



# PJV1702

## 20V N-Channel MOSFET

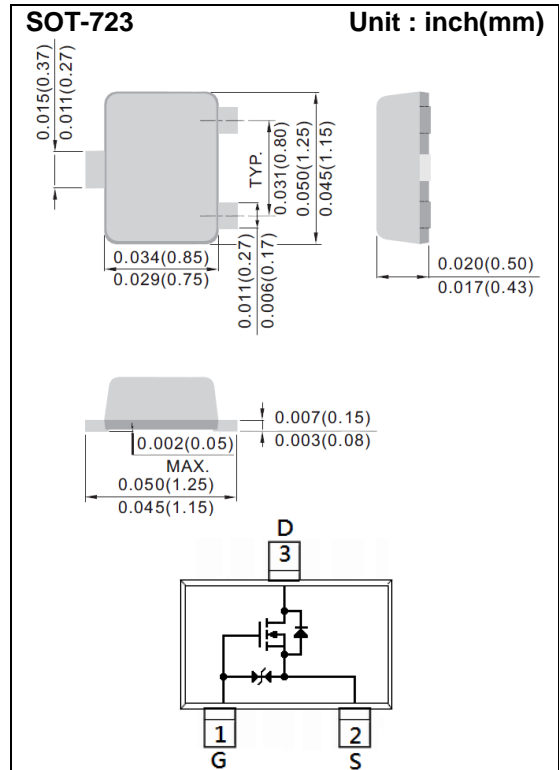
**Voltage** 20 V **Current** 0.65 A

### Features

- Switching with Low RDS(ON)
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. (Halogen Free)

### Mechanical Data

- Case: SOT-723 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00005 ounce, 0.0013 gram
- Marking: KF



### Maximum Ratings and Thermal Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER  | SYMBOL          | LIMIT                             | UNITS                       |                        |
|--|-----------------|-----------------------------------|-----------------------------|------------------------|
| Drain-Source Voltage                             | $V_{DS}$        | 20                                | V                           |                        |
| Gate-Source Voltage                              | $V_{GS}$        | $\pm 12$                          | V                           |                        |
| Continuous Drain Current                         | $I_D$           | 0.65                              | A                           |                        |
| Pulsed Drain Current                             | $I_{DM}$        | 1.3                               | A                           |                        |
| Power Dissipation                                | $P_D$           | $T_a=25^{\circ}\text{C}$          | 150                         | mW                     |
|  |                 | Derate above $25^{\circ}\text{C}$ | 1.2                         | mW/ $^{\circ}\text{C}$ |
| Operating Junction and Storage Temperature Range | $T_J, T_{STG}$  | -55~150                           | $^{\circ}\text{C}$          |                        |
| Typical Thermal resistance                       | $R_{\theta JA}$ | 833                               | $^{\circ}\text{C}/\text{W}$ |                        |
| - Junction to Ambient (Note 1)                   |                 |                                   |                             |                        |



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## Electrical Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER                        | SYMBOL       | TEST CONDITION  | MIN. | TYP.    | MAX.     | UNITS    |
|----------------------------------|--------------|---|------|---------|----------|----------|
| <b>Static</b> (Note 2)           |              |   |      |         |          |          |
| Drain-Source Breakdown Voltage   | $BV_{DSS}$   | $V_{GS}=0V, I_D=250\mu A$   | 20   | -       | -        | V        |
| Gate Threshold Voltage           | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$   | 0.35 | 0.72    | 1.0      | V        |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS}=4.5V, I_D=0.65A$  | -    | 0.15    | 0.38     | $\Omega$ |
|                                  |              | $V_{GS}=2.5V, I_D=0.55A$  | -    | 0.21    | 0.45     |          |
|                                  |              | $V_{GS}=1.8V, I_D=0.45A$  | -    | 0.31    | 0.80     |          |
| Zero Gate Voltage Drain Current  | $I_{DSS}$    | $V_{DS}=20V, V_{GS}=0V$   | -    | 0.01    | 1        | $\mu A$  |
| Gate-Source Leakage Current      | $I_{GSS}$    | $V_{GS}=\pm 12V, V_{DS}=0V$   | -    | $\pm 4$ | $\pm 50$ | $\mu A$  |
| Forward Transconductance         | $g_{FS}$     | $V_{DS}=10V, I_D=0.65A$   | -    | 1.9     | -        | S        |
| Diode Forward Voltage            | $V_{SD}$     | $I_S=0.15A, V_{GS}=0V$  | -    | 0.63    | 1.2      | V        |
| <b>Dynamic</b> (Note 3)          |              |   |      |         |          |          |
| Input Capacitance                | $C_{iss}$    | $V_{DS}=16V, V_{GS}=0V,$<br>$f=1.0MHz$                                  | -    | 62      | -        | $\mu F$  |
| Output Capacitance               | $C_{oss}$    |   | -    | 24      | -        |          |
| Reverse Transfer Capacitance     | $C_{rss}$    |   | -    | 12      | -        |          |
| Turn-On Delay Time               | $t_{d(on)}$  | $V_{DD}=10V, I_D=500mA,$<br>$V_{GS}=4.5V,$<br>$R_G=10\Omega$ (Note 1,2) | -    | 3       | -        | ns       |
| Turn-On Rise Time                | $t_r$        |   | -    | 23      | -        |          |
| Turn-Off Delay Time              | $t_{d(off)}$ |   | -    | 12      | -        |          |
| Turn-Off Fall Time               | $t_f$        |   | -    | 19      | -        |          |

**NOTES :**

1.  $R_{\theta JA}$  is surface mounted on a 1 inch FR-4 with 2oz. square pad of copper
2. Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$
3. Guaranteed by design, not subject to production testing.



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## TYPICAL CHARACTERISTIC CURVES

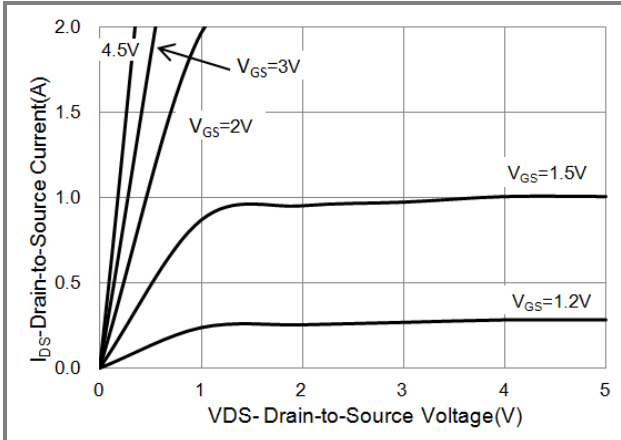


Fig.1 Output Characteristics

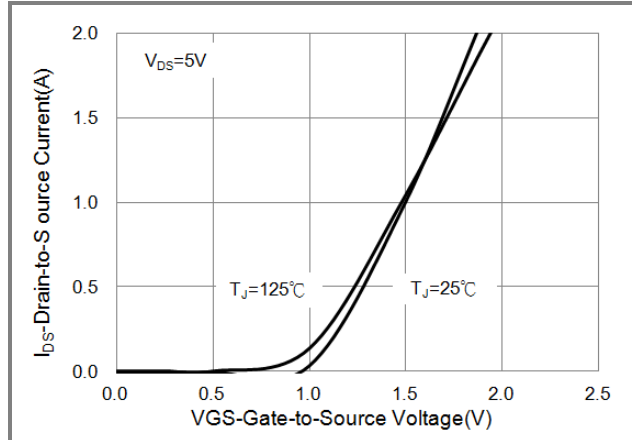


Fig.2 Transfer Characteristics

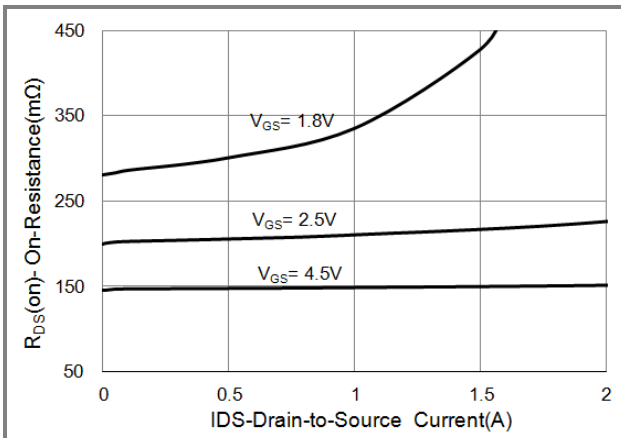


Fig.3 On-Resistance vs. Drain Current

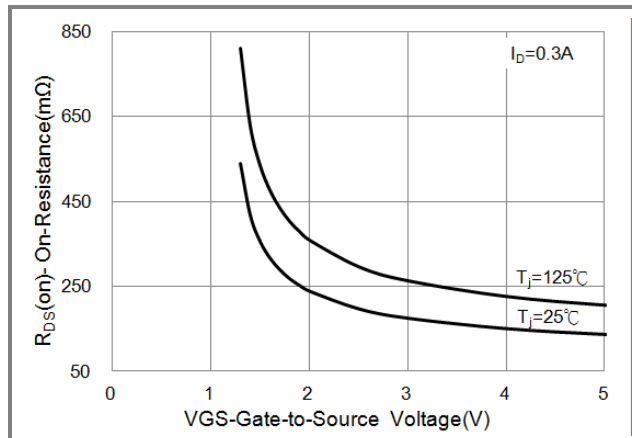


Fig.4 On-Resistance Variation with  $V_{GS}$ .

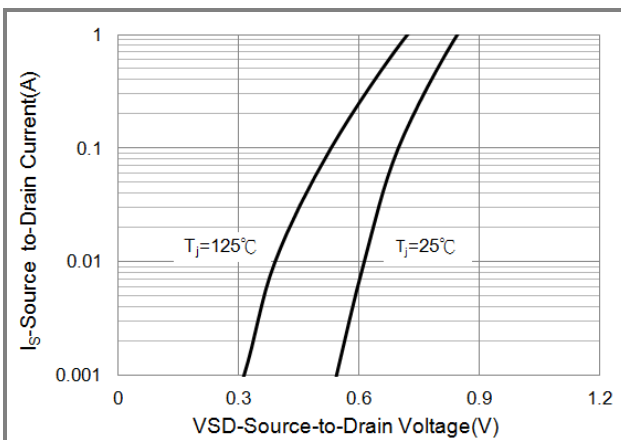


Fig.5 Body Diode Characteristics

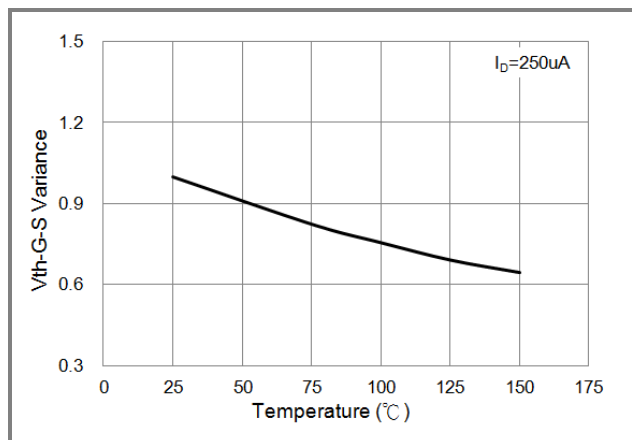


Fig.6 Threshold Voltage

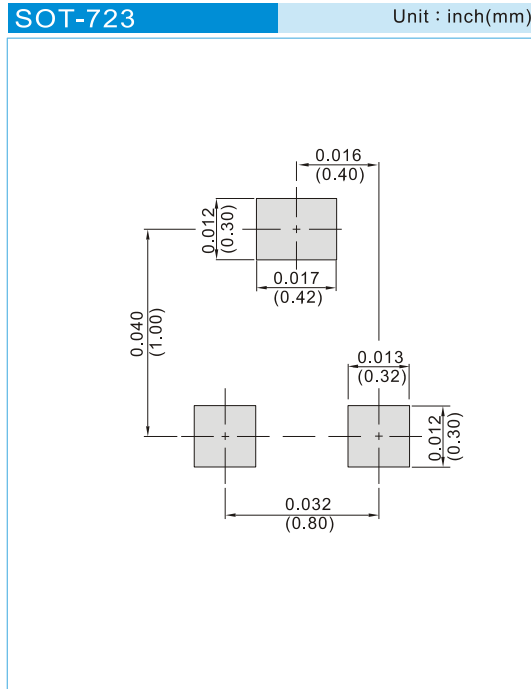


# PJV1702

## PART NO PACKING CODE VERSION

| Part No Packing Code | Package Type | Packing type     | Marking | Version      |
|----------------------|--------------|------------------|---------|--------------|
| PJV1702_R1_00001     | SOT-723      | 8K pcs / 7" reel | KF      | Halogen free |

## MOUNTING PAD LAYOUT





## PJV1702

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