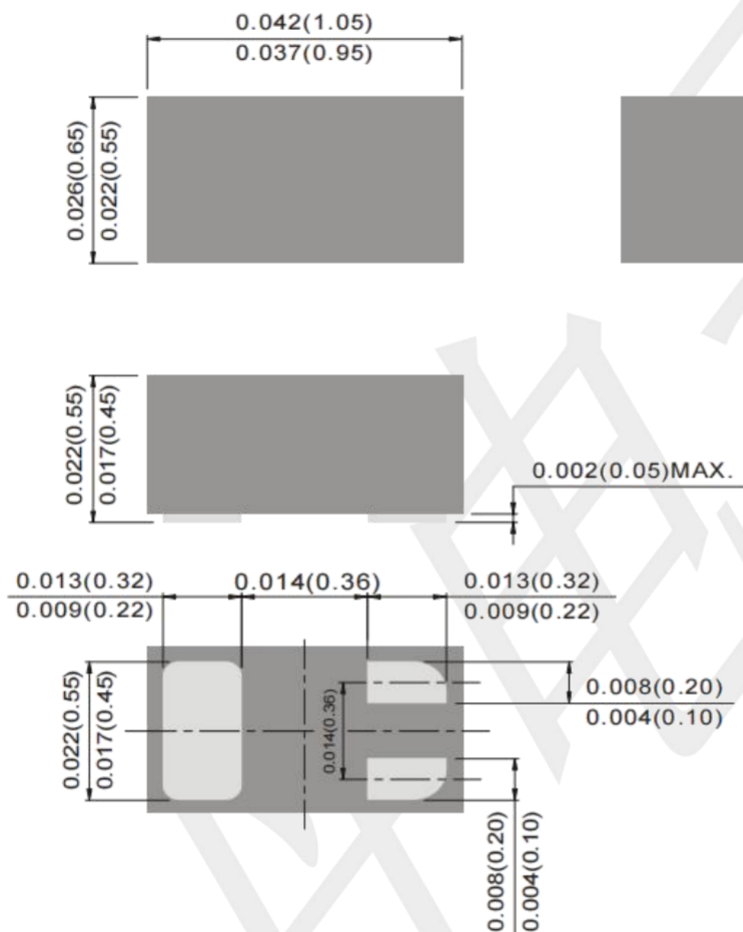


Fig.6 On-Resistance vs Junction Temperature

Package Information Unit: inch(mm)

DFN1006-3



Pad Layout Unit: inch(mm)

