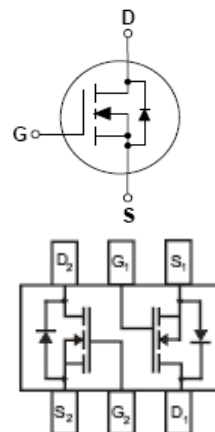
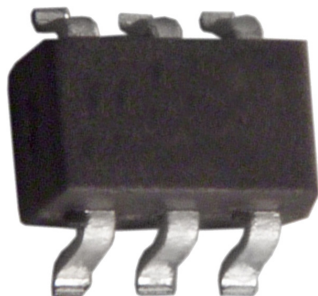


# N-Channel Enhancement Mode Field Effect Transistor

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**SOT-363**

## Features:

- Dual N-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage

## Applications:

- N-Channel Enhancement Mode Effect Transistor
- Switching Application

## Maximum Ratings:

Ratings at 25°C unless otherwise specified.

| Parameter                                                                | Symbol          | Value                | Units |
|--------------------------------------------------------------------------|-----------------|----------------------|-------|
| Drain-Source voltage                                                     | $V_{DS}$        | 60                   | V     |
| Drain-Gate voltage ( $R_{GS} \leq 1M\Omega$ )                            | $V_{DGR}$       | 60                   | V     |
| Gate -source voltage - continuous<br>-Non Repetitive ( $t_p < 50\mu s$ ) | $V_{GSS}$       | $\pm 20$<br>$\pm 40$ | V     |
| Maximum drain current -continuous<br>-Pulsed                             | $I_D$           | 115<br>800           | mA    |
| Power dissipation                                                        | $P_D$           | 200                  | mW    |
| Thermal resistance, junction-to-ambient                                  | $R_{\theta JA}$ | 625                  | °C/W  |
| Junction and storage temperature                                         | $T_J, T_{stg}$  | -55 to +150          | °C    |

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# N-Channel Enhancement Mode Field Effect Transistor

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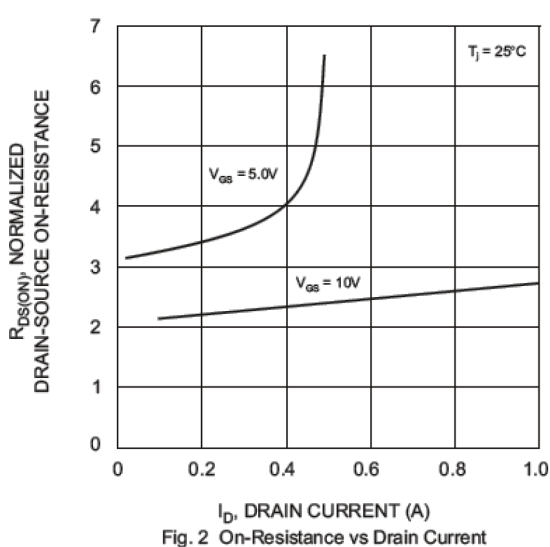
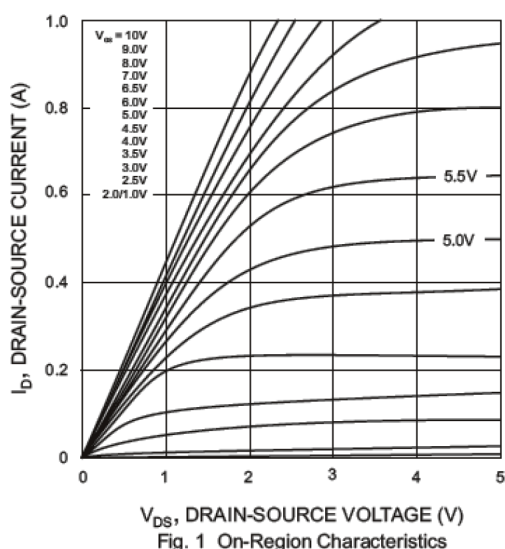
## Electrical Characteristics:

Ratings at 25°C unless otherwise specified

| Parameter                          | Symbol        | Test conditions                                                                    | Min. | Typ. | Max. | Unit     |
|------------------------------------|---------------|------------------------------------------------------------------------------------|------|------|------|----------|
| Drain-source breakdown voltage     | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=10\mu A$                                                           | 60   | 70   | -    | V        |
| Gate threshold voltage             | $V_{GS(th)}$  | $V_{DS}=V_{GS}, I_D=250\mu A$                                                      | 1    | -    | 2    |          |
| Gate-body leakage Forward          | $I_{GSS}$     | $V_{DS}=0V, V_{GS}=20V$                                                            | -    | -    | 100  | nA       |
| Reverse                            |               | $V_{DS}=0V, V_{GS}=-20V$                                                           | -    | -    | -100 |          |
| Zero gate voltage drain current    | $I_{DSS}$     | $V_{DS}=60V, V_{GS}=0V$                                                            | -    | -    | 1    | $\mu A$  |
|                                    |               | $V_{DS}=60V, V_{GS}=0V, T_J=125^\circ C$                                           | -    | -    | 500  |          |
| On-state drain current             | $I_{D(ON)}$   | $V_{GS}=10V, V_{DS}=7.5V$                                                          | 0.5  | 1    | -    | A        |
| Drain-source on-voltage            | $V_{DS(ON)}$  | $V_{GS}=10V, I_D=500mA$                                                            | -    | 0.6  | 3.75 | V        |
|                                    |               | $V_{GS}=5V, I_D=50mA$                                                              | -    | 0.09 | 1.5  |          |
| Forward transconductance           | $g_{FS}$      | $V_{DS}=10V, I_D=200mA$                                                            | 80   | -    | -    | mS       |
| Static drain-source on-resistance  | $R_{DS(ON)}$  | $V_{GS}=5V, I_D=50mA$                                                              | -    | 3.2  | 7.5  | $\Omega$ |
|                                    |               | $V_{GS}=10V, I_D=500mA, T_J=125^\circ C$                                           | -    | 4.4  | 13.5 |          |
| On-state drain current             | $I_{D(ON)}$   | $V_{GS}=10V, V_{DS}=7.5V$                                                          | 0.5  | 1    | -    | A        |
| Drain-source diode forward voltage | $V_{SD}$      | $V_{GS}=0V, I_D=115mA$                                                             | -    | 0.88 | 1.5  | V        |
| Input capacitance                  | $C_{ISS}$     | $V_{DS}=25V, V_{GS}=0V, f=1MHz$                                                    | -    | 20   | 50   | pF       |
| Output capacitance                 | $C_{OSS}$     |                                                                                    | -    | 11   | 25   |          |
| Reverse transfer capacitance       | $C_{RSS}$     |                                                                                    | -    | 2    | 5    |          |
| Turn-on delay time                 | $t_{D(ON)}$   | $V_{DD} = 30V, I_D = 0.2A,$<br>$R_L = 150\Omega, V_{GS} = 10V, R_{GEN} = 25\Omega$ | -    | 7    | 20   | ns       |
| Turn-off delay time                | $t_{D(OFF)}$  |                                                                                    | -    | 11   | 20   | ns       |

## Typical Characteristics:

$T_A = 25^\circ C$  unless otherwise specified



# N-Channel Enhancement Mode Field Effect Transistor

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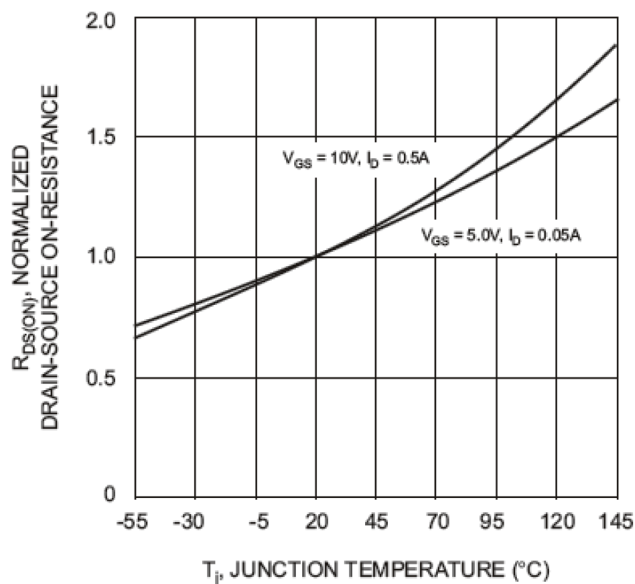


Fig. 3 On-Resistance vs. Junction Temperature

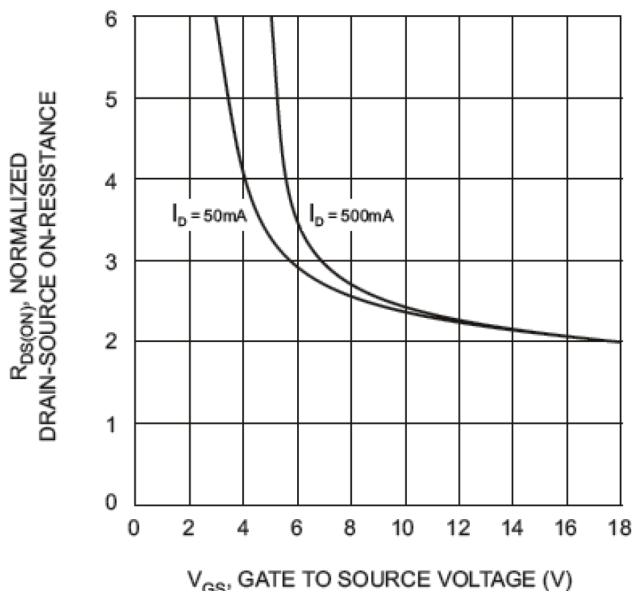
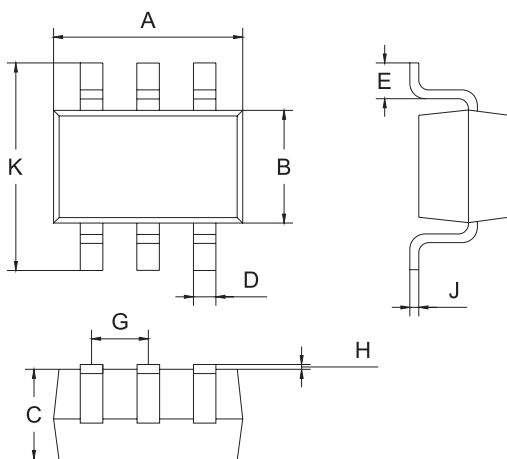


Fig. 4 On-Resistance vs. Gate-Source Voltage

## Package Outline:

Plastic surface mounted package



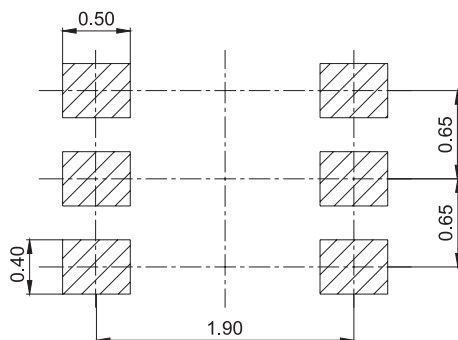
| SOT-363 |           |      |
|---------|-----------|------|
| Dim.    | Min.      | Max. |
| A       | 2         | 2.2  |
| B       | 1.15      | 1.35 |
| C       | 0.95 Typ. |      |
| D       | 0.25 Typ. |      |
| E       | 0.25      | 0.4  |
| G       | 0.6       | 0.7  |
| H       | 0.02      | 0.1  |
| J       | 0.1 Typ.  |      |
| K       | 2.2       | 2.4  |

Dimensions : Millimetres

# N-Channel Enhancement Mode Field Effect Transistor

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## Soldering Footprint:



Dimensions : Millimetres

## Package Information:

| Device      | Package | Shipping            |
|-------------|---------|---------------------|
| 2N7002DW-TR | SOT-363 | 3,000 / Tape & Reel |

## Part Number Table

| Description                                           | Part Number |
|-------------------------------------------------------|-------------|
| N-Channel Enhancement Mode<br>Field Effect Transistor | 2N7002DW-TR |

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