REASUNOS

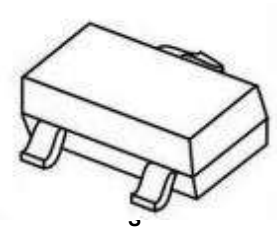
# RS3401E

## 30V P-Channel MOSFET

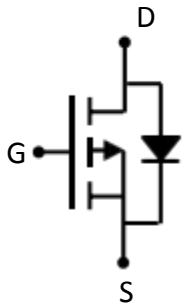
### Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | $I_D$ |
|---|---|---|
| -30V | 65mΩ@-10V | -4.2A |
| | 75mΩ@-4.5V | |
| | 90mΩ@-2.5V | |

SOT-23



Schematic diagram



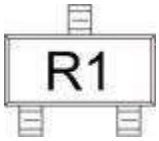

### Feature

- TrenchFET Power MOSFET
- Exceptional on-resistance and maximum DC current capability

### Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

### MARKING:




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

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | -30 | V |
| Gate-Source Voltage | $V_{GS}$ | ±12 | V |
| Continuous Drain Current | $I_D$ | -4.2 | A |
| Power Dissipation | $P_D$ | 0.35 | W |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 357 | ℃/W |
| Junction Temperature | $T_J$ | 150 | ℃ |
| Storage Temperature | $T_{STG}$ | -55~ +150 | ℃ |

## MOSFET ELECTRICAL CHARACTERISTICS($T_a$=25℃ unless otherwise noted)

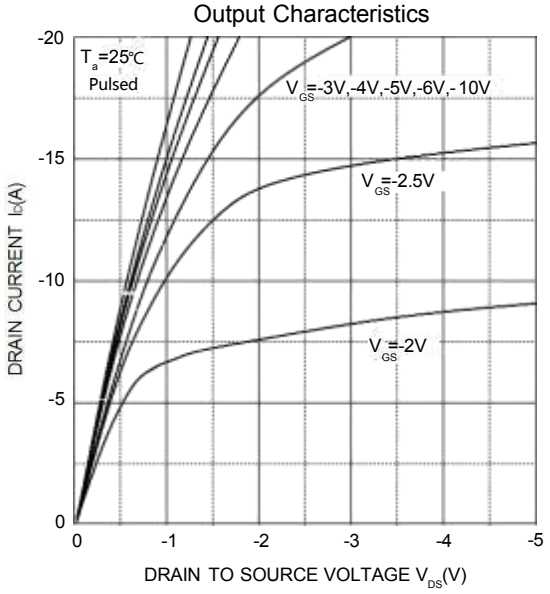
| Parameter | Symbol | Test Condition | Min | Type | Max | Unit |
|---|---|---|---|---|---|---|
| **Static Characteristics** | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS}$ = 0V, $I_D$=-250μA | -30 | | | V |
| Zero gate voltage drain current | $I_{DSS}$ | $V_{DS}$ =-24V,$V_{GS}$ = 0V | | | -1 | μA |
| Gate-body leakage current | $I_{GSS}$ | $V_{GS}$ =±12V, $V_{DS}$ = 0V | | | ±100 | nA |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS}$ =$V_{GS}$, $I_D$ =-250μA | -0.7 | -0.9 | -1.3 | V |
| Drain-source on-resistance(1) | $R_{DS(on)}$ | $V_{GS}$=-10V, $I_D$=-4.2A | | 50 | 65 | mΩ |
| | | $V_{GS}$=-4.5V, $I_D$=-4A | | 60 | 75 | |
| | | $V_{GS}$ =-2.5V, $I_D$ =-1A | | 70 | 90 | |
| Forward tranconductance(1) | $g_{FS}$ | $V_{DS}$ =-5V, $I_D$ =-4.2A | | 10 | | S |
| **Dynamic characteristics(2)** | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$ =-15V,$V_{GS}$ =0V,f =1MHz | | 954 | | pF |
| Output Capacitance | $C_{oss}$ | | | 115 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 77 | | |
| **Switching characteristics(2)** | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS}$=-10V,$V_{DS}$=-15V, $R_L$=3.6Ω,$R_{GEN}$=6Ω | | | 6.3 | ns |
| Turn-on rise time | $t_r$ | | | | 3.2 | |
| Turn-off delay time | $t_{d(off)}$ | | | | 38.2 | |
| Turn-off fall time | $t_f$ | | | | 12 | |
| **Source-Drain Diode characteristics** | | | | | | |
| Diode forward current | $I_S$ | | | | -2 | A |
| Diode pulsed forward current | $I_{SM}$ | | | | -25 | A |
| Diode Forward voltage(1) | $V_{DS}$ | $V_{GS}$ =0V, $I_S$=-4.2A | | | -1.2 | V |

**Notes:**

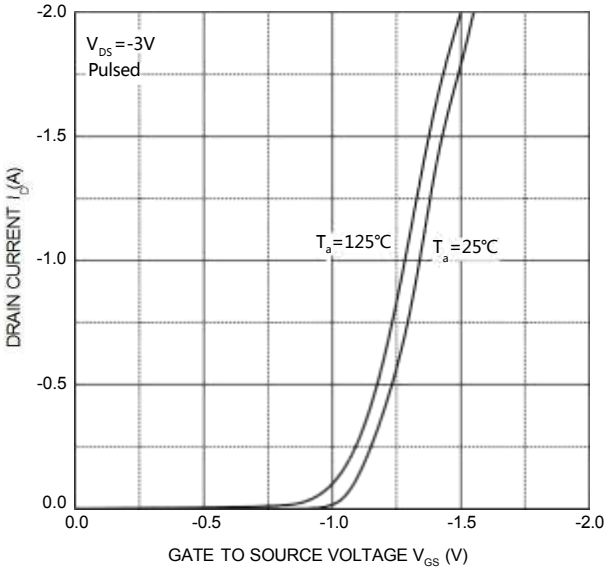
1. Pulse test; pulse width≤300μs, duty cycle≤2%.
2. Guaranteed by design, not subject to production testing.

## Typical Electrical and Thermal Characteristics

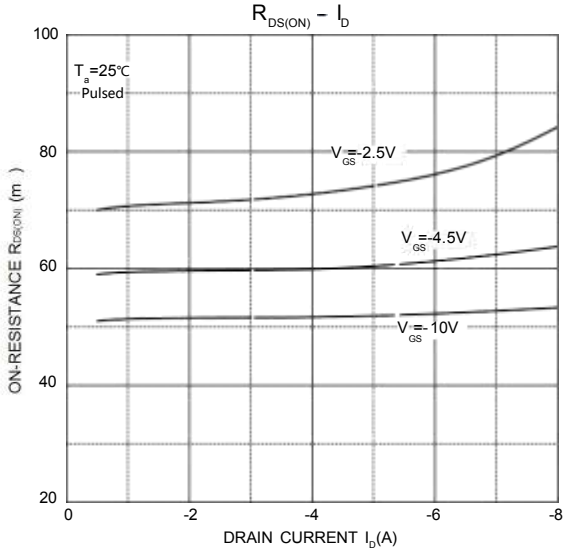
Output Characteristics



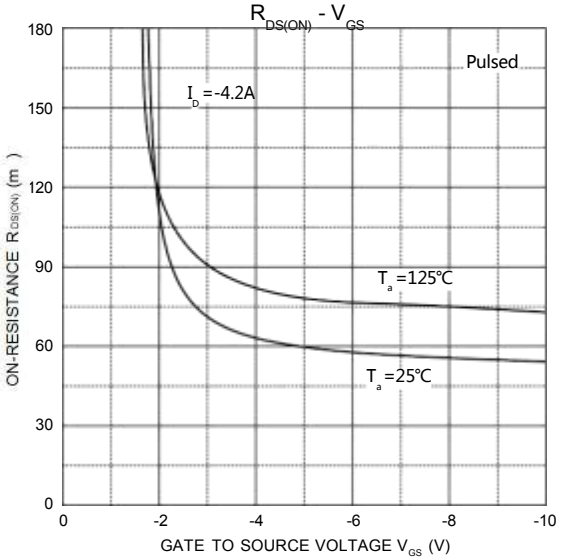

Transfer Characteristics



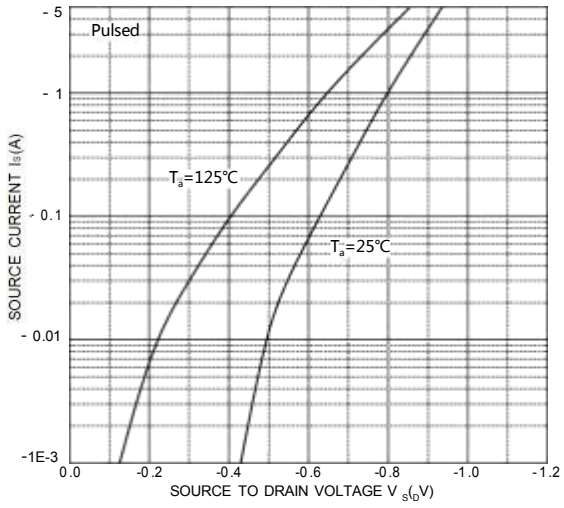

$R_{DS(ON)}$ - $I_D$



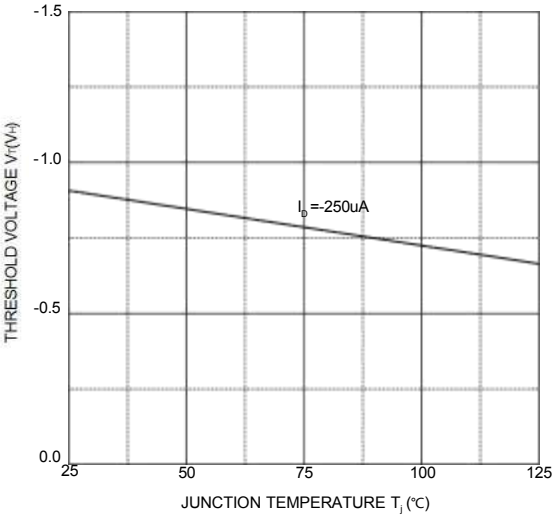

$R_{DS(ON)}$ - $V_{GS}$



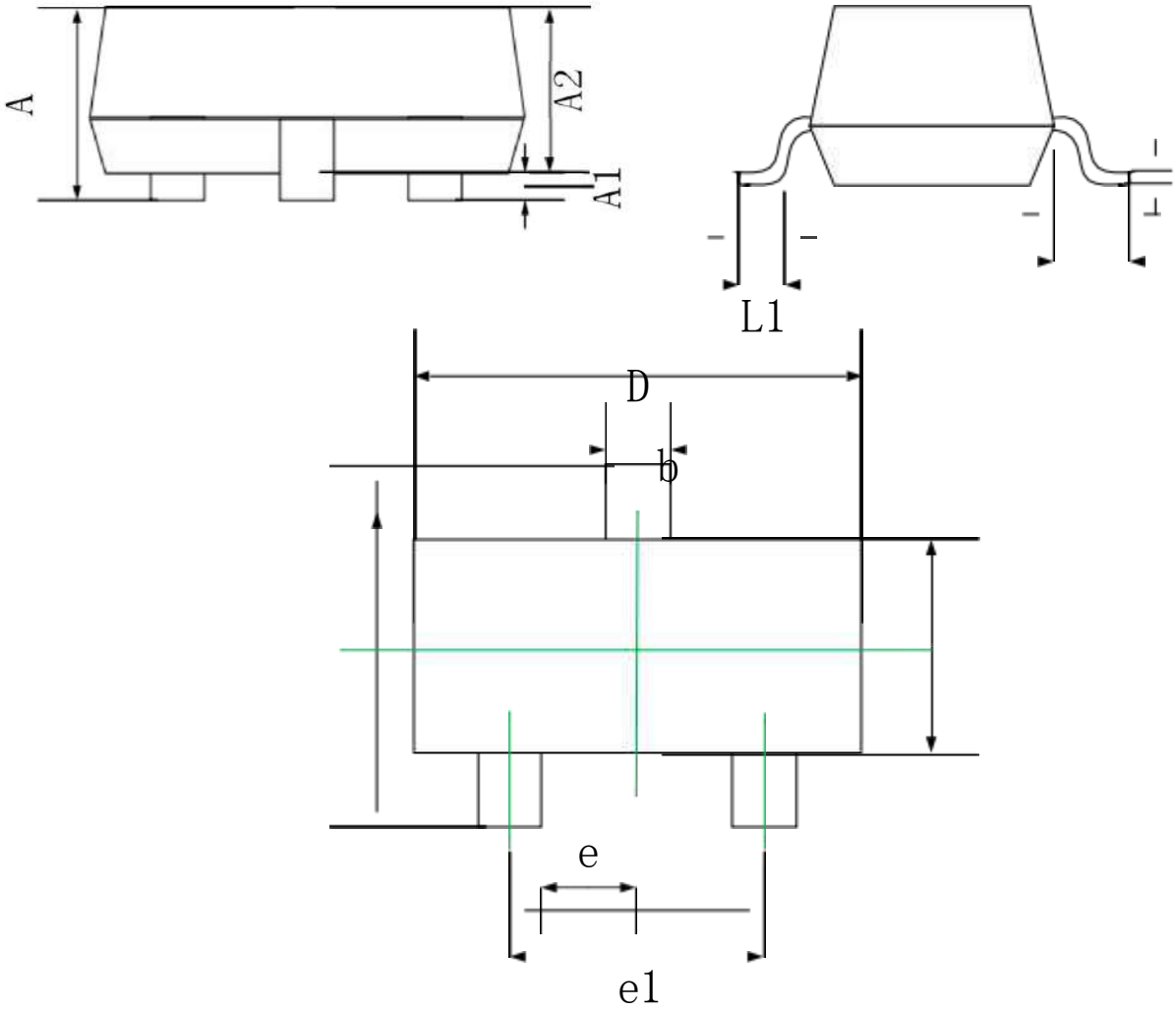

$I_S$- $V_{SD}$




Threshold Voltage



**SOT-23 Package Information**

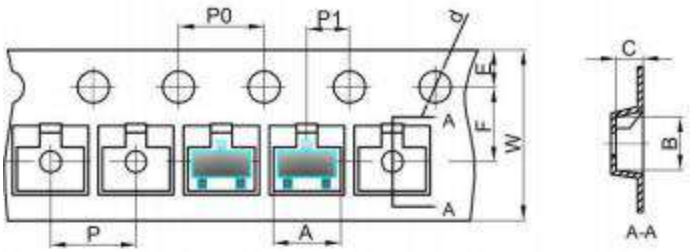



| Symbol | Dimensions In Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 0.90 | 1.15 |
| A1 | 0.00 | 0.10 |
| A2 | 0.90 | 1.05 |
| b | 0.30 | 0.50 |
| c | 0.08 | 0.15 |
| D | 2.80 | 3.00 |
| E | 1.20 | 1.40 |
| E1 | 2.25 | 2.55 |
| e | 0.95 REF. | |
| e1 | 1.80 | 2.00 |
| L | 0.55 REF. | |
| L1 | 0.30 | 0.50 |

**SOT-23 Tape and Reel**

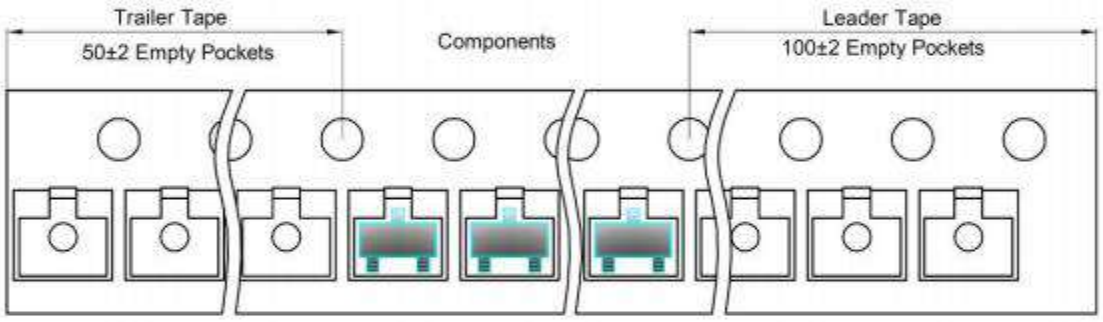
# SOT-23 Tape and reel

## SOT-23 Embossed Carrier Tape

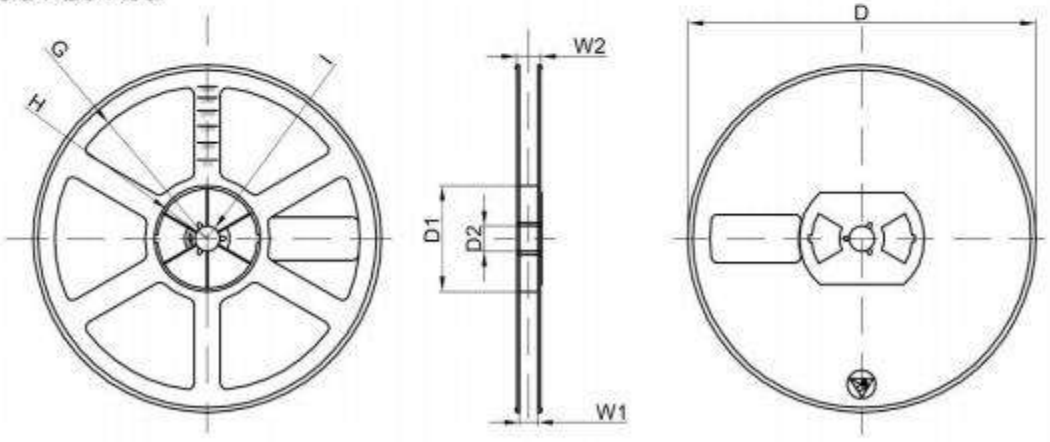



| Dimensions are in millimeter | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| SOT-23 | 3.15 | 2.77 | 1.22 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

## 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 | 30,000 pcs | 203×203×195 | 120,000 pcs | 438×438×220 | |

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