

## CSM320PP7SOP8

### 30V Dual P-Channel Enhancement Mode MOSFET

**Voltage**

**-30 V**

**Current**

**-7A**

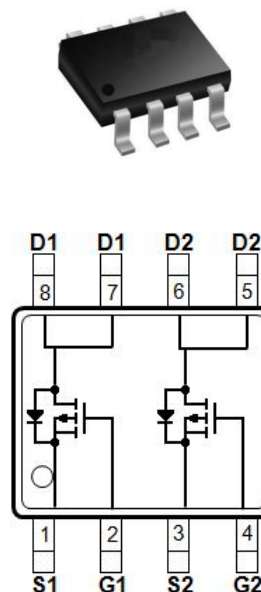
#### Features

- $R_{DS(ON)}$ ,  $V_{GS}@-10V, I_D@-7A < 21m\Omega$
- $R_{DS(ON)}$ ,  $V_{GS}@-4.5V, I_D@-5A < 27m\Omega$
- 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 ( $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V <sub>DS</sub>	-30	V
Gate-Source Voltage		V <sub>GS</sub>	±20	V
Continuous Drain Current	T <sub>A</sub> =25°C	I <sub>D</sub>	-7	A
	T <sub>A</sub> =70°C		-6	
Pulsed Drain Current (Note 1)		I <sub>DM</sub>	-28	
Power Dissipation	T <sub>A</sub> =25°C	P <sub>D</sub>	1.25	W
	T <sub>A</sub> =70°C		0.8	
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55~150	°C
Typical Thermal Resistance		R <sub>θJA</sub>	100	°C/W
- Junction to Ambient (Note 5)				

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### Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-30	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-1.0	-1.5	-2.5	
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-7A	-	19	21	mΩ
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-5A	-	24	27	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V	-	-	-1.0	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
Dynamic (Note 6)						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-15V, I <sub>D</sub> =-5A, V <sub>GS</sub> =-4.5V (Note 1,2)	-	11	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	3.2	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	3.9	-	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V, f=1.0MHZ	-	1169	-	pF
Output Capacitance	C <sub>oss</sub>		-	180	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	132	-	
Turn-On Delay Time	td <sub>(on)</sub>	V <sub>DS</sub> =-15V, I <sub>D</sub> =-1A, V <sub>GS</sub> =-10V, R <sub>G</sub> =6Ω (Note 1,2)	-	5.9	-	ns
Turn-On Rise Time	tr		-	33	-	
Turn-Off Delay Time	td <sub>(off)</sub>		-	55	-	
Turn-Off Fall Time	tf		-	34	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I <sub>S</sub>	---	-	-	-7.8	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1A, V <sub>GS</sub> =0V	-	-0.7	-1.0	V

#### NOTES :

1. Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$
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  $T_{J(MAX)}=150^{\circ}\text{C}$ . Ratings are based on low frequency and duty cycles to keep initial  $T_J=25^{\circ}\text{C}$ .
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<sup>2</sup> with 2oz.square pad of copper.
6. Guaranteed by design, not subject to production testing.

## CSM320PP7SOP8

### TYPICAL CHARACTERISTIC CURVES

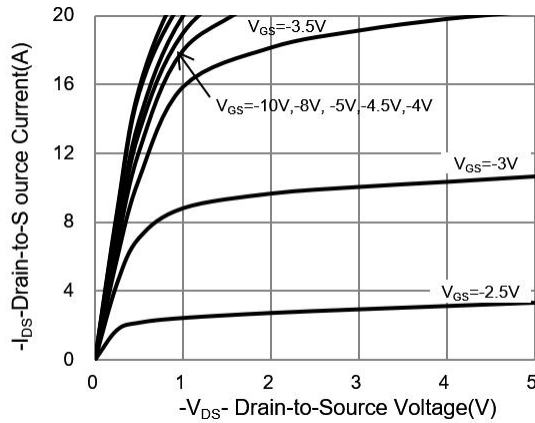


Fig.1 On-Region Characteristics

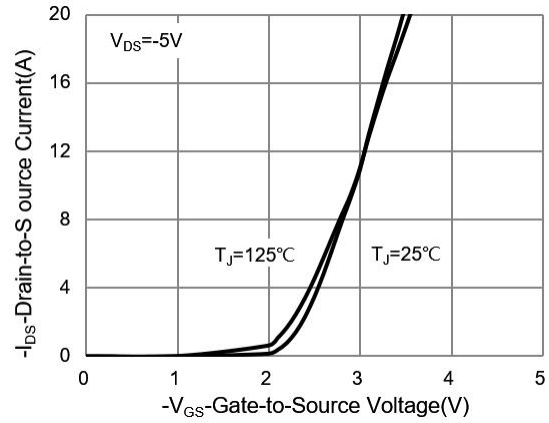


Fig.2 Transfer Characteristics

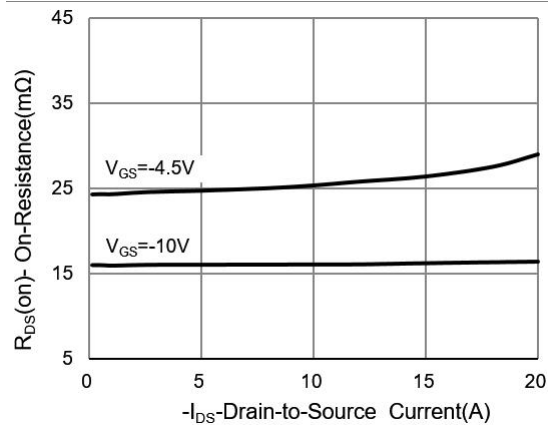


Fig.3 On-Resistance vs. Drain Current

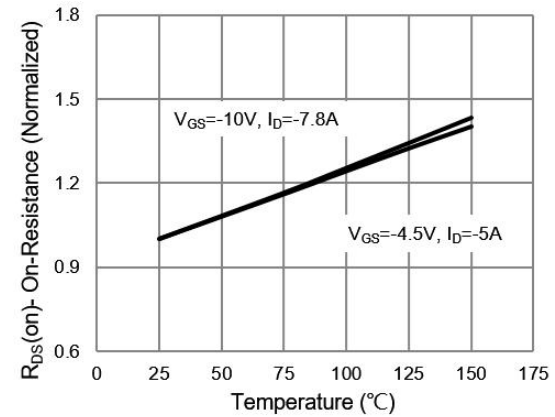


Fig.4 On-Resistance vs. Junction temperature

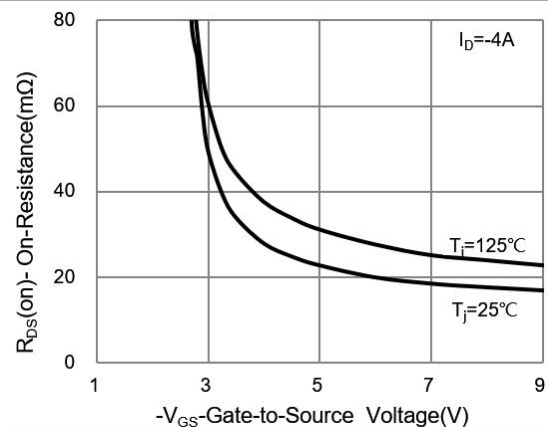


Fig.5 On-Resistance Variation with V\_GS.

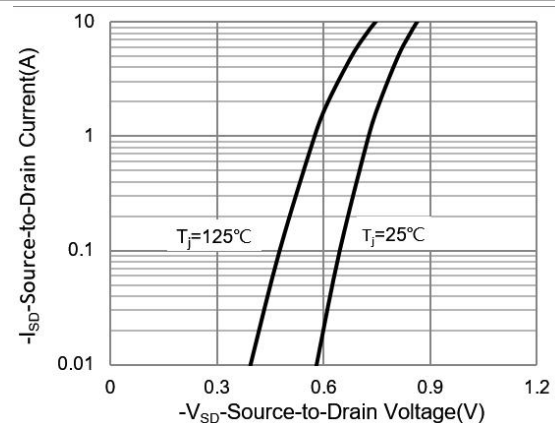


Fig.6 Body Diode Characteristics

## CSM320PP7SOP8

### TYPICAL CHARACTERISTIC CURVES

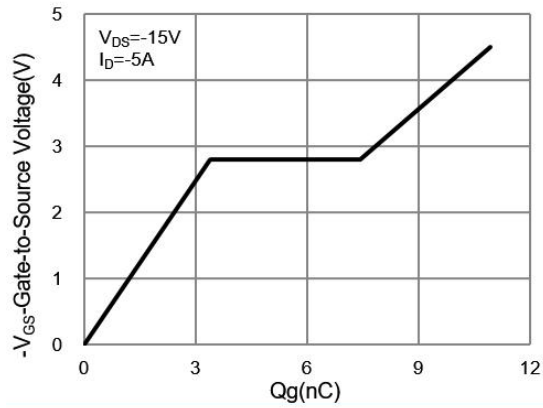


Fig.7 Gate-Charge Characteristics

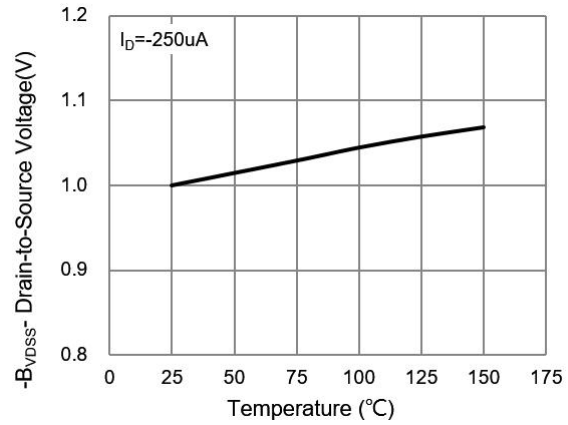


Fig.8 Breakdown Voltage Variation vs. Temperature

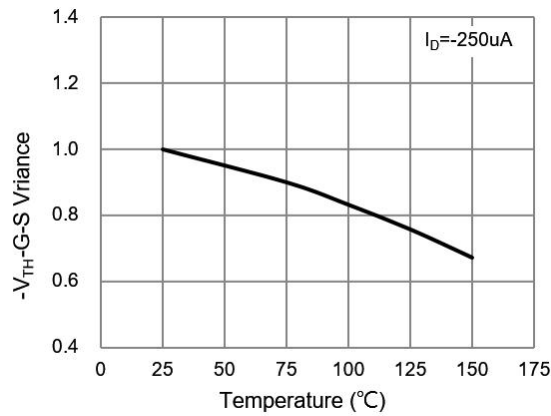


Fig.9 Threshold Voltage Variation with Temperature.

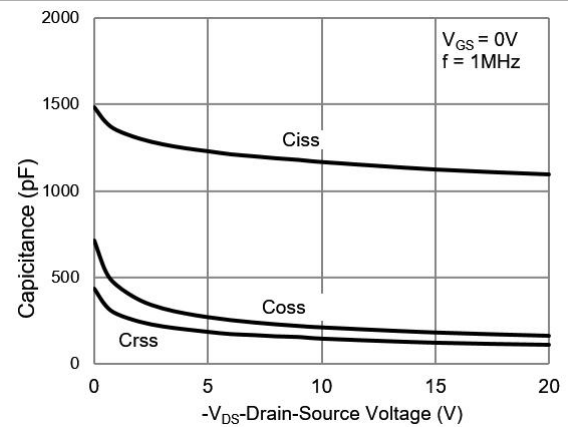


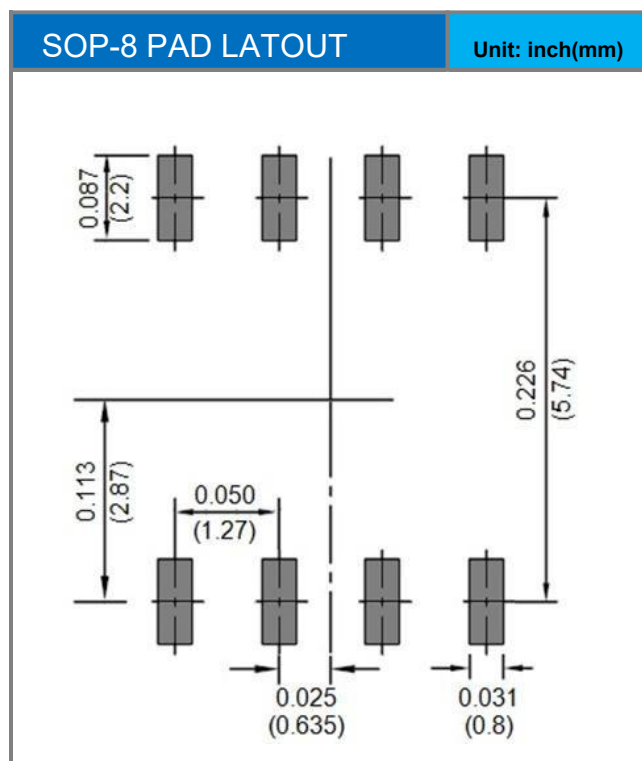
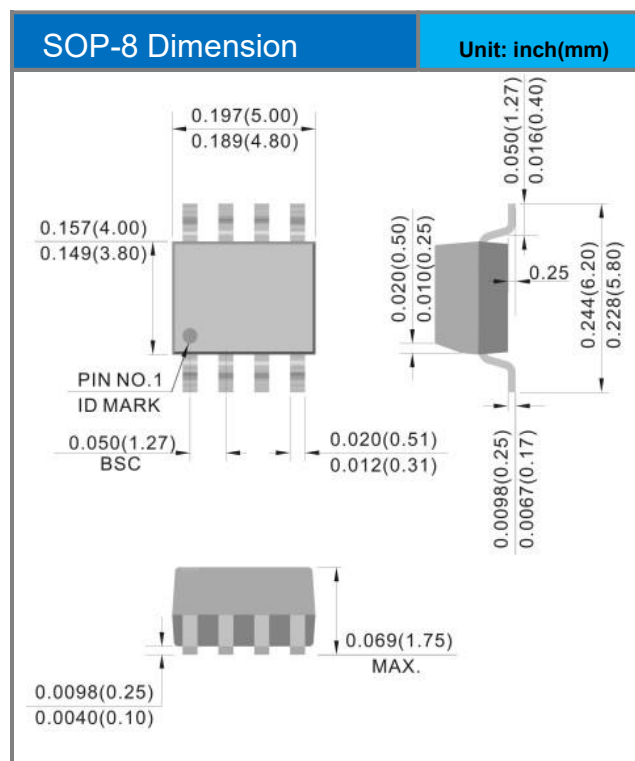
Fig.10 Capacitance vs. Drain-Source Voltage.

## CSM320PP7SOP8

### Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type
CSM320PP7SOP8	SOP-8	2.5K pcs / 13" reel

### Packaging Information & Mounting Pad Layout



## **CSM320PP7SOP8**

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