

|              |         |  |
|--------------|---------|--|
| <b>SANYO</b> | No.3833 | <b>2SK1738</b>   |
|              |         | N-Channel MOS Silicon FET<br>Very High-Speed<br>Switching Applications |

**Features**

- Low ON resistance.
- Very high-speed switching.
- Low-voltage drive.
- Its height onboard is 9.5mm.
- Meets radial taping.

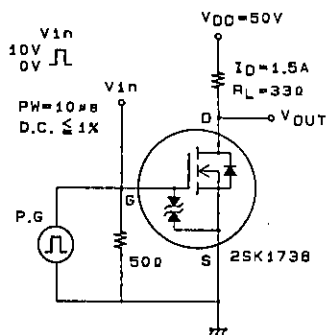
**Absolute Maximum Ratings at Ta = 25°C**

|                             |                  |                            | unit |
|-----------------------------|------------------|----------------------------|------|
| Drain to Source Voltage     | V <sub>DS</sub>  | 100                        | V    |
| Gate to Source Voltage      | V <sub>GSS</sub> | ±15                        | V    |
| Drain Current(DC)           | I <sub>D</sub>   | 3                          | A    |
| Drain Current(Pulse)        | I <sub>DP</sub>  | PW ≤ 10μs, duty cycle ≤ 1% | 12 A |
| Allowable Power Dissipation | P <sub>D</sub>   | 1.5                        | W    |
| Channel Temperature         | T <sub>ch</sub>  | 150                        | °C   |
| Storage Temperature         | T <sub>stg</sub> | -55 to +150                | °C   |

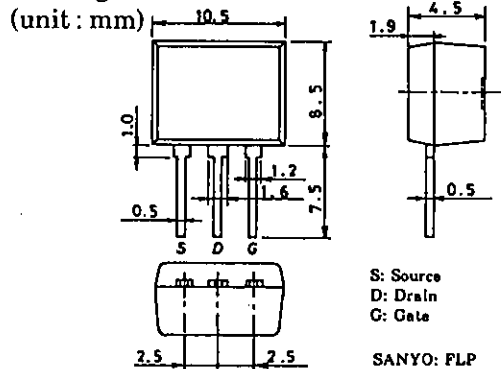
**Electrical Characteristics at Ta = 25°C**

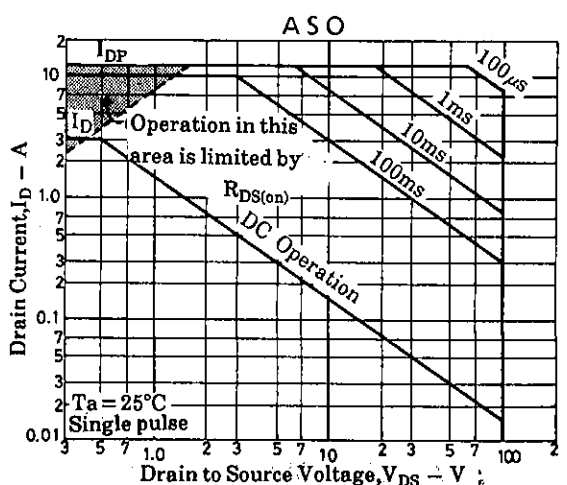
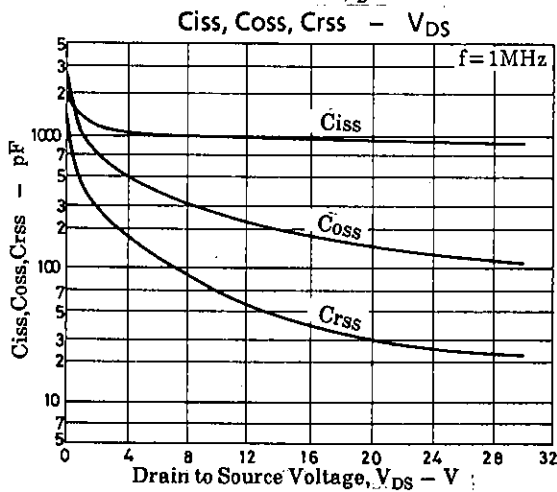
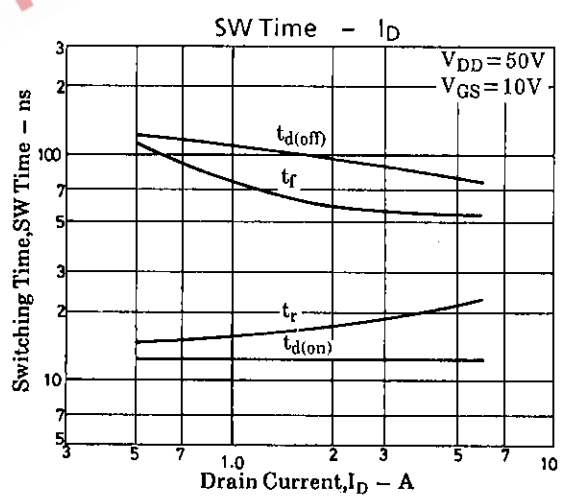
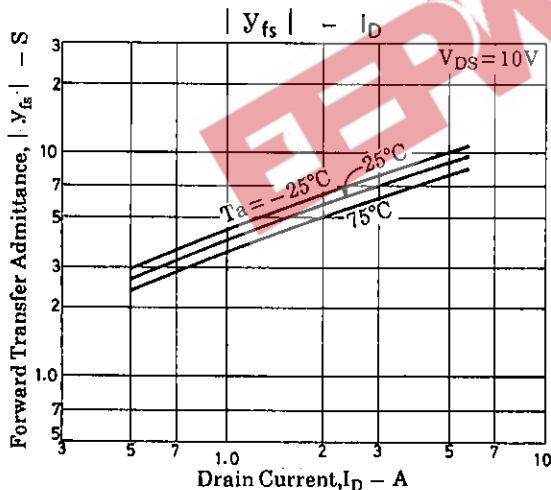
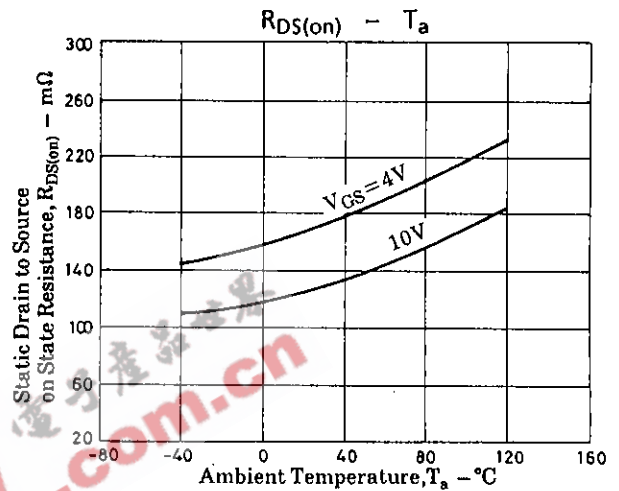
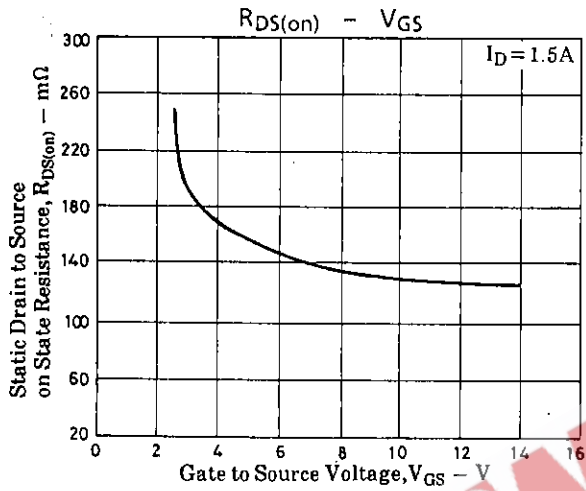
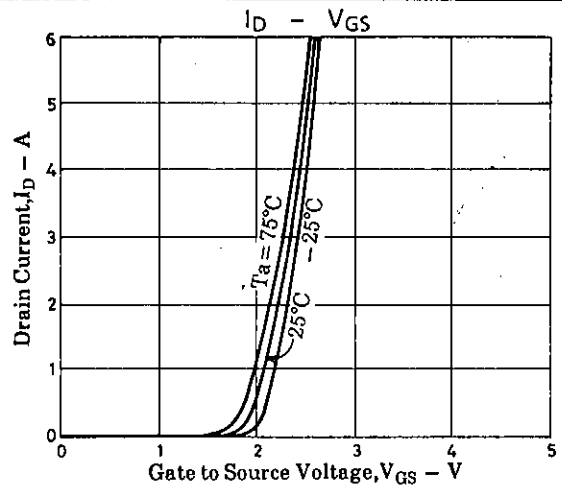
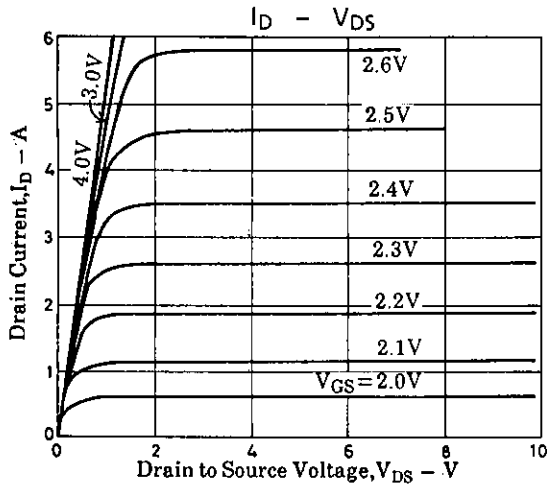
|  |                      |  | min | typ  | max  | unit |
|--|----------------------|--|-----|------|------|------|
| D-S Breakdown Voltage                      | V <sub>(BR)DSS</sub> | I <sub>D</sub> = 1mA, V <sub>GS</sub> = 0    | 100 |      |      | V    |
| G-S Breakdown Voltage                      | V <sub>(BR)GSS</sub> | I <sub>G</sub> = ±100μA, V <sub>DS</sub> = 0 | ±15 |      |      | V    |
| Zero Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> = 100V, V <sub>GS</sub> = 0  |     |      | 100  | μA   |
| Gate to Source Leakage Current             | I <sub>GSS</sub>     | V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0  |     |      | ±10  | μA   |
| Cutoff Voltage                             | V <sub>GS(off)</sub> | V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA  | 1.0 |      | 2.0  | V    |
| Forward Transfer Admittance                | Y <sub>fs</sub>      | V <sub>DS</sub> = 10V, I <sub>D</sub> = 1.5A | 3   | 5    |      | S    |
| Static Drain to Source on State Resistance | R <sub>DS(on)</sub>  | I <sub>D</sub> = 1.5A, V <sub>GS</sub> = 10V |     | 0.13 | 0.17 | Ω    |
|  | R <sub>DS(on)</sub>  | I <sub>D</sub> = 1.5A, V <sub>GS</sub> = 4V  |     | 0.17 | 0.22 | Ω    |
| Input Capacitance                          | C <sub>iss</sub>     | V <sub>DS</sub> = 20V, f = 1MHz              |     | 950  |      | pF   |
| Output Capacitance                         | C <sub>oss</sub>     | V <sub>DS</sub> = 20V, f = 1MHz              |     | 150  |      | pF   |
| Reverse Transfer Capacitance               | C <sub>rss</sub>     | V <sub>DS</sub> = 20V, f = 1MHz              |     | 30   |      | pF   |
| Turn-ON Delay Time                         | t <sub>d(on)</sub>   | See specified Test Circuit.                  |     | 13   |      | ns   |
| Rise Time                                  | t <sub>r</sub>       | "  |     | 18   |      | ns   |
| Turn-OFF Delay Time                        | t <sub>d(off)</sub>  | "  |     | 100  |      | ns   |
| Fall Time                                  | t <sub>f</sub>       | "  |     | 65   |      | ns   |
| Diode Forward Voltage                      | V <sub>SD</sub>      | I <sub>S</sub> = 3A, V <sub>GS</sub> = 0     | 1.0 | 1.5  |      | V    |

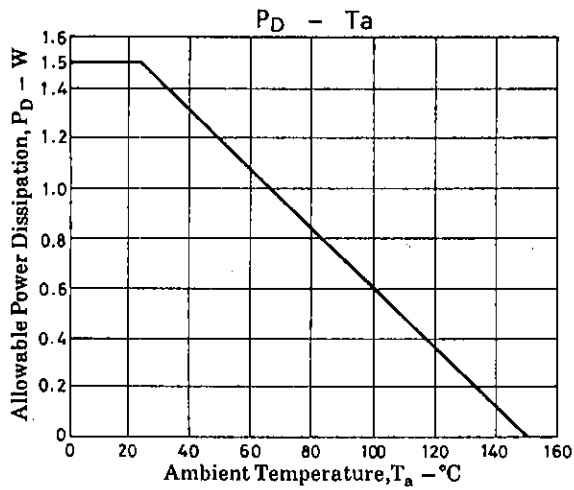
**Switching Time Test Circuit**



**Package Dimensions 2085**







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