



# MCH6616

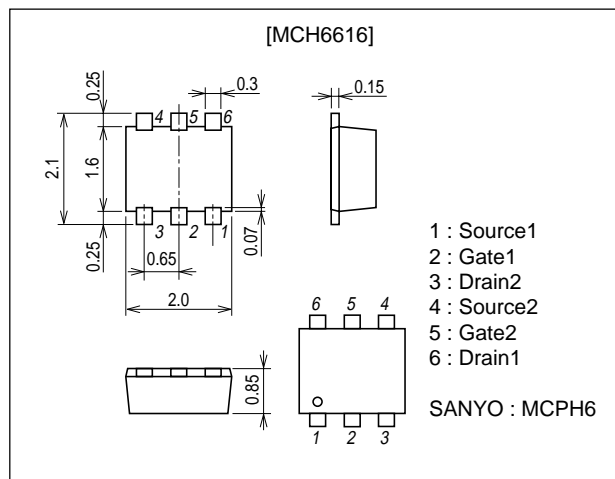
## Ultrahigh-Speed Switching Applications

### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.
- Composite type with 2 MOSFETs contained in a single package, facilitating high-density mounting.

### Package Dimensions

unit : mm  
2173A



### Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter                   | Symbol           | Conditions  | Ratings     | Unit |
|-----------------------------|------------------|---|-------------|------|
| Drain-to-Source Voltage     | V <sub>DSS</sub> |   | 20          | V    |
| Gate-to-Source Voltage      | V <sub>GSS</sub> |   | ±10         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |   | 1.6         | A    |
| Drain Current (Pulse)       | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1%                                      | 6.4         | A    |
| Allowable Power Dissipation | P <sub>D</sub>   | Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm)1unit | 0.8         | 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

| Parameter                                  | Symbol               | Conditions                                  | Ratings |     |     | Unit |
|--|----------------------|---|---------|-----|-----|------|
|  |                      |   | min     | typ | max |      |
| Drain-to-Source Breakdown Voltage          | V <sub>(BR)DSS</sub> | I <sub>D</sub> =1mA, V <sub>GS</sub> =0     | 20      |     |     | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =20V, V <sub>GS</sub> =0    |         |     | 1   | μA   |
| Gate-to-Source Leakage Current             | I <sub>GSS</sub>     | V <sub>GS</sub> =±8V, V <sub>DS</sub> =0    |         |     | ±10 | μA   |
| Cutoff Voltage                             | V <sub>GS(off)</sub> | V <sub>DS</sub> =10V, I <sub>D</sub> =1mA   | 0.4     |     | 1.3 | V    |
| Forward Transfer Admittance                | y <sub>fs</sub>      | V <sub>DS</sub> =10V, I <sub>D</sub> =0.8A  | 1.6     | 2.4 |     | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =0.8A, V <sub>GS</sub> =4V   |         | 180 | 230 | mΩ   |
|  | R <sub>DS(on)2</sub> | I <sub>D</sub> =0.4A, V <sub>GS</sub> =2.5V |         | 220 | 310 | mΩ   |
|  | R <sub>DS(on)3</sub> | I <sub>D</sub> =0.1A, V <sub>GS</sub> =1.8V |         | 300 | 450 | mΩ   |

Marking : FQ

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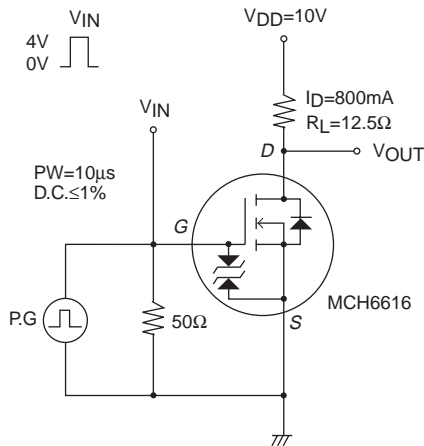
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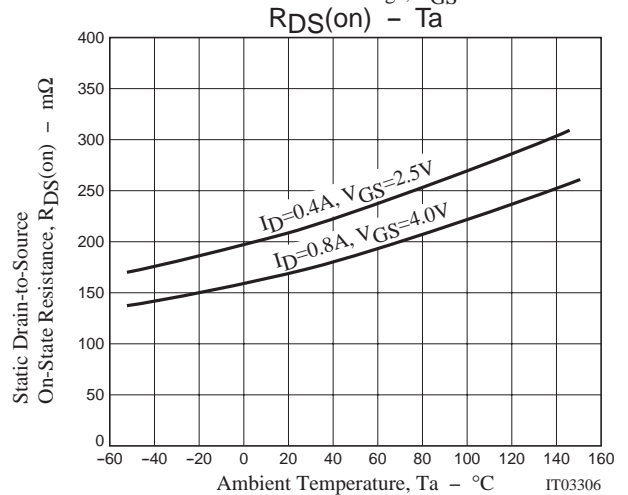
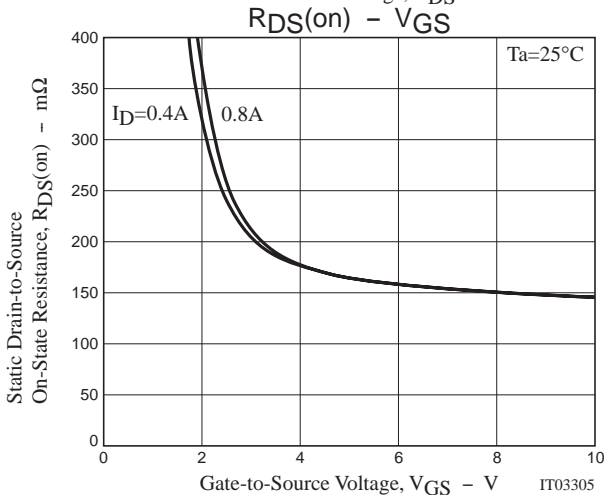
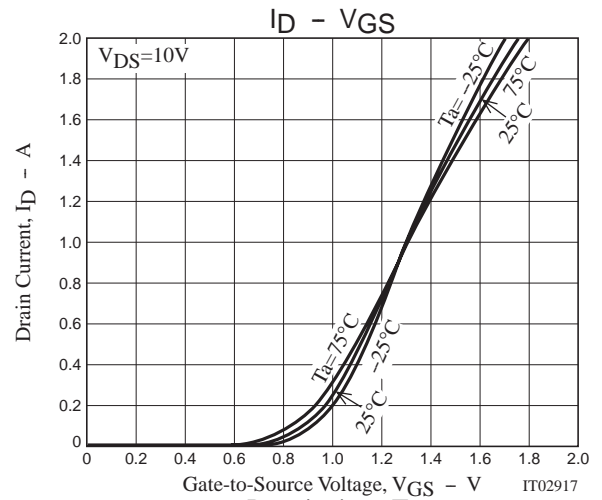
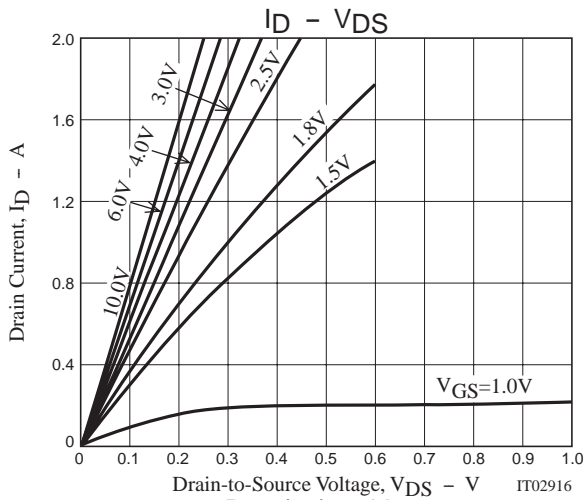
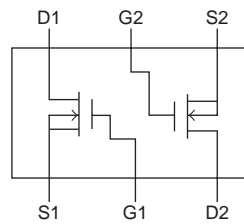
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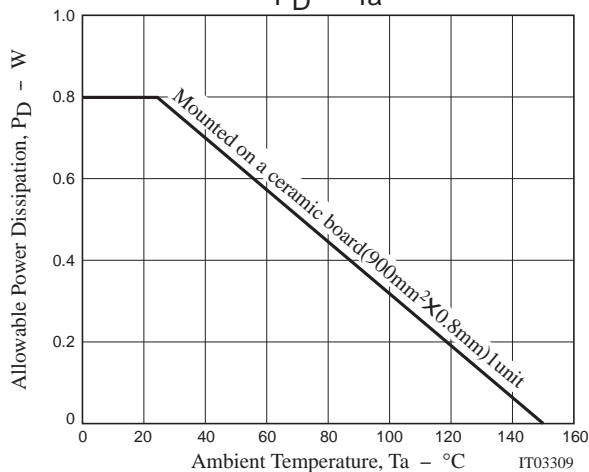
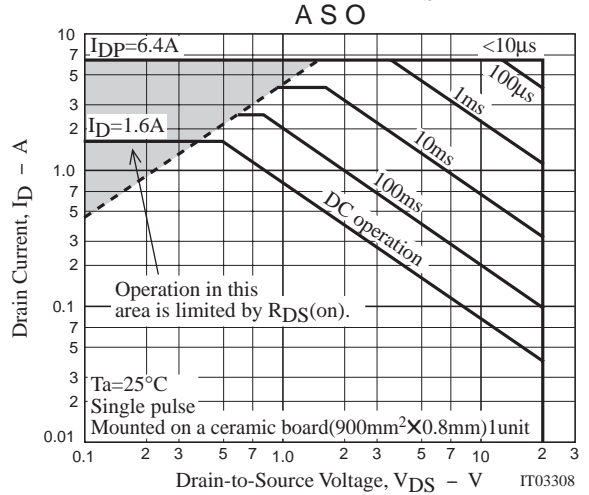
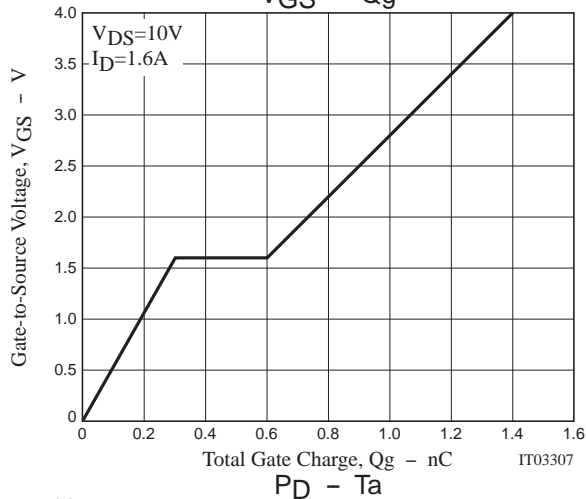
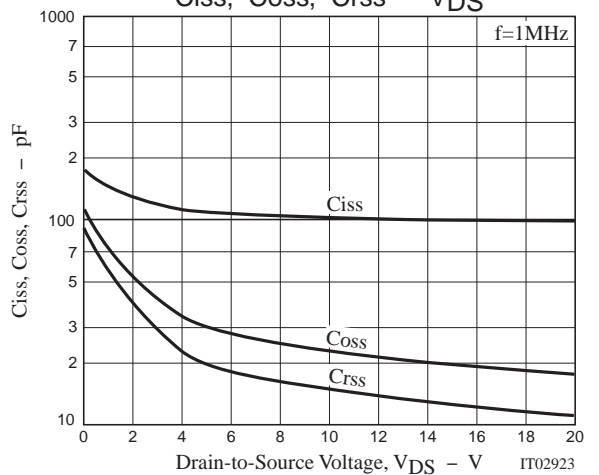
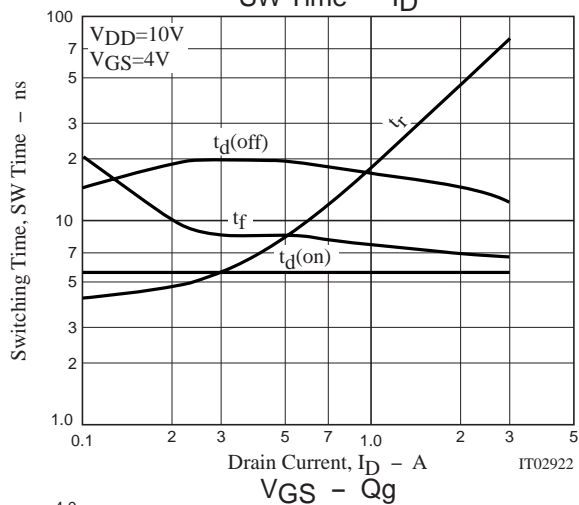
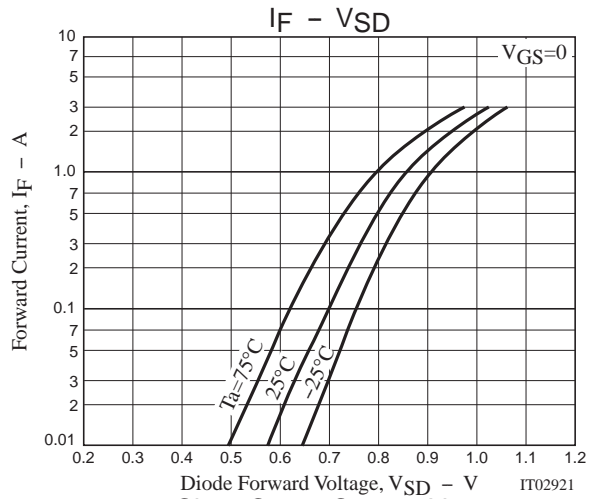
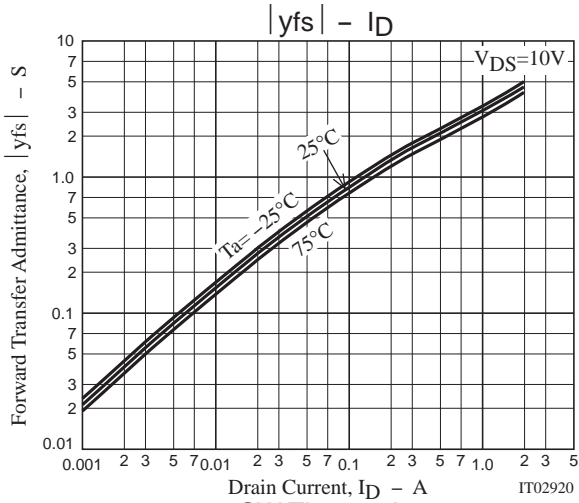
| Parameter                     | Symbol              | Conditions  | Ratings |      |     | Unit |
|-------------------------------|---------------------|---|---------|------|-----|------|
|                               |                     |   | min     | typ  | max |      |
| Input Capacitance             | Ciss                | V <sub>DS</sub> =10V, f=1MHz                                    |         | 105  |     | pF   |
| Output Capacitance            | Coss                | V <sub>DS</sub> =10V, f=1MHz                                    |         | 23   |     | pF   |
| Reverse Transfer Capacitance  | Crss                | V <sub>DS</sub> =10V, f=1MHz                                    |         | 15   |     | pF   |
| Turn-ON Delay Time            | t <sub>d(on)</sub>  | See specified Test Circuit                                      |         | 6    |     | ns   |
| Rise Time                     | t <sub>r</sub>      | See specified Test Circuit                                      |         | 16   |     | ns   |
| Turn-OFF Delay Time           | t <sub>d(off)</sub> | See specified Test Circuit                                      |         | 19   |     | ns   |
| Fall Time                     | t <sub>f</sub>      | See specified Test Circuit                                      |         | 8    |     | ns   |
| Total Gate Charge             | Q <sub>g</sub>      | V <sub>DS</sub> =10V, V <sub>GS</sub> =4V, I <sub>D</sub> =1.6A |         | 1.4  |     | nC   |
| Gate-to-Source Charge         | Q <sub>gs</sub>     | V <sub>DS</sub> =10V, V <sub>GS</sub> =4V, I <sub>D</sub> =1.6A |         | 0.3  |     | nC   |
| Gate-to-Drain "Miller" Charge | Q <sub>gd</sub>     | V <sub>DS</sub> =10V, V <sub>GS</sub> =4V, I <sub>D</sub> =1.6A |         | 0.3  |     | nC   |
| Diode Forward Voltage         | V <sub>SD</sub>     | I <sub>S</sub> =1.6A, V <sub>GS</sub> =0                        |         | 0.92 | 1.2 | V    |

## Switching Time Test Circuit



## Electrical Connection





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