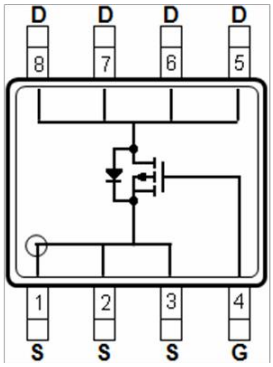
CAN CIRCLE SEMI

CSM320P12SOP8

30V P-Channel Enhancement Mode MOSFET

Voltage	-30 V	Current	-12 A

SOP-8



Features

- $R_{DS(ON)}$, V_{GS}@-10V,I_D@-12A<9.5mΩ
- $R_{DS(ON)}$, V_{GS}@-4.5V,I_D@-8A<13mΩ
- High switching speed
- Improved dv/dt capability
- Low Gate Charge
- Low reverse transfer capacitance

Mechanical Data

- Case: SOP-8 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0029 ounces, 0.083 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}	±20	V
Continuous Drain Current	T_A=25°C	I_D	-12	A
	T_A=70°C		-9.4	
Pulsed Drain Current (Note 1)		I_{DM}	-48	A
Power Dissipation	T_A=25°C	P_D	1.7	W
	T_A=70°C		1.1	
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal Resistance - Junction to Ambient (Note 5)		$R_{\theta JA}$	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	-1.6	-2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=-10V,I_D=-12A	-	7	9.5	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=-4.5V,I_D=-8A	-	10	13	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V,V_{GS}=0V	-	-	-1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
Dynamic (Note 6)						
Total Gate Charge	Q_g	V_{DS}=-15V, I_D=-10A, V_{GS}=-4.5V (Note 1,2)	-	26	-	nC
Gate-Source Charge	Q_{gs}		-	8.7	-	
Gate-Drain Charge	Q_{gd}		-	8.6	-	
Input Capacitance	Ciss	V_{DS}=-15V, V_{GS}=0V, f=1.0MHZ	-	3168	-	pF
Output Capacitance	Coss		-	393	-	
Reverse Transfer Capacitance	Crss		-	258	-	
Turn-On Delay Time	$td_{(on)}$	V_{DS}=-15V,I_D=-1A, V_{GEN}=-10V, R_G=6Ω (Note 1,2)	-	11	-	ns
Turn-On Rise Time	tr		-	14	-	
Turn-Off Delay Time	$td_{(off)}$		-	102	-	
Turn-Off Fall Time	tf		-	47	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	-12	A
Diode Forward Voltage	V_{SD}	I_S=-1A, V_{GS}=0V	-	-0.7	-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. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J =25°C.
5. $R_{\Theta JA}$ 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 $inch^2$ with 2oz.square pad of copper.
6. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

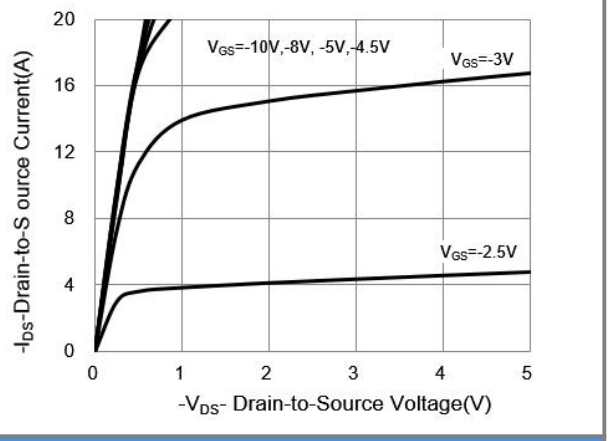

Fig.1 On-Region Characteristics

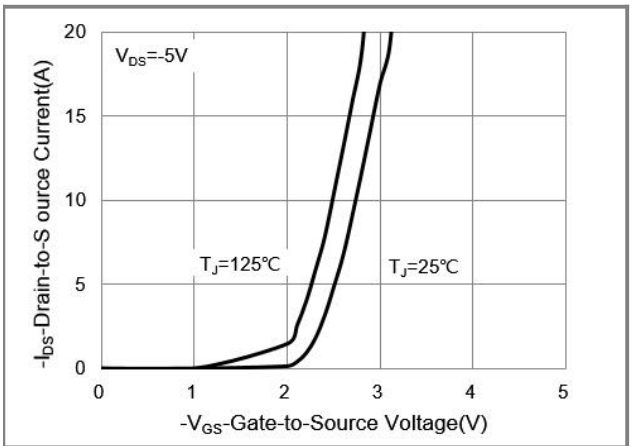

Fig.2 Transfer Characteristics

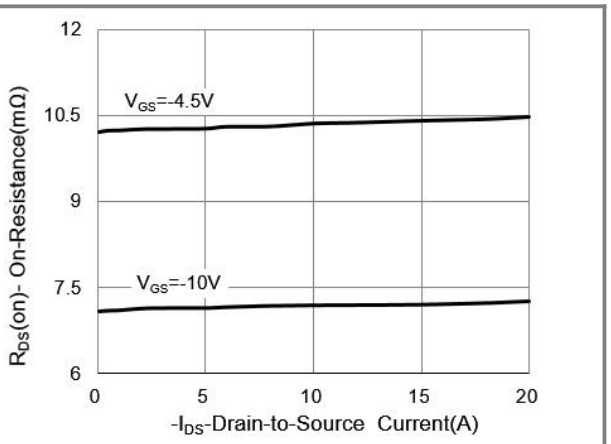

Fig.3 On-Resistance vs. Drain Current

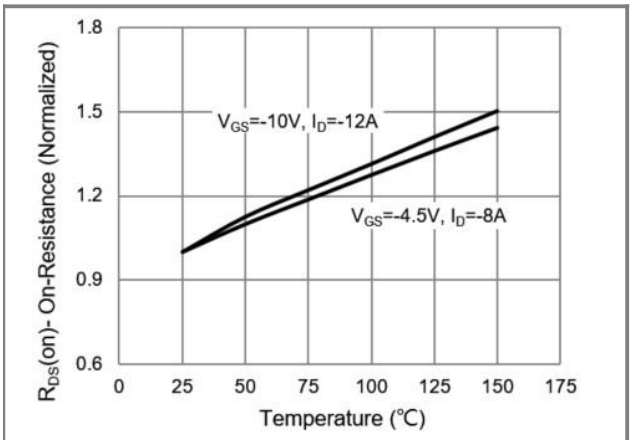

Fig.4 On-Resistance vs. Junction temperature

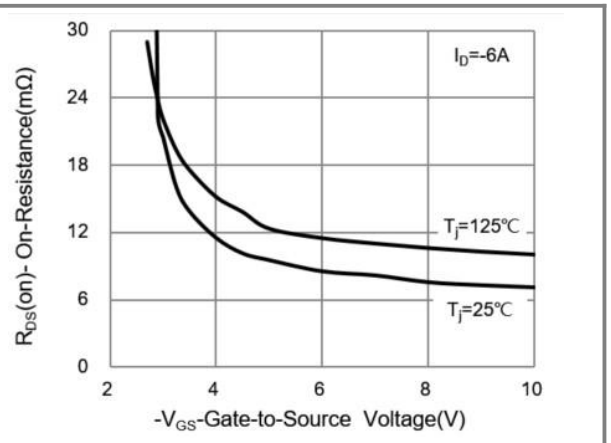

Fig.5 On-Resistance Variation with VGS.

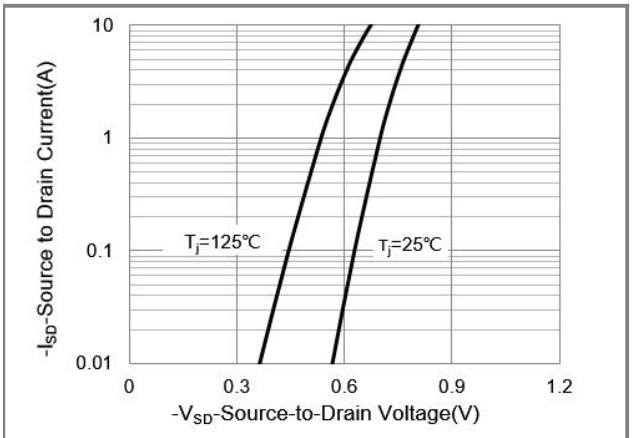

Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

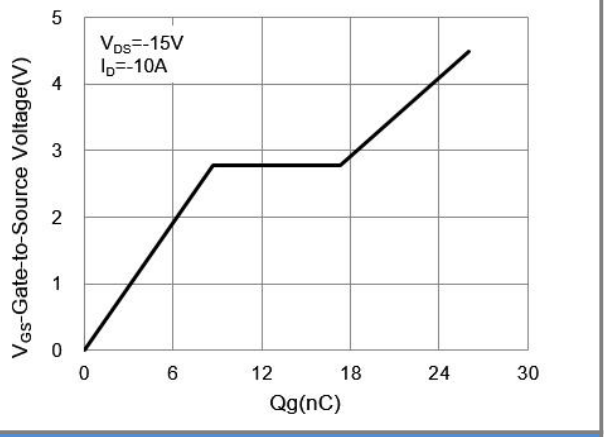

Fig.7 Gate-Charge Characteristics

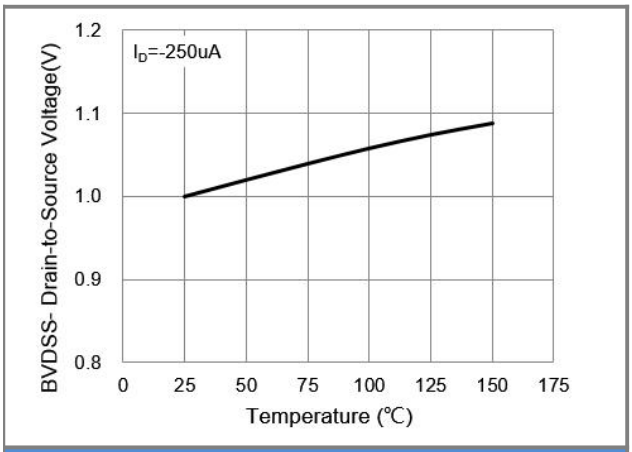

Fig.8 Breakdown Voltage Variation vs. Temperature

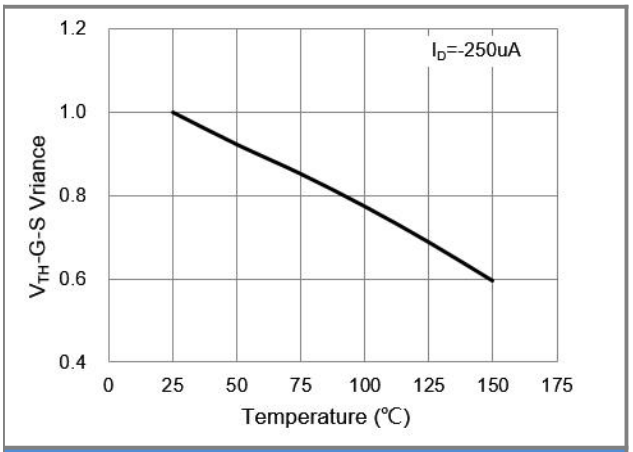

Fig.9 Threshold Voltage Variation with Temperature

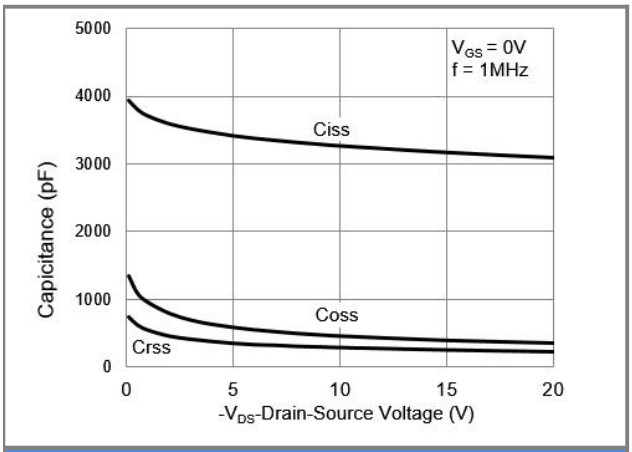

Fig.10 Capacitance vs. Drain-Source Voltage

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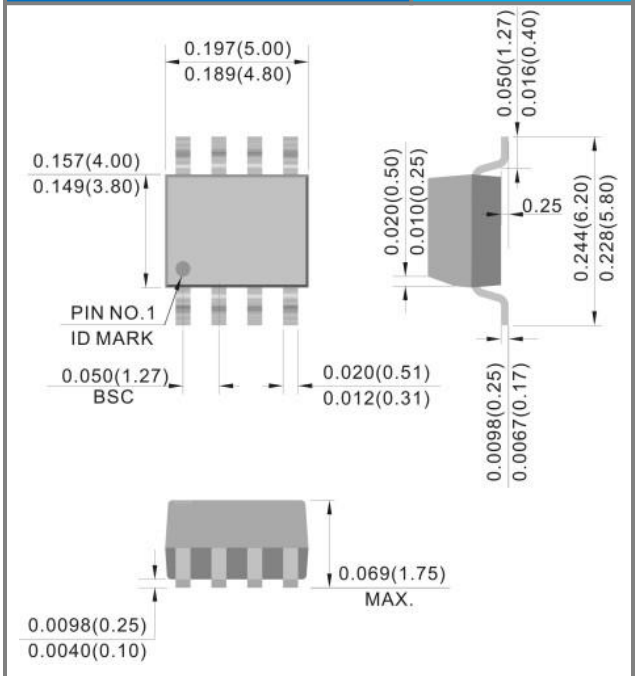
CSM320P12SOP8

Part No Packing Code Version

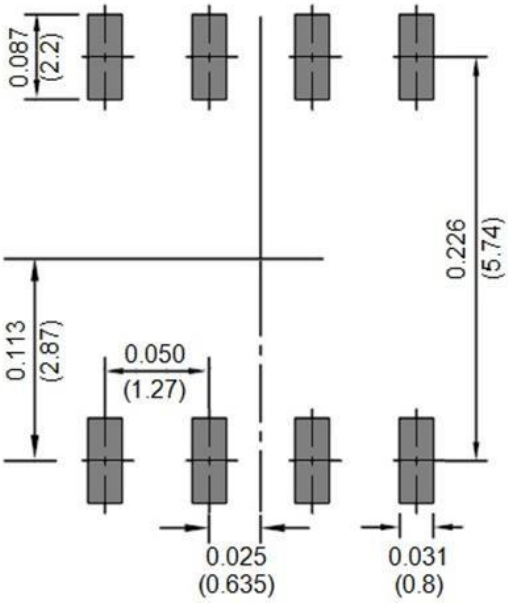
Part No Packing Code	Package Type	Packing Type
CSM320P12SOP8	SOP-8	2.5K pcs / 13” reel

Packaging Information & Mounting Pad Layout

SOP-8 Dimension — Unit: inch(mm)



SOP-8 Pad Layout — Unit: inch(mm)



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