

**SANYO**

No.3454

**2SK1451**

N-Channel MOS Silicon FET

Very High-Speed Switching Applications

**Features**

- Low ON-state resistance.
- Very high-speed switching.
- Converters.
- Micaless package facilitating mounting.

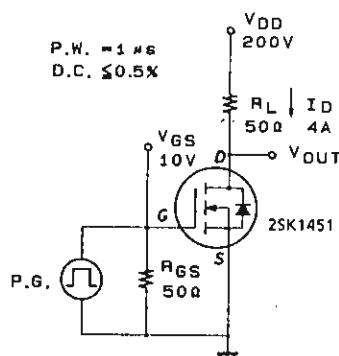
**Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$** 

|                             |           |                                           | unit             |
|-----------------------------|-----------|-------------------------------------------|------------------|
| Drain to Source Voltage     | $V_{DS}$  | 450                                       | V                |
| Gate to Source Voltage      | $V_{GS}$  | $\pm 30$                                  | V                |
| Drain Current(DC)           | $I_D$     | 8                                         | A                |
| Drain Current(Pulse)        | $I_{DP}$  | $PW \leq 10\mu s$ , duty cycle $\leq 1\%$ | A                |
| Allowable Power Dissipation | $P_D$     | $T_c = 25^\circ\text{C}$                  | 50 W             |
|                             |           |                                           | 3.0 W            |
| Channel Temperature         | $T_{ch}$  | 150                                       | $^\circ\text{C}$ |
| Storage Temperature         | $T_{stg}$ | -55 to +150                               | $^\circ\text{C}$ |

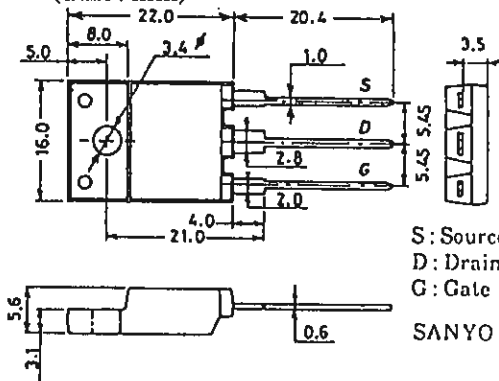
**Electrical Characteristics at  $T_a = 25^\circ\text{C}$** 

|                                            |               |                                                                                     | min | typ  | max       | unit     |
|--------------------------------------------|---------------|-------------------------------------------------------------------------------------|-----|------|-----------|----------|
| D-S Breakdown Voltage                      | $V_{(BR)DSS}$ | $I_D = 1\text{mA}, V_{GS} = 0$                                                      | 450 |      |           | V        |
| Zero Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS} = 450\text{V}, V_{GS} = 0$                                                  |     |      | 1.0       | mA       |
| Gate to Source Leakage Current             | $I_{GSS}$     | $V_{GS} = \pm 30\text{V}, V_{DS} = 0$                                               |     |      | $\pm 100$ | nA       |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS} = 10\text{V}, I_D = 1\text{mA}$                                             | 2.0 |      | 3.0       | V        |
| Forward Transfer Admittance                | $ Y_{fs} $    | $V_{DS} = 10\text{V}, I_D = 4\text{A}$                                              | 3.0 | 6.0  |           | S        |
| Static Drain to Source on State Resistance | $R_{DS(on)}$  | $I_D = 4\text{A}, V_{GS} = 10\text{V}$                                              |     | 0.6  | 0.8       | $\Omega$ |
| Input Capacitance                          | $C_{iss}$     | $V_{DS} = 20\text{V}, f = 1\text{MHz}$                                              |     | 1200 |           | pF       |
| Output Capacitance                         | $C_{oss}$     | $V_{DS} = 20\text{V}, f = 1\text{MHz}$                                              |     | 180  |           | pF       |
| Reverse Transfer Capacitance               | $C_{rss}$     | $V_{DS} = 20\text{V}, f = 1\text{MHz}$                                              |     | 70   |           | pF       |
| Turn-ON Delay Time                         | $t_{d(on)}$   | $I_D = 4\text{A}, V_{GS} = 10\text{V}$<br>$V_{DD} = 200\text{V}, R_{GS} = 50\Omega$ |     | 20   |           | ns       |
| Rise Time                                  | $t_r$         |                                                                                     |     | 40   |           | ns       |
| Turn-OFF Delay Time                        | $t_{d(off)}$  |                                                                                     |     | 160  |           | ns       |
| Fall Time                                  | $t_f$         |                                                                                     |     | 60   |           | ns       |
| Diode Forward Voltage                      | $V_{SD}$      | $I_S = 8\text{A}, V_{GS} = 0$                                                       |     |      | 1.8       | V        |

(Note) Be careful in handling the 2SK1451 because it has no protection diode between gate and source.

**Switching Time Test Circuit****Package Dimensions 2076**

(unit : mm)

S: Source  
D: Drain  
G: Gate

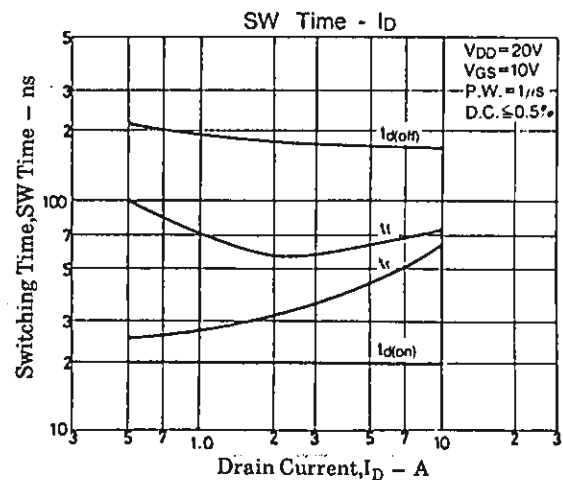
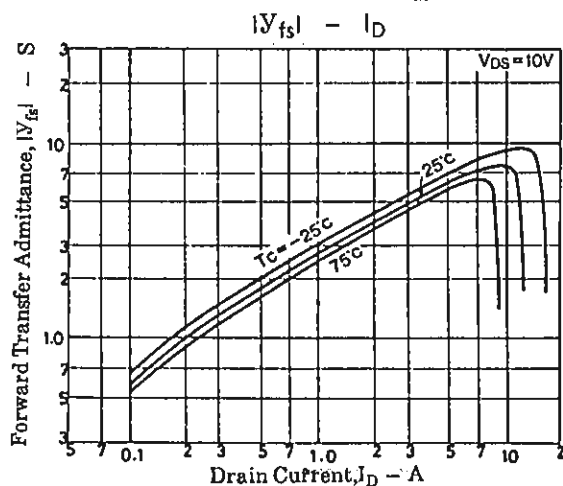
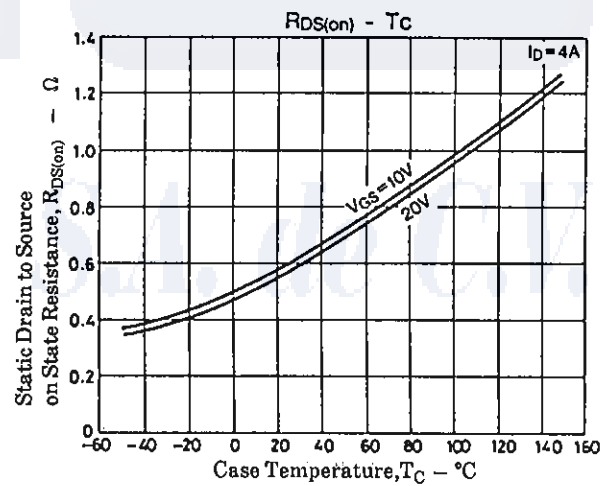
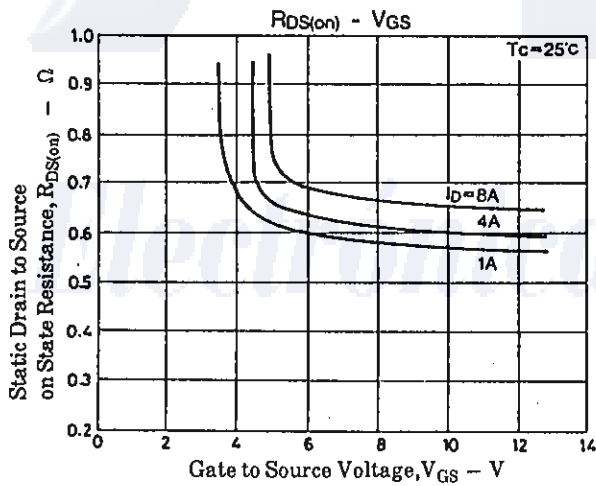
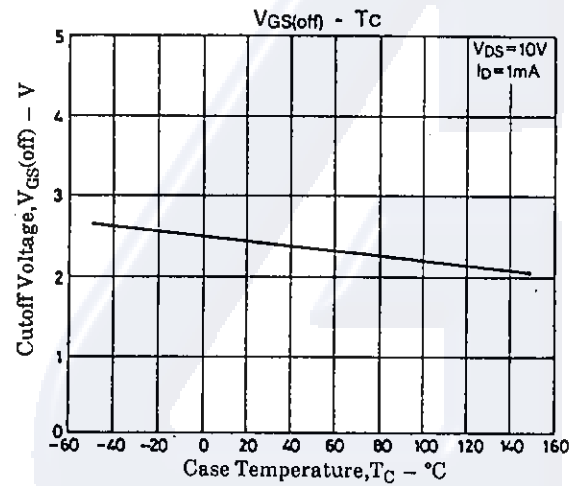
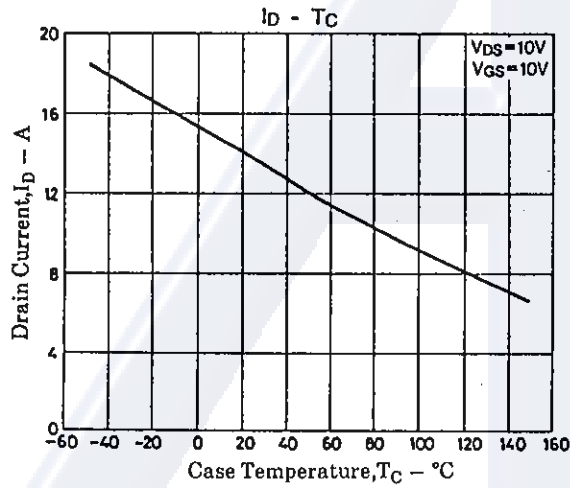
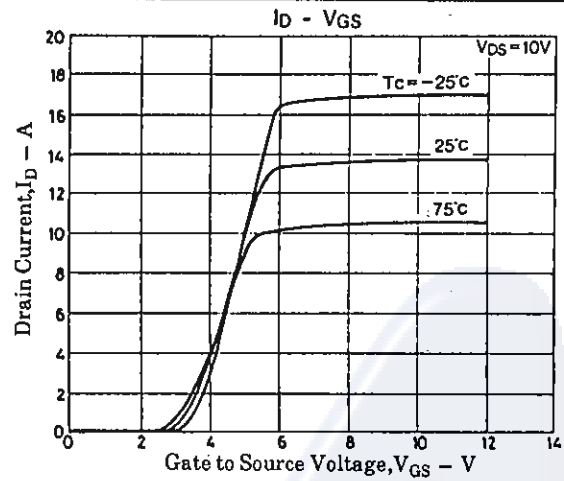
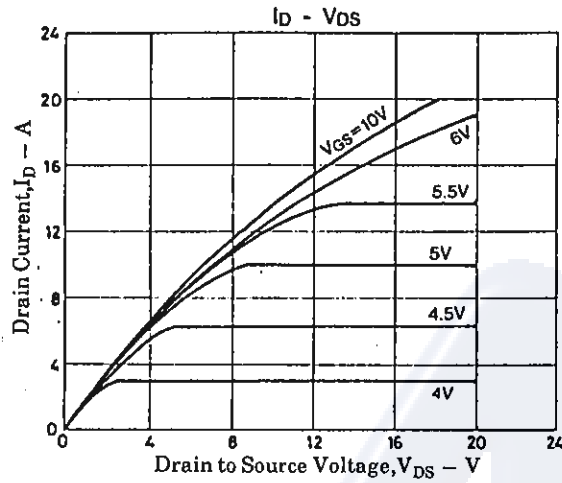
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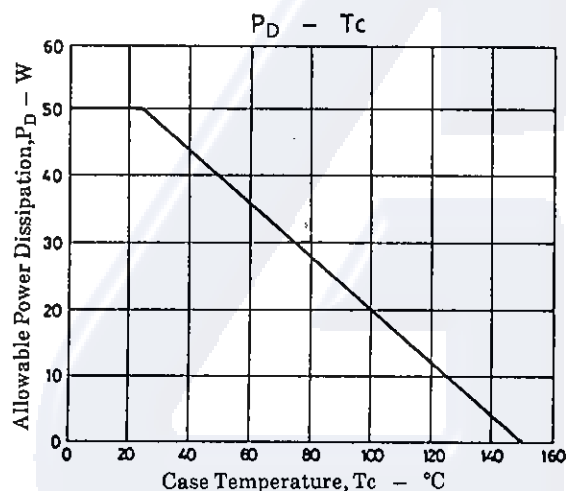
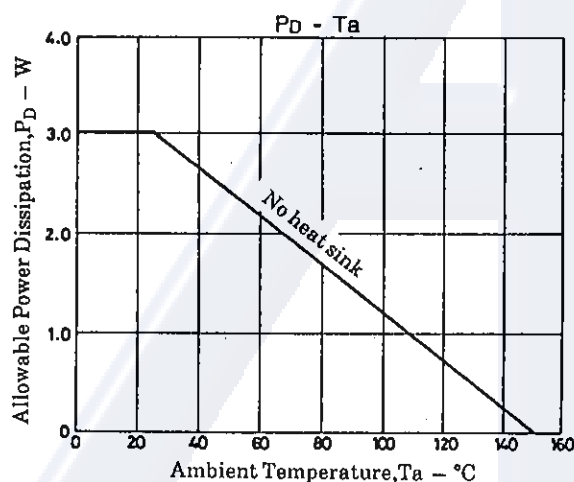
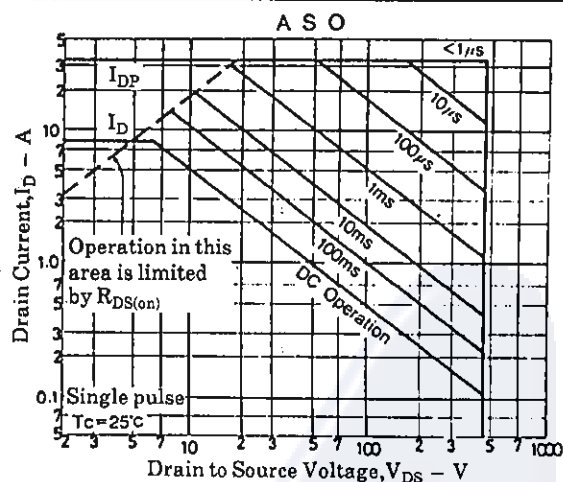
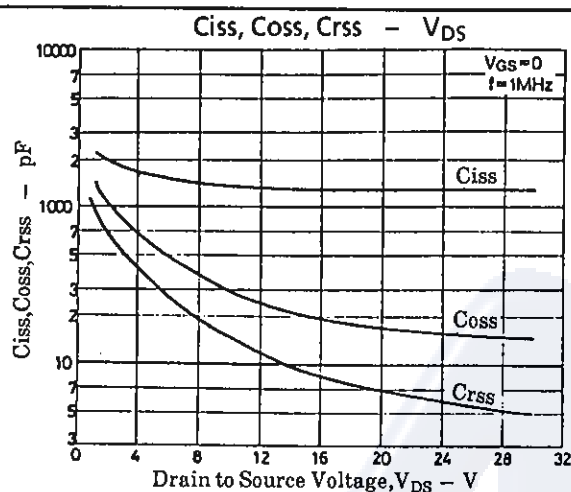
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