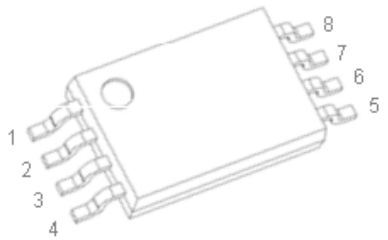
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

# TSSOP8 Plastic-Encapsulate MOSFETS

## CJS8820 Dual N-Channel MOSFET

| $V_{(BR)DSS}$ | $R_{DS(on)}$TYP | $I_D$ |
|---|---|---|
| 20V | 14mΩ@10V | 7A |
| | 16mΩ@4.5V | |
| | 18mΩ@3.8V | |
| | 22mΩ@2.5V | |

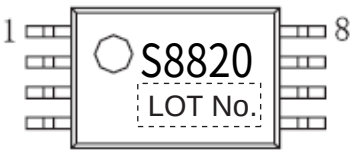
**TSSOP8**



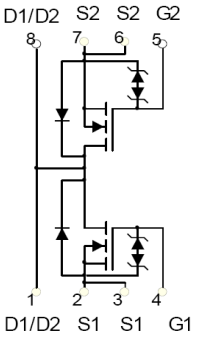

### DESCRIPTION

The CJS8820 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. It is ESD protected. This device is suitable for use as a uni-directional or bi-directional load switch,facilitated by its common-drain configuration.

### MARKING:




### Equivalent Circuit




### MAXIMUM RATINGS ($T_a$=25℃ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | 20 | V |
| Gate-Source Voltage | $V_{GS}$ | ±12 | V |
| Continuous Drain Current | $I_D$ | 7 | A |
| Pulsed Drain Current | $I_{DM}$* | 30 | A |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 125 | ℃/W |
| Junction Temperature | $T_j$ | 150 | ℃ |
| Storage Temperature | $T_{stg}$ | -55~+150 | ℃ |
| Lead Temperature for Soldering Purposes(1/8'' from case for 10 s) | $T_L$ | 260 | ℃ |

*Repetitive rating：Pluse width limited by junction temperature

## MOSFET ELECTRICAL CHARACTERISTICS

**$T_a$=25℃ unless otherwise specified**

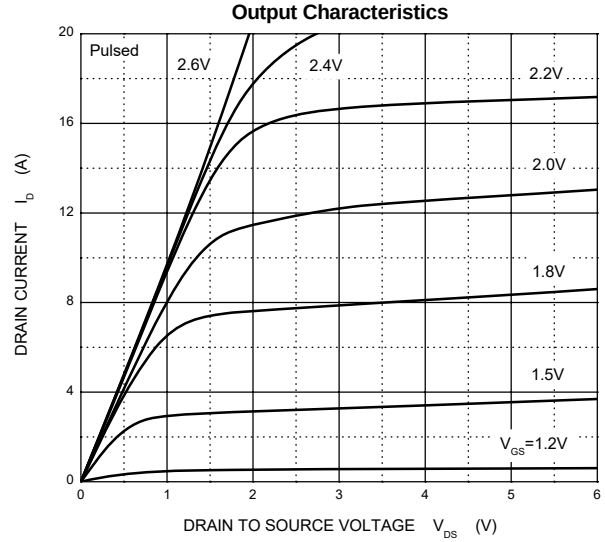
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **STATIC PARAMETERS** | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)\ DSS}$ | $V_{GS}$ = 0V, $I_D$ =250μA | 20 | | | V |
| Zero gate voltage drain current | $I_{DSS}$ | $V_{DS}$ =16V,$V_{GS}$ = 0V | | | 1 | μA |
| Gate-body leakage current | $I_{GSS}$ | $V_{GS}$ =±10V, $V_{DS}$ = 0V | | | ±10 | μA |
| Gate threshold voltage (note 1) | $V_{GS(th)}$ | $V_{DS}$ =$V_{GS}$, $I_D$ =250μA | 0.5 | | 1.1 | V |
| Drain-source on-resistance (note 1) | $R_{DS(on)}$ | $V_{GS}$ =10V, $I_D$ =7A | 8 | 14 | 21 | mΩ |
| | | $V_{GS}$ =4.5V, $I_D$ =6.6A | 10 | 16 | 24 | mΩ |
| | | $V_{GS}$ =3.8V, $I_D$ =6A | 12 | 18 | 28 | mΩ |
| | | $V_{GS}$ =2.5V, $I_D$ =5.5A | 16 | 22 | 32 | mΩ |
| Forward tranconductance (note 1) | $g_{FS}$ | $V_{DS}$ =5V, $I_D$ =7A | 9 | | | S |
| Diode forward voltage(note 1) | $V_{SD}$ | $I_S$=1A, $V_{GS}$ = 0V | | | 1 | V |
| **DYNAMIC PARAMETERS** (note 2) | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$ =10V,$V_{GS}$ =0V,f =1MHz | | 650 | | pF |
| Output Capacitance | $C_{oss}$ | | | 140 | | pF |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 60 | | pF |
| Total gate charge | $Q_g$ | $V_{DS}$ =10V,$V_{GS}$ =4.5V,$I_D$ =6A | | 8 | | nC |
| Gate-source charge | $Q_{gs}$ | | | 2.5 | | nC |
| Gate-drain charge | $Q_{gd}$ | | | 3 | | nC |
| **SWITCHING PARAMETERS**(note 2) | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS}$=5V,$V_{DD}$=10V, $R_L$=1.5Ω,$R_{GEN}$=3Ω | | 0.5 | | ns |
| Turn-on rise time | $t_r$ | | | 1 | | ns |
| Turn-off delay time | $t_{d(off)}$ | | | 12 | | ns |
| Turn-off fall time | $t_f$ | | | 4 | | ns |

**Notes :**

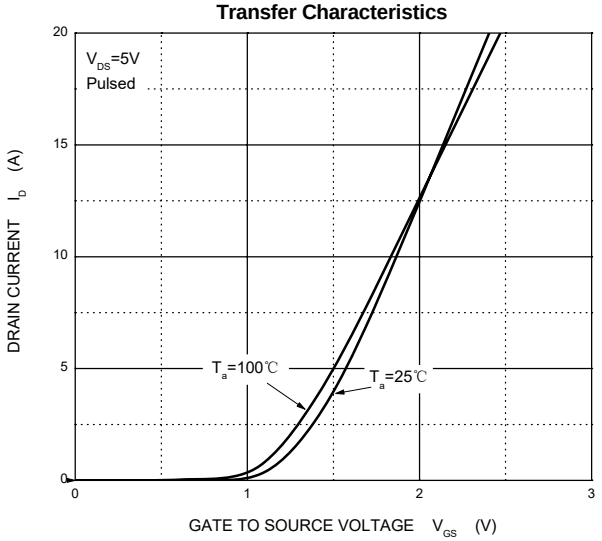
1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.
2. Guaranteed by design, not subject to production testing.

## Typical Characteristics

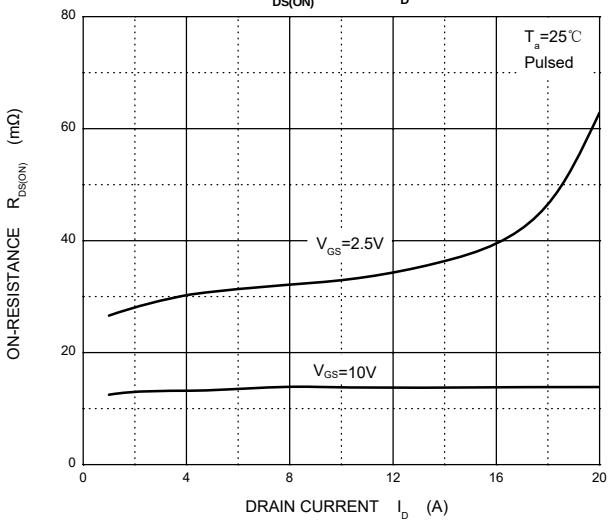
**Output Characteristics**



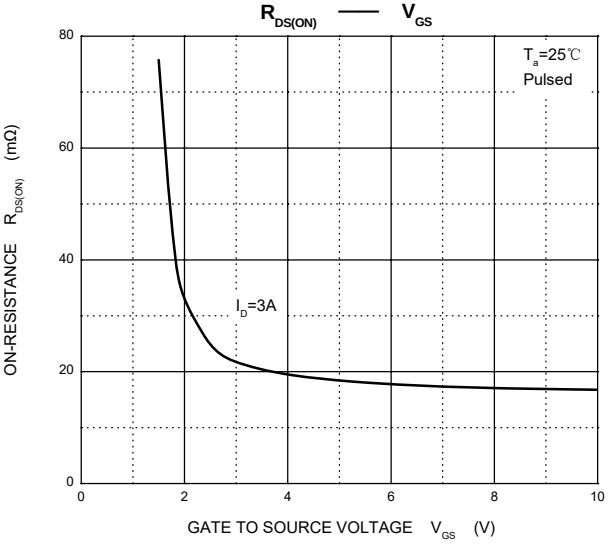

**Transfer Characteristics**



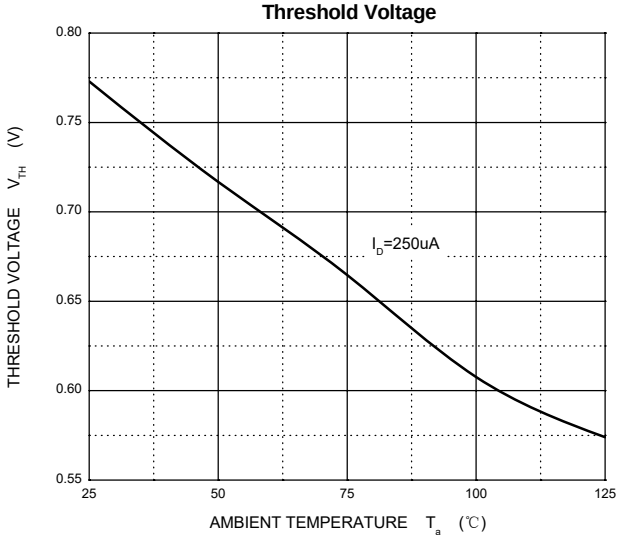

**$R_{DS(ON)}$ —— $I_D$**



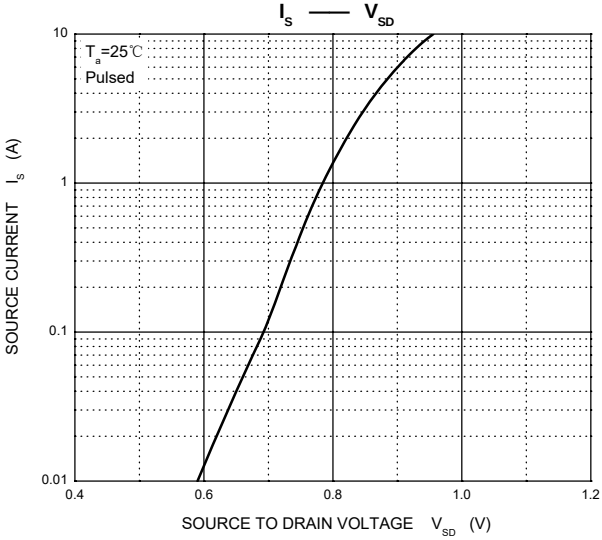

**$R_{DS(ON)}$ —— $V_{GS}$**



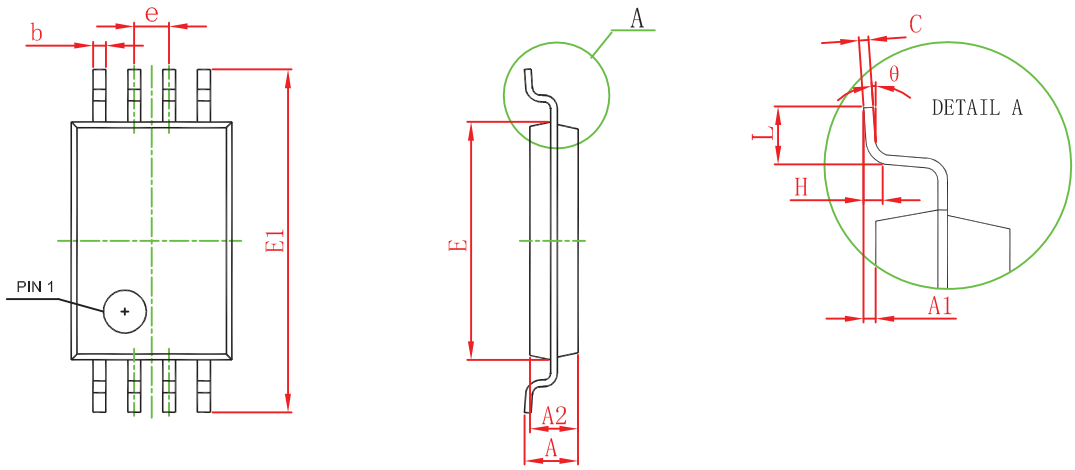

**Threshold Voltage**




**$I_S$ —— $V_{SD}$**

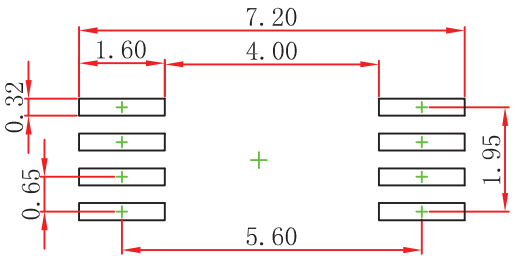


## TSSOP8 Package Outline Dimensions




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | **Min** | **Max** | **Min** | **Max** |
| D | 2. 900 | 3. 100 | 0. 114 | 0. 122 |
| E | 4. 300 | 4. 500 | 0. 169 | 0. 177 |
| b | 0. 190 | 0. 300 | 0. 007 | 0. 012 |
| c | 0. 090 | 0. 200 | 0. 004 | 0. 008 |
| E1 | 6. 250 | 6. 550 | 0. 246 | 0. 258 |
| A | | 1. 200 | | 0. 047 |
| A2 | 0. 800 | 1. 000 | 0. 031 | 0. 039 |
| A1 | 0. 050 | 0. 150 | 0. 002 | 0. 006 |
| e | 0. 65 (BSC) | | 0. 026 (BSC) | |
| L | 0. 500 | 0. 700 | 0. 020 | 0. 028 |
| H | 0.25(TYP | | 0.01(TYP | |
| θ | 1° | 7° | 1° | 7° |

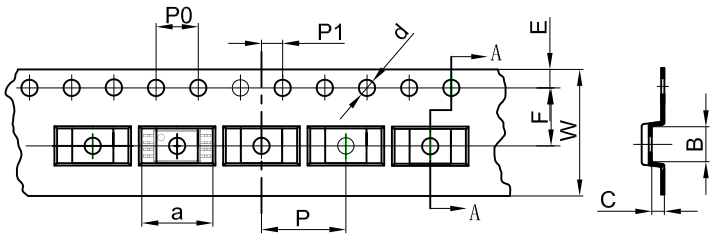
## TSSOP8 Suggested Pad Layout




Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

## TSSOP8 Tape and Reel

### TSSOP8 Embossed Carrier Tape



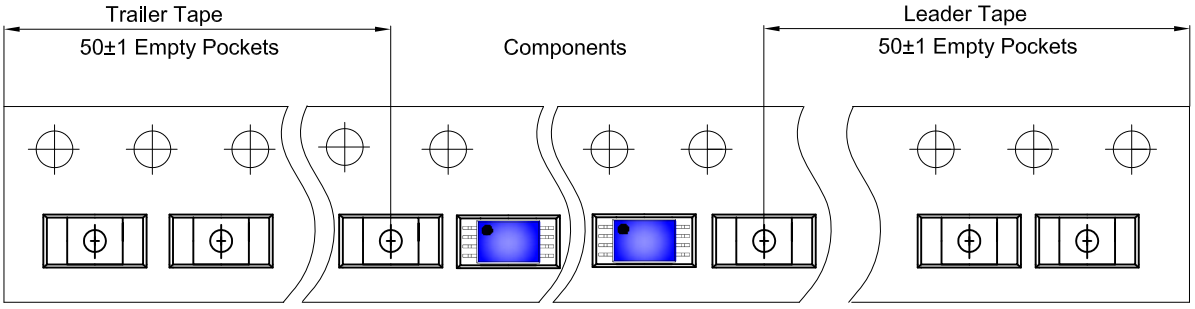

Packaging Description:

TSSOP8 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 13" or 33cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

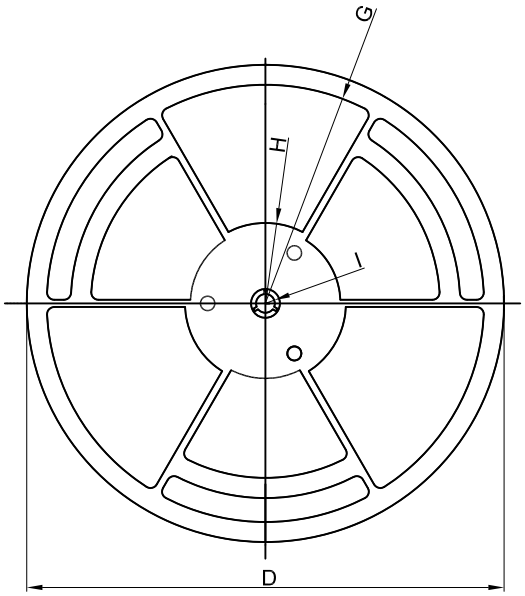
ALL DIM IN mm

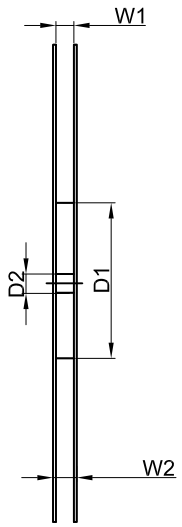
| Dimensions are in millimeter | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Pkg type | a | B | C | d | E | F | P0 | P | P1 | W |
| TSSOP8 | 6.76 | 3.30 | 1.20 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00 |

### TSSOP8 Tape Leader and Trailer




### TSSOP8 Reel




| Dimensions are in millimeter | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Reel Option | D | D1 | D2 | G | H | I | W1 | W2 |
| 13"Dia | Ø330.00 | 100.00 | 13.00 | R151.00 | R56.00 | R6.50 | 12.40 | 17.60 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) | G.W.(kg) |
|---|---|---|---|---|---|---|
| 3,000 pcs | 13 inch | 3,000 pcs | 336×336×48 | 24,000 pcs | 445×355×365 | |

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