



5LP01M — P-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance
- Ultrahigh-speed switching
- 2.5V drive

Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|------------------|------------------------|-------------|------|
| Drain-to-Source Voltage | V _{DSS} | | -50 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±10 | V |
| Drain Current (DC) | I _D | | -0.07 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10μs, duty cycle≤1% | -0.28 | A |
| Allowable Power Dissipation | P _D | | 0.15 | W |
| Channel Temperature | T _{ch} | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

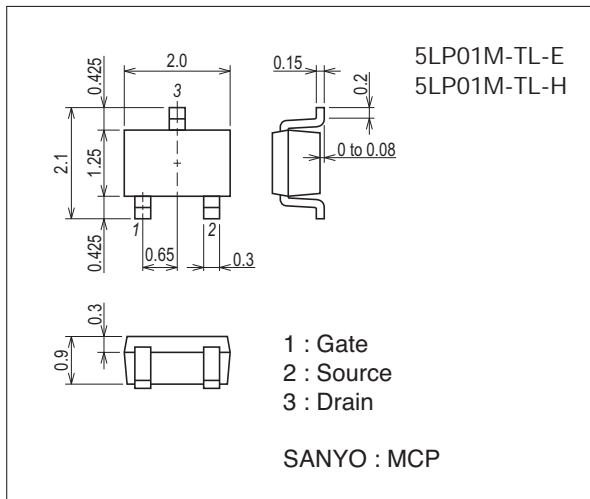
This product is designed to "ESD immunity < 200V**", so please take care when handling.

* Machine Model

Package Dimensions

unit : mm (typ)

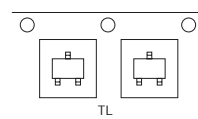
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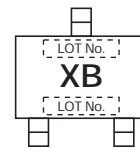
Product & Package Information

- Package : MCP
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

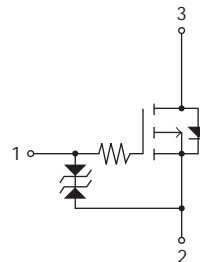
Packing Type: TL



Marking



Electrical Connection

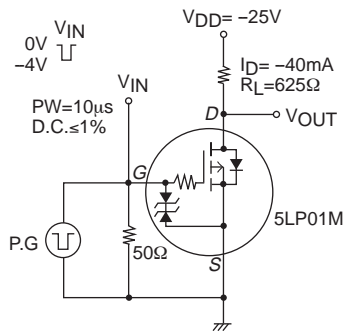


5LP01M

Electrical Characteristics at $T_a=25^{\circ}\text{C}$

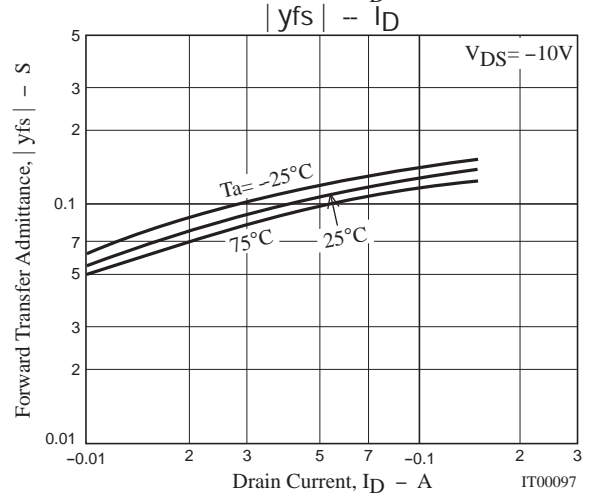
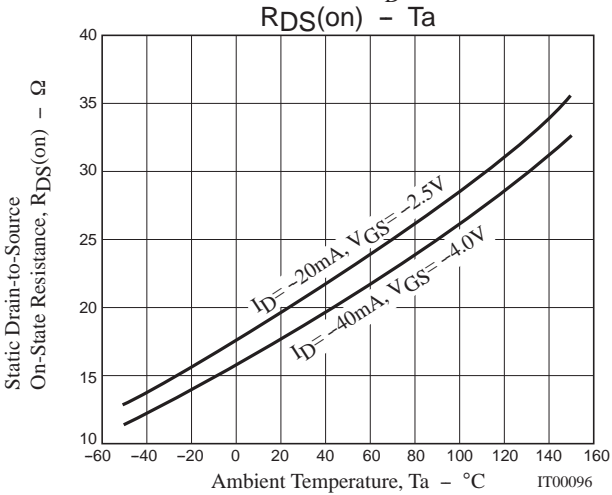
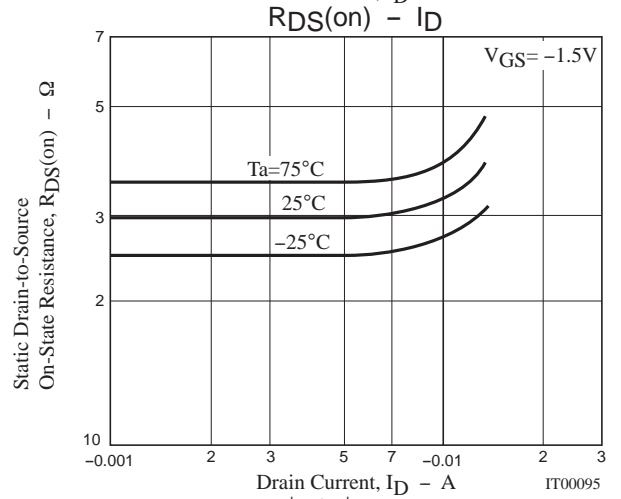
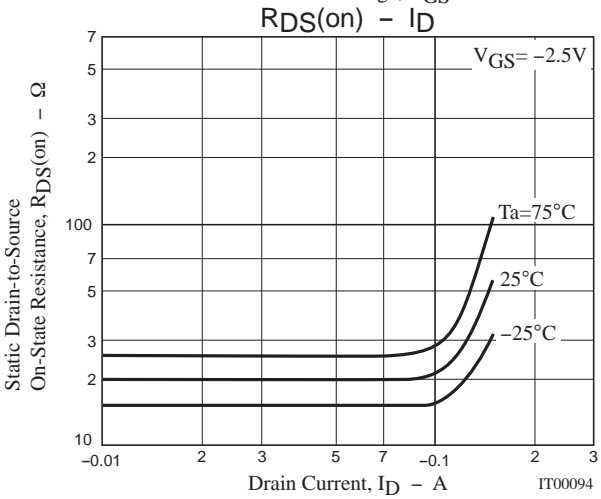
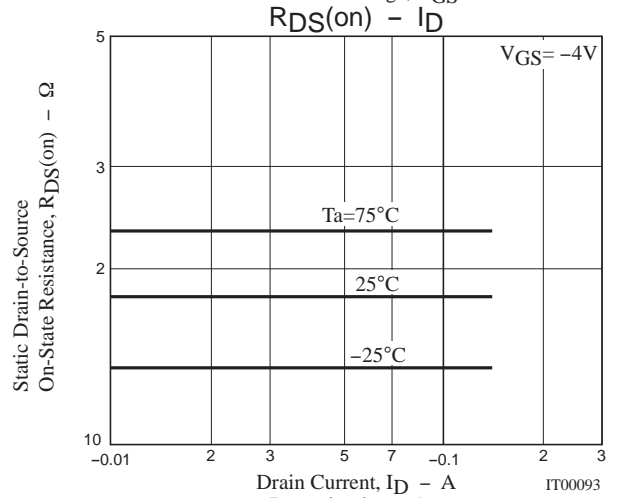
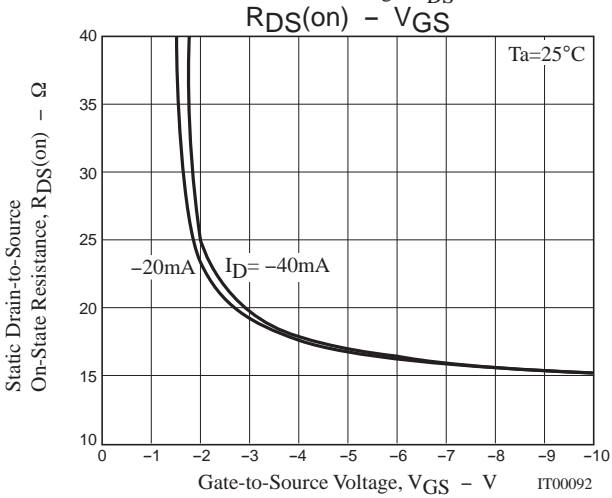
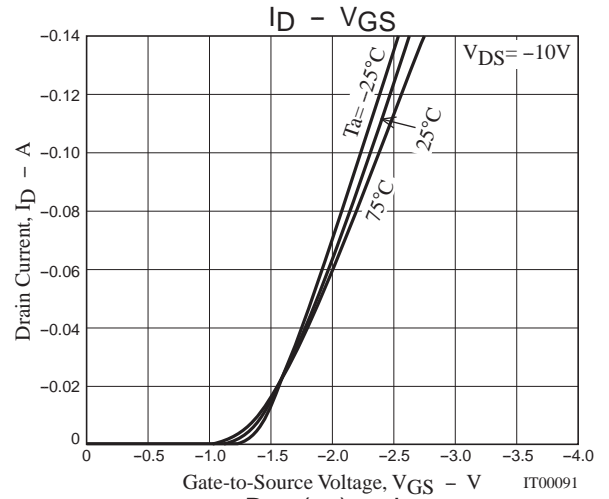
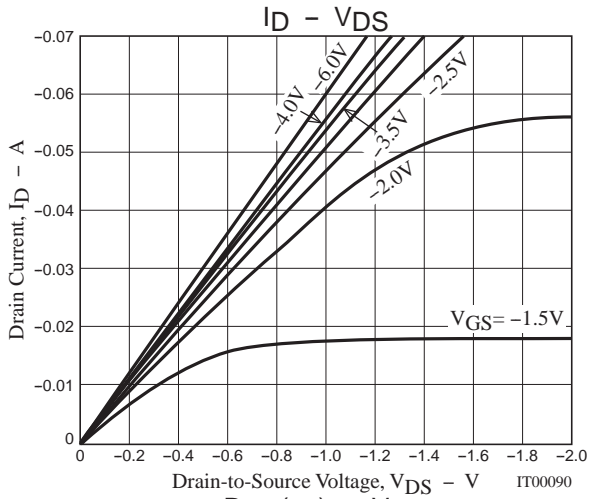
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|--|---------|-------|----------|---------------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D = -1\text{mA}, V_{GS}=0\text{V}$ | -50 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -50\text{V}, V_{GS}=0\text{V}$ | | | -1 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = -10\text{V}, I_D = -100\mu\text{A}$ | -0.4 | | -1.4 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS} = -10\text{V}, I_D = -40\text{mA}$ | 70 | 100 | | mS |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D = -40\text{mA}, V_{GS} = -4\text{V}$ | | 18 | 23 | Ω |
| | $R_{DS(on)2}$ | $I_D = -20\text{mA}, V_{GS} = -2.5\text{V}$ | | 20 | 28 | Ω |
| | $R_{DS(on)3}$ | $I_D = -5\text{mA}, V_{GS} = -1.5\text{V}$ | | 30 | 60 | Ω |
| Input Capacitance | C_{iss} | | | 7.4 | | pF |
| Output Capacitance | C_{oss} | $V_{DS} = -10\text{V}, f=1\text{MHz}$ | | 4.2 | | pF |
| Reverse Transfer Capacitance | C_{rss} | | | 1.3 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit. | | 20 | | ns |
| Rise Time | t_r | | | 35 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | | | 160 | | ns |
| Fall Time | t_f | | | 150 | | ns |
| Total Gate Charge | Q_g | | | | 1.40 | |
| Gate-to-Source Charge | Q_{gs} | $V_{DS} = -10\text{V}, V_{GS} = -10\text{V}, I_D = -70\text{mA}$ | | 0.16 | | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | | | 0.23 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S = -70\text{mA}, V_{GS}=0\text{V}$ | | -0.85 | -1.2 | V |

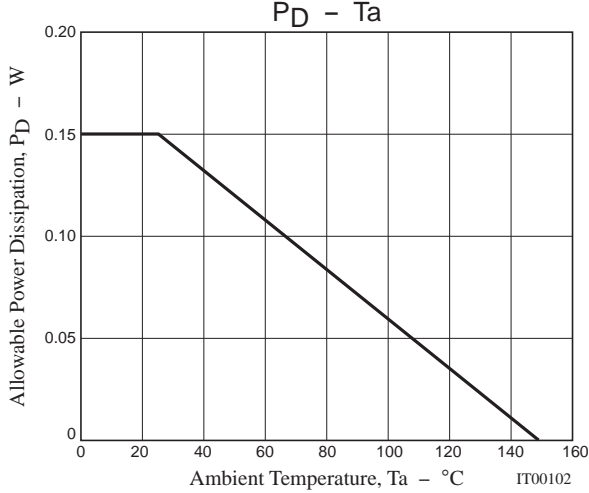
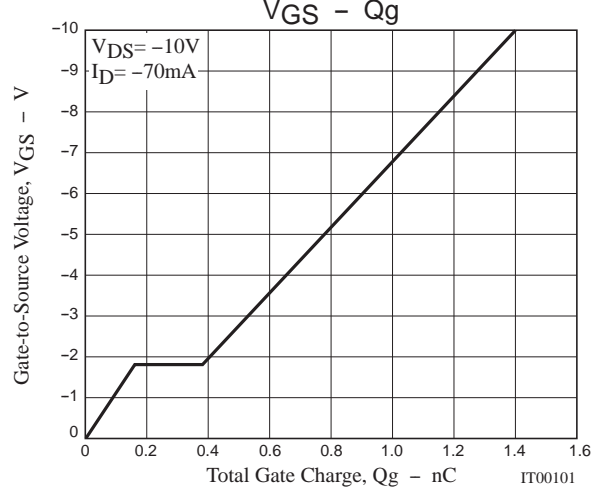
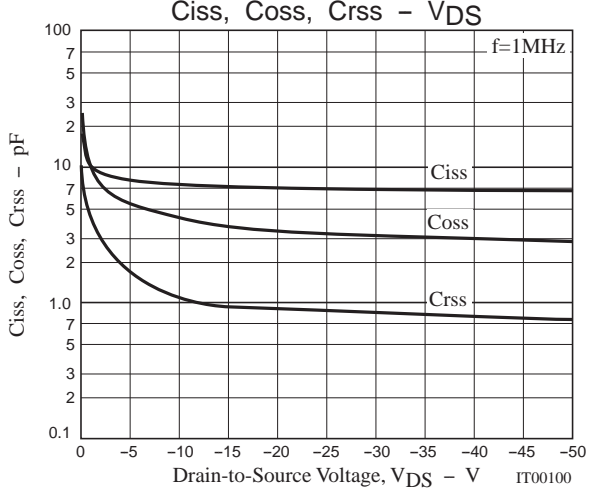
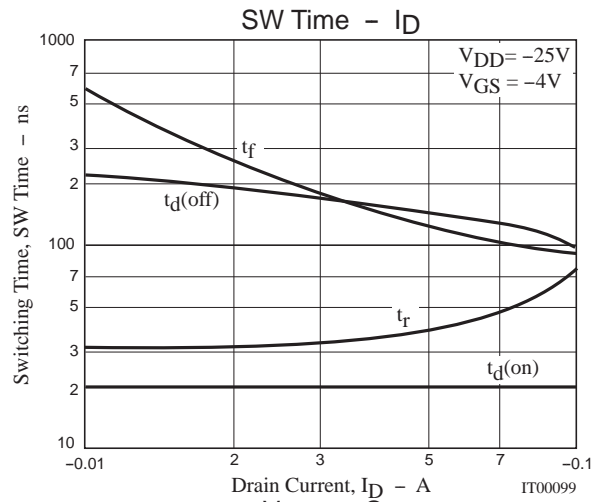
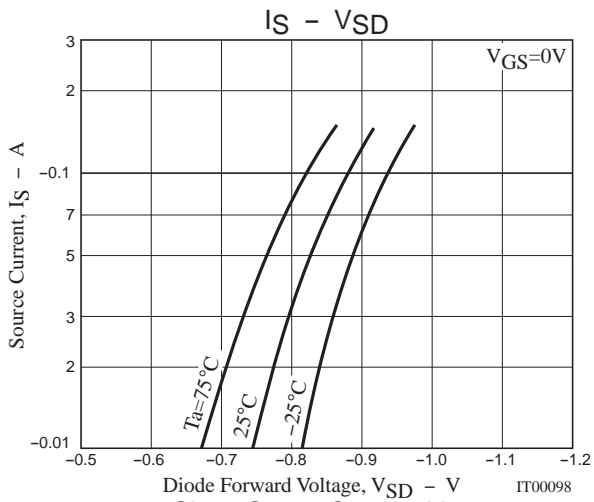
Switching Time Test Circuit



Ordering Information

| Device | Package | Shipping | memo |
|-------------|---------|----------------|--------------------------|
| 5LP01M-TL-E | MCP | 3,000pcs./reel | Pb Free |
| 5LP01M-TL-H | MCP | 3,000pcs./reel | Pb Free and Halogen Free |





Note on usage : Since the 5LP01M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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