

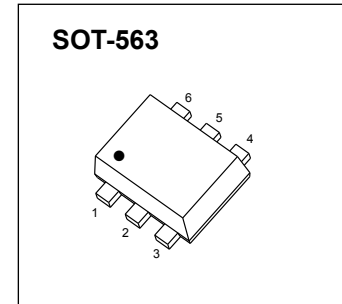


JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

## SOT-563 Plastic-Encapsulate MOSFETS

### 2N7002V MOSFET (N-Channel)

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | $I_D$ |
|---------------|-----------------|-------|
| 60 V          | $5\Omega@10V$   | 115mA |
|               | $7\Omega@5V$    |       |



#### FEATURE

- Dual N-channel MOSFET
- Low on-resistance
- Low gate threshold voltage
- Low input capacitance
- Fast switching speed
- Low input/output leakage

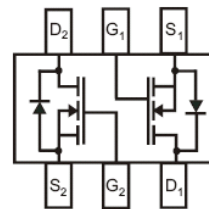
#### APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

#### MARKING



#### Equivalent Circuit



#### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

| Symbol    | Parameter            | Value    | Unit             |
|-----------|----------------------|----------|------------------|
| $V_{DS}$  | Drain-Source voltage | 60       | V                |
| $V_{GS}$  | Gate-Source voltage  | $\pm 20$ | V                |
| $I_D$     | Drain Current        | 115      | mA               |
| $P_D$     | Power Dissipation    | 150      | mW               |
| $T_J$     | Junction Temperature | 150      | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature  | -55-150  | $^\circ\text{C}$ |

## MOSFET ELECTRICAL CHARACTERISTICS

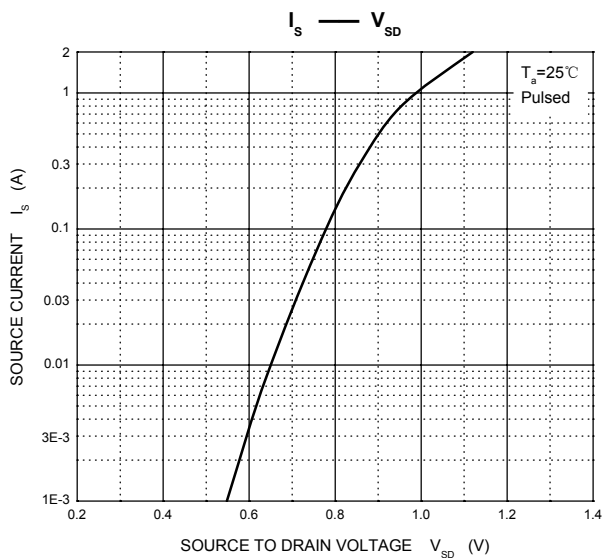
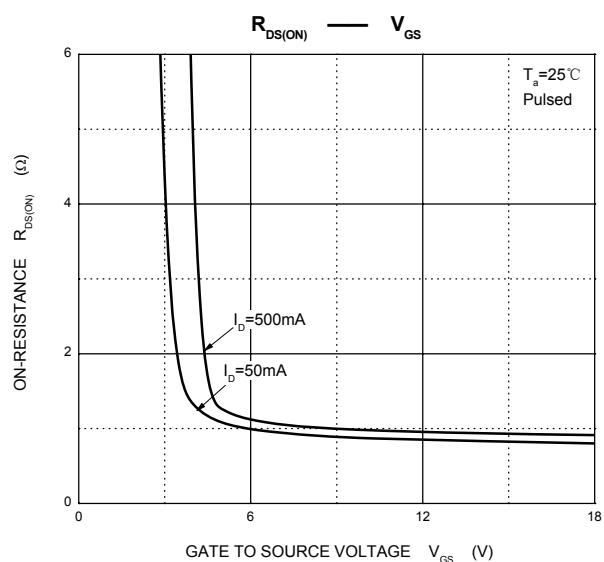
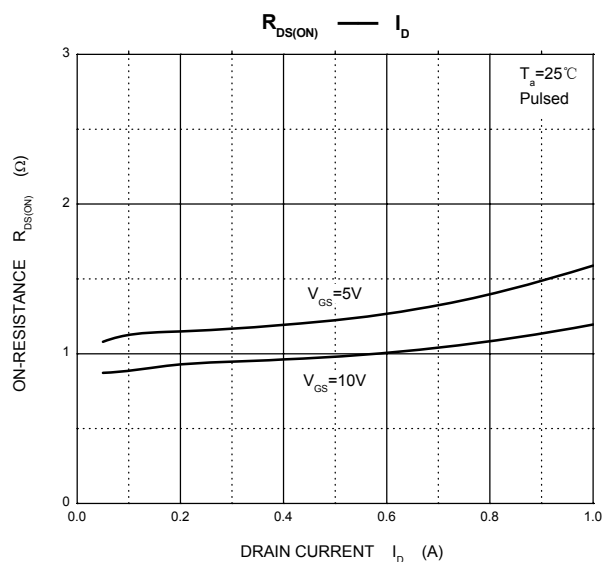
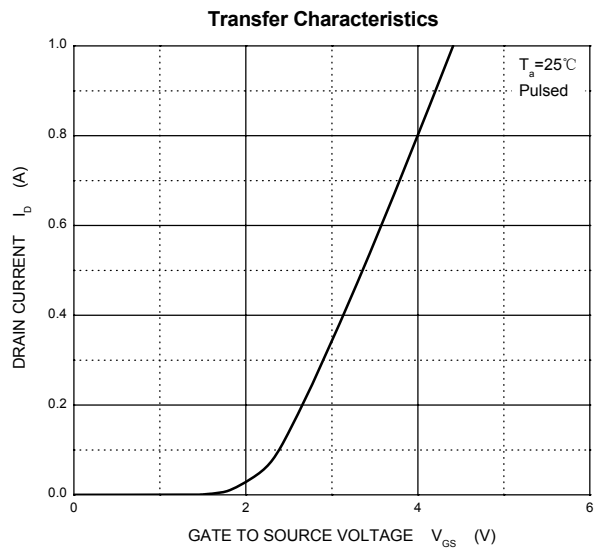
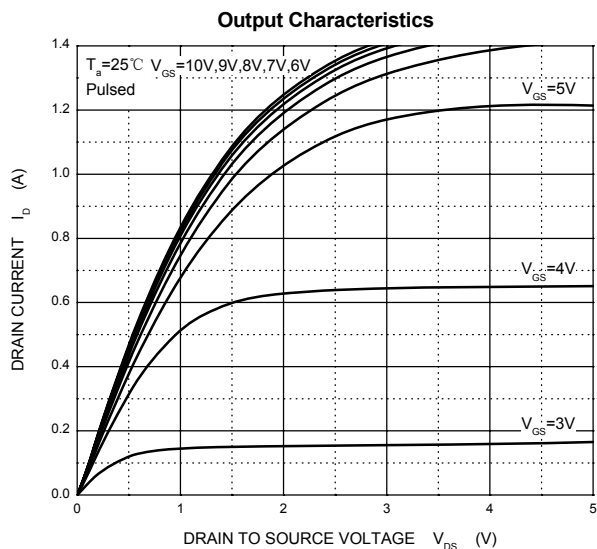
$T_a=25\text{ }^{\circ}\text{C}$  unless otherwise specified

| Parameter                       | Symbol        | Test conditions                                               | Min  | Typ | Max      | Unit     |
|---------------------------------|---------------|---------------------------------------------------------------|------|-----|----------|----------|
| Drain-Source Breakdown Voltage  | $V_{(BR)DSS}$ | $V_{GS}=0\text{ V}$ , $I_D=250\text{ }\mu\text{A}$            | 60   |     |          | V        |
| Gate-Threshold Voltage          | $V_{th(GS)}$  | $V_{DS}=V_{GS}$ , $I_D=250\text{ }\mu\text{A}$                | 1    | 1.6 | 2.5      |          |
| Gate-body Leakage               | $I_{GSS}$     | $V_{DS}=0\text{ V}$ , $V_{GS}=\pm 20\text{ V}$                |      |     | $\pm 80$ | nA       |
| Zero Gate Voltage Drain Current | $I_{DSS}$     | $V_{DS}=60\text{ V}$ , $V_{GS}=0\text{ V}$                    |      |     | 80       | nA       |
| On-state Drain Current          | $I_{D(ON)}$   | $V_{GS}=10\text{ V}$ , $V_{DS}=7\text{ V}$                    | 500  |     |          | mA       |
| Drain-Source On-Resistance      | $r_{DS(on)}$  | $V_{GS}=10\text{ V}$ , $I_D=500\text{ mA}$                    |      | 0.9 | 5        | $\Omega$ |
|                                 |               | $V_{GS}=5\text{ V}$ , $I_D=50\text{ mA}$                      |      | 1.1 | 7        |          |
| Forward Trans conductance       | $g_{fs}$      | $V_{DS}=10\text{ V}$ , $I_D=200\text{ mA}$                    | 80   |     |          | mS       |
| Drain-source on-voltage         | $V_{DS(on)}$  | $V_{GS}=10\text{ V}$ , $I_D=500\text{ mA}$                    |      |     | 3.75     | V        |
|                                 |               | $V_{GS}=5\text{ V}$ , $I_D=50\text{ mA}$                      |      |     | 0.375    | V        |
| Diode Forward Voltage           | $V_{SD}$      | $I_S=115\text{ mA}$ , $V_{GS}=0\text{ V}$                     | 0.55 |     | 1.2      | V        |
| Input Capacitance               | $C_{iss}$     | $V_{DS}=25\text{ V}$ , $V_{GS}=0\text{ V}$ , $f=1\text{ MHz}$ |      |     | 50       | pF       |
| Output Capacitance              | $C_{oss}$     |                                                               |      |     | 25       |          |
| Reverse Transfer Capacitance    | $C_{rss}$     |                                                               |      |     | 5        |          |

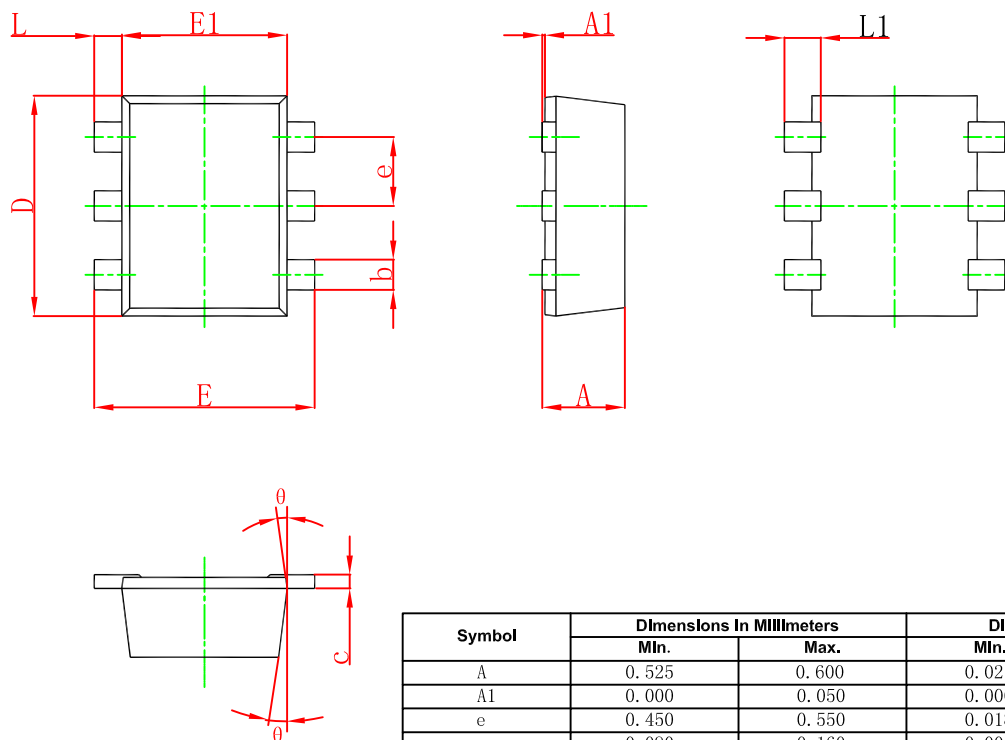
### SWITCHING TIME

|               |              |                                                                       |  |  |    |    |
|---------------|--------------|-----------------------------------------------------------------------|--|--|----|----|
| Turn-on Time  | $t_{d(on)}$  | $V_{DD}=25\text{ V}$ , $R_L=50\Omega$                                 |  |  | 20 | ns |
| Turn-off Time | $t_{d(off)}$ | $I_D=500\text{ mA}$ , $V_{GEN}=10\text{ V}$<br>$R_G=25\text{ }\Omega$ |  |  | 40 |    |

## Typical Characteristics

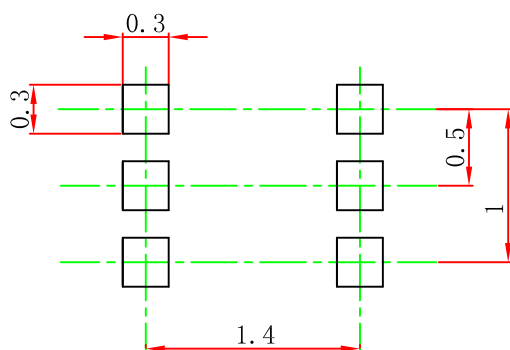


## SOT-563 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 0.525                     | 0.600 | 0.021                | 0.024 |
| A1     | 0.000                     | 0.050 | 0.000                | 0.002 |
| e      | 0.450                     | 0.550 | 0.018                | 0.022 |
| c      | 0.090                     | 0.160 | 0.004                | 0.006 |
| D      | 1.500                     | 1.700 | 0.059                | 0.067 |
| b      | 0.170                     | 0.270 | 0.007                | 0.011 |
| E1     | 1.100                     | 1.300 | 0.043                | 0.051 |
| E      | 1.500                     | 1.700 | 0.059                | 0.067 |
| L      | 0.100                     | 0.300 | 0.004                | 0.012 |
| L1     | 0.200                     | 0.400 | 0.008                | 0.016 |
| θ      | 10° REF.                  |       | 10° REF.             |       |

## SOT-563 Suggested Pad Layout



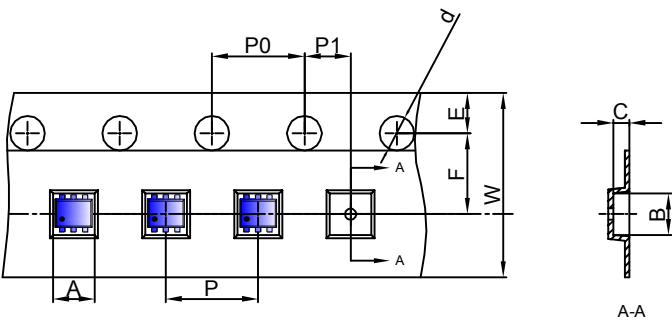
- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05$  mm.
  3. The pad layout is for reference purposes only.

### NOTICE

JSCJ reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

SOT-563 Tape and reel

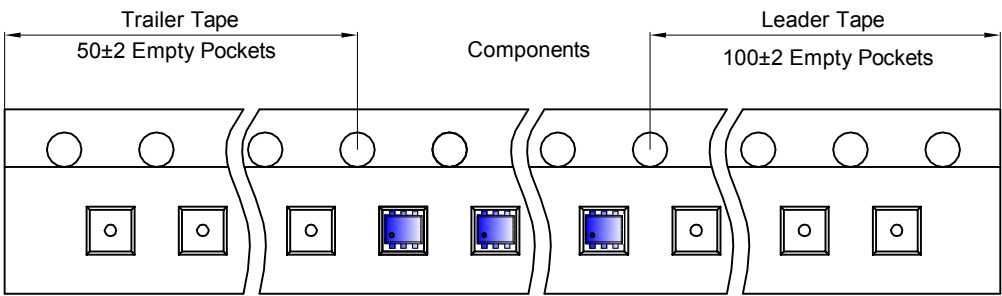
SOT-563 Embossed Carrier Tape



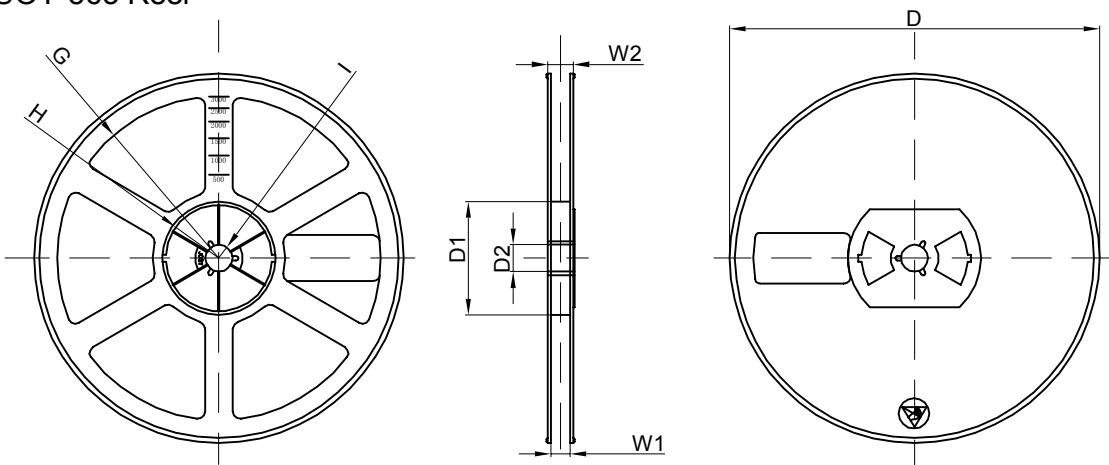
Packaging Description:  
SOT-563 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

| Dimensions are in millimeter |      |      |      |       |      |      |      |      |      |      |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type                     | A    | B    | C    | d     | E    | F    | P0   | P    | P1   | W    |
| SOT-563                      | 1.78 | 1.78 | 0.69 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

SOT-563 Tape Leader and Trailer



SOT-563 Reel



| Dimensions are in millimeter |         |       |       |        |        |       |      |       |
|------------------------------|---------|-------|-------|--------|--------|-------|------|-------|
| Reel Option                  | D       | D1    | D2    | G      | H      | I     | W1   | W2    |
| 7"Dia                        | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |

| REEL     | Reel Size | Box        | Box Size(mm) | Carton      | Carton Size(mm) | G.W.(kg) |
|----------|-----------|------------|--------------|-------------|-----------------|----------|
| 3000 pcs | 7 inch    | 45,000 pcs | 203×203×195  | 180,000 pcs | 438×438×220     |          |