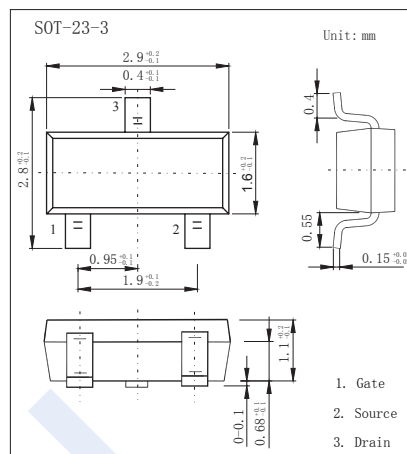
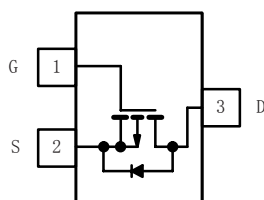


## P-Channel Enhancement MOSFET

## SI2315BDS (KI2315BDS)

## ■ Features

- $V_{DS} (V) = -12V$
- $I_D = -3.85A$  ( $V_{GS} = -4.5V$ )
- $R_{DS(ON)} < 50m\Omega$  ( $V_{GS} = -4.5V$ )
- $R_{DS(ON)} < 65m\Omega$  ( $V_{GS} = -2.5V$ )
- $R_{DS(ON)} < 100m\Omega$  ( $V_{GS} = -1.8V$ )

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

| Parameter                                              | Symbol               | 5 sec      | Steady State | Unit |
|--------------------------------------------------------|----------------------|------------|--------------|------|
| Drain-Source Voltage                                   | V <sub>DS</sub>      | -12        |              | V    |
| Gate-Source Voltage                                    | V <sub>GS</sub>      | ± 8        |              |      |
| Continuous Drain Current<br>(T <sub>J</sub> =150°C) *1 | I <sub>D</sub>       | -3.85      | -3.0         | A    |
|                                                        |                      | -3.0       | -2.45        |      |
| Pulsed Drain Current *1                                | I <sub>DM</sub>      | -12        |              |      |
| Power Dissipation *1                                   | P <sub>D</sub>       | 1.19       | 0.75         | W    |
|                                                        |                      | 0.76       | 0.48         |      |
| Thermal Resistance.Junction- to-Ambient t≤5 sec        | R <sub>thJA</sub> *1 | 105        |              | °C/W |
| Steady State                                           |                      | 166        |              |      |
| Thermal Resistance.Junction- to-Foot                   | R <sub>thJF</sub>    | 75         |              |      |
| Junction Temperature                                   | T <sub>J</sub>       | 150        |              | °C   |
| Storage Temperature Range                              | T <sub>stg</sub>     | -55 to 150 |              |      |

\*1Surface Mounted on FR4 board,  $t \leq 5$  sec.

## P-Channel Enhancement MOSFET

## SI2315BDS (KI2315BDS)

## ■ Electrical Characteristics Ta = 25°C

| Parameter                             | Symbol              | Test Conditions                                                                                                       | Min   | Typ | Max  | Unit |
|---------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------|-------|-----|------|------|
| Drain-Source Breakdown Voltage        | V <sub>DSS</sub>    | I <sub>D</sub> =-250 μA, V <sub>GS</sub> =0V                                                                          | -12   |     |      | V    |
| Zero Gate Voltage Drain Current       | I <sub>DSS</sub>    | V <sub>DS</sub> =-12V, V <sub>GS</sub> =0V                                                                            |       |     | -1   | μA   |
|                                       |                     | V <sub>DS</sub> =-12V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C                                                      |       |     | -10  |      |
| Gate-Body leakage current             | I <sub>GSS</sub>    | V <sub>DS</sub> =0V, V <sub>GS</sub> =±8V                                                                             |       |     | ±100 | nA   |
| Gate Threshold Voltage                | V <sub>GS(th)</sub> | V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =-250 μA                                                              | -0.45 |     | -0.9 | V    |
| Static Drain-Source On-Resistance     | R <sub>DS(on)</sub> | V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3.85A                                                                        |       | 40  | 50   | mΩ   |
|                                       |                     | V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-3.4A                                                                         |       | 50  | 65   |      |
|                                       |                     | V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-2.7A                                                                         |       | 71  | 100  |      |
| On state drain current                | I <sub>D(ON)</sub>  | V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-5V                                                                          | -6    |     |      | A    |
|                                       |                     | V <sub>GS</sub> =-2.5V, V <sub>DS</sub> =-5V                                                                          | -3    |     |      |      |
| Forward Transconductance              | g <sub>FS</sub>     | V <sub>DS</sub> =-5V, I <sub>D</sub> =-3.85A                                                                          |       | 7   |      | S    |
| Input Capacitance                     | C <sub>iss</sub>    | V <sub>GS</sub> =0V, V <sub>DS</sub> =-6V, f=1MHz *1                                                                  |       | 715 |      | pF   |
| Output Capacitance                    | C <sub>oss</sub>    |                                                                                                                       |       | 275 |      |      |
| Reverse Transfer Capacitance          | C <sub>rss</sub>    |                                                                                                                       |       | 200 |      |      |
| Total Gate Charge                     | Q <sub>g</sub>      | V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-6V, I <sub>D</sub> =-3.85A *1                                               |       | 8   | 15   | nC   |
| Gate Source Charge                    | Q <sub>gs</sub>     |                                                                                                                       |       | 1.1 |      |      |
| Gate Drain Charge                     | Q <sub>gd</sub>     |                                                                                                                       |       | 2.3 |      |      |
| Turn-On DelayTime                     | t <sub>d(on)</sub>  | V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-6V, R <sub>L</sub> =6Ω, R <sub>GEN</sub> =6Ω<br><br>I <sub>D</sub> =1.0A *1 |       | 15  | 20   | ns   |
| Turn-On Rise Time                     | t <sub>r</sub>      |                                                                                                                       |       | 35  | 50   |      |
| Turn-Off DelayTime                    | t <sub>d(off)</sub> |                                                                                                                       |       | 50  | 70   |      |
| Turn-Off Fall Time                    | t <sub>f</sub>      |                                                                                                                       |       | 50  | 75   |      |
| Maximum Body-Diode Continuous Current | I <sub>S</sub>      |                                                                                                                       |       |     | -1.6 | A    |
| Diode Forward Voltage                 | V <sub>SD</sub>     | I <sub>S</sub> =-1.6A, V <sub>GS</sub> =0V                                                                            |       |     | -1.2 | V    |

\*1 Pulse test: PW ≤ 300 μs duty cycle ≤ 2 %.

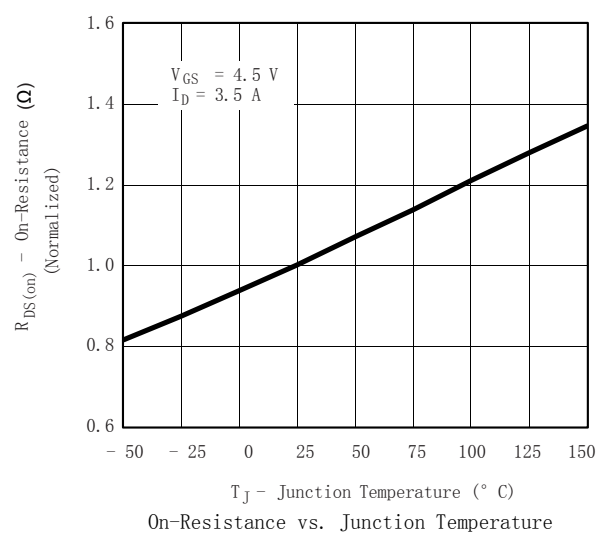
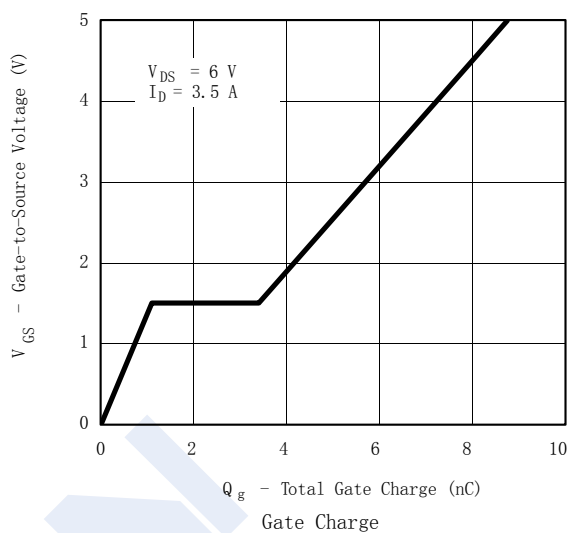
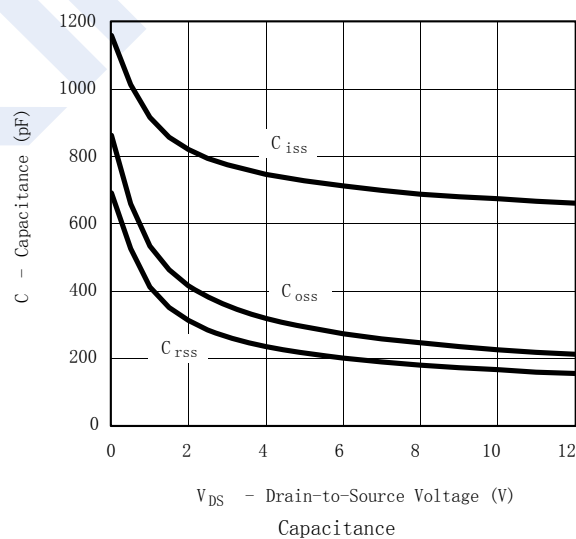
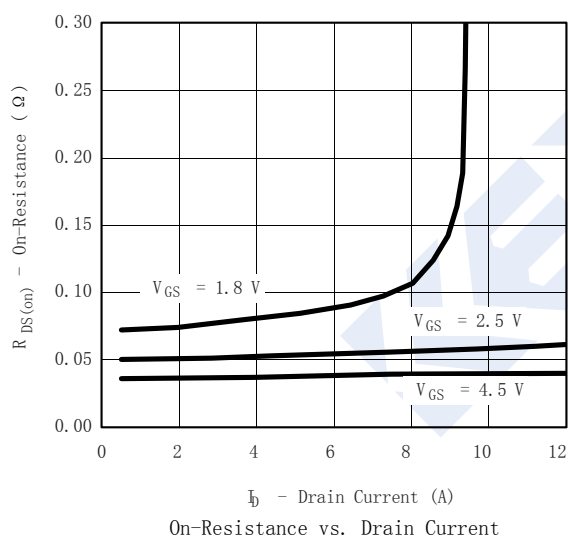
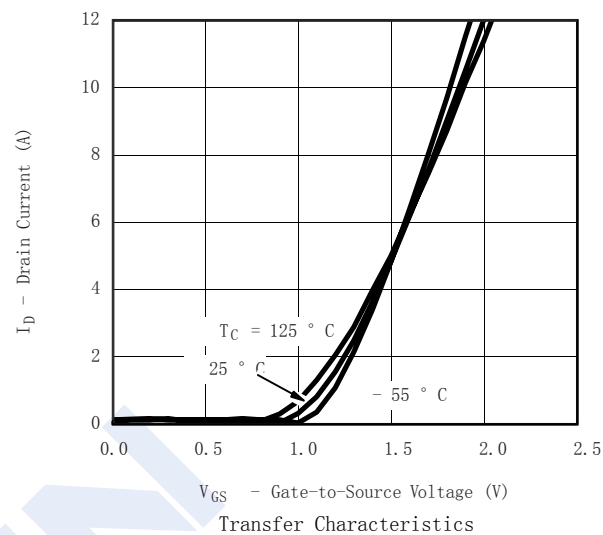
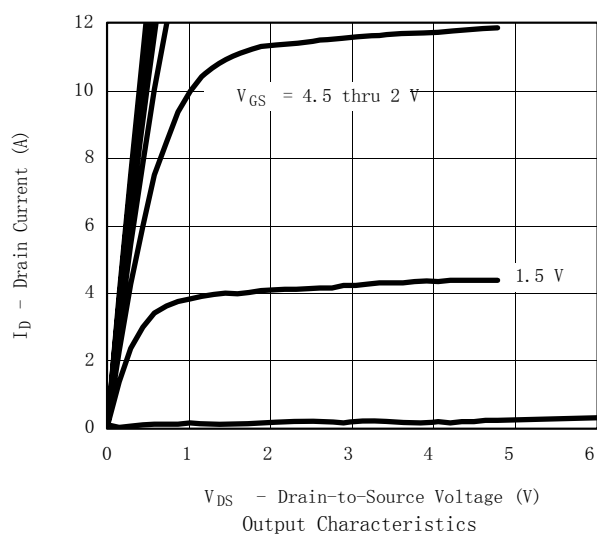
## ■ Marking

|         |     |
|---------|-----|
| Marking | M5* |
|---------|-----|

## P-Channel Enhancement MOSFET

## SI2315BDS (KI2315BDS)

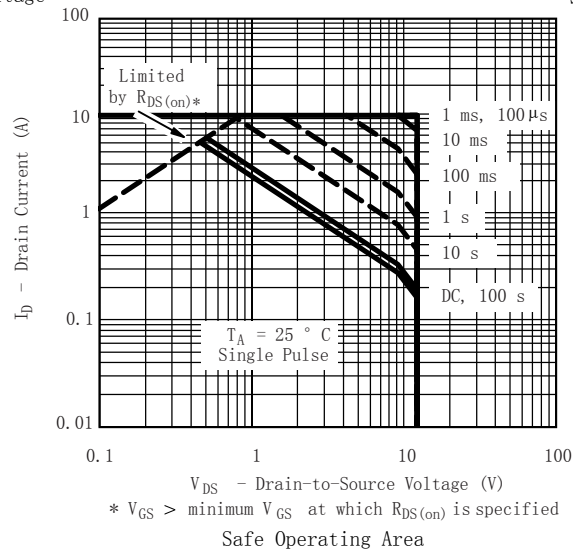
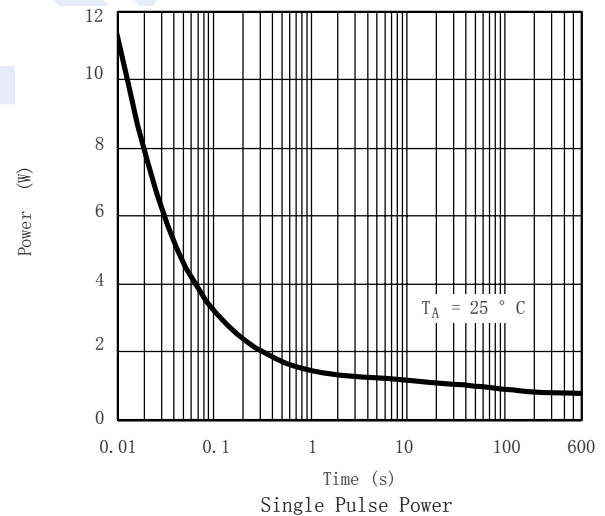
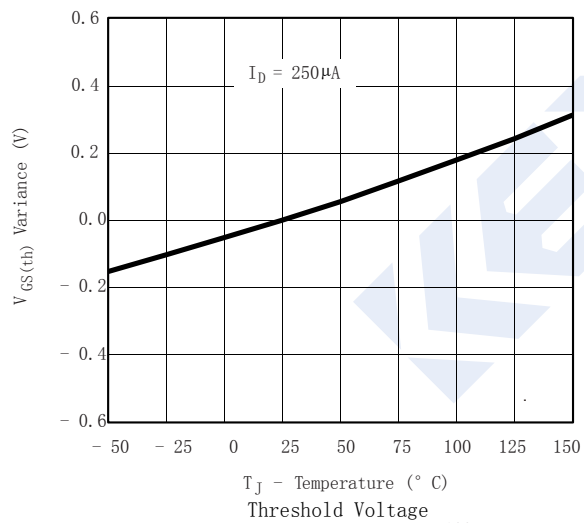
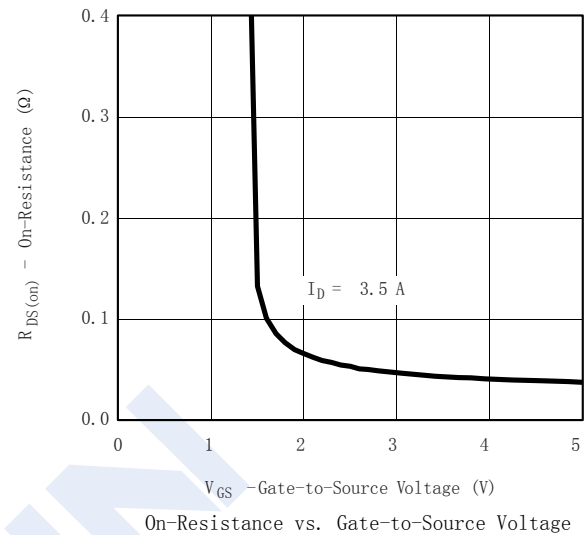
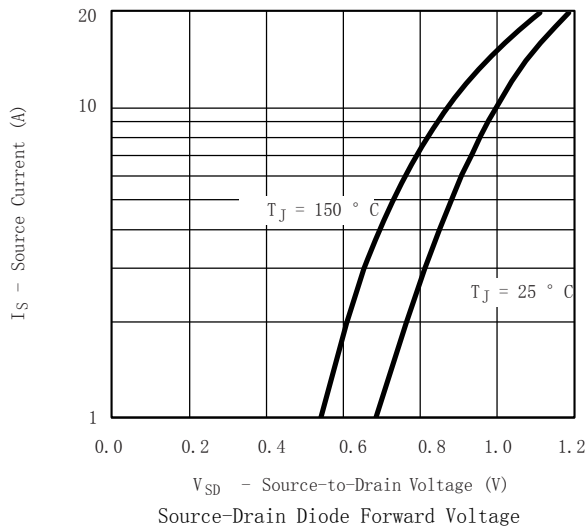
## ■ Typical Characteristics



## P-Channel Enhancement MOSFET

### SI2315BDS (KI2315BDS)

#### ■ Typical Characteristics



\*  $V_{GS} >$  minimum  $V_{GS}$  at which  $R_{DS(on)}$  is specified

Safe Operating Area

## P-Channel Enhancement MOSFET

### SI2315BDS (KI2315BDS)

#### ■ Typical Characteristics

