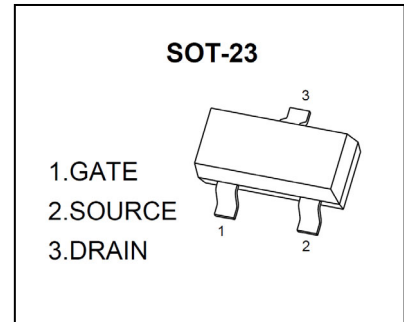


**SOT-23 Plastic-Encapsulate MOSFET****CJ3400MR** N-Channel MOSFET**Key Performance Parameters**

| $V_{BR(DSS)}$ | $R_{DS(on)}$ TYP   | $I_D$ |
|---------------|--------------------|-------|
| 30V           | 19m $\Omega$ @10V  | 5A    |
|               | 21m $\Omega$ @4.5V |       |
|               | 29m $\Omega$ @2.5V |       |

**DESCRIPTION**

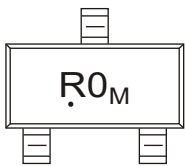
This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance.

**FEATURES**

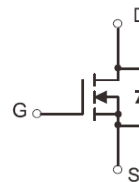
- Lead Free Product is Acquired
- Surface Mount Package
- P-Channel Switch with Low  $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive

**APPLICATIONS**

- Load/Power Switching
- Interfacing, Logic Switching
- Battery Management for Ultra Small Portable Electronics

**MARKING**

$R0_M$  = Device code  
Solid dot = Green molding compound device.

**EQUIVALENT CIRCUIT****ABSOLUTE MAXIMUM RATINGS (  $T_J=25^{\circ}\text{C}$  unless otherwise specified )**

| Parameter                                        |                            | Symbol            | Value    | Unit               |
|--------------------------------------------------|----------------------------|-------------------|----------|--------------------|
| Drain-Source Voltage                             |                            | $V_{DS}$          | 30       | V                  |
| Gate-Source Voltage                              |                            | $V_{GS}$          | $\pm 12$ | V                  |
| Continuous Drain Current                         | $T_A = 25^{\circ}\text{C}$ | $I_D^{(5)}$       | 5.0      | A                  |
|                                                  | $T_A = 75^{\circ}\text{C}$ |                   | 3.9      |                    |
| Pulsed Drain Current                             |                            | $I_{DM}^{(1)(2)}$ | 20       | A                  |
| Power Dissipation                                |                            | $P_D^{(1)(5)}$    | 1.25     | W                  |
| Operating Junction and Storage Temperature Range |                            | $T_J, T_{stg}$    | -55~+150 | $^{\circ}\text{C}$ |

**Thermal Characteristics**

| Parameter                                   |                     | Symbol                | Value |     | Unit                 |
|---------------------------------------------|---------------------|-----------------------|-------|-----|----------------------|
|                                             |                     |                       | Typ   | Max |                      |
| Thermal Resistance from Junction to Ambient | $t \leq 10\text{s}$ | $R_{\theta JA}^{(5)}$ | 70    | 100 | $^{\circ}\text{C/W}$ |
|                                             | Steady State        |                       | 100   | 140 | $^{\circ}\text{C/W}$ |

# Typical Characteristics

## ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C unless otherwise specified)

### Static Characteristics

| Parameter                               | Symbol                           | Test Condition                                           | Value                 |      |      | Unit |
|-----------------------------------------|----------------------------------|----------------------------------------------------------|-----------------------|------|------|------|
|                                         |                                  |                                                          | Min                   | Typ  | Max  |      |
| Drain-source breakdown voltage          | V <sub>(BR)DSS</sub>             | V <sub>GS</sub> =0V, I <sub>D</sub> =250μA               | 30                    | -    | -    | V    |
| Zero gate voltage drain current         | I <sub>DSS</sub>                 | V <sub>DS</sub> =30V, V <sub>GS</sub> =0V                | T <sub>J</sub> =25°C  | -    | -    | 1.0  |
|                                         |                                  |                                                          | T <sub>J</sub> =125°C | -    | -    | 100  |
| Gate-body leakage current               | I <sub>GSS</sub>                 | V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V               | -                     | -    | 200  | nA   |
| Gate-threshold voltage                  | V <sub>GS(th)</sub>              | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA | 0.60                  | 0.85 | 1.50 | V    |
| Static drain-source on-state resistance | R <sub>DS(on)</sub> <sup>③</sup> | V <sub>GS</sub> =10V, I <sub>D</sub> =4A                 | T <sub>J</sub> =25°C  | -    | 19   | 30   |
|                                         |                                  |                                                          | T <sub>J</sub> =125°C | -    | 29   | 46   |
|                                         |                                  | V <sub>GS</sub> =4.5V, I <sub>D</sub> =4A                | -                     | 21   | 35   | mΩ   |
|                                         |                                  | V <sub>GS</sub> =2.5V, I <sub>D</sub> =3A                | -                     | 29   | 55   |      |
| Forward tranconductance                 | g <sub>FS</sub>                  | V <sub>DS</sub> =5V, I <sub>D</sub> =5A                  | -                     | 13.5 | -    | S    |

### Dynamic Characteristics<sup>④</sup>

|                              |                     |                                                                                       |   |      |   |    |
|------------------------------|---------------------|---------------------------------------------------------------------------------------|---|------|---|----|
| Input capacitance            | C <sub>iss</sub>    | V <sub>GS</sub> =0V, V <sub>DS</sub> =15V,<br>f=1MHz                                  | - | 756  | - | pF |
| Output capacitance           | C <sub>oss</sub>    |                                                                                       | - | 65   | - |    |
| Reverse transfer capacitance | C <sub>rss</sub>    |                                                                                       | - | 54   | - |    |
| Total gate charge            | Q <sub>g</sub>      | V <sub>GS</sub> =4.5V, V <sub>DS</sub> =10V, I <sub>D</sub> =5A                       | - | 8.1  | - | nC |
| Total gate charge            | Q <sub>g</sub>      | V <sub>GS</sub> =6V, V <sub>DS</sub> =10V, I <sub>D</sub> =5A                         | - | 10.8 | - |    |
| Gate charge at threshold     | Q <sub>G(th)</sub>  |                                                                                       | - | 0.8  | - |    |
| Gate-source charge           | Q <sub>gs</sub>     |                                                                                       | - | 1.6  | - |    |
| Gate-drain charge            | Q <sub>gd</sub>     |                                                                                       | - | 2.0  | - |    |
| Turn-on delay time           | t <sub>d(on)</sub>  | V <sub>DD</sub> =15V, V <sub>GS</sub> =10V,<br>I <sub>D</sub> =4A, R <sub>g</sub> =3Ω | - | 2.4  | - | ns |
| Turn-on rise time            | t <sub>r</sub>      |                                                                                       | - | 2.6  | - |    |
| Turn-off delay time          | t <sub>d(off)</sub> |                                                                                       | - | 17   | - |    |
| Turn-off fall time           | t <sub>f</sub>      |                                                                                       | - | 1.7  | - |    |

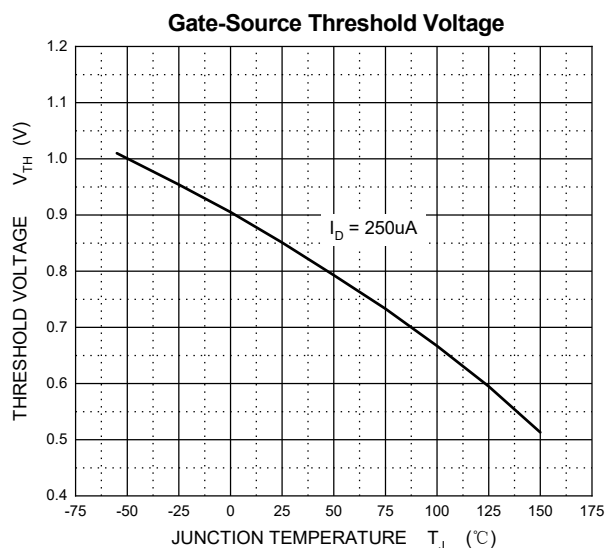
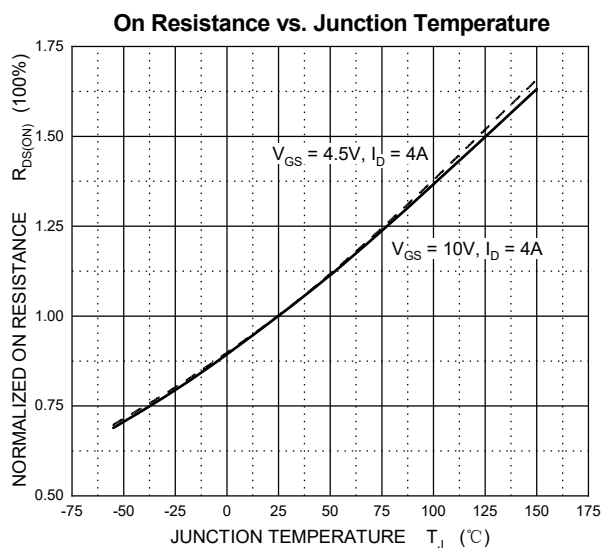
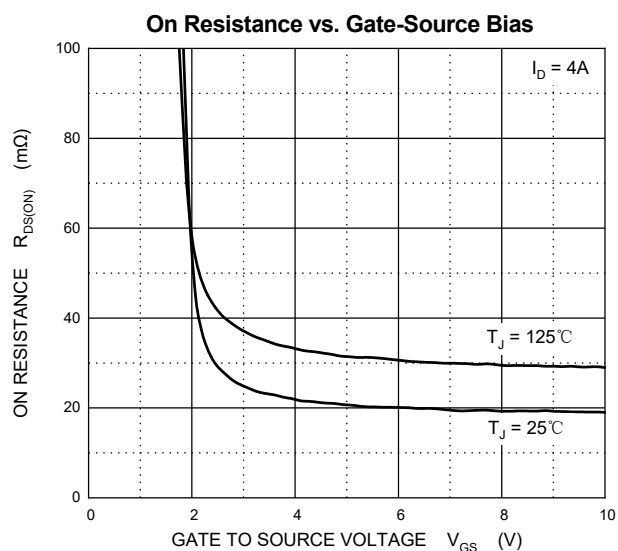
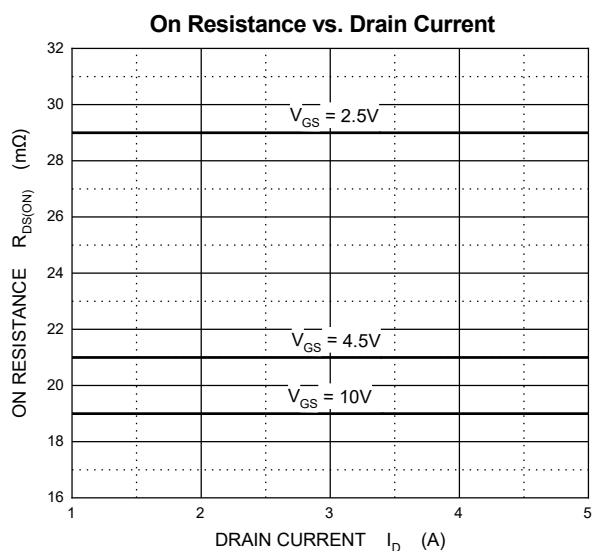
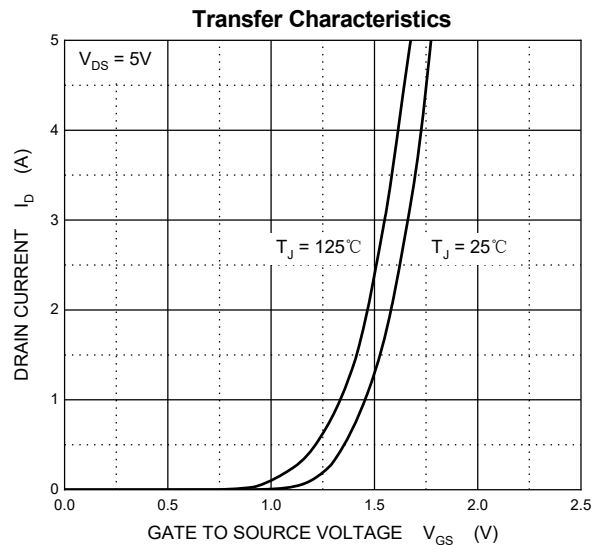
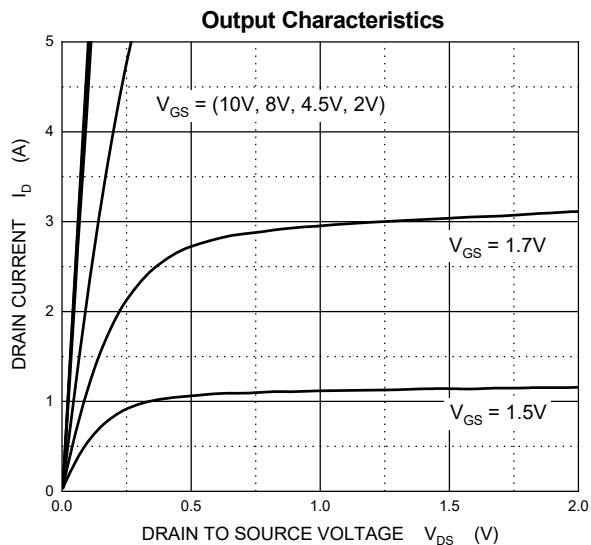
### Reverse Diode Characteristics

|                                               |                               |                                         |   |   |     |   |
|-----------------------------------------------|-------------------------------|-----------------------------------------|---|---|-----|---|
| Drain-source diode forward voltage            | V <sub>SD</sub> <sup>③</sup>  | V <sub>GS</sub> =0V, I <sub>S</sub> =1A | - | - | 1.0 | V |
| Continuous drain-source diode forward current | I <sub>S</sub> <sup>①</sup>   |                                         | - | - | 5   | A |
| Pulsed drain-source diode forward current     | I <sub>SM</sub> <sup>①②</sup> |                                         | - | - | 20  | A |

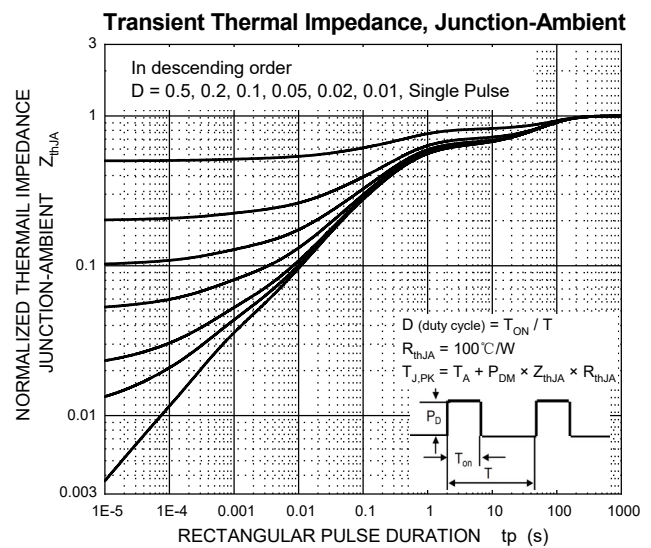
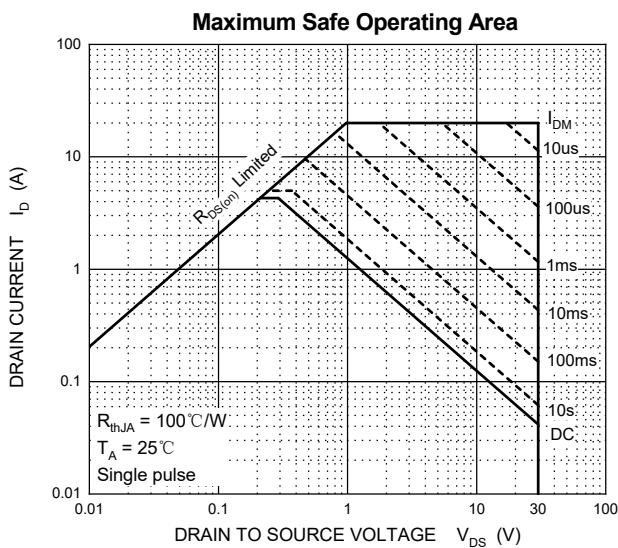
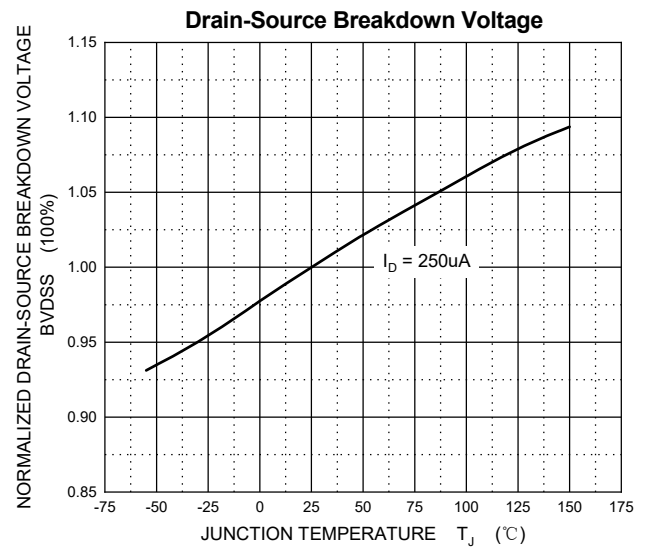
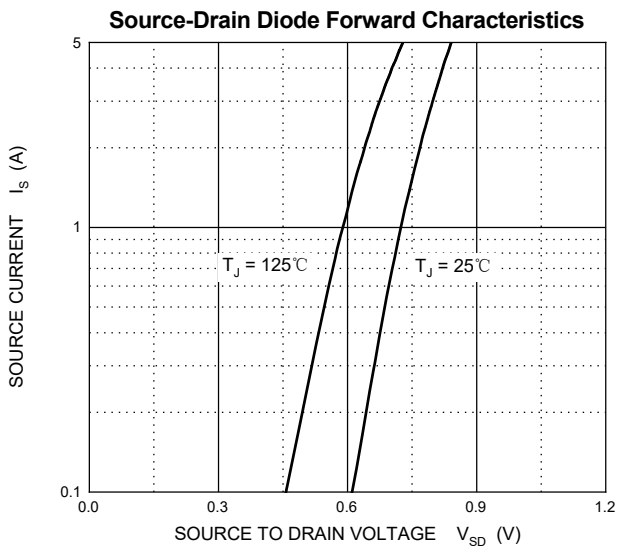
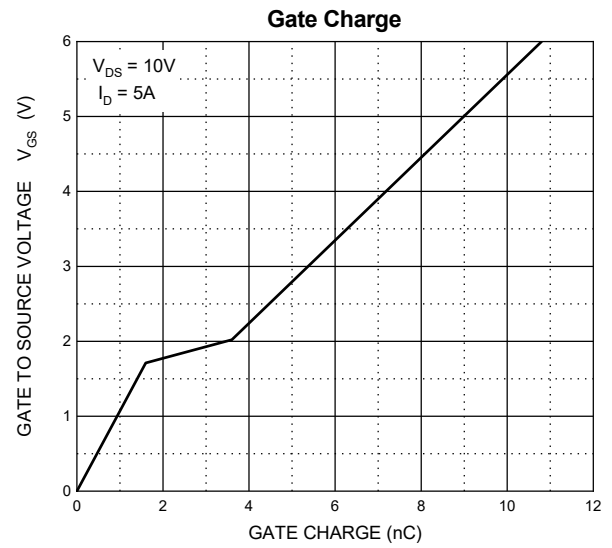
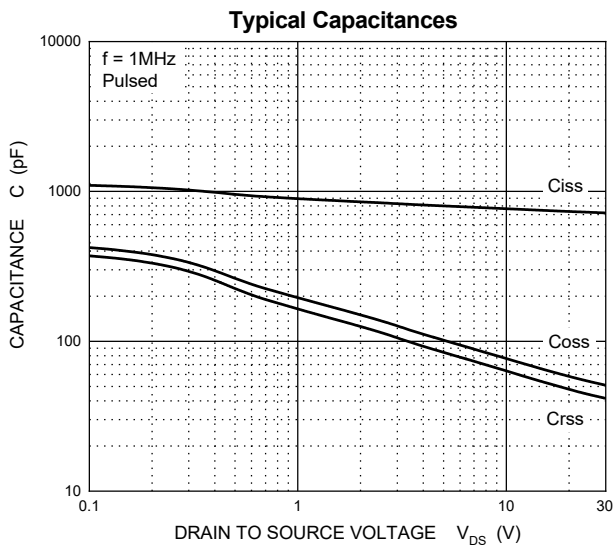
Notes:

- ①.Limited only by maximum temperature allowed.
- ②.P<sub>W</sub>≤300μs, Duty cycle ≤1%.
- ③.Pulse Test : Pulse Width ≤380μs, duty cycle ≤2%.
- ④.Guaranteed by design, not subject to production.
- ⑤.Device mounted on 1 in<sup>2</sup> FR-4 board with 2oz. double-sided Copper, in a still air environment with T<sub>A</sub>=25°C.The current rating is based on the t ≤10s thermal resistance rating.

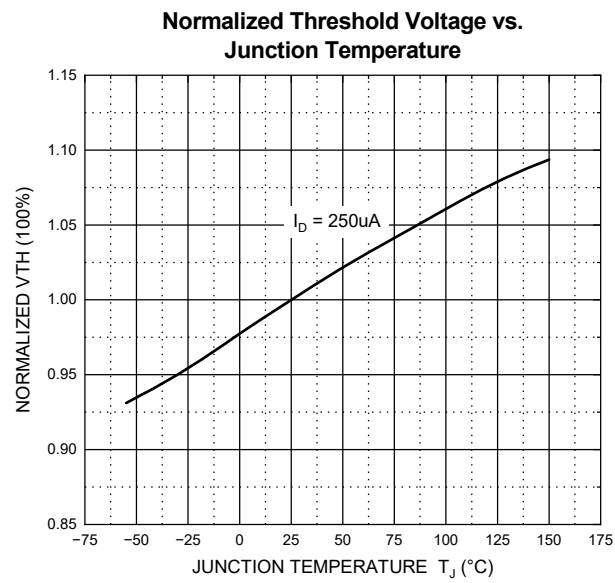
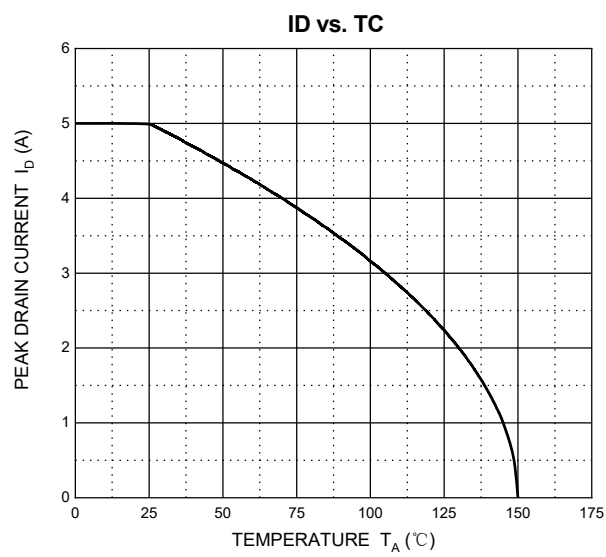
# Typical Characteristics



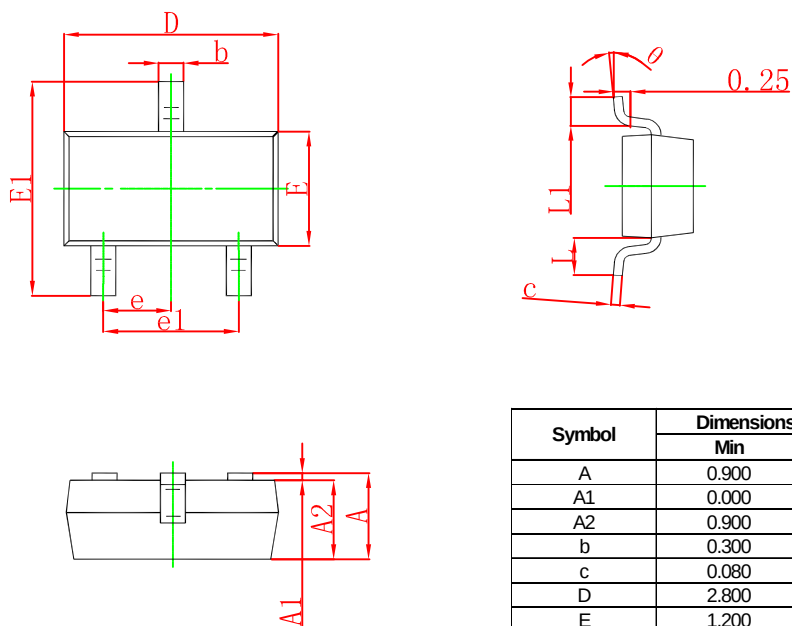
# Typical Characteristics



# Typical Characteristics

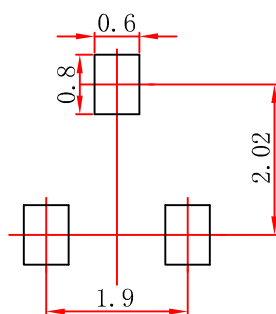


## SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.050 | 0.035                | 0.041 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.800                     | 3.000 | 0.110                | 0.118 |
| E      | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.950 TYP                 |       | 0.037 TYP            |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF                 |       | 0.022 REF            |       |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

## SOT-23 Suggested Pad Layout

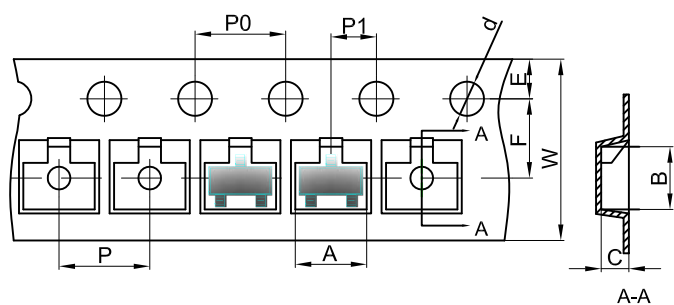


Note:  
 1. Controlling dimension: in millimeters.  
 2. General tolerance:  $\pm 0.05$  mm.  
 3. The pad layout is for reference purposes only.

### NOTICE

JSCJ reserves 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-23 Embossed Carrier Tape

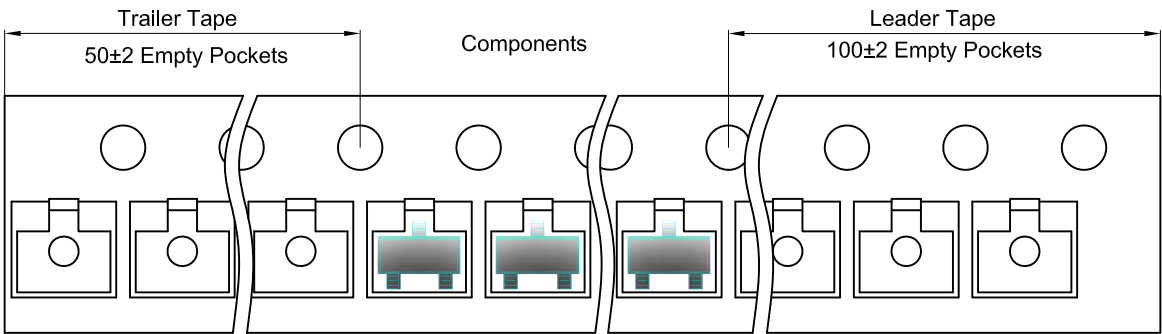


Packaging Description:

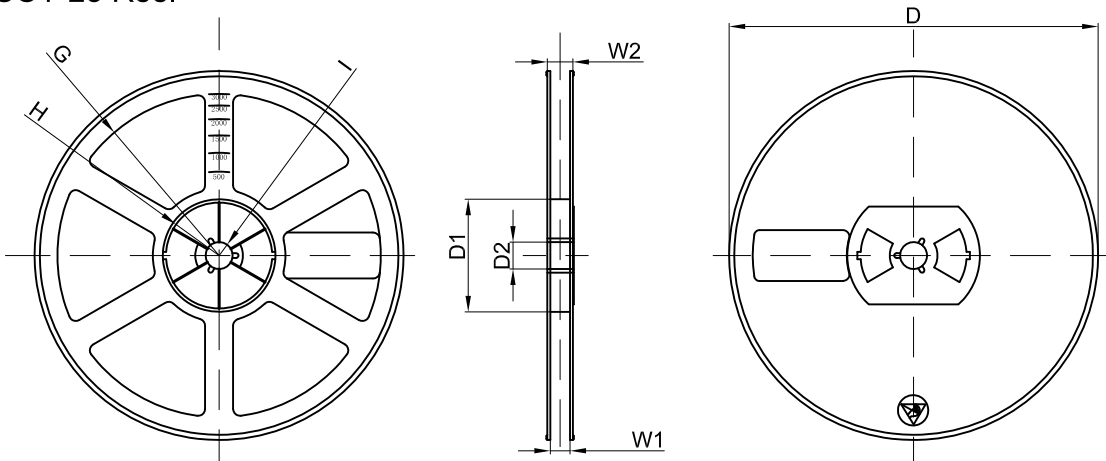
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in 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-23                       | 3.15 | 2.77 | 1.22 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

SOT-23 Tape Leader and Trailer



SOT-23 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     |          |