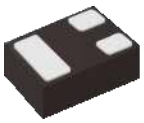
CAN CIRCLE SEMI

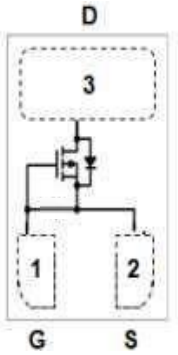
CSM212P1DF1006-3

20V P-Channel Enhancement Mode MOSFET

Voltage	-20 V	Current	-1000mA

DFN1006-3L





Features

- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc.
- Green molding compound

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	-1000	mA
Pulsed Drain Current (Note 1)		I_{DM}	-1500	
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	-0.6	-1	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-300mA	-	450	500	mΩ
		V_{GS}=-2.5V, I_D=-200mA	-	630	820	
		V_{GS}=-1.8V, I_D=-100mA	-	810	1200	
		V_{GS}=-1.5V, I_D=-100mA	-	1020	1600	
		V_{GS}=-1.2V, I_D=-100mA	-	1670	3000	
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=-200mA, V_{GS}=-4.5V (Note 2)	-	1.1	-	nC
Gate-Source Charge	Q_{gs}		-	0.2	-	
Gate-Drain Charge	Q_{gd}		-	0.1	-	
Input Capacitance	Ciss	V_{DS}=-10V, V_{GS}=0V, f=1MHZ	-	51	-	pF
Output Capacitance	Coss		-	15	-	
Reverse Transfer Capacitance	Crss		-	2.2	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=-10V, I_D=-200mA, V_{GS}=-4.5V, R_G=6Ω (Note 2)	-	4.3	-	ns
Turn-On Rise Time	tr		-	20	-	
Turn-Off Delay Time	$td_{(off)}$		-	33	-	
Turn-Off Fall Time	tf		-	25	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	-300	mA
Diode Forward Voltage	V_{SD}	I_S=-300mA, V_{GS}=0V	-	-0.85	-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.

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TYPICAL CHARACTERISTIC CURVES

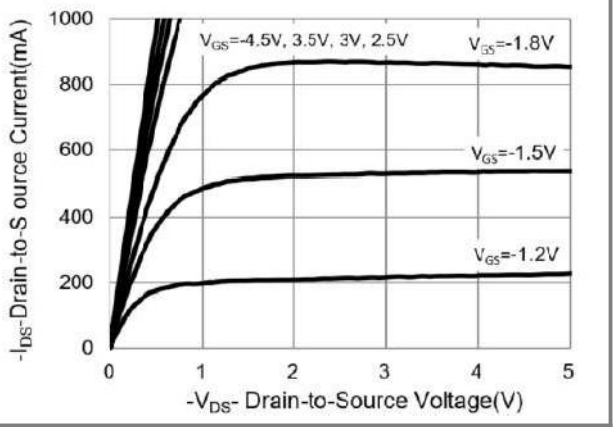

Fig.1 On-Region Characteristics

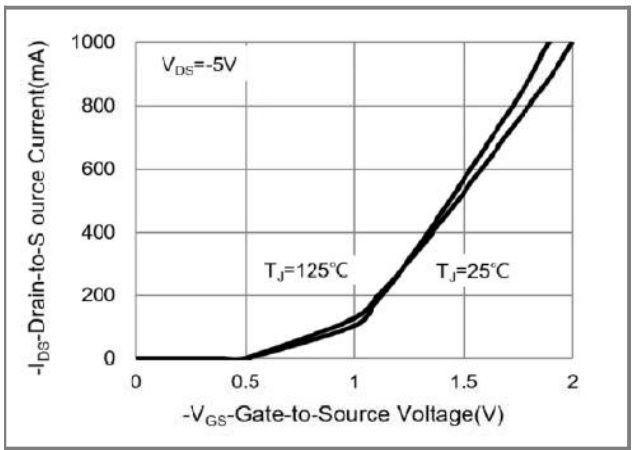

Fig.2 Transfer Characteristics

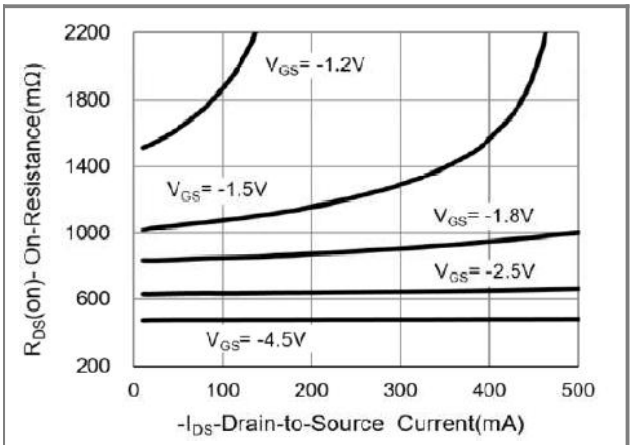

Fig.3 On-Resistance vs. Drain Current

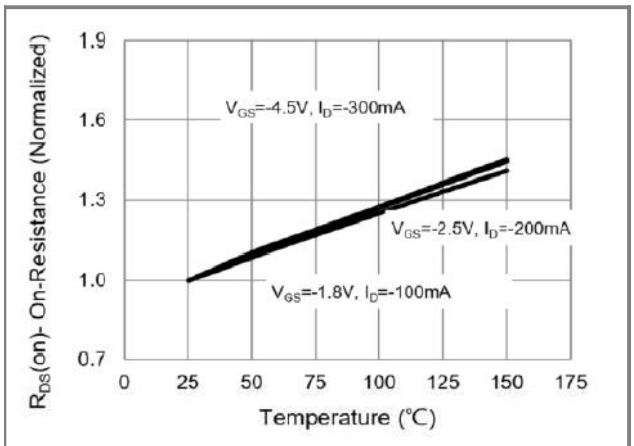

Fig.4 On-Resistance vs. Junction temperature

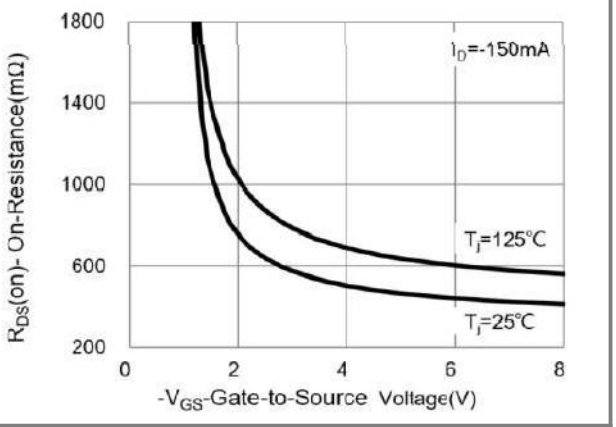

Fig.5 On-Resistance Variation with V_{GS}

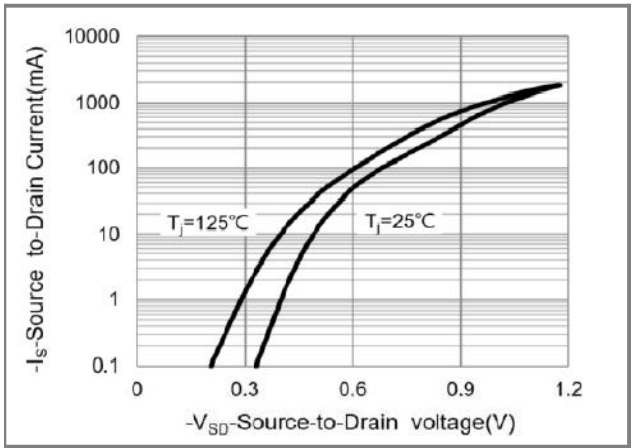

Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

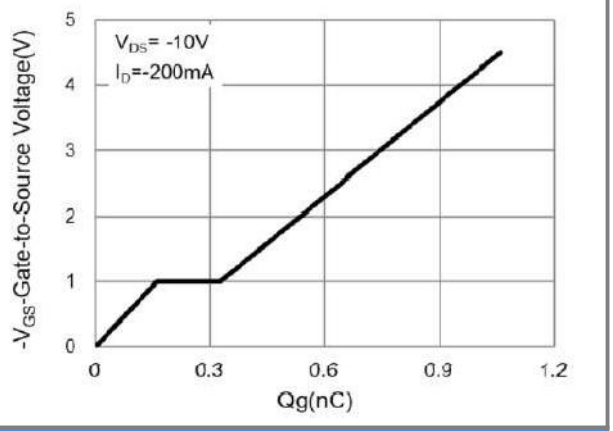

Fig.7 Gate-Charge Characteristics

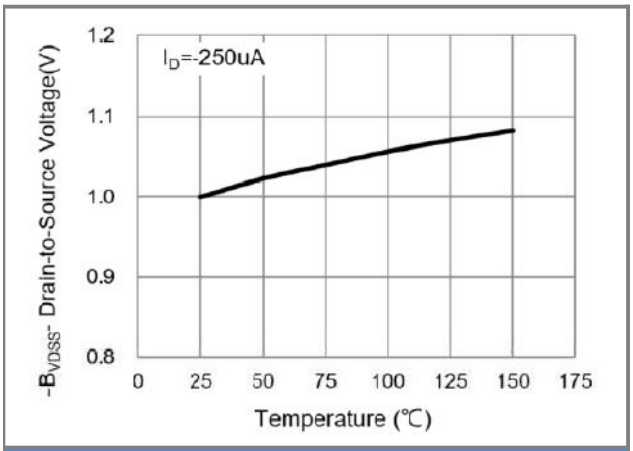

Fig.8 Breakdown Voltage Variation vs. Temperature

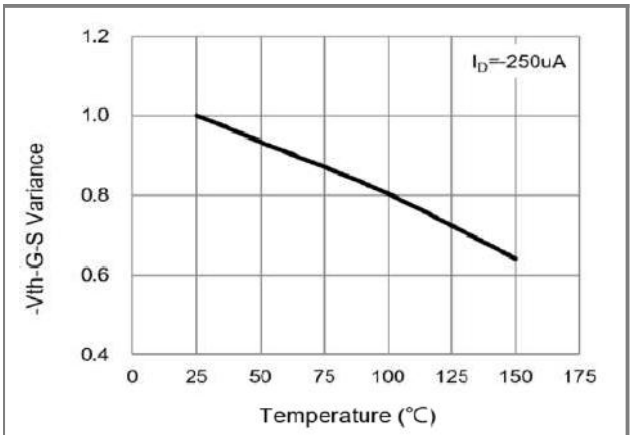

Fig.9 Threshold Voltage Variation with Temperature

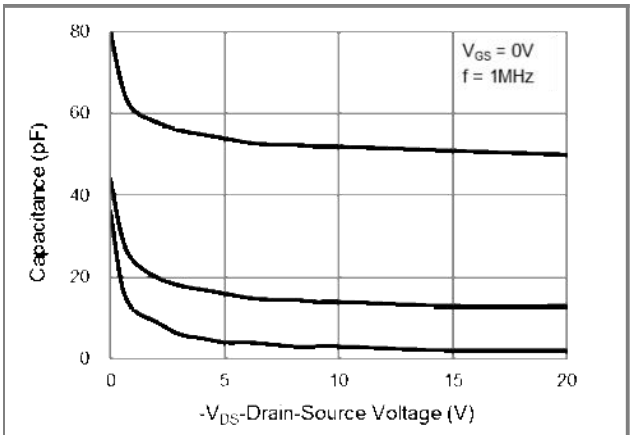

Fig.10 Capacitance vs. Drain-Source Voltage

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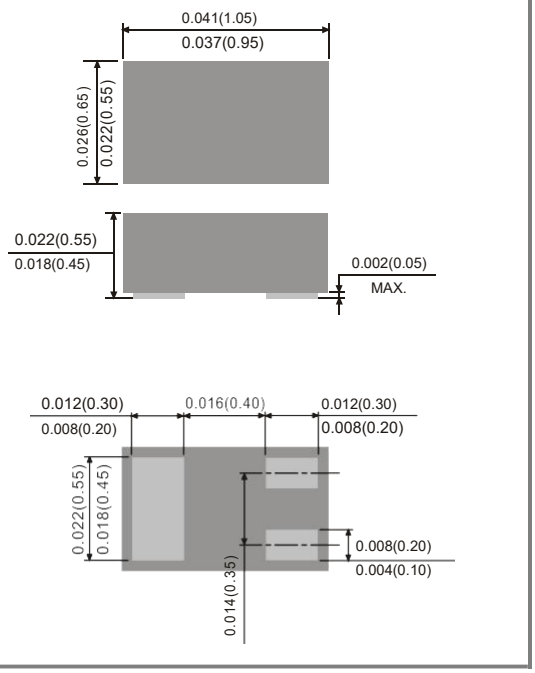
Part No Packing Code Version

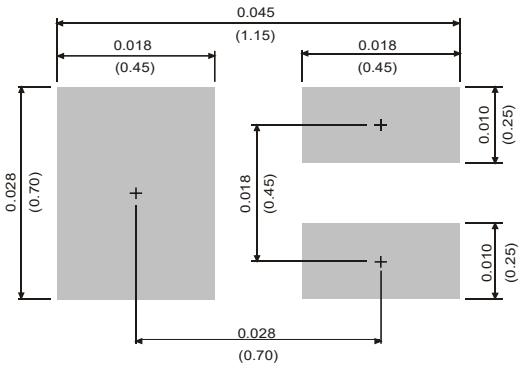
Part No Packing Code	Package Type	Packing Type
CSM212P1DF1003-3	DFN1006-3L	10K / 7" Reel

Packaging Information & Mounting Pad Layout

DFN1006-3L Dimension — Unit: inch(mm)



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



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