N-Channel MOS Silicon FET Very High-Speed Switching Applications

## **Features**

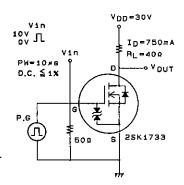
- · Low ON resistance.
- · Very high-speed switching.
- · Low-voltage drive.
- · Meets radial taping.

| Absolute Maximum Ratings at Ta = 25°C   |  |   |               | unit |                      |              |  |
|---|--|---|---------------|------|----------------------|--------------|--|
| Drain to Source Voltage                 | $V_{DSS}$                              |   |               | 60   | V                    |              |  |
| Gate to Source Voltage                  | $V_{GSS}$                              |   | :             | ±15  | V                    |              |  |
| Drain Current(DC)                       | $I_D$                                  |   |               | 1.5  | Α                    |              |  |
| Drain Current(Pulse)                    | $I_{DP}$                               | PW $\leq 10 \mu s$ , duty cycle $\leq 1\%$                            |               | 6    | Α                    |              |  |
| Allowable Power Dissipation             | $P_{\mathbf{D}}$                       |   |               |      | W                    |              |  |
| Channel Temperature                     | Tch                                    |   |               |      | $^{\circ}\mathrm{C}$ |              |  |
| Storage Temperature                     | Tstg                                   |   | -55  to  +150 |      | $^{\circ}\mathrm{C}$ |              |  |
| Electrical Characteristics at Ta = 25°C |  |   |               | turn | max                  | unit         |  |
| D-S Breakdown Voltage                   |  | $I_{\rm p} = 1  \text{m}  \Lambda  \text{Vac} = 0$                    | min<br>60     | typ  | IIIax                | V            |  |
| Zero Gate Voltage                       |  | $I_D = 1 \text{mA}, V_{GS} = 0$<br>$V_{DS} = 60 \text{V}, V_{GS} = 0$ | 00            |      | 100                  | $\mu { m A}$ |  |
| Drain Current                           | $I_{DSS}$                              | VDS = 00 V, VGS = 0   |               |      | 100                  | $\mu$ A      |  |
| Gate to Source Leakage Current          | $I_{GSS}$                              | $V_{GS} = \pm 12V, V_{DS} = 0$  |               |      | ±10                  | $\mu A$      |  |
| Cutoff Voltage                          | $V_{GS(off)}$                          | $V_{DS} = 10V, I_D = 1mA$   | 1.0           |      | 2.0                  | V            |  |
| Forward Transfer Admittance             | $\mid \mathbf{y}_{fs} \mid$            | $V_{DS} = 10V, I_D = 750mA$   | 1.0           | 1.8  |                      | S            |  |
| Static Drain to Source                  | $R_{DS(on)}$                           | $I_D = 750 \text{mA}, V_{GS} = 10 \text{V}$                           |               | 0.35 | 0.45                 | $\Omega$     |  |
| on State Resistance                     | $R_{DS(on)}$                           | $I_D = 750 \text{mA}, V_{GS} = 4 \text{V}$                            |               | 0.45 | 0.6                  | $\Omega$     |  |
| Input Capacitance                       | $C_{iss}$                              | $V_{DS} = 20V, f = 1MHz$  |               | 150  |                      | рF           |  |
| Output Capacitance                      | $C_{oss}$                              | $V_{DS} = 20V, f = 1MHz$  |               | 60   |                      | рF           |  |
| Reverse Transfer Capacitance            | $C_{rss}$                              | $V_{DS} = 20V, f = 1MHz$  |               | 12   |                      | рF           |  |
| Turn-ON Delay Time                      | $\mathbf{t}_{\mathbf{d}(\mathbf{on})}$ | See specified Test Circuit.   |               | 6    |                      | ns           |  |
| Rise Time                               | $\mathbf{t_r}$                         | "   |               | 10   |                      | ns           |  |
| Turn-OFF Delay Time                     | $\mathbf{t}_{\mathbf{d(off)}}$         | "   |               | 60   |                      | ns           |  |

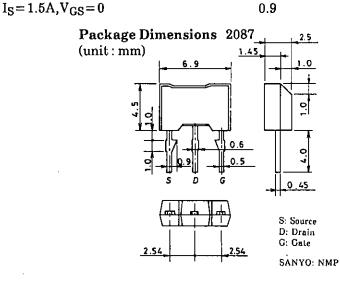
## Switching Time Test Circuit

Fall Time

Diode Forward Voltage



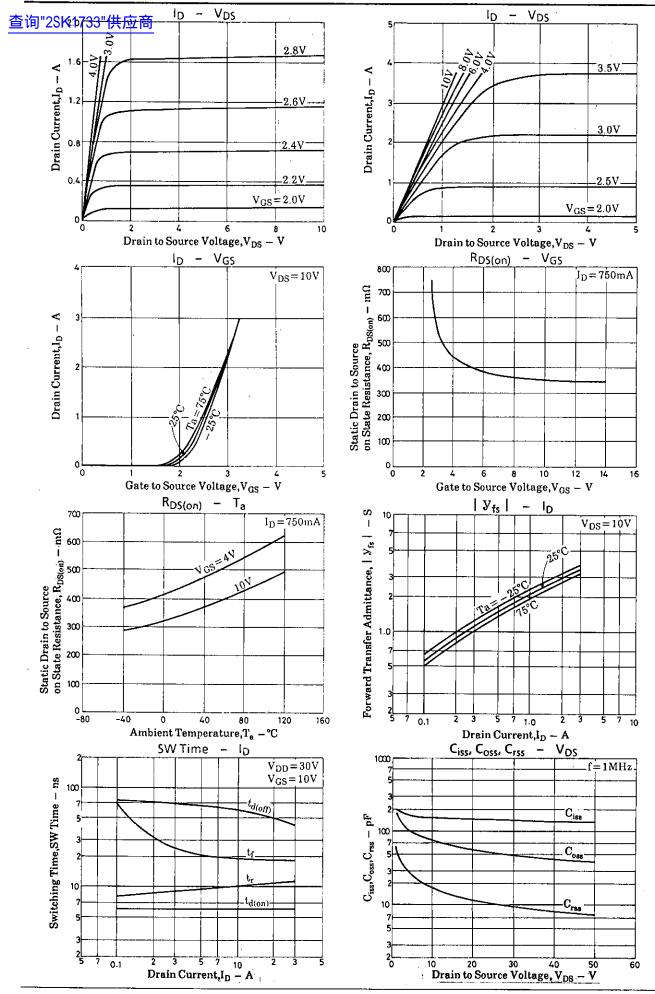
 $V_{SD}$ 

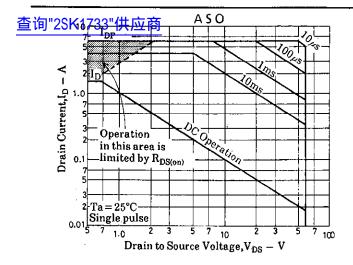


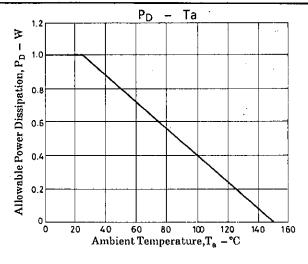
ns

V

20







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