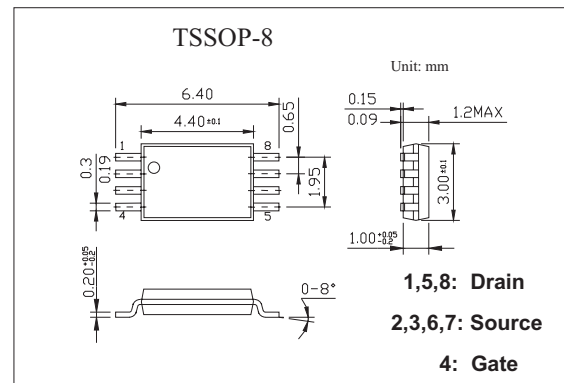


## Ultrahigh-Speed Switching Applications

### KTS2004

#### ■ Features

- Low ON resistance.
- 4V drive.
- Mount height 1.1mm.



#### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter                      | Symbol    | Rating      | Unit             |
|--------------------------------|-----------|-------------|------------------|
| Drain-to-Source Voltage        | $V_{DS}$  | 30          | V                |
| Gate-to-Source Voltage         | $V_{GS}$  | $\pm 20$    | V                |
| Drain Current(DC)              | $I_D$     | 4           | A                |
| Drain Current(pulse) *1        | $I_{DP}$  | 25          | A                |
| Allowable Power Dissipation *2 | $P_D$     | 1.3         | W                |
| Channel Temperature            | $T_{ch}$  | 150         | $^\circ\text{C}$ |
| Storage Temperature            | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

\*1  $PW \leq 10 \mu s$ , duty cycle  $\leq 1\%$

\*2 Mounted on a ceramic board ( $1000\text{mm}^2 \times 0.8\text{mm}$ )

## SMD Type

## IC

## KTS2004

## ■ Electrical Characteristics Ta = 25°C

| Parameter                           | Symbol        | Testconditons                   | Min | Typ  | Max      | Unit      |
|-------------------------------------|---------------|---------------------------------|-----|------|----------|-----------|
| Drain-to Source Breakdown Voltage   | $V_{(BR)DSS}$ | $I_D=1mA, V_{GS}=0$             | 30  |      |          | V         |
| Zero Gate Voltage Drain Current     | $I_{DSS}$     | $V_{DS} = 30V, V_{GS} = 0V$     |     |      | 10       | $\mu A$   |
| Gate-to-Source Leakage Current      | $I_{GSS}$     | $V_{GS} = \pm 16V, V_{DS} = 0V$ |     |      | $\pm 10$ | $\mu A$   |
| Cutoff Voltage                      | $V_{GS(off)}$ | $V_{DS} = 10V, I_D = 1mA$       | 1.0 |      | 2.4      | V         |
| Forward Transfer Admittance         | $ Y_{fs} $    | $V_{DS} = 10V, I_D = 4A$        | 5   | 8    |          | S         |
| Drain to Source On-state Resistance | $R_{DS(on)1}$ | $V_{GS} = 10V, I_D = 4A$        |     | 36   | 46       | $m\Omega$ |
|                                     | $R_{DS(on)2}$ | $V_{GS} = 4V, I_D = 4A$         |     | 58   | 78       | $m\Omega$ |
| Input Capacitance                   | $C_{iss}$     | $V_{DS} = 10V, f = 1MHz$        |     | 460  |          | pF        |
| Output Capacitance                  | $C_{oss}$     |                                 |     | 250  |          | pF        |
| Reverse Transfer Capacitance        | $C_{rss}$     |                                 |     | 120  |          | pF        |
| Turn-on Delay Time                  | $t_{d(on)}$   | See Specified Test Circuit      |     | 10   |          | ns        |
| Rise Time                           | $t_r$         |                                 |     | 90   |          | ns        |
| Turn-off Delay Time                 | $t_{d(off)}$  |                                 |     | 70   |          | ns        |
| Fall Time                           | $t_f$         |                                 |     | 75   |          | ns        |
| Total Gate Charge                   | $Q_g$         | $V_{DS} = 10V$                  |     | 15   |          | nC        |
| Gate-to-Source Charge               | $Q_{gs}$      | $V_{GS} = 10V$                  |     | 3    |          | nC        |
| Gate-Drain"Miller" Charge           | $Q_{gd}$      | $I_D = 4A$                      |     | 4    |          | nC        |
| Diode Forward Voltage               | $V_{SD}$      | $I_S = 4A, V_{GS} = 0V$         |     | 0.85 | 1.2      | V         |

## ■ Switching Time Test Circuit

