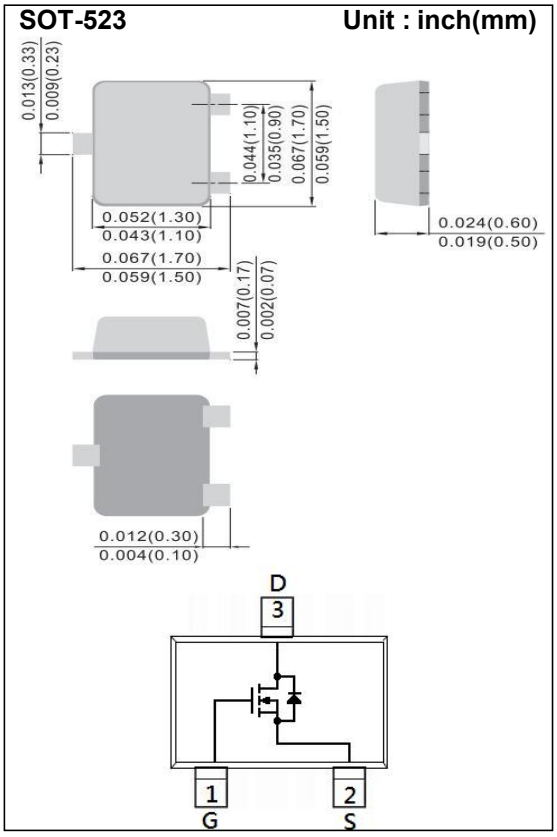
CAN CIRCLE SEMI

CSM212N2S523

20V N-Channel Enhancement Mode MOSFET

Voltage	20 V	Current	2A



Features

- $R_{DS(ON)}$, V_{GS}@4.5V, I_D@1.5A<280mΩ
- $R_{DS(ON)}$, V_{GS}@2.5V, I_D@0.7A<350mΩ
- $R_{DS(ON)}$, V_{GS}@1.8V, I_D@0.5A<600mΩ
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc.

Mechanical Data

- Case: SOT-523 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00007 ounces, 0.002 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	V
Continuous Drain Current		I_D	2	A
Pulsed Drain Current		I_{DM}	4	A
Power Dissipation	T_a=25°C	P_D	300	mW
	Derate above 25°C		2.4	mW/ °C
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal resistance - Junction to Ambient (Note 3)		$R_{\theta JA}$	417	°C/W

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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static (Note 2)						
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	0.35	0.72	1.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D= 0.65A	-	0.15	0.28	Ω
		V_{GS}=2.5V, I_D= 0.55A	-	0.21	0.35	
		V_{GS}=1.8V, I_D= 0.45A	-	0.31	0.60	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	0.01	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	±4	±50	uA
Forward Transconductance	g_{FS}	VDS =10V, ID =0.65A	-	1.9	-	S
Diode Forward Voltage	V_{SD}	I_S=0.15A, V_{GS}=0V	-	0.63	1.2	V
Dynamic (Note 3)						
Input Capacitance	Ciss	V_{DS}=16V, V_{GS}=0V, f=1.0MHZ	-	62	-	pF
Output Capacitance	Coss		-	24	-	
Reverse Transfer Capacitance	Crss		-	12	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=10V, I_D=500mA, V_{GS}=4.5V, R_G=10Ω (Note 1,2)	-	3	-	ns
Turn-On Rise Time	tr		-	23	-	
Turn-Off Delay Time	$td_{(off)}$		-	12	-	
Turn-Off Fall Time	tf		-	19	-	

NOTES :

1. $R_{\Theta JA}$ is surface mounted on a 1 inch FR-4 with 2oz. square pad of copper
2. Pulse width≤300us, Duty cycle≤2%
3. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

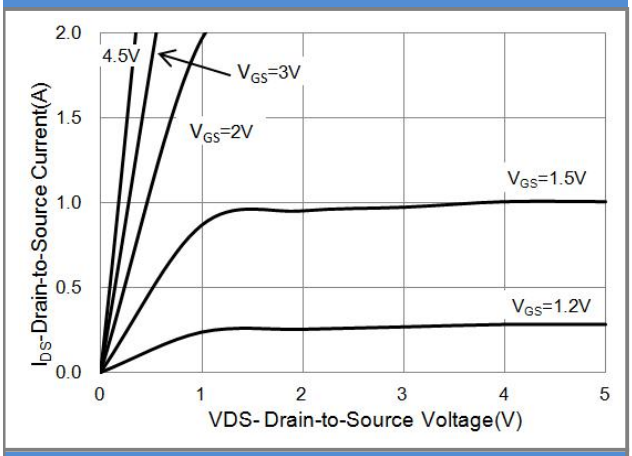

Fig.1 Output Characteristics

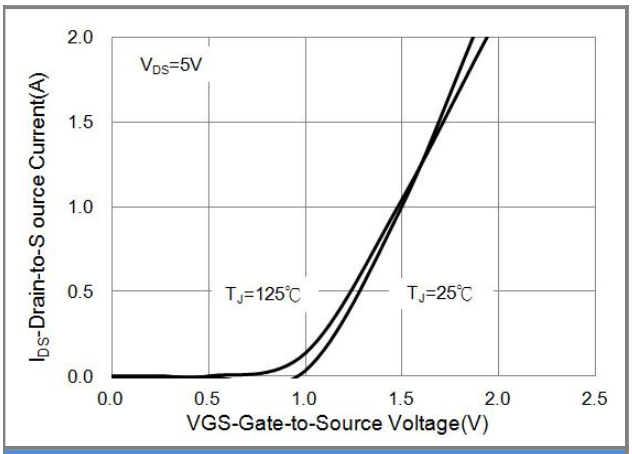

Fig.2 Transfer Characteristics

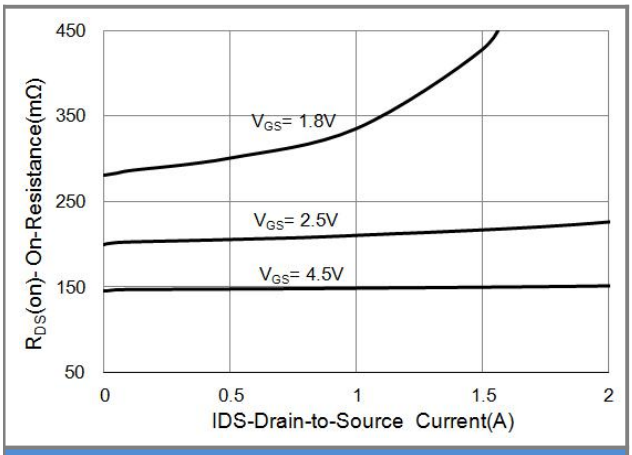

Fig.3 On-Resistance vs. Drain Current

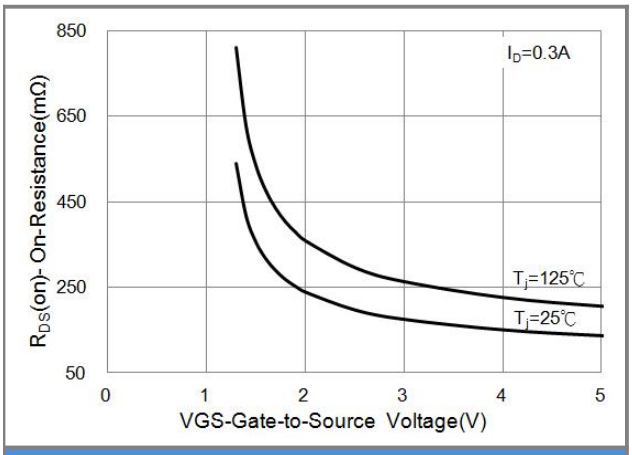

Fig.4 On-Resistance Variation with VGS.

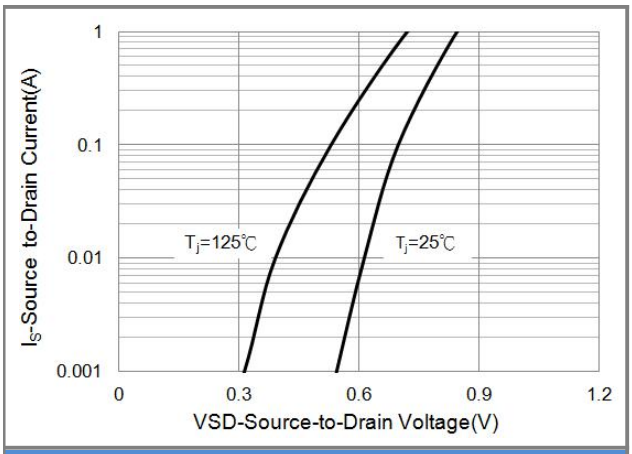

Fig.5 Body Diode Characteristics

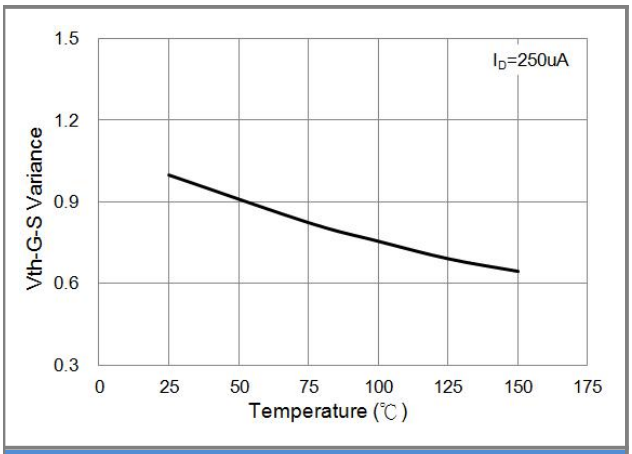

Fig.6 Threshold Voltage

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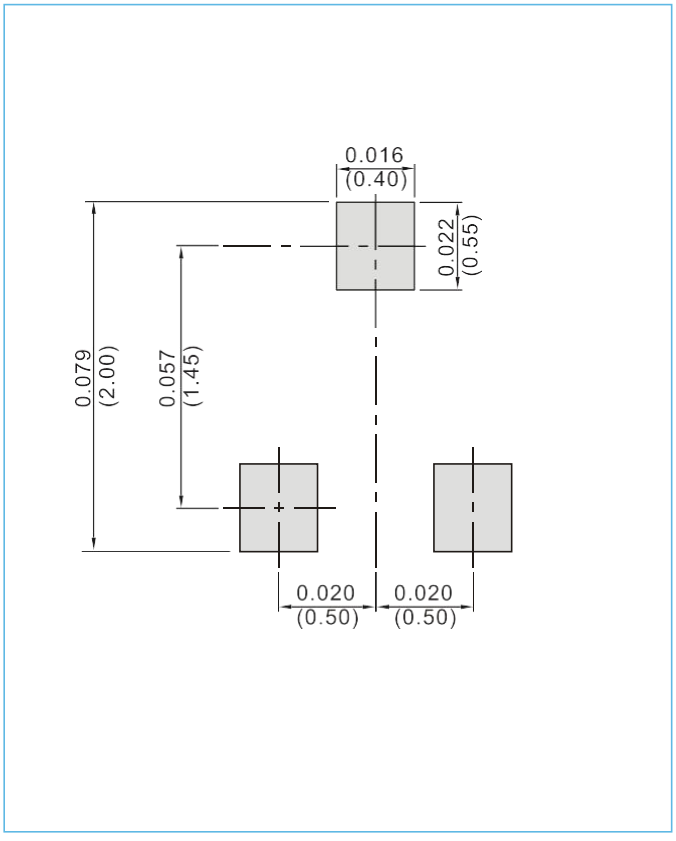
Part No Packing Code	Package Type	Packing type
CSM212N2S523	SOT-523	4K pcs / 7” reel

MOUNTING PAD LAYOUT

SOT-523 Unit : inch(mm)



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