



MCH6412

N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- 1.8V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|------------------|--|-------------|------|
| Drain-to-Source Voltage | V _{DSS} | | 30 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±10 | V |
| Drain Current (DC) | I _D | | 5 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10μs, duty cycle≤1% | 20 | A |
| Allowable Power Dissipation | P _D | Mounted on a ceramic board (900mm ² ×0.8mm) | 1.5 | W |
| Channel Temperature | T _{ch} | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|----------------------|---|---------|------|-----|------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | V(BR)DSS | I _D =1mA, V _{GS} =0V | 30 | | | V |
| Zero-Gate Voltage Drain Current | I _{DSS} | V _{DS} =30V, V _{GS} =0V | | | 1 | μA |
| Gate-to-Source Leakage Current | I _{GSS} | V _{GS} =±8V, V _{DS} =0V | | | ±10 | μA |
| Cutoff Voltage | V _{GS(off)} | V _{DS} =10V, I _D =1mA | 0.4 | | 1.3 | V |
| Forward Transfer Admittance | y _{fs} | V _{DS} =10V, I _D =3A | 4.4 | 7.4 | | S |
| Static Drain-to-Source On-State Resistance | R _{DS(on)1} | I _D =3A, V _{GS} =4V | | 31 | 41 | mΩ |
| | R _{DS(on)2} | I _D =1.5A, V _{GS} =2.5V | | 40 | 57 | mΩ |
| | R _{DS(on)3} | I _D =0.3A, V _{GS} =1.8V | | 55 | 90 | mΩ |
| Input Capacitance | C _{iss} | V _{DS} =10V, f=1MHz | | 790 | | pF |
| Output Capacitance | C _{oss} | V _{DS} =10V, f=1MHz | | 125 | | pF |
| Reverse Transfer Capacitance | C _{rss} | V _{DS} =10V, f=1MHz | | 110 | | pF |
| Turn-ON Delay Time | t _{d(on)} | See specified Test Circuit. | | 16.5 | | ns |
| Rise Time | t _r | See specified Test Circuit. | | 78 | | ns |
| Turn-OFF Delay Time | t _{d(off)} | See specified Test Circuit. | | 77 | | ns |
| Fall Time | t _f | See specified Test Circuit. | | 125 | | ns |

Marking : KL

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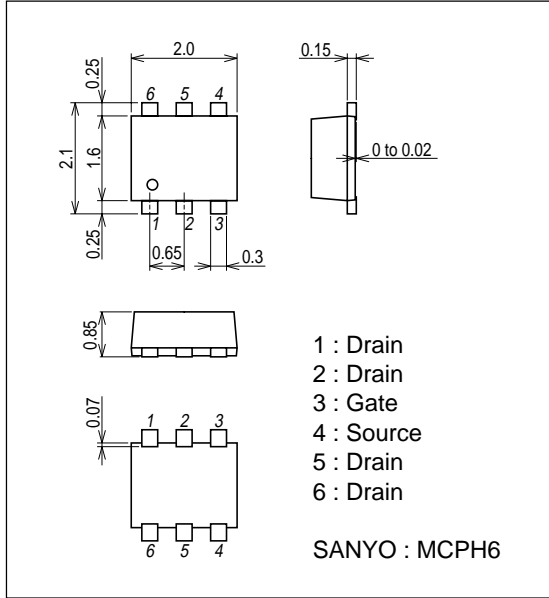
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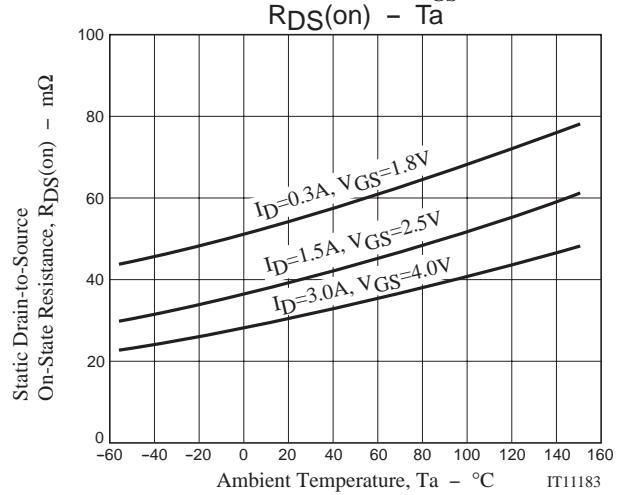
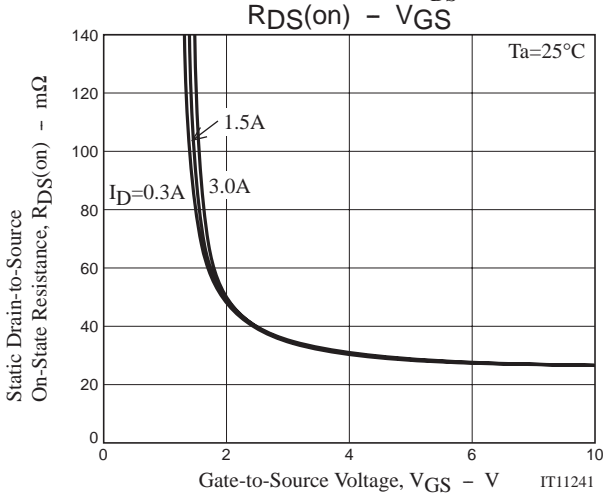
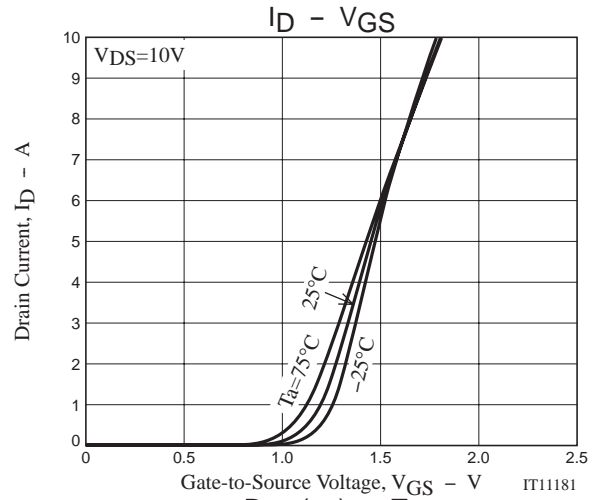
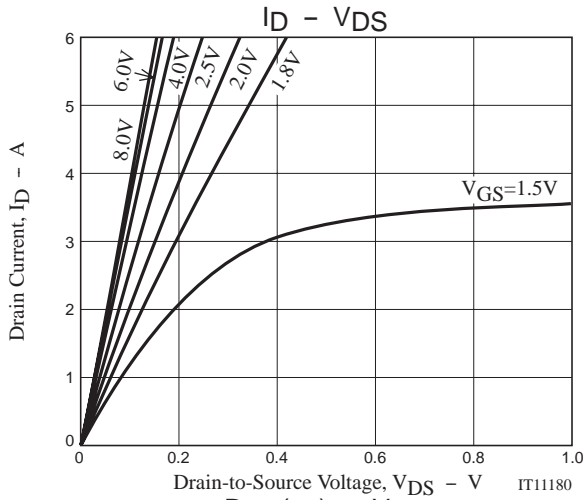
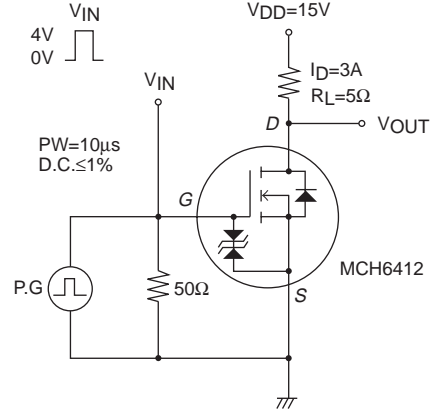
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-------------------------------|-----------------|---|---------|------|-----|------|
| | | | min | typ | max | |
| Total Gate Charge | Qg | V _{DS} =10V, V _{GS} =4V, I _D =5A | | 7.0 | | nC |
| Gate-to-Source Charge | Qgs | V _{DS} =10V, V _{GS} =4V, I _D =5A | | 1.8 | | nC |
| Gate-to-Drain "Miller" Charge | Qgd | V _{DS} =10V, V _{GS} =4V, I _D =5A | | 1.9 | | nC |
| Diode Forward Voltage | V _{SD} | I _S =5A, V _{GS} =0V | | 0.86 | 1.2 | V |

Package Dimensions

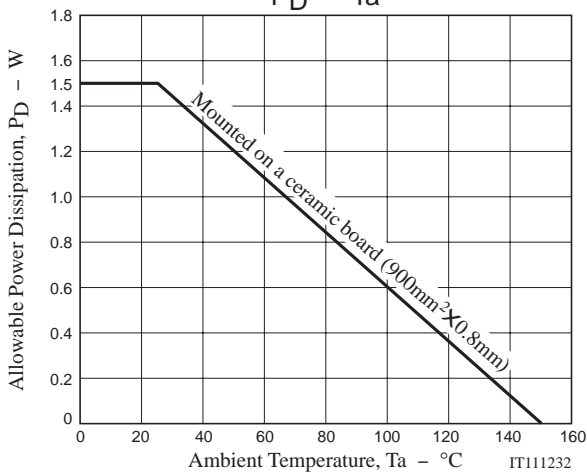
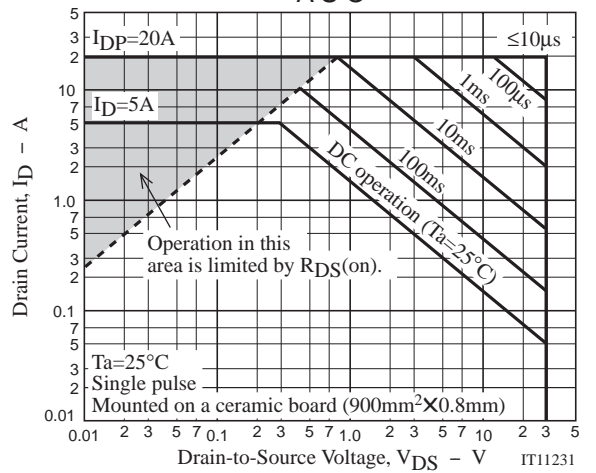
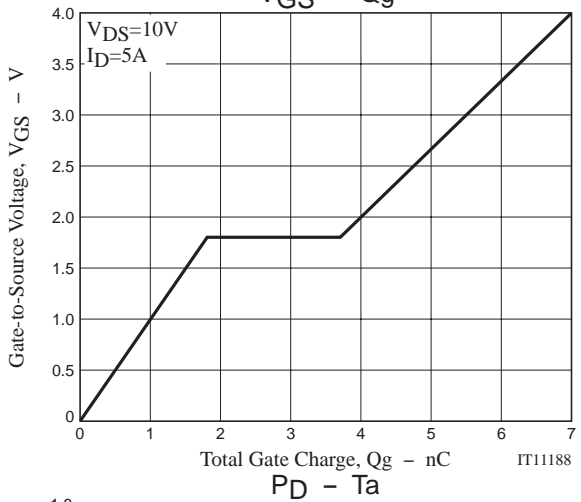
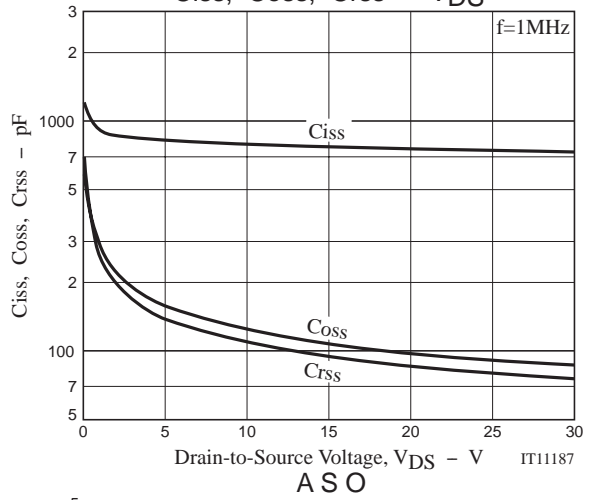
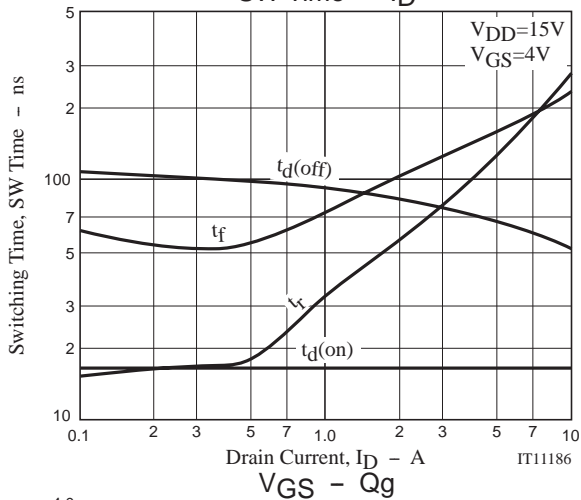
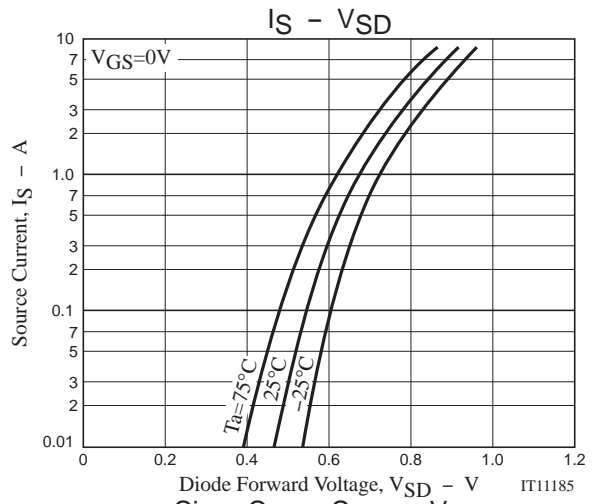
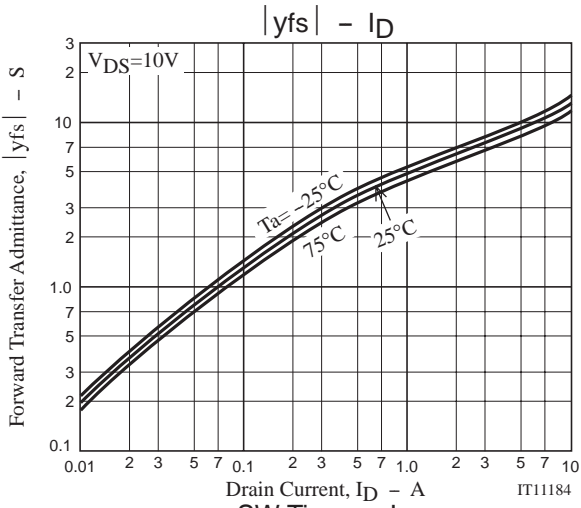
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Switching Time Test Circuit



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Note on usage : Since the MCH6412 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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