

## CSM320PP5SOP8

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

**Voltage**

**-30 V**

**Current**

**-5 A**

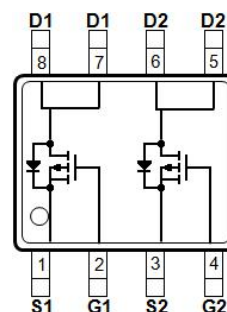
#### Features

- $R_{DS(ON)}$  ,  $V_{GS}@-10V$ ,  $I_D@-3A < 52m\Omega$
- $R_{DS(ON)}$  ,  $V_{GS}@-4.5V$ ,  $I_D@-2A < 70m\Omega$
- 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 <sub>DS</sub>                   | -30     | V     |
| Gate-Source Voltage                              |                      | V <sub>GS</sub>                   | ±20     |       |
| Continuous Drain Current                         | T <sub>A</sub> =25°C | I <sub>D</sub>                    | -5      | A     |
|  | T <sub>A</sub> =70°C |                                   | -3      |       |
| Pulsed Drain Current <sup>(Note 1)</sup>         |                      | I <sub>DM</sub>                   | -20     |       |
| Power Dissipation                                | T <sub>A</sub> =25°C | P <sub>D</sub>                    | 1.7     | W     |
|  | T <sub>A</sub> =70°C |                                   | 1.1     |       |
| Operating Junction and Storage Temperature Range |                      | T <sub>J</sub> , T <sub>STG</sub> | -55~150 | °C    |
| Typical Thermal Resistance                       |                      | R <sub>θJA</sub>                  | 73.5    | °C/W  |
| - Junction to Ambient <sup>(Note 5)</sup>        |                      |                                   |         |       |

# CSM320PP5SOP8

## Electrical Characteristics (T<sub>A</sub>=25°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   | -1.6  | -2.5 |       |
| Drain-Source On-State Resistance                      | R <sub>DS(on)</sub> | V <sub>GS</sub> =-10V, I <sub>D</sub> =-3A   | -    | 42    | 52   | mΩ    |
|   |                     | V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-2A  | -    | 62    | 70   |       |
| Zero Gate Voltage Drain Current                       | I <sub>DSS</sub>    | V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V   | -    | -     | -1   | uA    |
| Gate-Source Leakage Current                           | I <sub>GSS</sub>    | V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V   | -    | -     | ±100 | nA    |
| Dynamic <sup>(Note 6)</sup>                           |                     |  |      |       |      |       |
| Total Gate Charge                                     | Q <sub>g</sub>      | V <sub>DS</sub> =-15V, I <sub>D</sub> =-3A,<br>V <sub>GS</sub> =-4.5V <sup>(Note 1,2)</sup>                        | -    | 4.8   | -    | nC    |
| Gate-Source Charge                                    | Q <sub>gs</sub>     |  | -    | 1.7   | -    |       |
| Gate-Drain Charge                                     | Q <sub>gd</sub>     |  | -    | 1.7   | -    |       |
| Input Capacitance                                     | C <sub>iss</sub>    | V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V,<br>f=1.0MHZ  | -    | 516   | -    | pF    |
| Output Capacitance                                    | C <sub>oss</sub>    |  | -    | 83    | -    |       |
| Reverse Transfer Capacitance                          | C <sub>rss</sub>    |  | -    | 61    | -    |       |
| Turn-On Delay Time                                    | td <sub>(on)</sub>  | V <sub>DS</sub> =-15V, I <sub>D</sub> =-1A,<br>V <sub>GEN</sub> =-10V, R <sub>G</sub> =6Ω<br><sup>(Note 1,2)</sup> | -    | 5.6   | -    | ns    |
| Turn-On Rise Time                                     | tr                  |  | -    | 8.5   | -    |       |
| Turn-Off Delay Time                                   | td <sub>(off)</sub> |  | -    | 27    | -    |       |
| Turn-Off Fall Time                                    | tf                  |  | -    | 18    | -    |       |
| Drain-Source Diode                                    |                     |  |      |       |      |       |
| Maximum Continuous Drain-Source Diode Forward Current | I <sub>S</sub>      | ---  | -    | -     | -4   | A     |
| Diode Forward Voltage                                 | V <sub>SD</sub>     | I <sub>S</sub> =-1A, V <sub>GS</sub> =0V   | -    | -0.75 | -1   | 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<sub>J(MAX)</sub>=150°C. Ratings are based on low frequency and duty cycles to keep initial T<sub>J</sub>=25°C.
5. R<sub>θJA</sub> 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.

## CSM320PP5SOP8

### TYPICAL CHARACTERISTIC CURVES

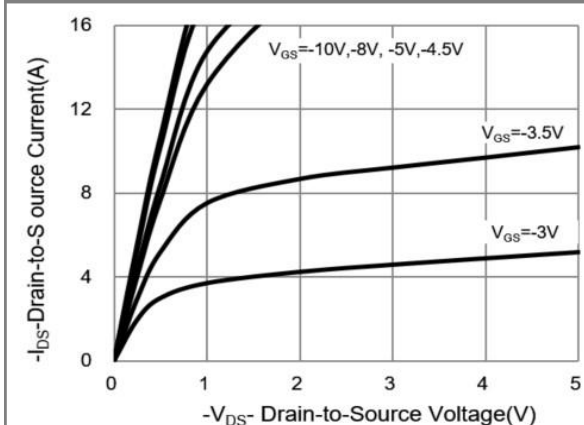


Fig.1 On-Region Characteristics

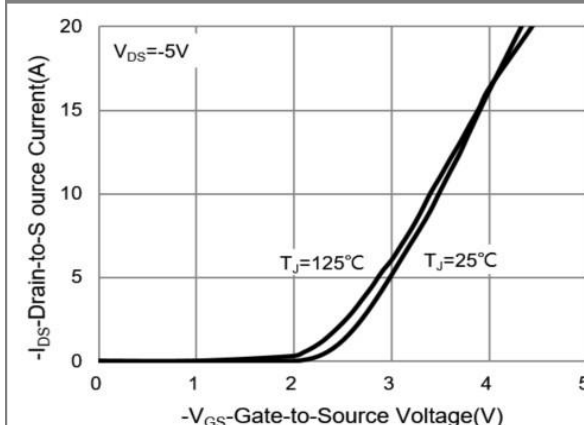


Fig.2 Transfer Characteristics

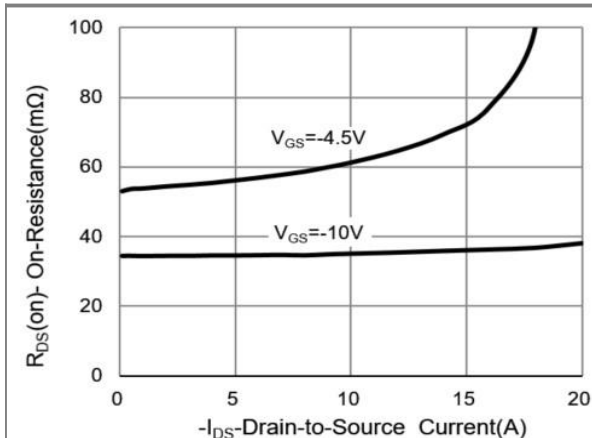


Fig.3 On-Resistance vs. Drain Current

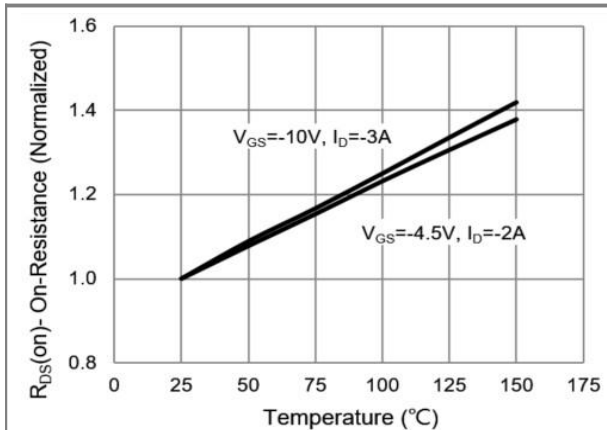


Fig.4 On-Resistance vs. Junction temperature

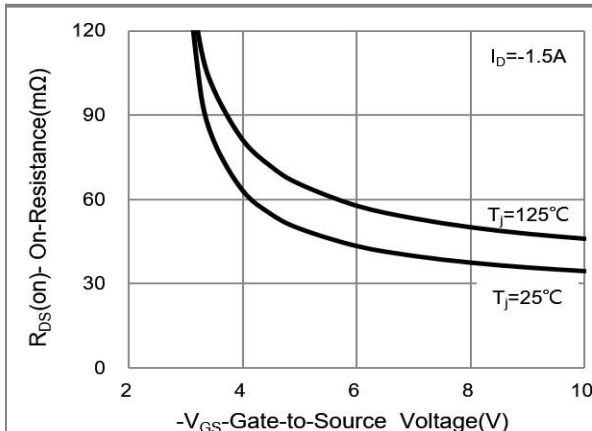


Fig.5 On-Resistance Variation with  $V_{GS}$

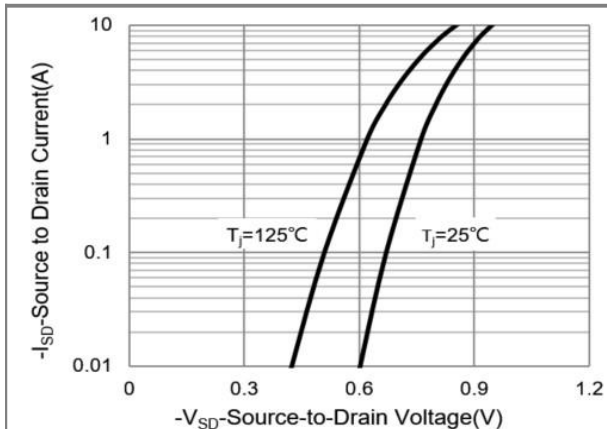


Fig.6 Body Diode Characteristics

## CSM320PP5SOP8

### TYPICAL CHARACTERISTIC CURVES

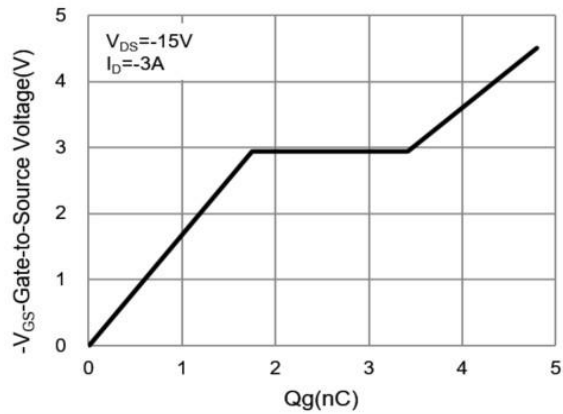


Fig.7 Gate-Charge Characteristics

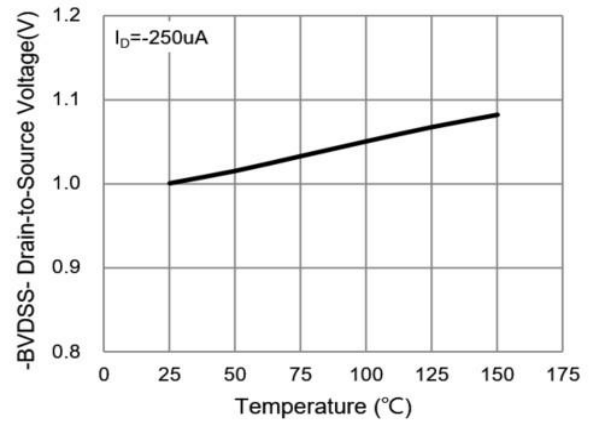


Fig.8 Breakdown Voltage Variation vs. Temperature

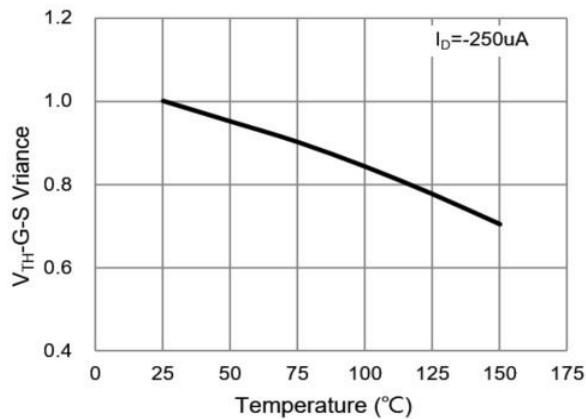


Fig.9 Threshold Voltage Variation with Temperature

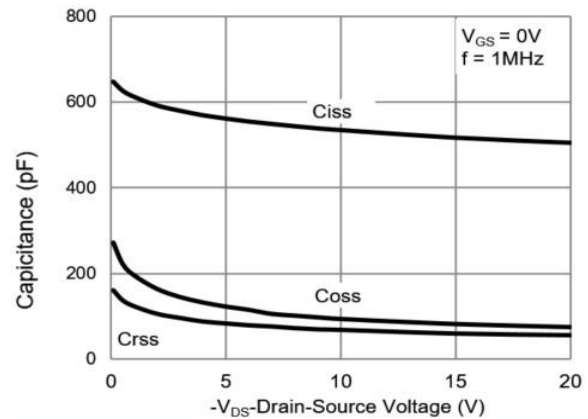


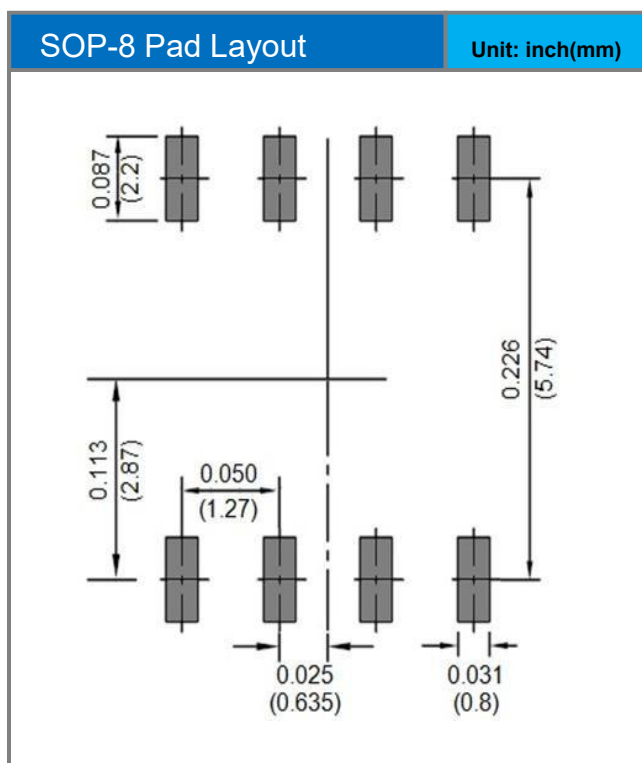
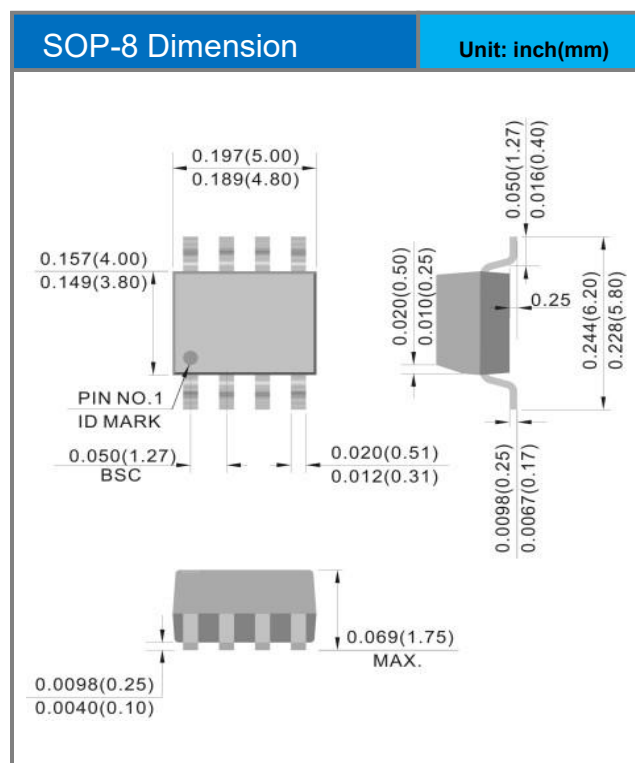
Fig.10 Capacitance vs. Drain-Source Voltage

## CSM320PP5SOP8

Part No Packing Code Version

| Part No Packing Code | Package Type | Packing Type        |
|----------------------|--------------|---------------------|
| CSM320PP5SOP8        | SOP-8        | 2.5K pcs / 13" reel |

### Packaging Information & Mounting Pad Layout



## **CSM320PP5SOP8**

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