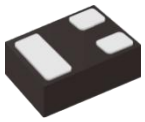
CAN CIRCLE SEMI

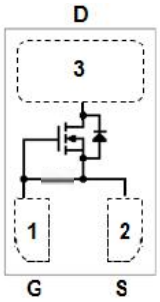
CSM212N2DF1006-3

20V N-Channel Enhancement Mode MOSFET

Voltage	20 V	Current	2 A

DFN1006-3L Unit: inch(mm)





Features

- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc

Mechanical Data

- Case : DFN1006-3L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.00002 ounces, 0.0007 grams

Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current (Note 4)		I_D	2	A
Pulsed Drain Current (Note 1)		I_{DM}	3	
Power Dissipation	T_a=25°C	P_D	500	mW
	Derate above 25°C		4	mW/ °C
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal resistance - Junction to Ambient (Note 3,4)		$R_{\theta JA}$	250	°C/W

- Limited only By Maximum Junction Temperature

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Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250uA	20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	0.3	0.5	1	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=500mA	-	220	280	mΩ
		V_{GS}=2.5V, I_D=400mA	-	250	400	
		V_{GS}=1.8V, I_D=200mA	-	300	550	
		V_{GS}=1.5V, I_D=100mA	-	340	800	
		V_{GS}=1.2V, I_D=100mA	-	480	1500	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	-	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	±10	
Dynamic (Note 5)						
Total Gate Charge	Q_g	V_{DS}=10V, I_D=500mA, V_{GS}=4.5V (Note 2)	-	1.1	-	nC
Gate-Source Charge	Q_{gs}		-	0.16	-	
Gate-Drain Charge	Q_{gd}		-	0.12	-	
Input Capacitance	Ciss	V_{DS}=10V, V_{GS}=0V, f=1MHZ	-	46	-	pF
Output Capacitance	Coss		-	15	-	
Reverse Transfer Capacitance	Crss		-	3	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=10V, I_D=500mA, V_{GS}=4.5V, R_G=6Ω (Note 2)	-	5.3	-	ns
Turn-On Rise Time	tr		-	22	-	
Turn-Off Delay Time	$td_{(off)}$		-	43	-	
Turn-Off Fall Time	tf		-	31	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	500	mA
Diode Forward Voltage	V_{SD}	I_S=500mA, V_{GS}=0V	-	0.7	1	V

NOTES :

1. Pulse width≤300us, Duty cycle≤2%.
2. Essentially independent of operating temperature typical characteristics.
3. $R_{\Theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1 inch FR-4 with 2oz. square pad of copper.
4. The maximum current rating is package limited.
5. Guaranteed by design, not subject to production testing.

CSM212N2DF1006-3

TYPICAL CHARACTERISTIC CURVES

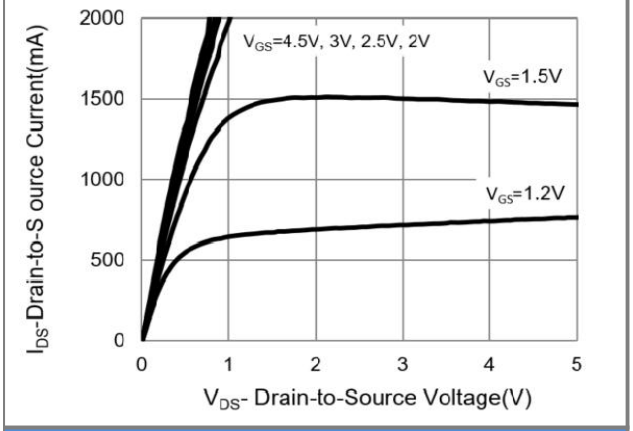


Fig.1 On-Region Characteristics

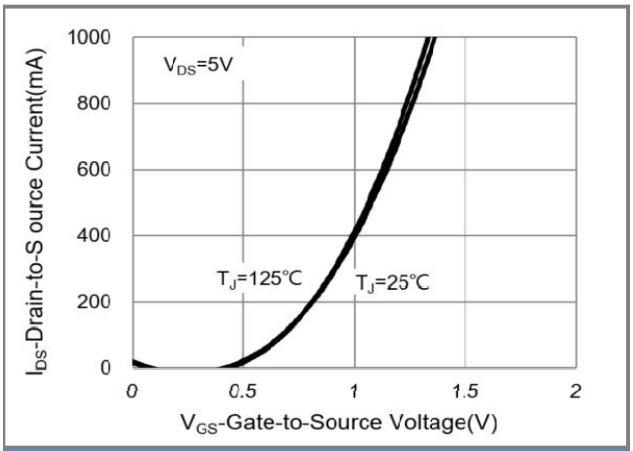


Fig.2 Transfer Characteristics

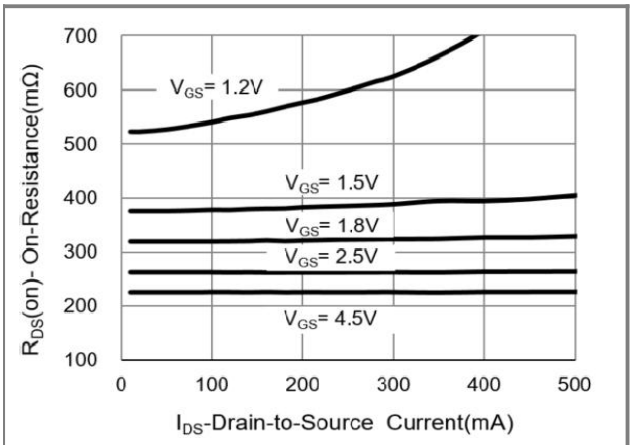


Fig.3 On-Resistance vs. Drain Current

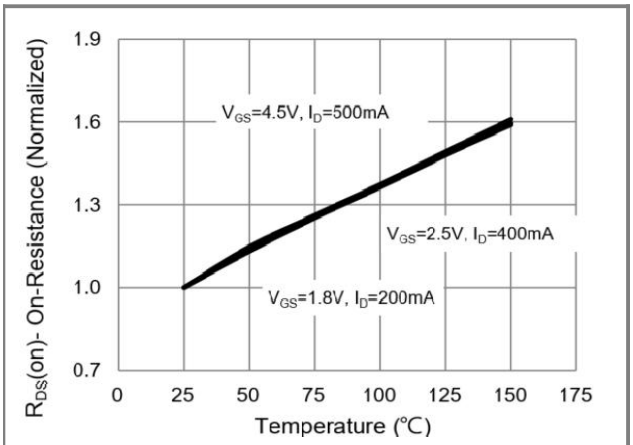


Fig.4 On-Resistance vs. Junction temperature

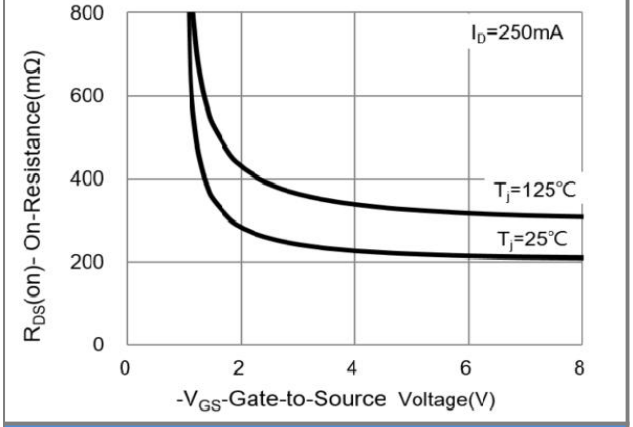


Fig.5 On-Resistance Variation with V_{GS}

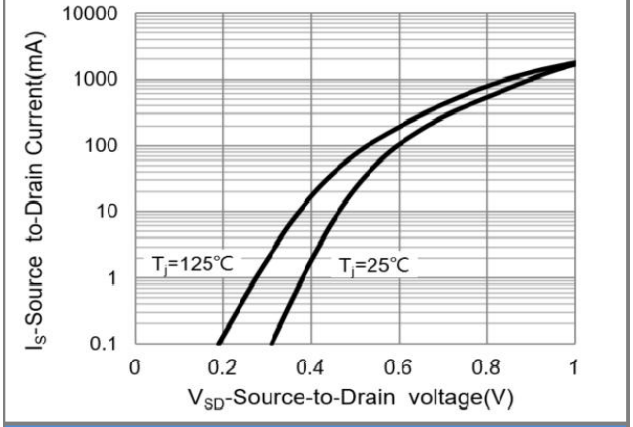


Fig.6 Body Diode Characteristics

CSM212N2DF1006-3

TYPICAL CHARACTERISTIC CURVES

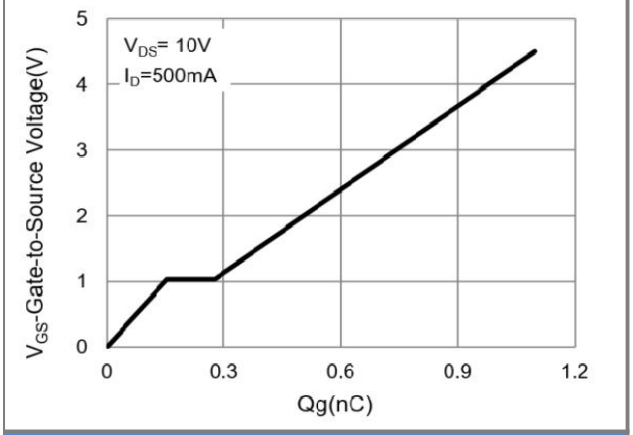


Fig.7 Gate-Charge Characteristics

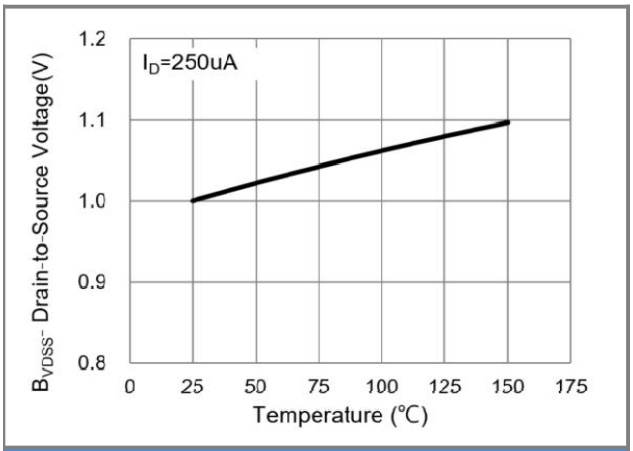


Fig.8 Breakdown Voltage Variation vs. Temperature

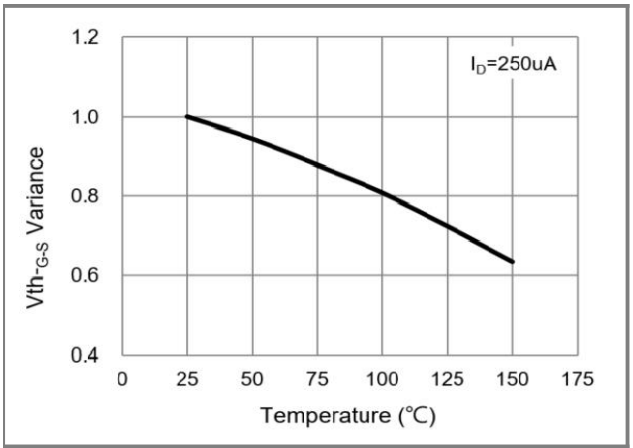


Fig.9 Threshold Voltage Variation with Temperature

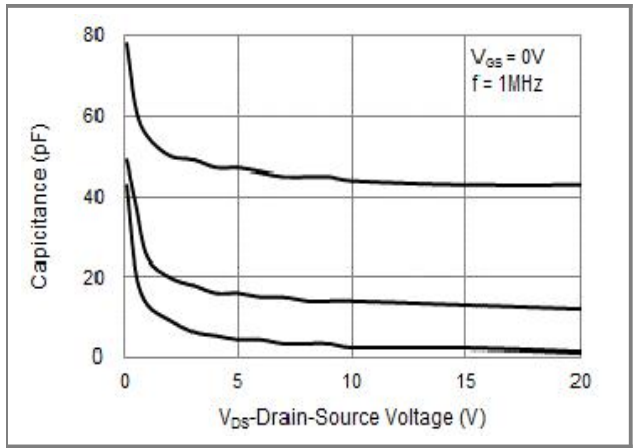


Fig.10 Capacitance vs. Drain-Source Voltage

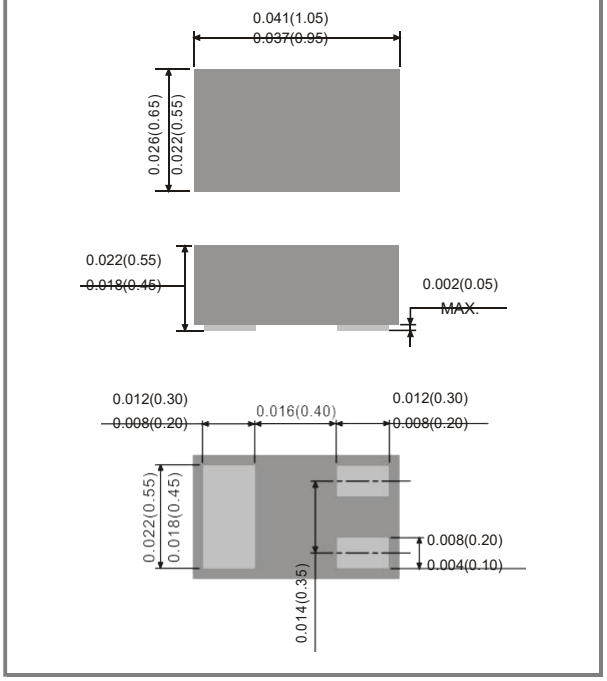
CSM212N2DF1006-3

Part No Packing Code Version

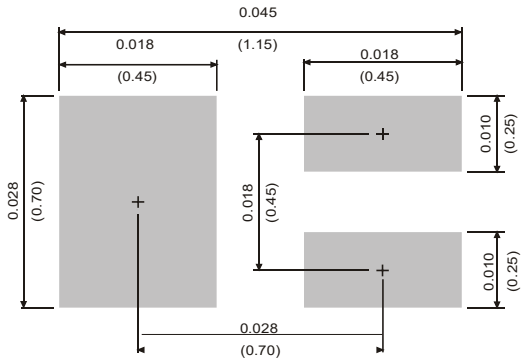
Part No Packing Code	Package Type	Packing Type
CSM212N2DF1006-3	DFN1006-3L	10K pcs / 7” reel

Packaging Information & Mounting Pad Layout

DFN1006-3L Dimension Unit: inch(mm)



DFN1006-3L Pad Layout Unit: inch(mm)



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