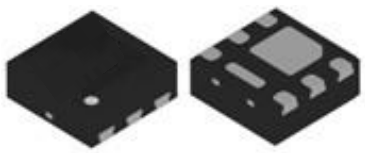
CAN CIRCLE SEMI

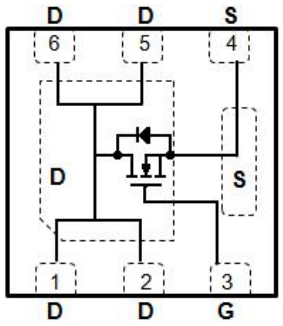
CSM312N8D2-2

30V N-Channel Enhancement Mode MOSFET

Voltage	30 V	Current	8 A

DFN2020B-6L





Features

- $R_{DS(ON)}$, V_{GS}@10V,I_D@8A<18mΩ
- $R_{DS(ON)}$, V_{GS}@4.5V,I_D@6A<25mΩ
- High switching speed
- Improved dv/dt capability
- Low Gate Charge
- Low reverse transfer capacitance

Mechanical Data

- Case: DFN2020B-6L Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0003 ounces, 0.0086 grams

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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25°C	I_D	8.0	A
Pulsed Drain Current		I_{DM}	32	
Power Dissipation	T_A=25°C	P_D	2.0	W
	Derate above 25°C		16	mW/ °C
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal Resistance - Junction to Ambient (Note 4)		$R_{\theta JA}$	62.5	°C/W

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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	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	1.0	1.7	2.5	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=8A	-	16	18	mΩ
		V_{GS}=4.5V,I_D=6A	-	23	28	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V	-	-	1.0	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V	-	-	±100	nA
Dynamic (Note 5)						
Total Gate Charge	Q_g	V_{DS}=15V, I_D=8A, V_{GS}=4.5V (Note 2,3)	-	4.3	-	nC
Gate-Source Charge	Q_{gs}		-	1.3	-	
Gate-Drain Charge	Q_{gd}		-	1.6	-	
Input Capacitance	Ciss	V_{DS}=25V, V_{GS}=0V, f=1.0MHZ	-	392	-	pF
Output Capacitance	Coss		-	76	-	
Reverse Transfer Capacitance	Crss		-	54	-	
Turn-On Delay Time	$td_{(on)}$	V_{DS}=15V, I_D=1A, V_{GS}=10V, R_G=6Ω (Note 2,3)	-	5.9	-	ns
Turn-On Rise Time	tr		-	11	-	
Turn-Off Delay Time	$td_{(off)}$		-	17	-	
Turn-Off Fall Time	tf		-	3.8	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	1.5	A
Diode Forward Voltage	V_{SD}	I_S=1.0A, V_{GS}=0V	-	0.73	1.0	V

NOTES :

1. Pulse width≤300us, Duty cycle≤2%
2. Essentially independent of operating temperature typical characteristics.
3. The maximum current rating is package limited.
4. $R_{\Theta JA}$ 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
5. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

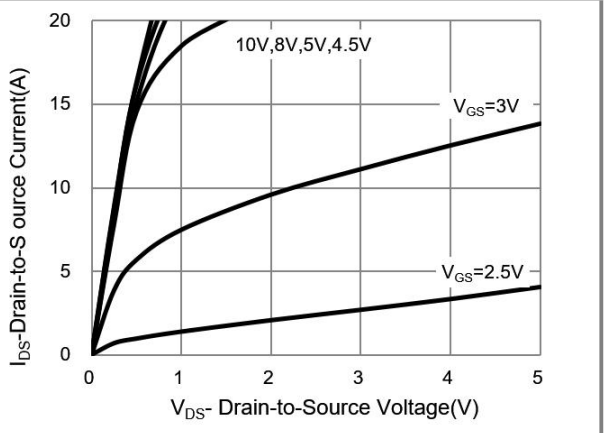

Fig.1 On-Region Characteristics

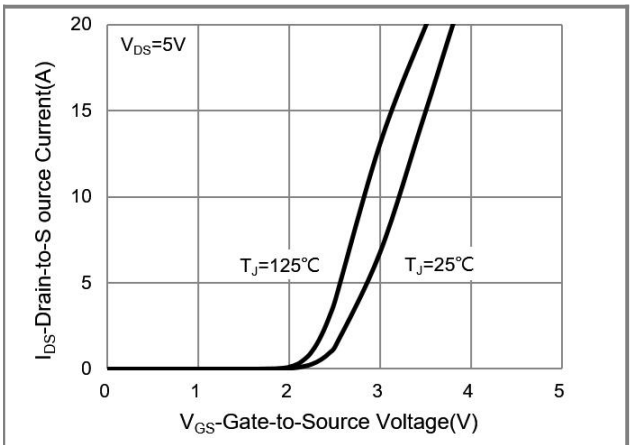

Fig.2 Transfer Characteristics

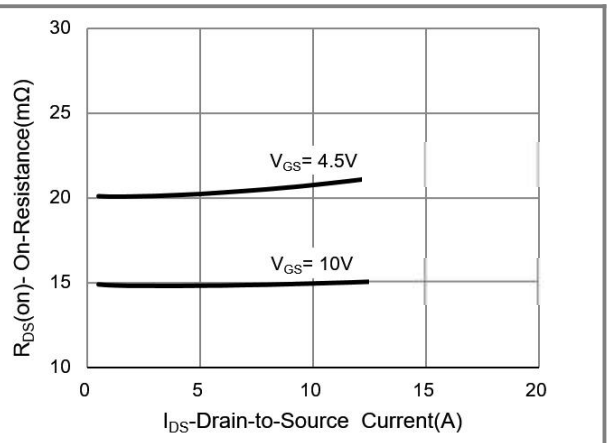

Fig.3 On-Resistance vs. Drain Current

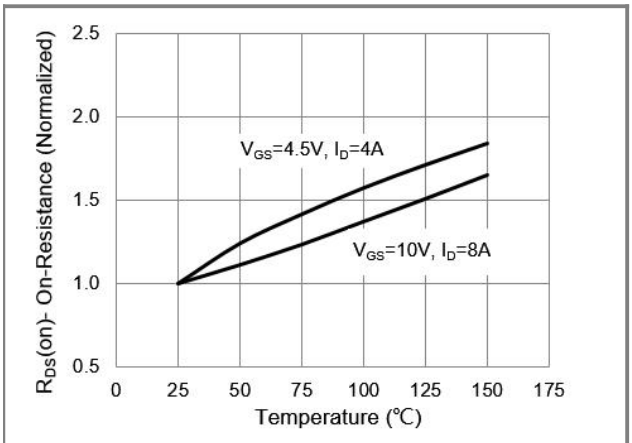

Fig.4 On-Resistance vs. Junction temperature

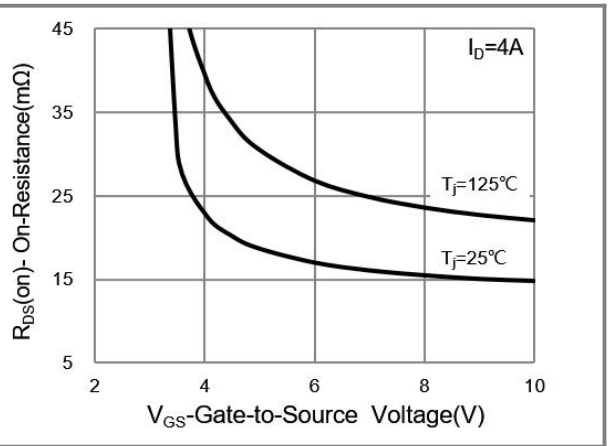

Fig.5 On-Resistance Variation with VGS.

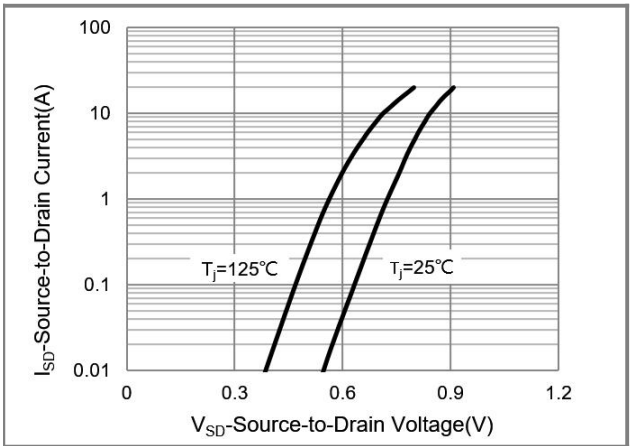

Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

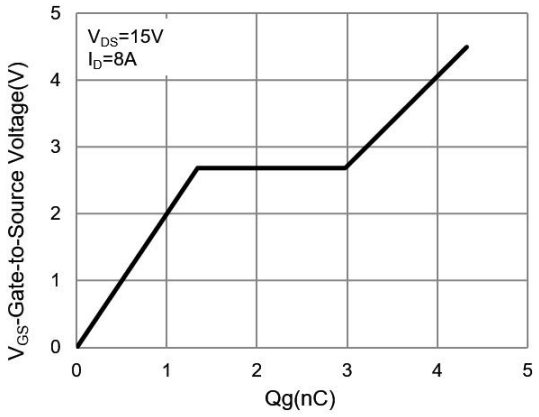

Fig.7 Gate-Charge Characteristics

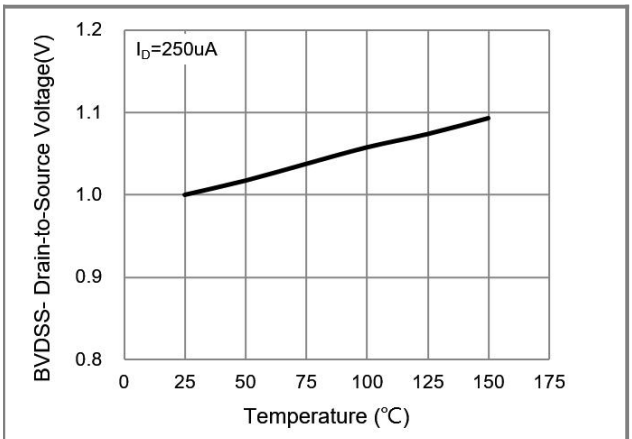

Fig.8 Breakdown Voltage Variation vs. Temperature.

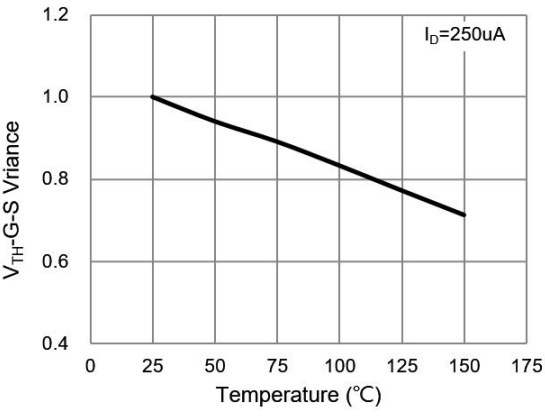

Fig.9 Threshold Voltage Variation with Temperature

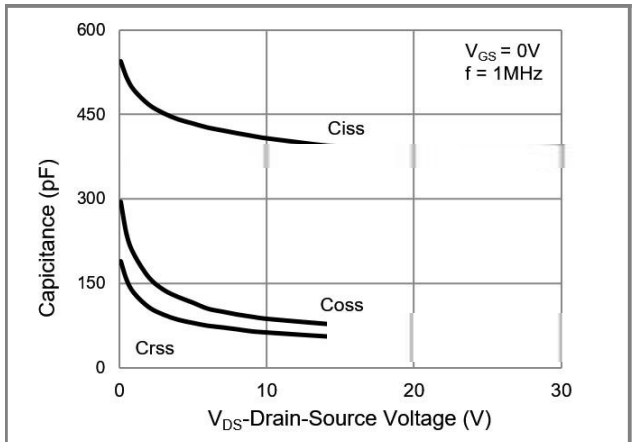

Fig.10 Capacitance vs. Drain-Source Voltage.

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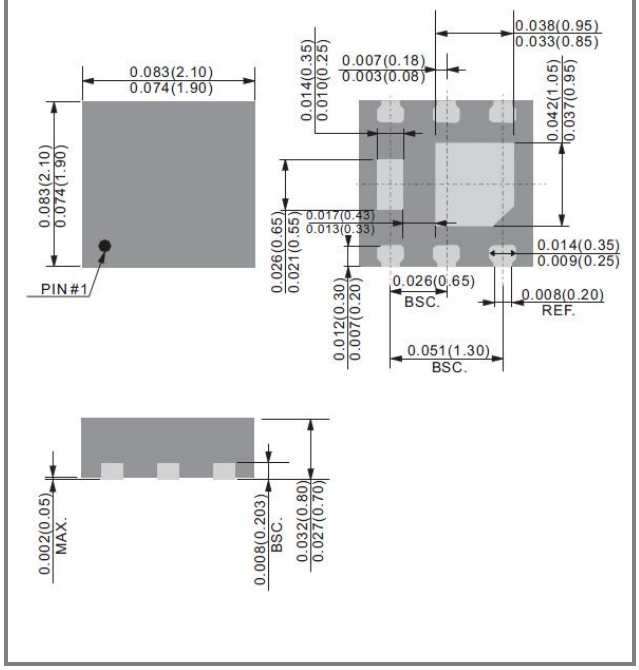
PART NO PACKING CODE VERSION

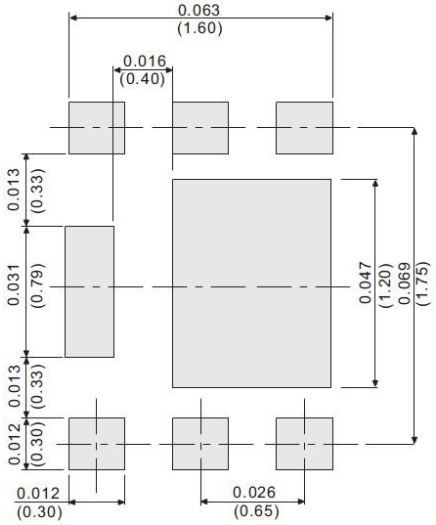
Part No Packing Code	Package Type	Packing Type
CSM312N8D2-2	DFN2020B-6L	3K pcs / 7” reel

MOUNTING PAD LAYOUT

DFN2020B-6L Dimension Unit: inch(mm)



DFN2020B-6L Pad Layout Unit: inch(mm)



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