

CSM320N12SOP8

30V N-Channel Enhancement Mode MOSFET

Voltage

30 V

Current

12 A

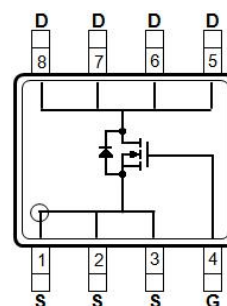
Features

- $R_{DS(ON)}$, $V_{GS}@10V$, $I_D@6A < 10m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V$, $I_D@3A < 13m\Omega$
- 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

SOP-8



Maximum Ratings and Thermal Characteristics ($T_A=25^{\circ}C$ unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	30	V
Gate-Source Voltage		V _{GS}	±20	
Continuous Drain Current (Note 4)	T _A =25°C	I _D	12	A
	T _A =70°C		10	
Pulsed Drain Current (Note 1)		I _{DM}	50	
Power Dissipation	T _A =25°C	P _D	2.1	W
	T _A =70°C		1.3	
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55~150	°C
Typical Thermal Resistance		R _{θJA}	59.5	°C/W
- Junction to Ambient (Note 4,5)				

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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	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =6A	-	7.5	10	mΩ
		V _{GS} =4.5V, I _D =3A	-	11	13	
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 =12A, V _{GS} =4.5V (Note 2,3)	-	6.9	-	nC
Gate-Source Charge	Q _{gs}		-	2.7	-	
Gate-Drain Charge	Q _{gd}		-	1.8	-	
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHZ	-	781	-	pF
Output Capacitance	C _{oss}		-	158	-	
Reverse Transfer Capacitance	C _{rss}		-	92	-	
Turn-On Delay Time	td _(on)	V _{DD} =15V, I _D =12A, V _{GS} =10V, R _G =3.3Ω (Note 2,3)	-	5.4	-	ns
Turn-On Rise Time	tr		-	86	-	
Turn-Off Delay Time	td _(off)		-	20	-	
Turn-Off Fall Time	tf		-	10	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	10	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V	-	0.7	1	V

NOTES :

1. Pulse width≤300us, Duty cycle≤2%.
2. Essentially independent of operating temperature typical characteristics.
3. 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.
4. The maximum current rating is package limited.
5. R_{θJA} 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 inch² with 2oz.square pad of copper.
6. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

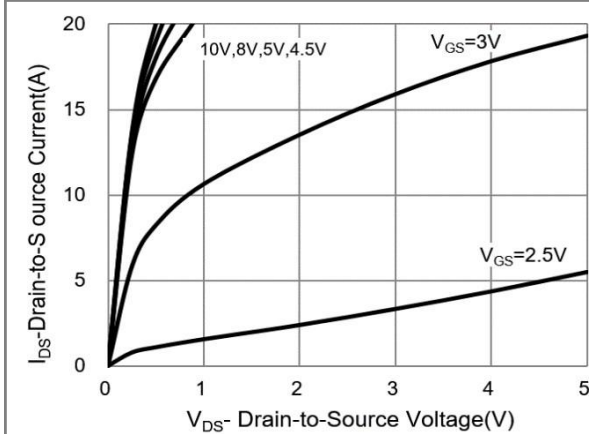


Fig.1 On-Region Characteristics

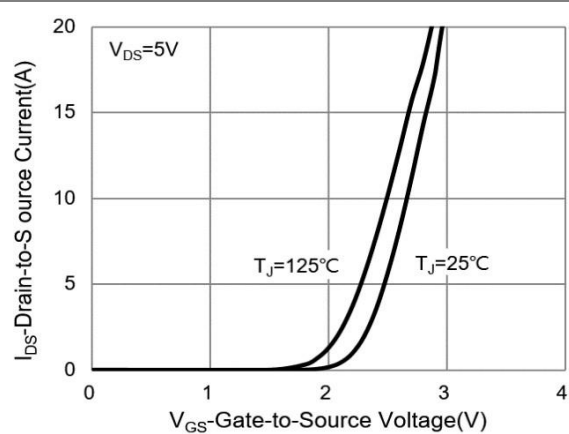


Fig.2 Transfer Characteristics

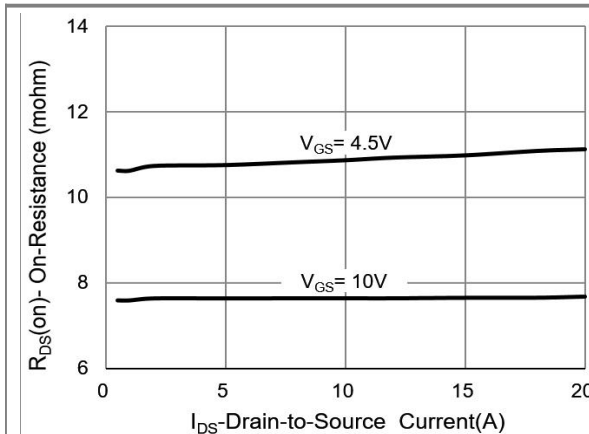


Fig.3 On-Resistance vs. Drain Current

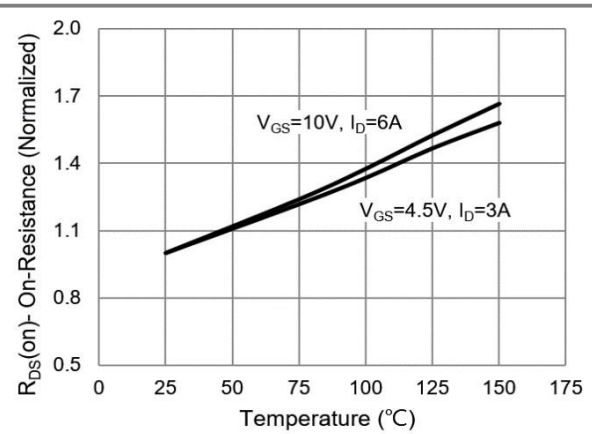


Fig.4 On-Resistance vs. Junction temperature

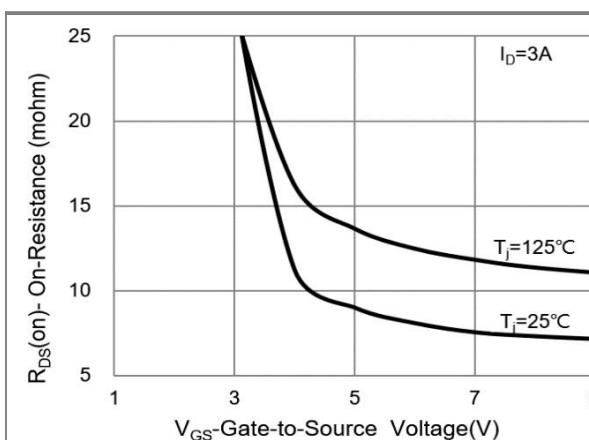


Fig.5 On-Resistance Variation with V_{GS}

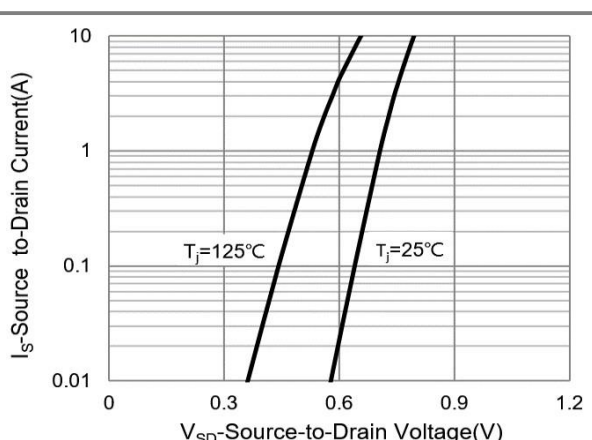


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

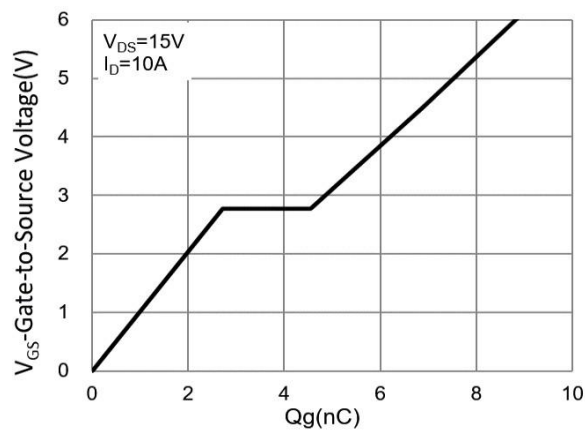


Fig.7 Gate-Charge Characteristics

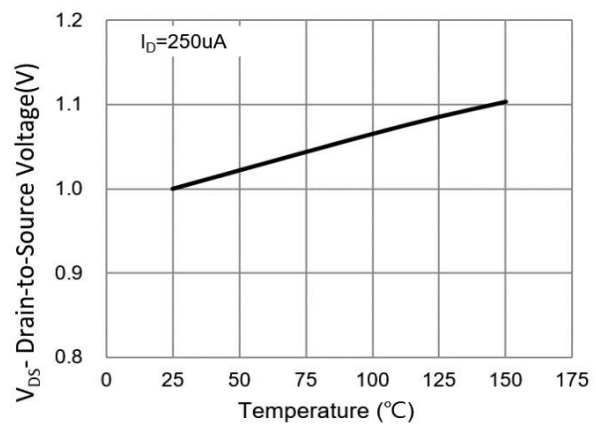


Fig.8 Breakdown Voltage Variation vs. Temperature

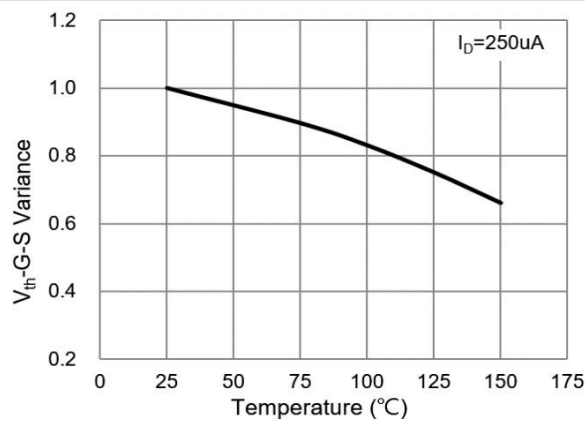


Fig.9 Threshold Voltage Variation with Temperature

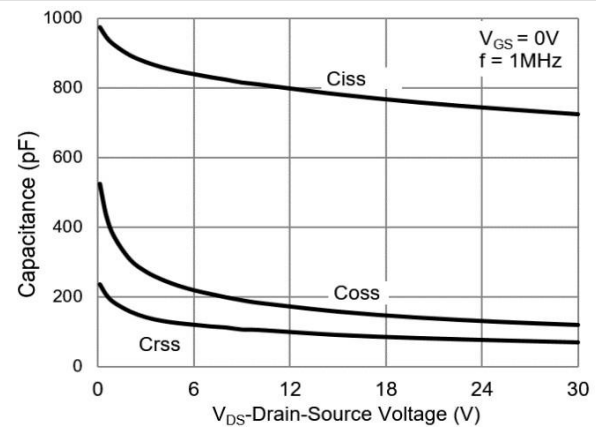


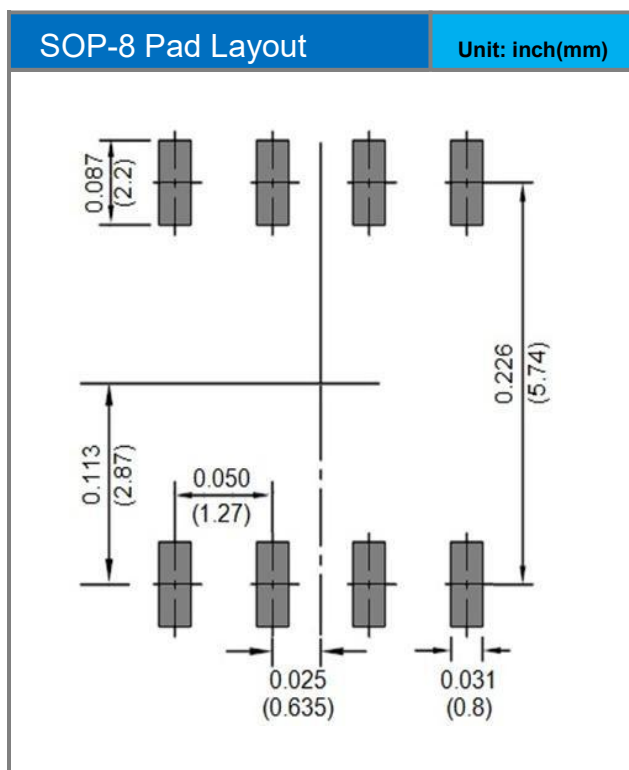
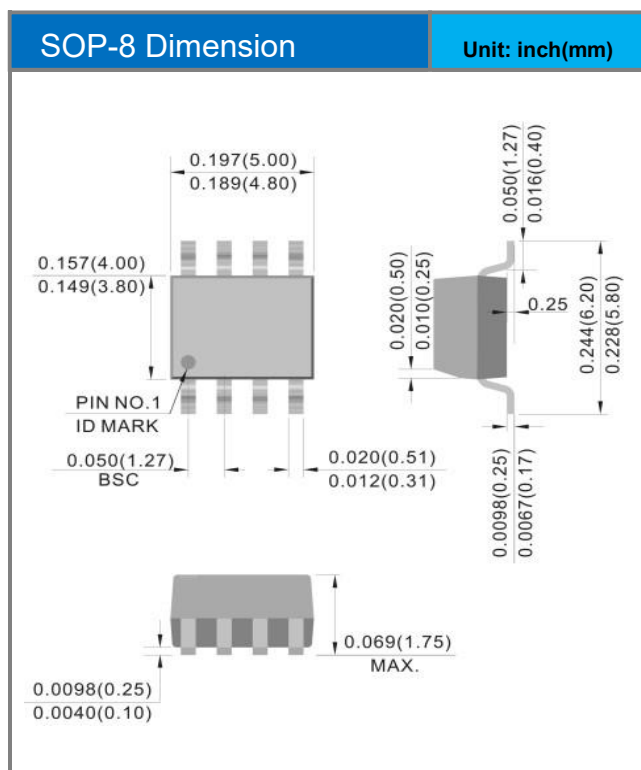
Fig.10 Capacitance vs. Drain-Source Voltage

CSM320N12SOP8

Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type
CSM320N12SOP8	SOP-8	2.5K pcs / 13" reel

Packaging Information & Mounting Pad Layout



CSM320N12SOP8

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