

## Features

- $V_{DS}$  (V) = 60V
- $I_D$  = 35A
- $R_{DS(ON)} < 23m\Omega$  ( $V_{GS} = 10V$ )
- $R_{DS(ON)} < 33m\Omega$  ( $V_{GS} = 4.5V$ )
- $R_{DS(ON)} < 37m\Omega$  ( $V_{GS} = 4V$ )

## Absolute Maximum Ratings $T_a = 25^\circ C$

| Parameter                                | Symbol    | Rating     | Unit       |
|------------------------------------------|-----------|------------|------------|
| Drain-Source Voltage                     | $V_{DS}$  | 60         | V          |
| Gate-Source Voltage                      | $V_{GS}$  | +20        |            |
| Continuous Drain Current                 | $I_D$     | 35         | A          |
| Pulsed Drain Current (Note.1)            | $I_{DP}$  | 105        |            |
| Avalanche Current (Note.2)               | $I_{AV}$  | 18         |            |
| Avalanche Energy (Single Pulse) (Note.3) | EAS       | 19         | mJ         |
| Power Dissipation $T_c=25^\circ C$       | $P_D$     | 40         | W          |
| Junction Temperature                     | $T_J$     | 150        | $^\circ C$ |
| Storage Temperature Range                | $T_{stg}$ | -55 to 150 |            |

Note.1 :PW ≤ 10 us, duty cycle ≤ 1%

Note.2 :L≤100μH, Single pulse

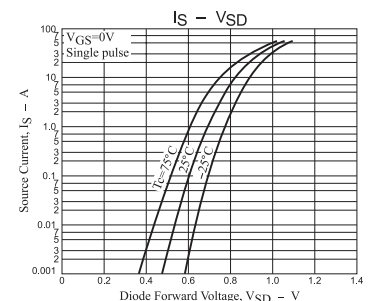
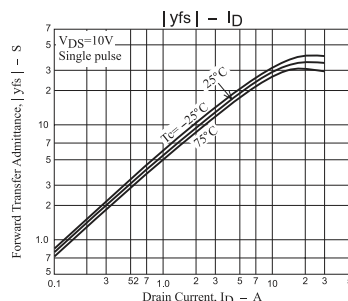
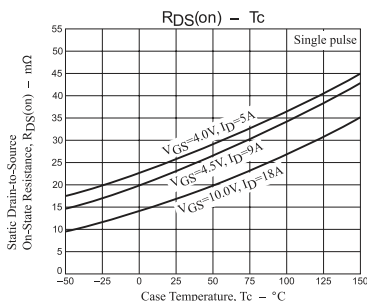
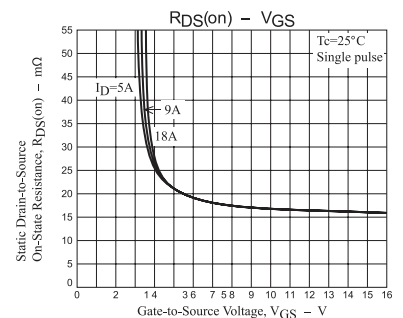
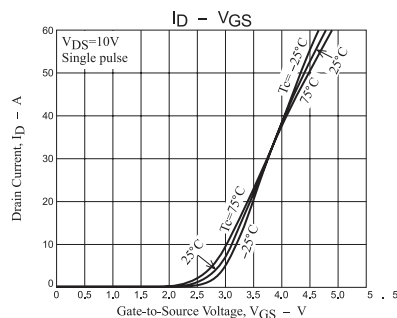
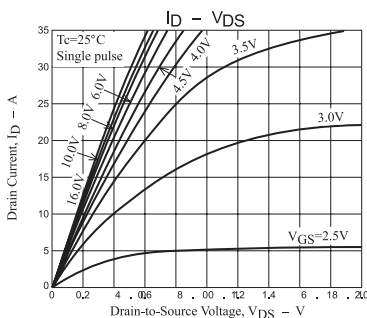
Note.3 :V<sub>DD</sub>=10V, L=100μH, I<sub>AV</sub>=18A

## Electrical Characteristics ( $T_A = 25^\circ C$ )

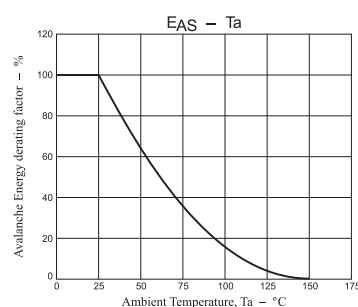
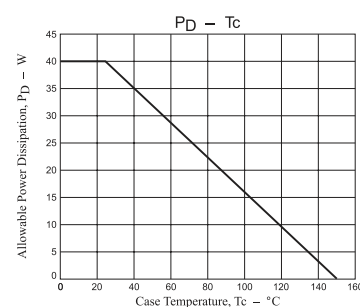
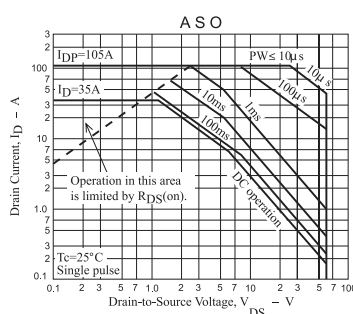
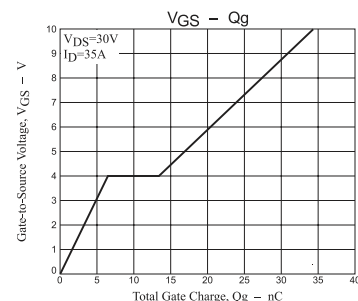
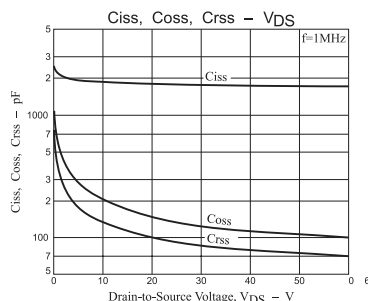
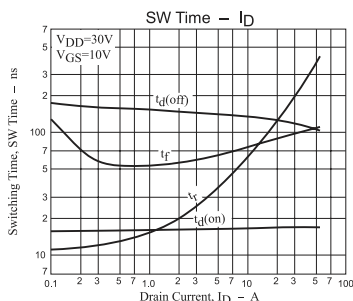
| Parameter                         | Symbol         | Test Conditions             | Min | Typ | Max  | Unit |
|-----------------------------------|----------------|-----------------------------|-----|-----|------|------|
| Drain-Source Breakdown Voltage    | $V_{DSS}$      | $I_D=10mA, V_{GS}=0V$       | 60  |     |      | V    |
| Zero Gate Voltage Drain Current   | $I_{DSS}$      | $V_{DS}=-60V, V_{GS}=0V$    |     |     | 1    | μA   |
| Gate-Body Leakage Current         | $I_{GSS}$      | $V_{DS}=0V, V_{GS}=\pm 16V$ |     |     | ±100 | nA   |
| Cutoff Voltage                    | $V_{GS(off)}$  | $V_{DS}=10V, I_D=-1mA$      | 1.2 |     | 2.6  | V    |
| Forward Transfer Admittance       | $ Y_{fs} $     | $V_{DS}=10V, I_D=-18A$      |     | 35  |      | S    |
| Static Drain-Source On-Resistance | $R_{DS(on)}^1$ | $V_{GS}=10V, I_D=-18A$      |     | 17  | 23   | mΩ   |
|                                   | $R_{DS(on)}^2$ | $V_{GS}=10V, I_D=-9A$       |     | 23  | 33   |      |
|                                   | $R_{DS(on)}^3$ | $V_{GS}=10V, I_D=-5A$       |     | 25  | 57   |      |

| Parameter                             | Symbol       | Test Conditions                    | Min | Typ  | Max | Unit |
|---------------------------------------|--------------|------------------------------------|-----|------|-----|------|
| Input Capacitance                     | $C_{iss}$    | $V_{GS}=0V, V_{DS}=20V, f=1MHz$    |     | 1820 |     | pF   |
| Output Capacitance                    | $C_{oss}$    |                                    |     | 150  |     |      |
| Reverse Transfer Capacitance          | $C_{rss}$    |                                    |     | 100  |     |      |
| Total Gate Charge                     | $Q_g$        | $V_{GS}=-10V, V_{DS}=30V, I_D=35A$ |     | 34.5 |     | nC   |
| Gate Source Charge                    | $Q_{gs}$     |                                    |     | 6.5  |     |      |
| Gate Drain Charge                     | $Q_{gd}$     |                                    |     | 6.8  |     |      |
| Turn-On Delay Time                    | $t_{d(on)}$  | See specified Test Circuit         |     | 16   |     | nS   |
| Turn-On Rise Time                     | $t_r$        |                                    |     | 110  |     |      |
| Turn-Off Delay Time                   | $t_{d(off)}$ |                                    |     | 125  |     |      |
| Turn-Off Fall Time                    | $t_f$        |                                    |     | 87   |     |      |
| Maximum Body-Diode Continuous Current | $I_S$        | $I_{SD}=-12A, V_{GS}=0V$           |     |      | 3.5 | A    |
| Diode Forward Voltage                 | $V_{SD}$     | $I_S=1.5A, V_{GS}=0V$              |     | 0.96 | 1.2 | V    |

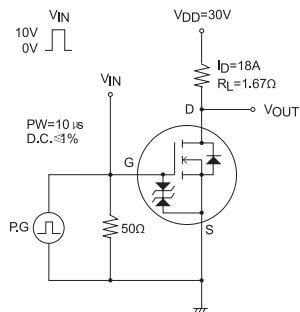
## Typical Characteristics



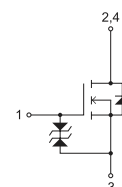
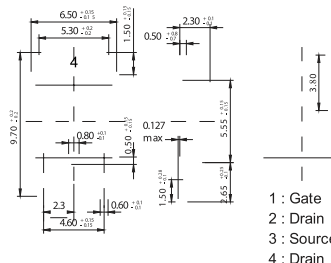
## Typical Characteristics



## Switching Time Test Circuit



## Diagram



## Part Number Table

| Description                | Part Number |
|----------------------------|-------------|
| N Channel MOSFET, 35A, 60V | 2KK6024     |

Dimensions : Millimetres

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