



SCH1404 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V 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} | | ±20 | V |
| Drain Current (DC) | I _D | | 2.5 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10μs, duty cycle≤1% | 10 | A |
| Allowable Power Dissipation | P _D | Mounted on a ceramic board (900mm ² ×0.8mm) | 0.8 | 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} =0 | 30 | | | V |
| Zero-Gate Voltage Drain Current | I _{DSS} | V _{DS} =30V, V _{GS} =0 | | | 1 | μA |
| Gate-to-Source Leakage Current | I _{GSS} | V _{GS} =±16V, V _{DS} =0 | | | ±10 | μA |
| 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 =1.5A | 1.8 | 3.0 | | S |
| Static Drain-to-Source On-State Resistance | R _{DS(on)1} | I _D =1.5A, V _{GS} =10V | | 84 | 110 | mΩ |
| | R _{DS(on)2} | I _D =1A, V _{GS} =4V | | 125 | 175 | mΩ |
| Input Capacitance | C _{iss} | V _{DS} =10V, f=1MHz | | 180 | | pF |
| Output Capacitance | C _{oss} | V _{DS} =10V, f=1MHz | | 42 | | pF |
| Reverse Transfer Capacitance | C _{rss} | V _{DS} =10V, f=1MHz | | 25 | | pF |
| Turn-ON Delay Time | t _{d(on)} | See specified Test Circuit. | | 7.0 | | ns |
| Rise Time | t _r | See specified Test Circuit. | | 2.8 | | ns |
| Turn-OFF Delay Time | t _{d(off)} | See specified Test Circuit. | | 18.5 | | ns |
| Fall Time | t _f | See specified Test Circuit. | | 4.4 | | ns |

Marking : KD

Continued on next page.

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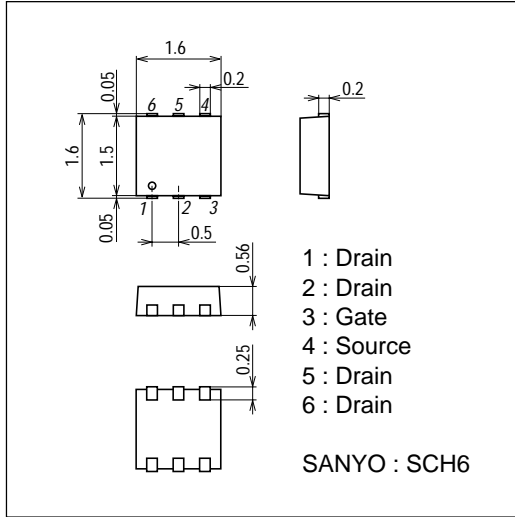
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-------------------------------|-----------------|--|---------|------|-----|------|
| | | | min | typ | max | |
| Total Gate Charge | Qg | V _{DS} =10V, V _{GS} =10V, I _D =2.5A | | 4.9 | | nC |
| Gate-to-Source Charge | Qgs | V _{DS} =10V, V _{GS} =10V, I _D =2.5A | | 0.93 | | nC |
| Gate-to-Drain "Miller" Charge | Qgd | V _{DS} =10V, V _{GS} =10V, I _D =2.5A | | 0.63 | | nC |
| Diode Forward Voltage | V _{SD} | I _S =2.5A, V _{GS} =0 | | 0.85 | 1.2 | V |

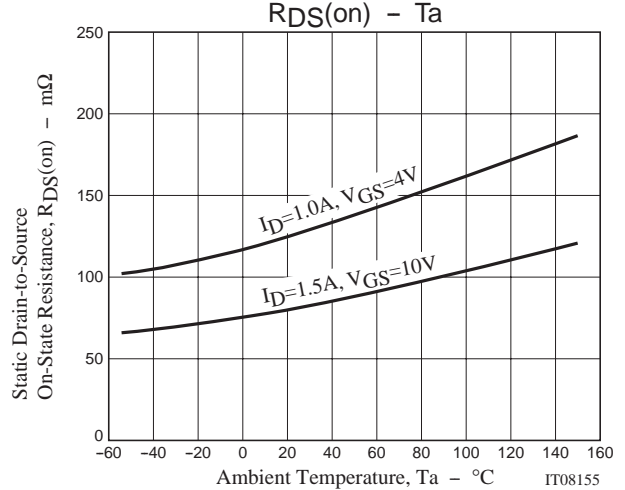
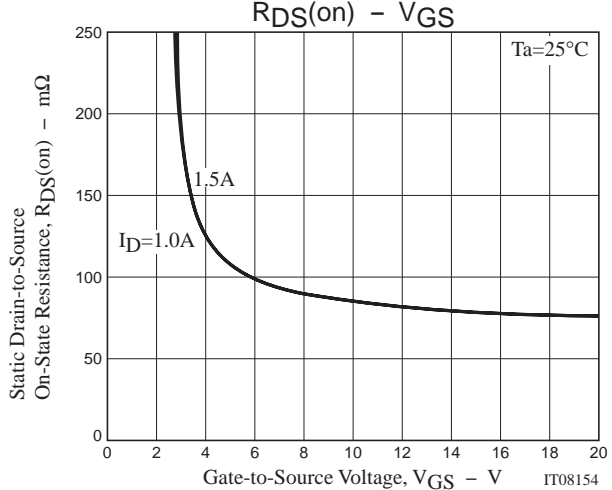
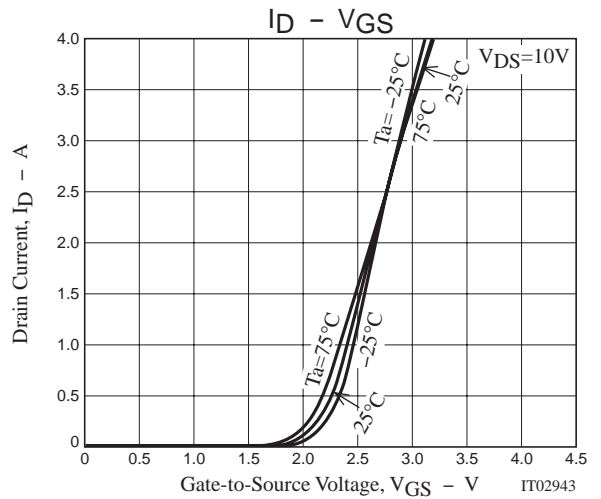
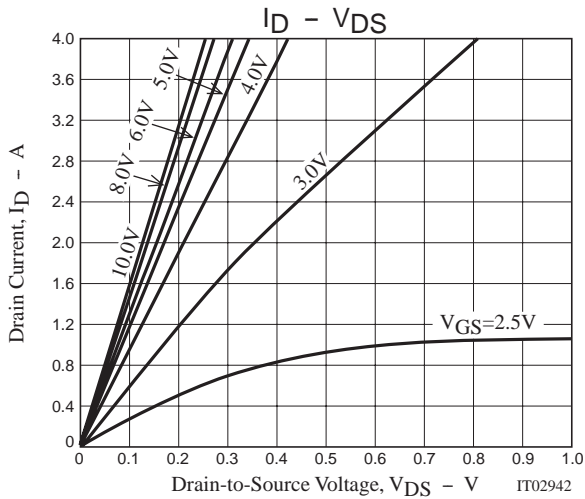
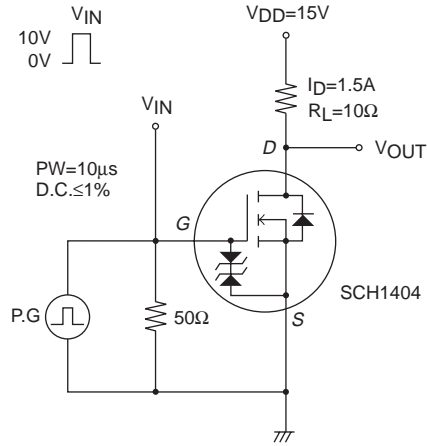
Package Dimensions

unit : mm

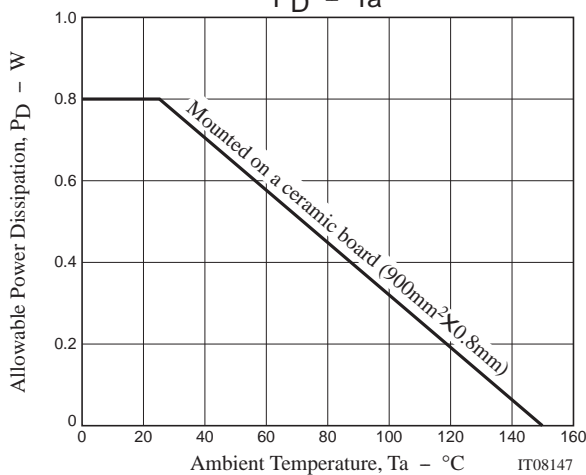
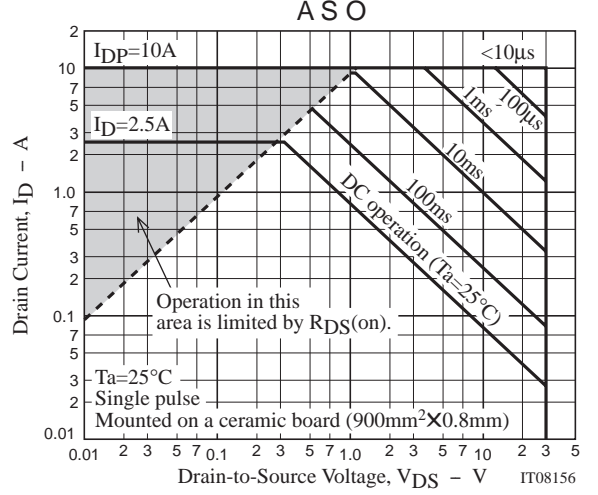
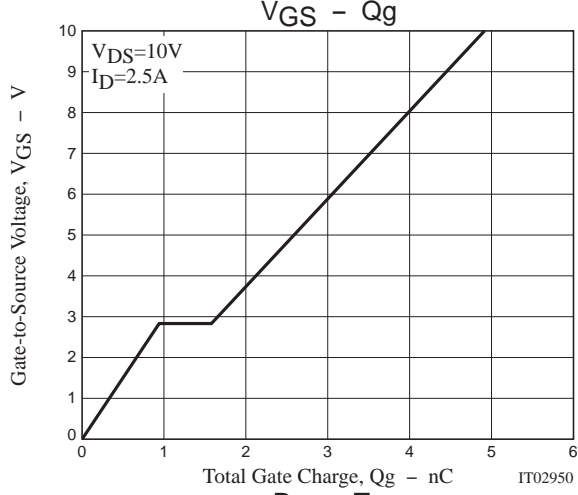
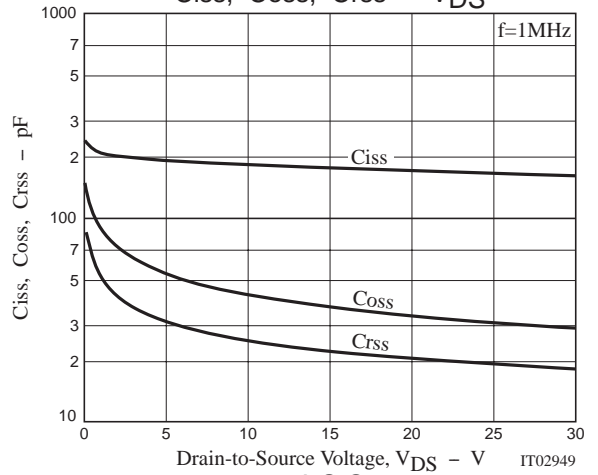
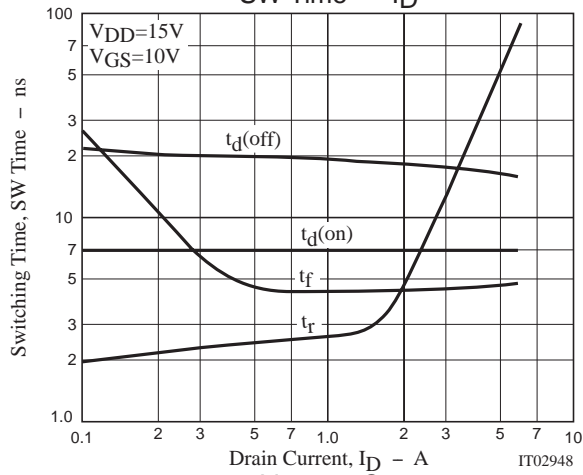
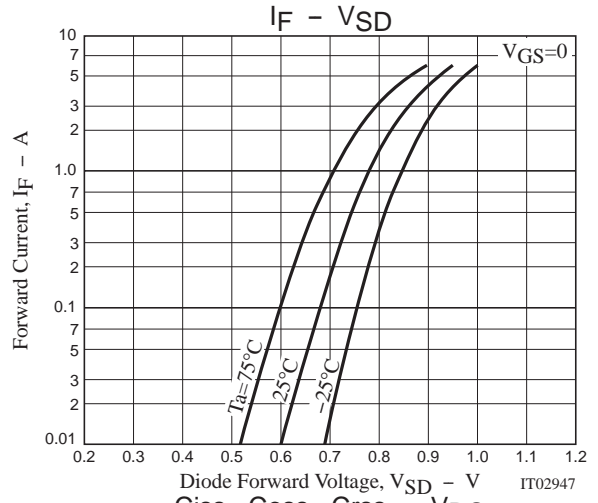
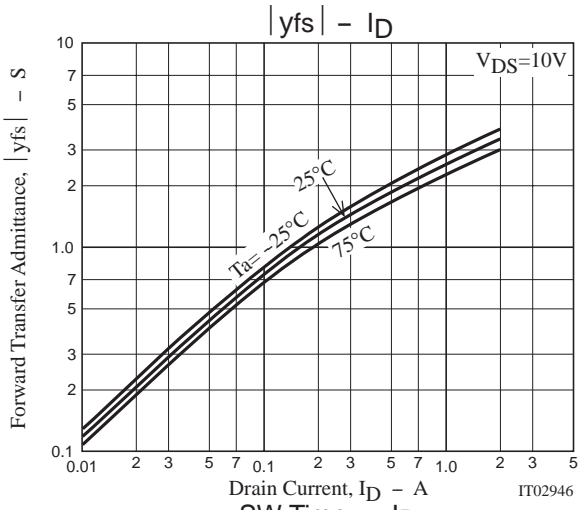
2221A



Switching Time Test Circuit



SCH1404



Note on usage : Since the SCH1404 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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