



SANYO Semiconductors

# DATA SHEET

## 2SK4074LS — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

### Features

- Ultralow ON-resistance.
- Motor drive.
- Avalanche resistance guarantee.

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

| Parameter                          | Symbol           | Conditions             | Ratings     | Unit |
|------------------------------------|------------------|------------------------|-------------|------|
| Drain-to-Source Voltage            | V <sub>DSS</sub> |                        | 75          | V    |
| Gate-to-Source Voltage             | V <sub>GSS</sub> |                        | ±20         | V    |
| Drain Current (DC)                 | I <sub>D</sub>   |                        | 76          | A    |
| Drain Current (Pulse)              | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1% | 304         | A    |
| Allowable Power Dissipation        | P <sub>D</sub>   |                        | 2.0         | W    |
|                                    |                  | T <sub>c</sub> =25°C   | 40          | W    |
| Channel Temperature                | T <sub>ch</sub>  |                        | 150         | °C   |
| Storage Temperature                | T <sub>stg</sub> |                        | -55 to +150 | °C   |
| Avalanche Energy (Single Pulse) *1 | E <sub>AS</sub>  |                        | 680         | mJ   |
| Avalanche Current *2               | I <sub>AV</sub>  |                        | 65          | A    |

Note : \*1 V<sub>DD</sub>=30V, L=200μH, I<sub>AV</sub>=65A

\*2 L≤200μH, Single pulse

Marking : K4074

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**SANYO Semiconductor Co., Ltd.**

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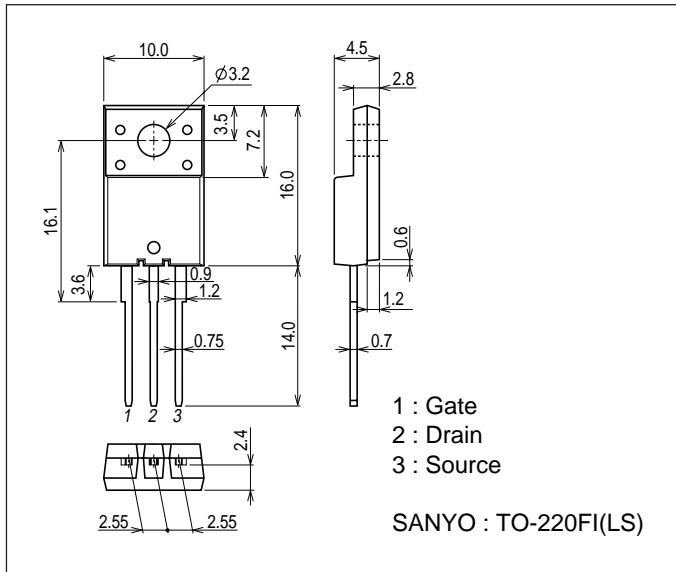
# 2SK4074LS

## Electrical Characteristics at Ta=25°C

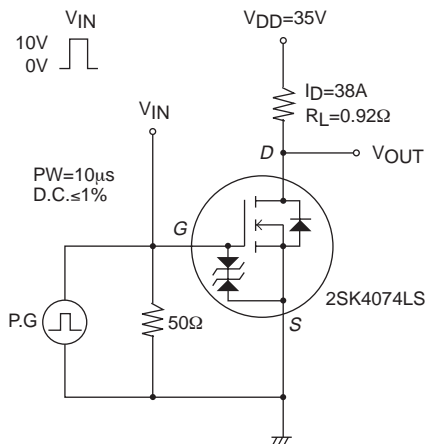
| Parameter                                  | Symbol        | Conditions                        | Ratings |       |          | Unit      |
|--|---------------|-----------------------------------|---------|-------|----------|-----------|
|  |               |                                   | min     | typ   | max      |           |
| Drain-to-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $I_D=1mA, V_{GS}=0V$              | 75      |       |          | V         |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS}=75V, V_{GS}=0V$           |         |       | 1        | $\mu A$   |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS}=\pm 16V, V_{DS}=0V$       |         |       | $\pm 10$ | $\mu A$   |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS}=10V, I_D=1mA$             | 1.2     |       | 2.6      | V         |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS}=10V, I_D=38A$             | 44      | 73    |          | S         |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D=38A, V_{GS}=10V$             |         | 5.2   | 6.8      | $m\Omega$ |
|  | $R_{DS(on)2}$ | $I_D=38A, V_{GS}=4V$              |         | 6.2   | 8.7      | $m\Omega$ |
| Input Capacitance                          | $C_{iss}$     | $V_{DS}=20V, f=1MHz$              |         | 12200 |          | pF        |
| Output Capacitance                         | $C_{oss}$     | $V_{DS}=20V, f=1MHz$              |         | 950   |          | pF        |
| Reverse Transfer Capacitance               | $C_{rss}$     | $V_{DS}=20V, f=1MHz$              |         | 730   |          | pF        |
| Turn-ON Delay Time                         | $t_{d(on)}$   | See specified Test Circuit.       |         | 80    |          | ns        |
| Rise Time                                  | $t_r$         | See specified Test Circuit.       |         | 450   |          | ns        |
| Turn-OFF Delay Time                        | $t_{d(off)}$  | See specified Test Circuit.       |         | 900   |          | ns        |
| Fall Time                                  | $t_f$         | See specified Test Circuit.       |         | 600   |          | ns        |
| Total Gate Charge                          | $Q_g$         | $V_{DS}=35V, V_{GS}=10V, I_D=76A$ |         | 220   |          | nC        |
| Gate-to-Source Charge                      | $Q_{gs}$      | $V_{DS}=35V, V_{GS}=10V, I_D=76A$ |         | 40    |          | nC        |
| Gate-to-Drain "Miller" Charge              | $Q_{gd}$      | $V_{DS}=35V, V_{GS}=10V, I_D=76A$ |         | 50    |          | nC        |
| Diode Forward Voltage                      | $V_{SD}$      | $I_S=76A, V_{GS}=0V$              |         | 0.9   | 1.2      | V         |

## Package Dimensions

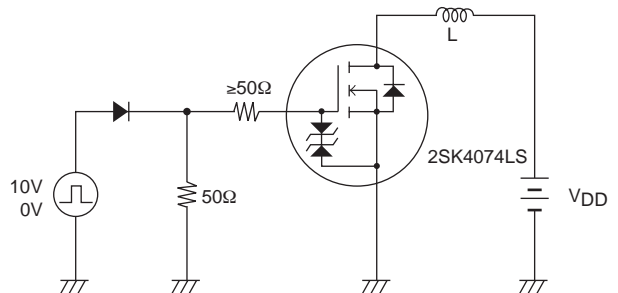
unit : mm (typ)  
7509-002



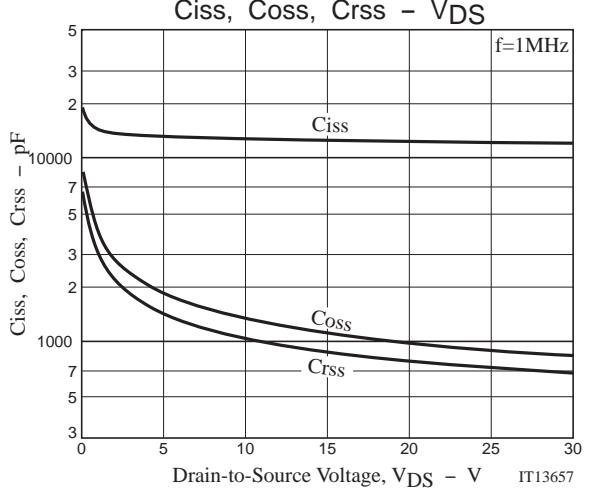
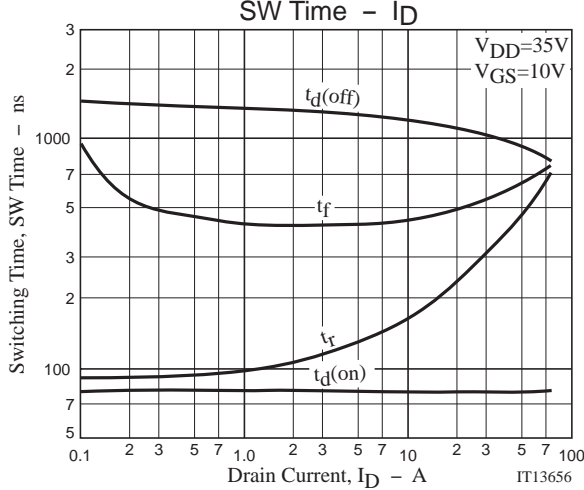
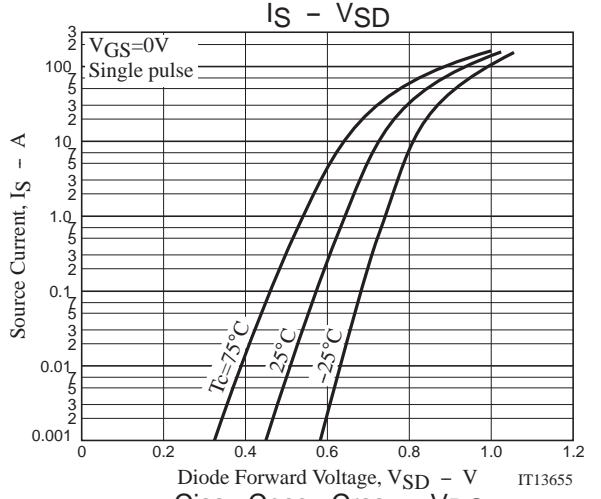
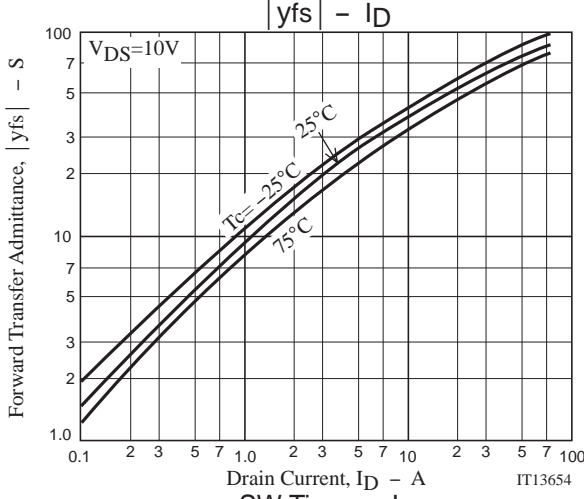
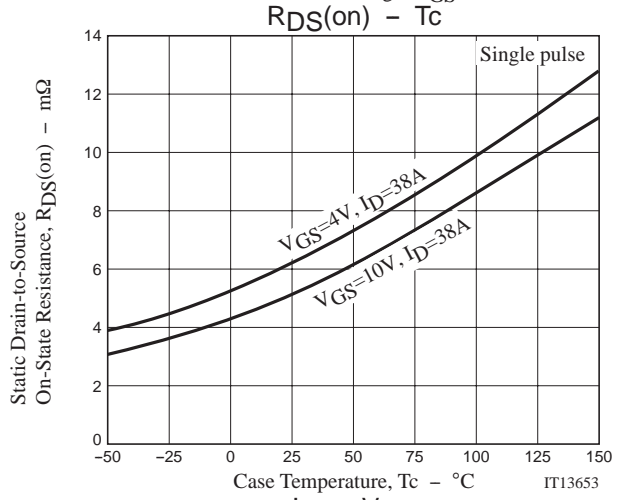
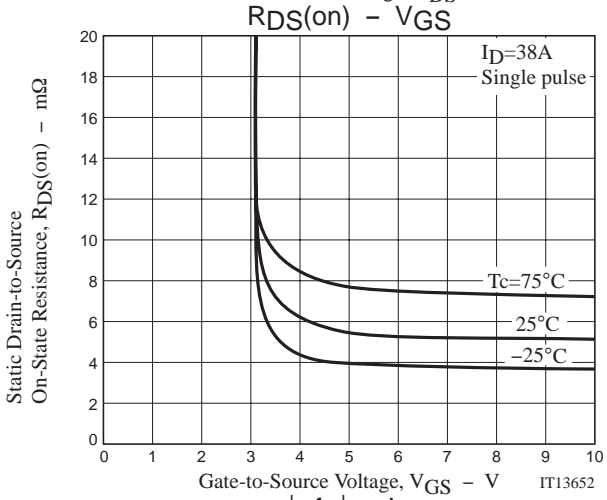
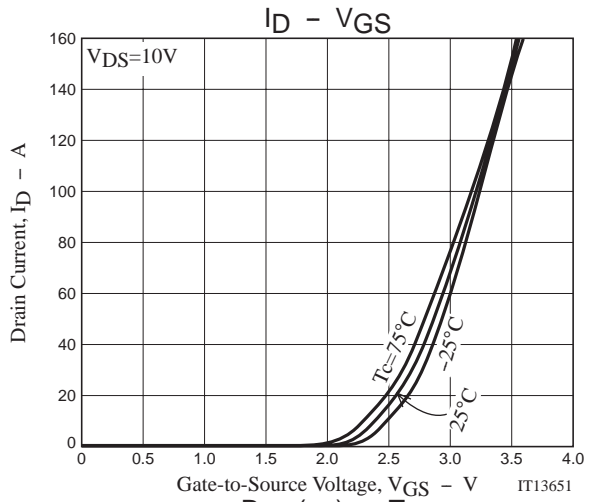
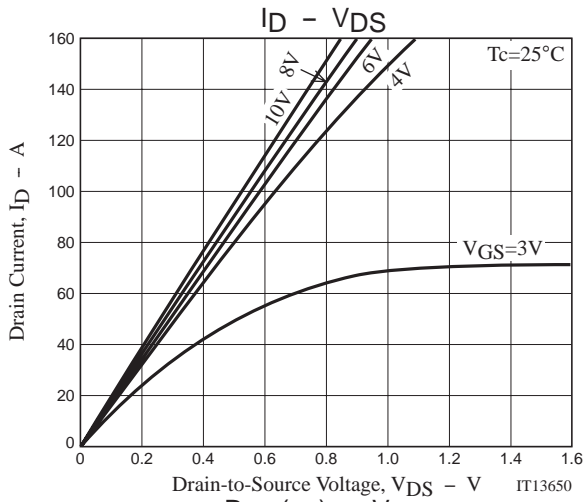
## Switching Time Test Circuit



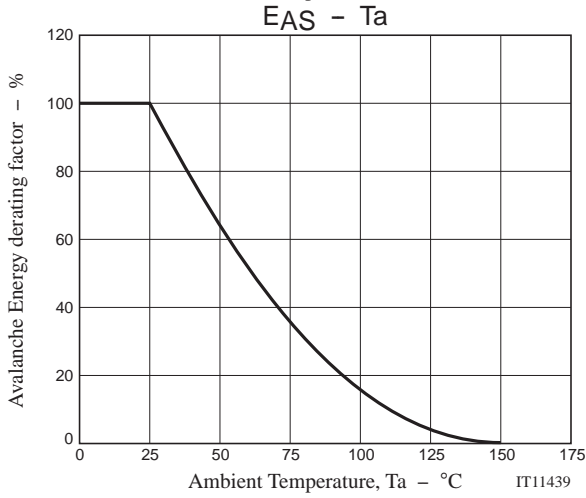
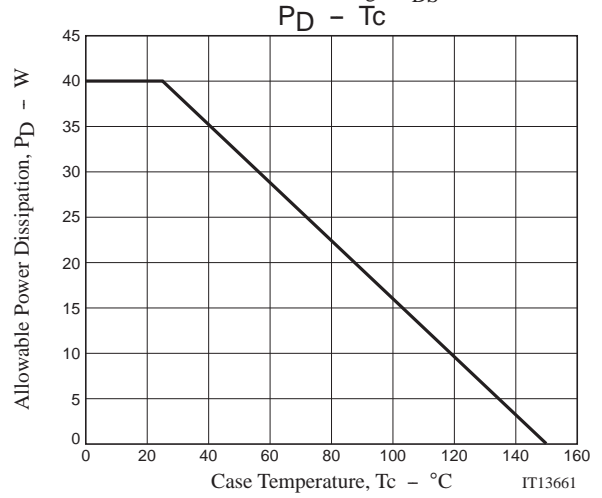
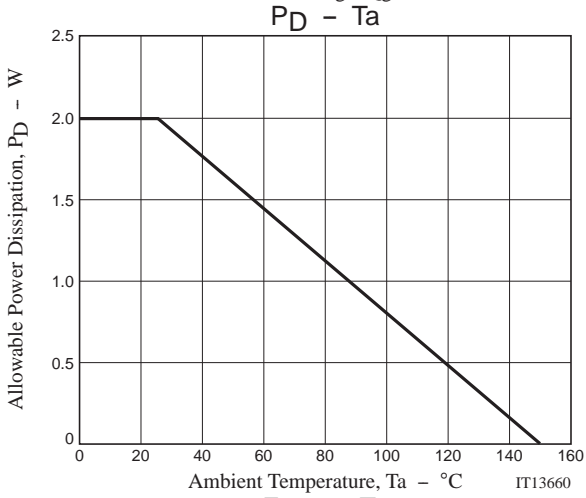
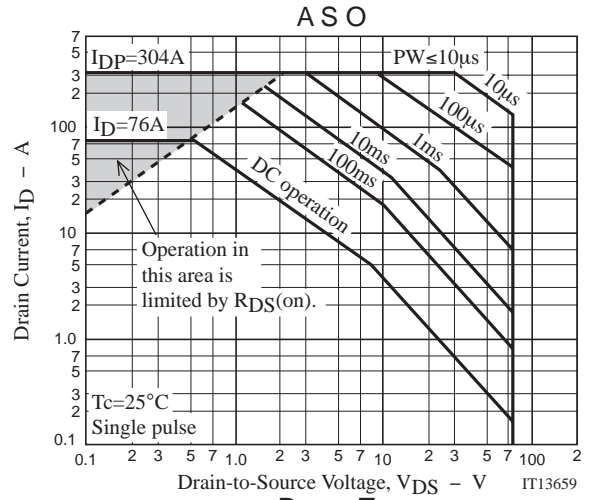
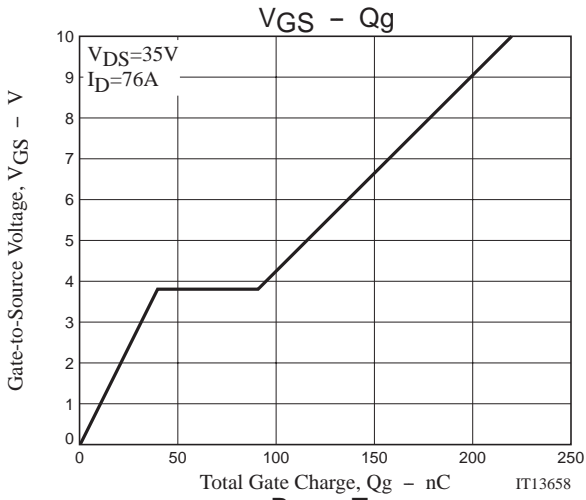
## Avalanche Resistance Test Circuit



# 2SK4074LS



# 2SK4074LS



Note on usage : Since the 2SK4074LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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