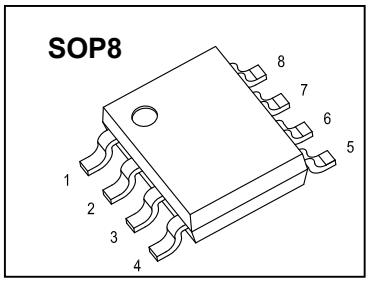
SZCJ

Shenzhen Changji Semiconductor Co., LTD.

# JSCJ SOP8 Plastic-Encapsulate MOSFETS

## CJQ6601 P-channel and N-channel Complementary MOSFETS




### DESCRIPTIONS

The Device uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. The complementary MOSFETs form a high-speed power inverter, suitable for a multitude of applications.

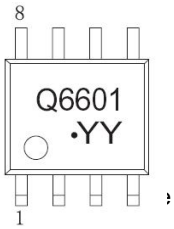
### FEATURES

- Including a N-ch CJ3400 MOS and a P-ch CJ3401 MOS (independently) in a package
- Surface mount package
- Low $R_{DS(on)}$

### APPLICATIONS

- Suitable for a multitude of applications.
- High-speed power inverter

### MARKING:



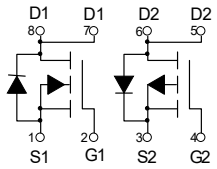

Q6601= Device code

Solid dot=Pin1 indicator

Solid dot = Green molding compound device, if none, the normal device

YY=Date Code

### EQUIVALENT CIRCUIT




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

| Symbol | Parameter | Value | | Unit |
|---|---|---|---|---|
| | | N-ch MOS | P-ch MOS | |
| $V_{DS}$ | Drain-Source Voltage | 30 | -30 | V |
| $V_{GS}$ | Gate-Source Voltage | ±12 | ±12 | V |
| $I_D$ | Drain Current -Continuous(Note1) | 5.8 | -4.2 | A |
| $I_{DM}$ | Drain Current - Pulse(Note3) | 23.2 | -16.8 | A |
| **Power Dissipation, Temperature and Thermal Resistance** | | | | |
| $P_D$ | Power Dissipation | | 1.4 | W |
| $R_{\theta JA}$ | Thermal Resistance from Junction to Ambient | | 89 | ℃/W |
| $T_j$ | Junction Temperature | | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | | -55~+150 | ℃ |
| $T_L$ | Lead Temperature | | 260 | ℃ |

## N-channel MOSFET ELECTRICAL CHARACTERISTICS ($T_a$=25℃ unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **STATIC PARAMETERS** | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS}$ =0V, $I_D$=250μA | 30 | | | V |
| Zero gate voltage drain current | $I_{DSS}$ | $V_{DS}$ =24V,$V_{GS}$ = 0V | | | 1 | μA |
| Gate-body leakage current | $I_{GSS}$ | $V_{GS}$ =±12V, $V_{DS}$ = 0V | | | ±100 | nA |
| Gate threshold voltage (note 1) | $V_{GS(th)}$ | $V_{DS}$ =$V_{GS}$, $I_D$ =250μA | 0.7 | | 1.4 | V |
| Drain-source on-resistance(note 1) | $R_{DS(on)}$ | $V_{GS}$ =10V, $I_D$ =5.8A | | 19 | 35 | mΩ |
| | | $V_{GS}$ =4.5V, $I_D$ =5A | | 21 | 40 | mΩ |
| | | $V_{GS}$ =2.5V, $I_D$ =4A | | 26 | 52 | mΩ |
| Forward transconductance(note 1) | $g_{FS}$ | $V_{DS}$ =5V, $I_D$ =5A | 8 | | | S |
| Diode forward voltage(note 1) | $V_{SD}$ | $I_S$=1A, $V_{GS}$ = 0V | | | 1 | V |
| **DYNAMIC PARAMETERS (note 2)** | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$ =15V,$V_{GS}$ =0V,f =1MHz | | | 1050 | pF |
| Output Capacitance | $C_{oss}$ | | | 99 | | pF |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 77 | | pF |
| **SWITCHING PARAMETERS (note 2)** | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS}$=10V,$V_{DS}$=15V, $R_L$=2.7Ω,$R_{GEN}$=3Ω, $I_D$=0.5A | | | 5 | ns |
| Turn-on rise time | $t_r$ | | | | 7 | ns |
| Turn-off delay time | $t_{d(off)}$ | | | | 40 | ns |
| Turn-off fall time | $t_f$ | | | | 6 | ns |

## P-channel MOSFET ELECTRICAL CHARACTERISTICS ($T_a$=25℃ unless otherwise specified)

| | | | | | | |
|---|---|---|---|---|---|---|
| **STATIC PARAMETERS** | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS}$ =0V, $I_D$=-250μA | -30 | | | V |
| Zero gate voltage drain current | $I_{DSS}$ | $V_{DS}$ =-24V,$V_{GS}$ = 0V | | | -1 | μA |
| Gate-body leakage current | $I_{GSS}$ | $V_{GS}$ =±12V, $V_{DS}$ = 0V | | | ±100 | nA |
| Gate threshold voltage (note 1) | $V_{GS(th)}$ | $V_{DS}$ =$V_{GS}$, $I_D$ =-250μA | -0.5 | | -1.3 | V |
| Drain-source on-resistance (note 1) | $R_{DS(on)}$ | $V_{GS}$ =-10V, $I_D$ =-4.2A | | | 65 | mΩ |
| | | $V_{GS}$ =-4.5V, $I_D$ =-4A | | | 75 | mΩ |
| | | $V_{GS}$ =-2.5V, $I_D$ =-1A | | | 90 | mΩ |
| Forward transconductance (note 1) | $g_{FS}$ | $V_{DS}$ =-5V, $I_D$ =-5A | 7 | | | S |
| Diode forward voltage(note 1) | $V_{SD}$ | $I_S$=-1A, $V_{GS}$ = 0V | | | -1 | V |
| **DYNAMIC PARAMETERS (note 2)** | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$ =-15V,$V_{GS}$ =0V,f =1MHz | | 954 | | pF |
| Output Capacitance | $C_{oss}$ | | | 115 | | pF |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 77 | | pF |
| **SWITCHING PARAMETERS (note 2)** | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS}$=-10V,$V_{DS}$=-15V, $R_L$=3.6Ω,$R_{GEN}$=6Ω, $I_D$=0.5A | | | 6.3 | ns |
| Turn-on rise time | $t_r$ | | | | 3.2 | ns |
| Turn-off delay time | $t_{d(off)}$ | | | | 38.2 | ns |
| Turn-off fall time | $t_f$ | | | | 12 | ns |

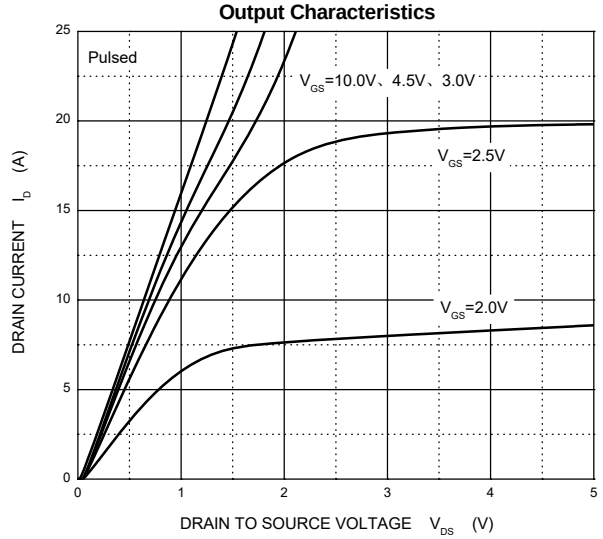
**Note:**

1、 Pulse test: pulse width =300μs, duty cycle≤ 2%

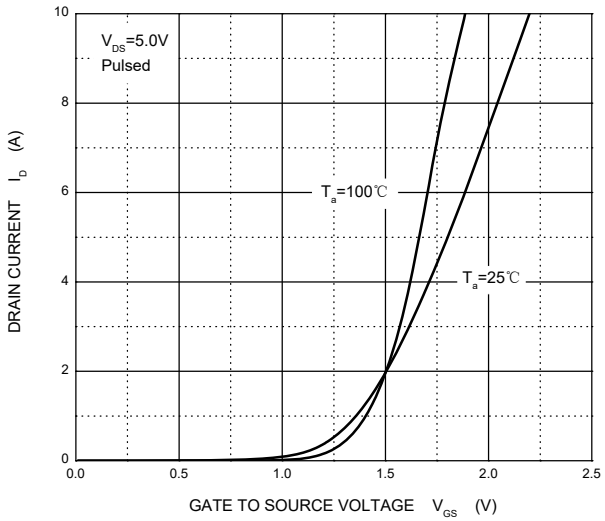
2、 These parameters have no way to verify.

# N-channel MOSFET ELECTRICAL CHARACTERISTICS

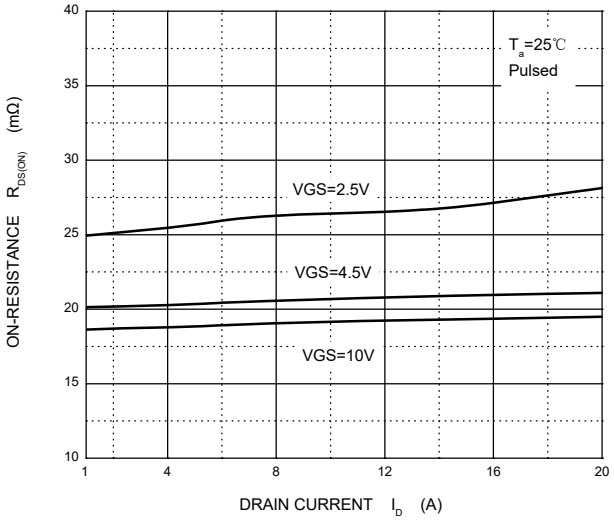
**Output Characteristics**



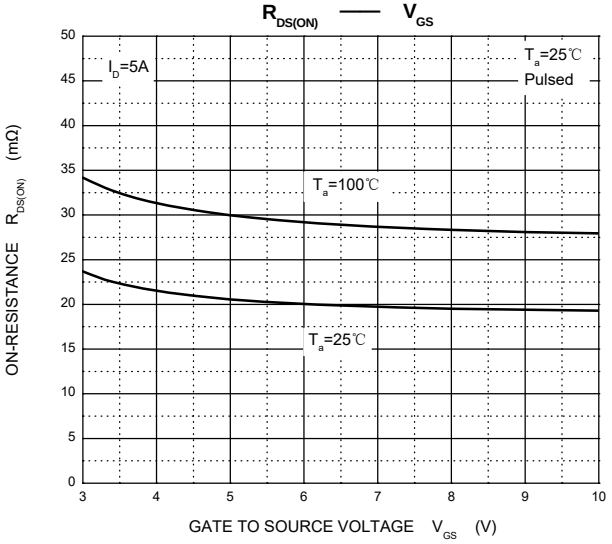

**Transfer Characteristics**



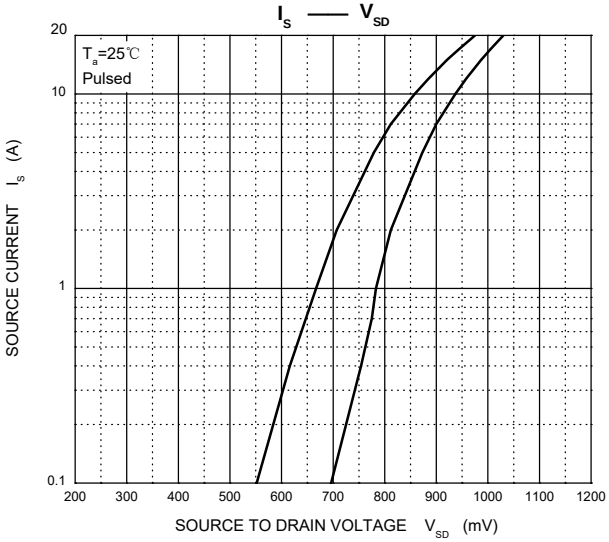

**$R_{DS(ON)}$ —— $I_D$**



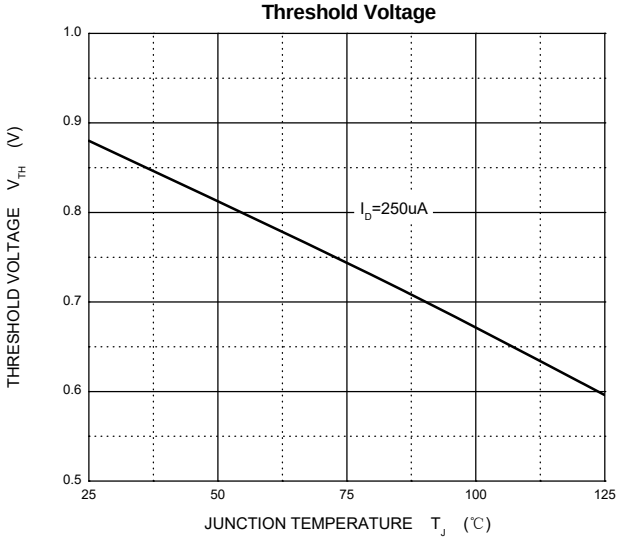

**$R_{DS(ON)}$ —— $V_{GS}$**




**$I_S$ —— $V_{SD}$**

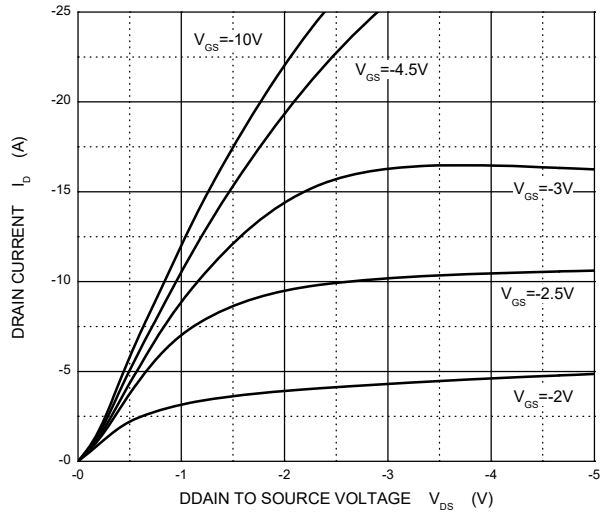



**Threshold Voltage**

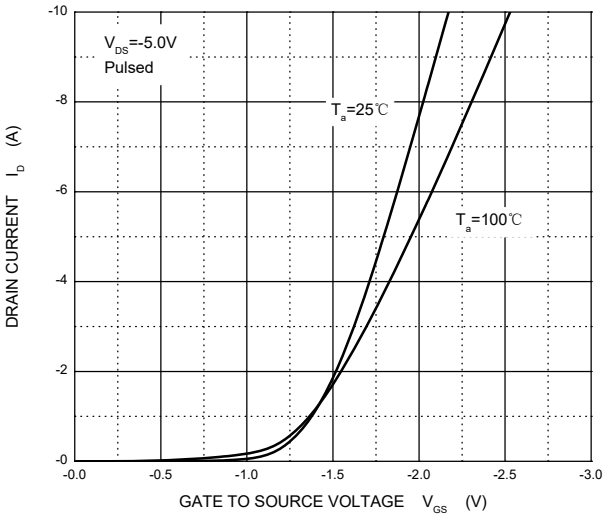


## P-channel MOSFET ELECTRICAL CHARACTERISTICS

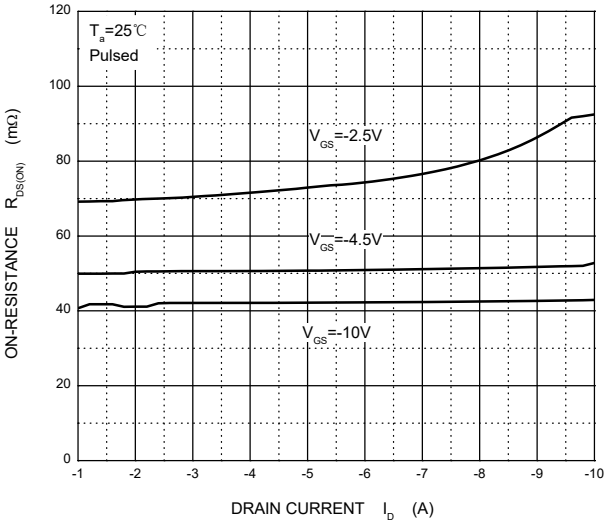
**Output Characteristics**



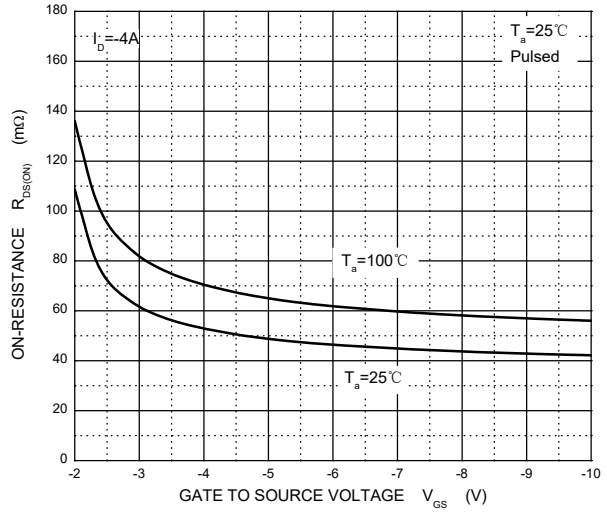

**Transfer Characteristics**



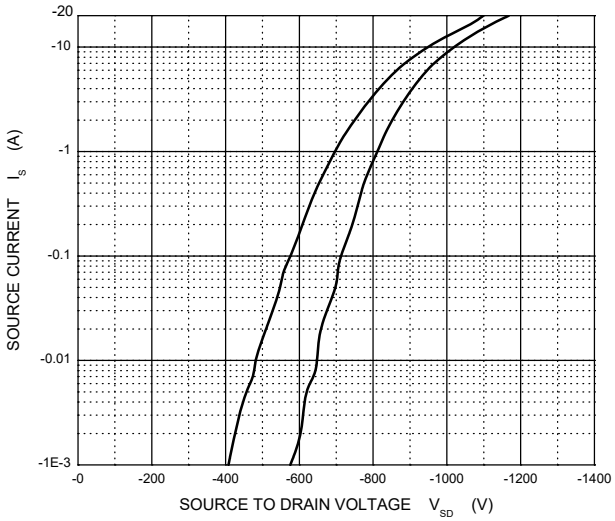

**$R_{DS(ON)}$ —— $I_D$**



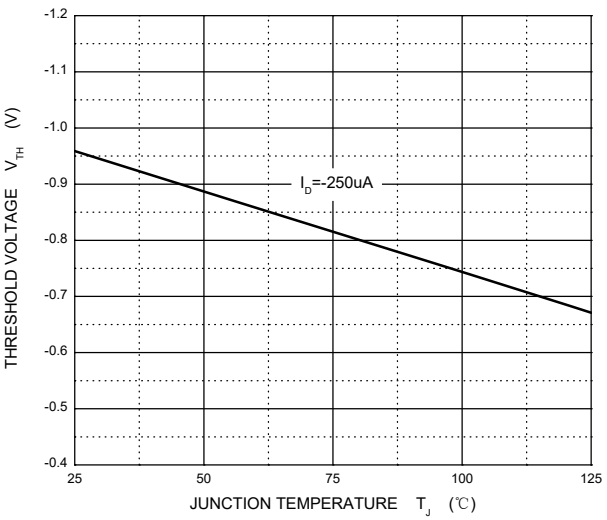

**$R_{DS(ON)}$ —— $V_{GS}$**



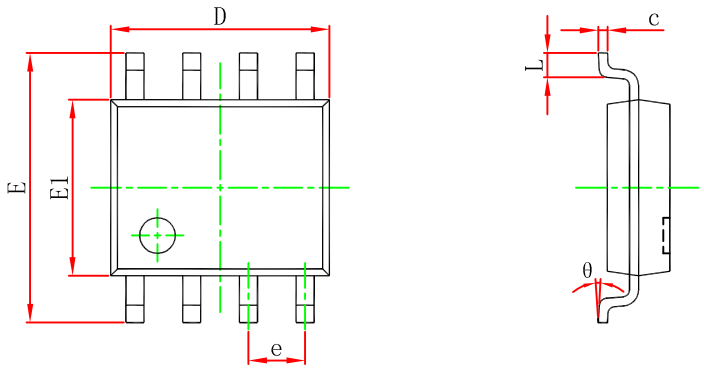

**$I_S$ —— $V_{SD}$**

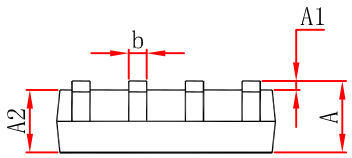



**Threshold Voltage**



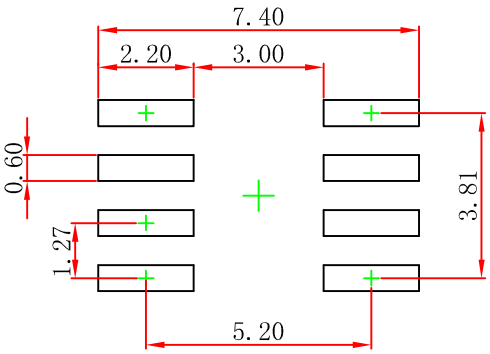
## SOP8 Package Outline Dimensions




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | **Min** | **Max** | **Min** | **Max** |
| A | 1.450 | 1.750 | 0.053 | 0.069 |
| A1 | 0.100 | 0.250 | 0.004 | 0.010 |
| A2 | 1.350 | 1.550 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | 0.013 | 0.020 |
| c | 0.170 | 0.250 | 0.007 | 0.010 |
| D | 4.700 | 5.100 | 0.185 | 0.201 |
| e | 1.270（BSC） | | 0.050（BSC） | |
| E | 5.800 | 6.200 | 0.228 | 0.244 |
| E1 | 3.800 | 4.000 | 0.150 | 0.157 |
| L | 0.400 | 1.270 | 0.016 | 0.050 |
| θ | 0° | 8° | 0° | 8° |

## SOP8 Suggested Pad Layout



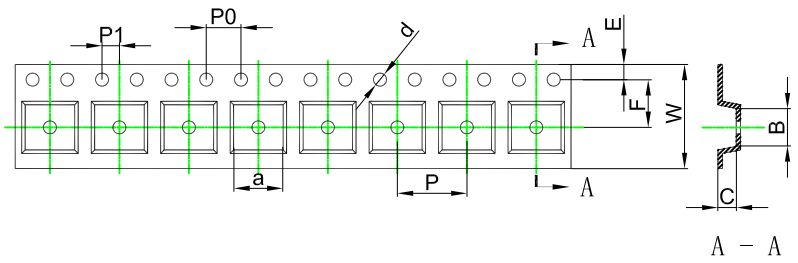

Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.


NOTICE

SZCJ reserves the right to make modifications,enhan nts,improvements,corrections or other es without further notice to any product herein. SZCJ does not assume any liability arising out of the application or use of any product described h

## SOP8 Tape and Reel

### SOP8 Embossed Carrier Tape



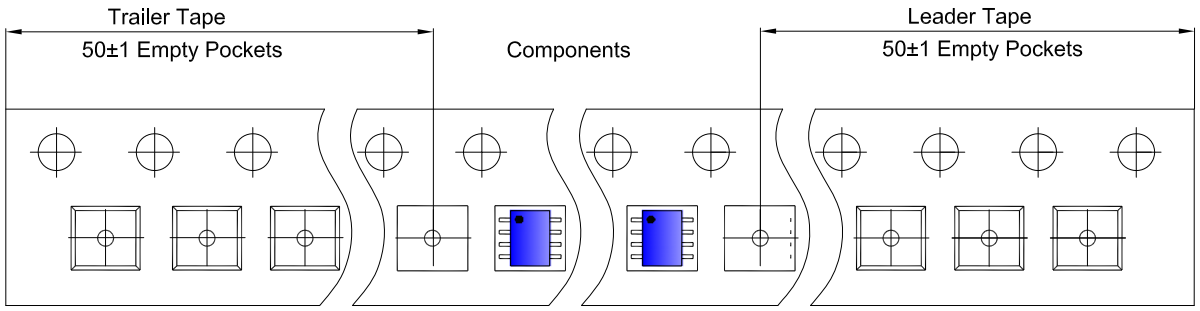

Packaging Description:

SOP8 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 4,000 units per 13" or 33cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

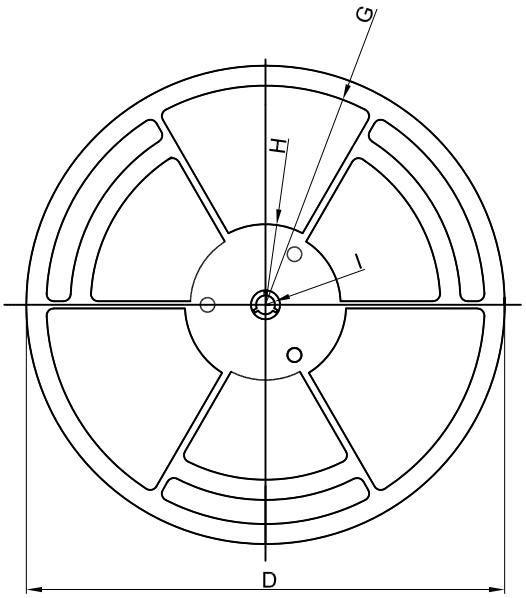
ALL DIM IN mm

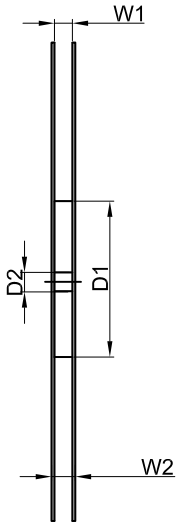
| Dimensions are in millimeter | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Pkg type | a | B | C | d | E | F | P0 | P | P1 | W |
| SOP8 | 6.40 | 5.40 | 2.10 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00 |

### SOP8 Tape Leader and Trailer




### SOP8 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) |
|---|---|---|---|---|---|---|
| 4,000 pcs | 13 inch | 8,000 pcs | 360×360×65 | 40,000 pcs | 378×358×382 | |