

Ordering number : ENA0424



SANYO Semiconductors

DATA SHEET

N-Channel and P-Channel Silicon MOSFETs

FW340 — General-Purpose Switching Device Applications

Features

- For motor drives, inverters.
- Composite type with an N-channel MOSFET and a P-channel MOSFET driving from a 4V supply voltage contained in a single package.
- High-density mounting.

Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | N-channel | P-channel | Unit |
|-----------------------------|------------------|---|-------------|-----------|------|
| Drain-to-Source Voltage | V _{DSS} | | 30 | -30 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±20 | ±20 | V |
| Drain Current (DC) | I _D | | 5 | -5 | A |
| Drain Current (PW≤10s) | I _D | Duty cycle≤1% | 5.5 | -5.5 | A |
| Drain Current (PW≤100ms) | I _D | Duty cycle≤1% | 7 | -9 | A |
| Drain Current (PW≤10μs) | I _{DP} | Duty cycle≤1% | 20 | -20 | A |
| Allowable Power Dissipation | P _D | Mounted on a ceramic board (2000mm²×0.8mm)1unit, PW≤10s | 1.8 | | W |
| Total Dissipation | P _T | Mounted on a ceramic board (2000mm²×0.8mm), PW≤10s | 2.2 | | 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 | |
| [N-channel] | | | | | | |
| 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} =±16V, V _{DS} =0V | | | ±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 =5A | 3.3 | 5.5 | | S |
| Static Drain-to-Source On-State Resistance | R _{DS(on)1} | I _D =5A, V _{GS} =10V | | 37 | 48 | mΩ |
| | R _{DS(on)2} | I _D =3A, V _{GS} =4.5V | | 56 | 78 | mΩ |
| | R _{DS(on)3} | I _D =3A, V _{GS} =4V | | 64 | 90 | mΩ |

Marking : W340

Continued on next page.

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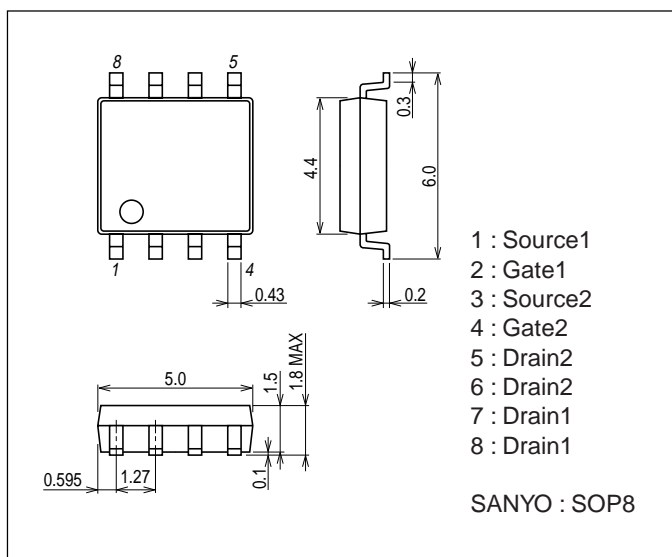
Continued from preceding page.

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|----------------------|---|---------|-------|------|------|
| | | | min | typ | max | |
| Input Capacitance | Ciss | V _{DS} =10V, f=1MHz | | 460 | | pF |
| Output Capacitance | Coss | V _{DS} =10V, f=1MHz | | 95 | | pF |
| Reverse Transfer Capacitance | Crss | V _{DS} =10V, f=1MHz | | 75 | | pF |
| Turn-ON Delay Time | t _{d(on)} | See specified Test Circuit. | | 11 | | ns |
| Rise Time | t _r | See specified Test Circuit. | | 20 | | ns |
| Turn-OFF Delay Time | t _{d(off)} | See specified Test Circuit. | | 30 | | ns |
| Fall Time | t _f | See specified Test Circuit. | | 20 | | ns |
| Total Gate Charge | Q _g | V _{DS} =10V, V _{GS} =10V, I _D =5A | | 8.6 | | nC |
| Gate-to-Source Charge | Q _{gs} | V _{DS} =10V, V _{GS} =10V, I _D =5A | | 2.0 | | nC |
| Gate-to-Drain "Miller" Charge | Q _{gd} | V _{DS} =10V, V _{GS} =10V, I _D =5A | | 1.6 | | nC |
| Diode Forward Voltage | V _{SD} | I _S =5A, V _{GS} =0V | | 0.9 | 1.2 | V |
| [P-channel] | | | | | | |
| 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} =±16V, V _{DS} =0V | | | ±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 =-5A | 4.5 | 7.5 | | S |
| Static Drain-to-Source On-State Resistance | R _{DS(on)1} | I _D =-5A, V _{GS} =-10V | | 41 | 53 | mΩ |
| | R _{DS(on)2} | I _D =-3A, V _{GS} =-4.5V | | 62 | 87 | mΩ |
| | R _{DS(on)3} | I _D =-3A, V _{GS} =-4V | | 70 | 98 | mΩ |
| Input Capacitance | Ciss | V _{DS} =-10V, f=1MHz | | 1000 | | pF |
| Output Capacitance | Coss | V _{DS} =-10V, f=1MHz | | 195 | | pF |
| Reverse Transfer Capacitance | Crss | V _{DS} =-10V, f=1MHz | | 150 | | pF |
| Turn-ON Delay Time | t _{d(on)} | See specified Test Circuit. | | 13 | | ns |
| Rise Time | t _r | See specified Test Circuit. | | 82 | | ns |
| Turn-OFF Delay Time | t _{d(off)} | See specified Test Circuit. | | 87 | | ns |
| Fall Time | t _f | See specified Test Circuit. | | 55 | | ns |
| Total Gate Charge | Q _g | V _{DS} =-10V, V _{GS} =-10V, I _D =-5A | | 16.5 | | nC |
| Gate-to-Source Charge | Q _{gs} | V _{DS} =-10V, V _{GS} =-10V, I _D =-5A | | 2.5 | | nC |
| Gate-to-Drain "Miller" Charge | Q _{gd} | V _{DS} =-10V, V _{GS} =-10V, I _D =-5A | | 2.5 | | nC |
| Diode Forward Voltage | V _{SD} | I _S =-5A, V _{GS} =0V | | -0.85 | -1.5 | V |

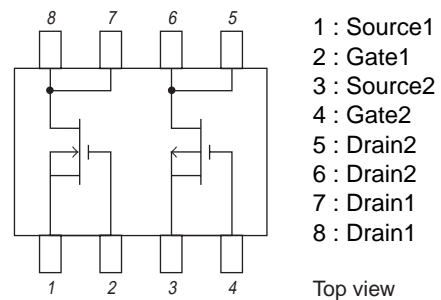
Package Dimensions

unit : mm

7005-003



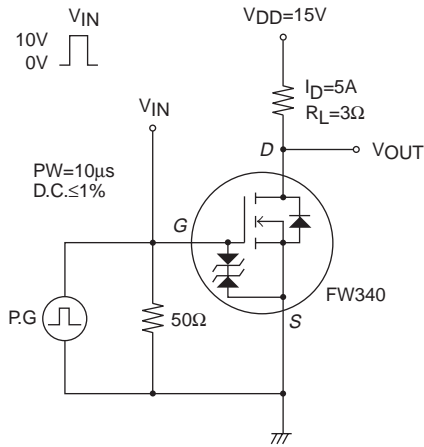
Electrical Connection



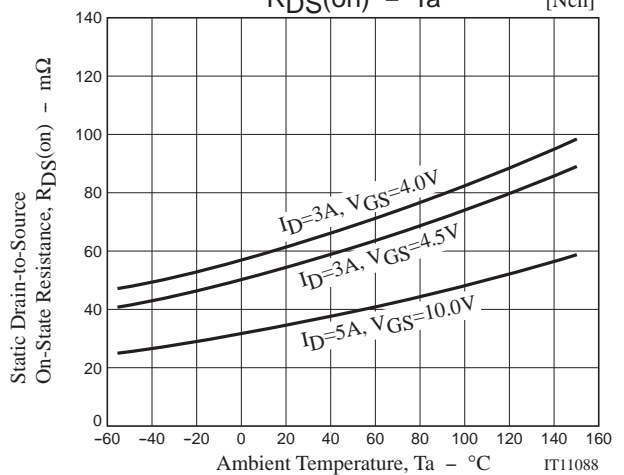
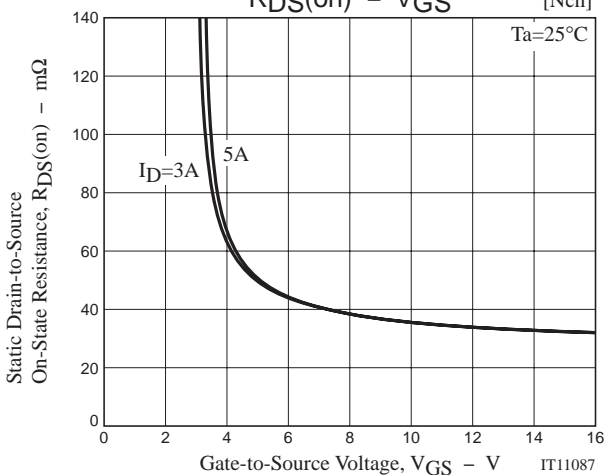
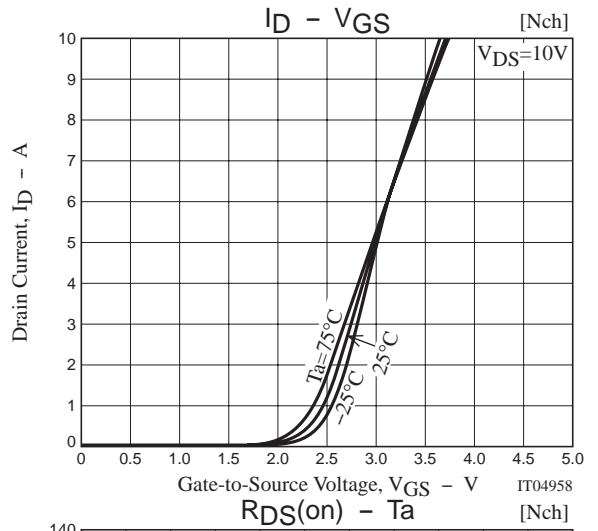
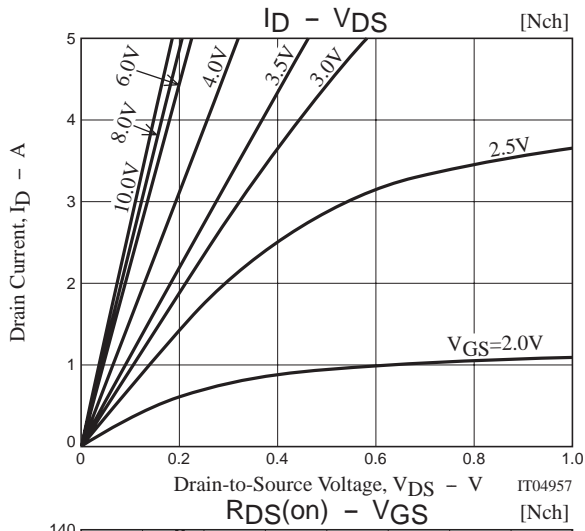
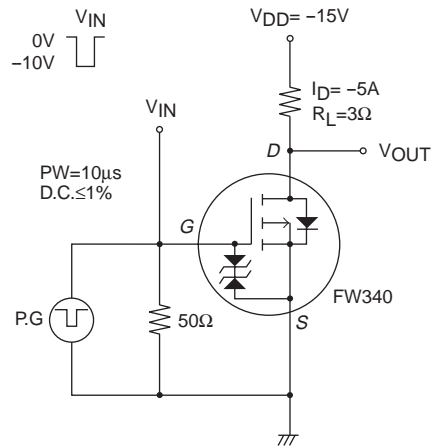
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Switching Time Test Circuit

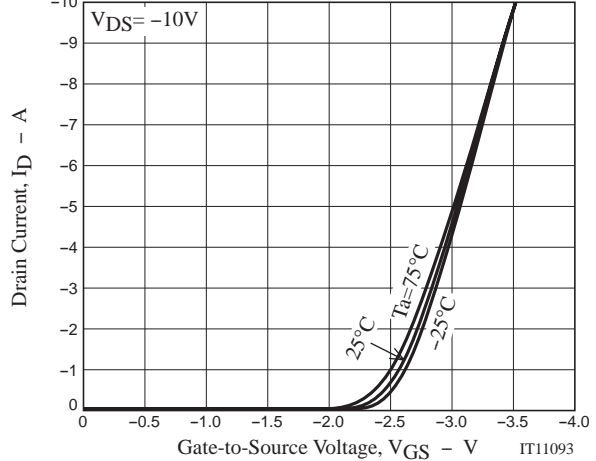
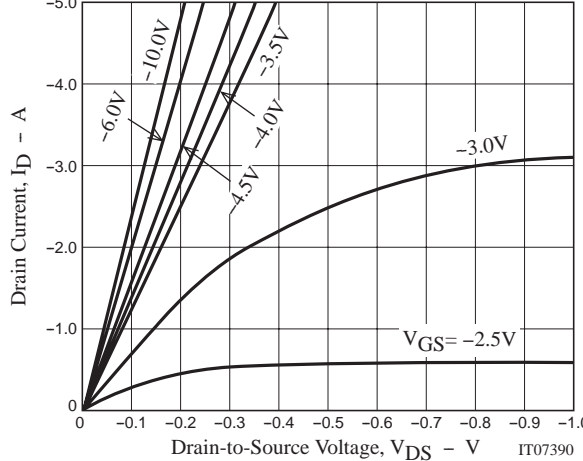
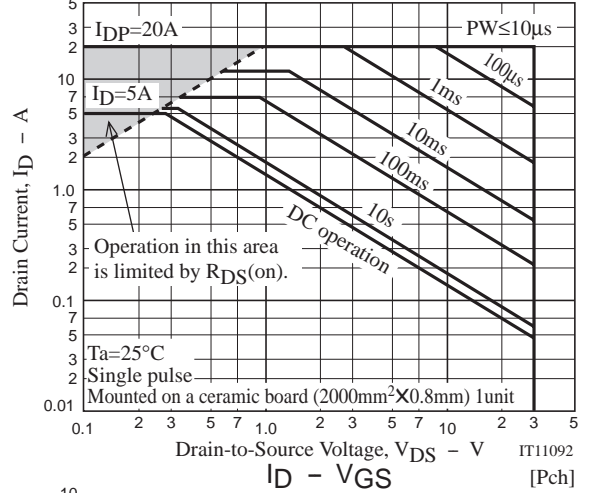
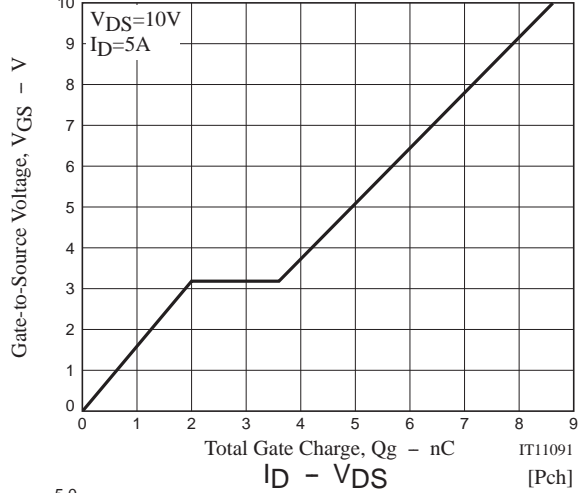
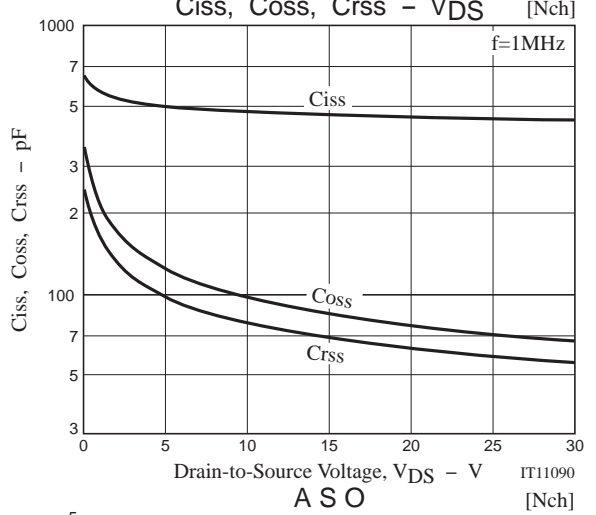
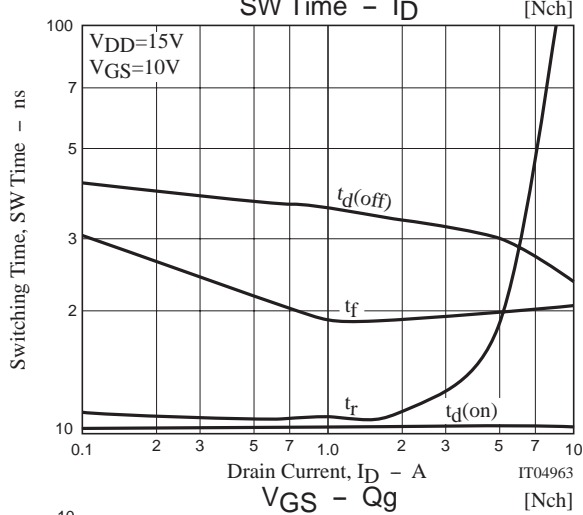
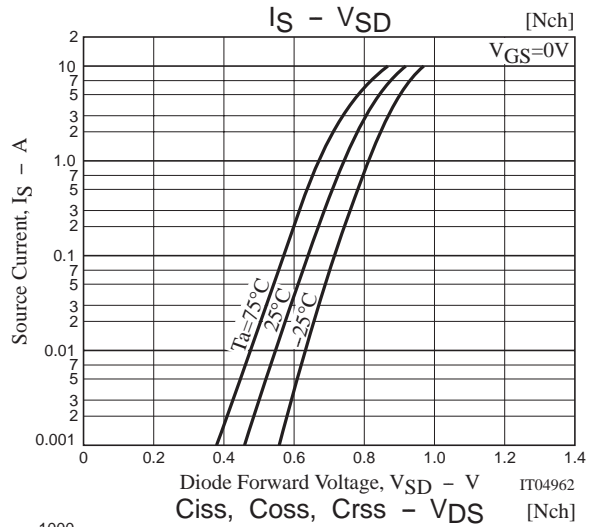
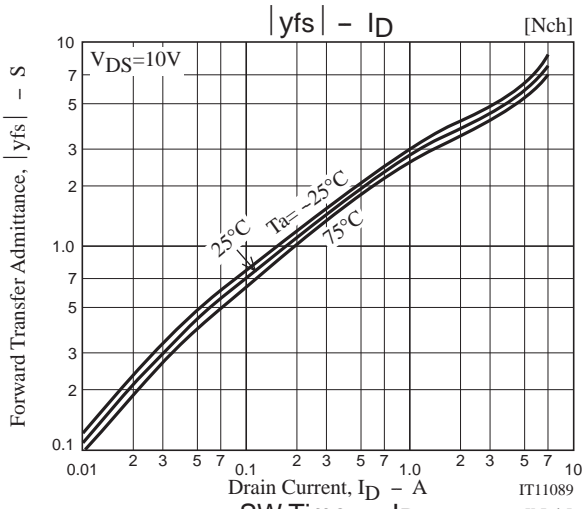
[N-channel]



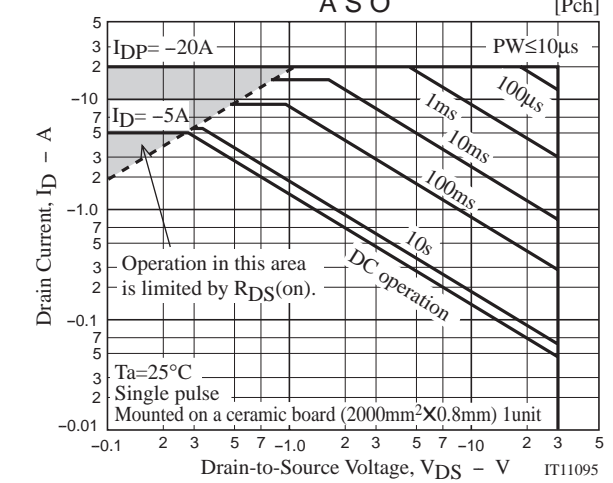
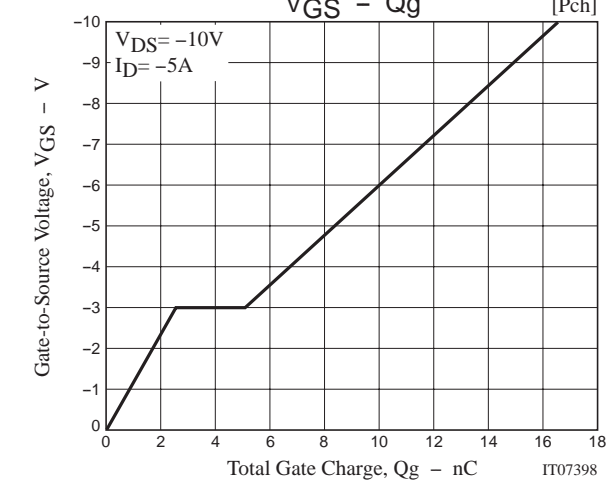
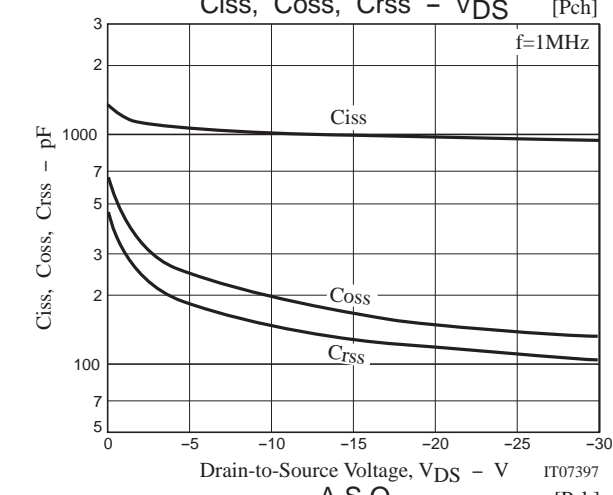
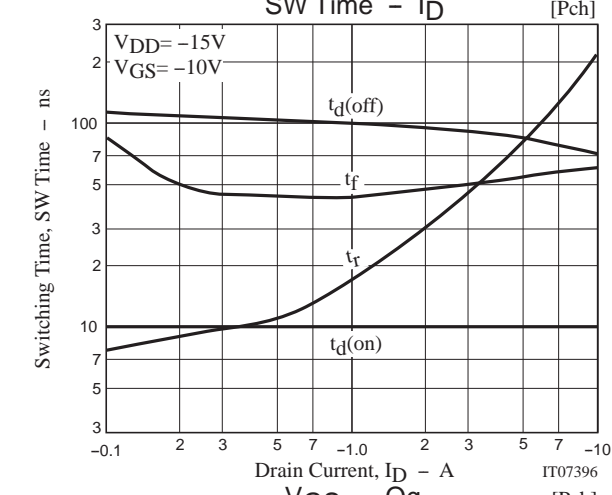
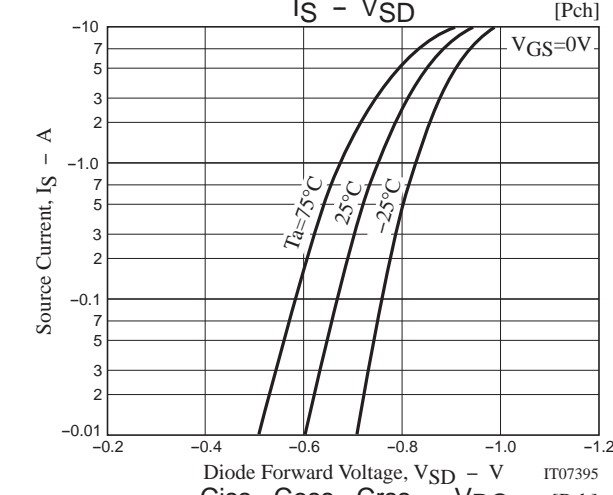
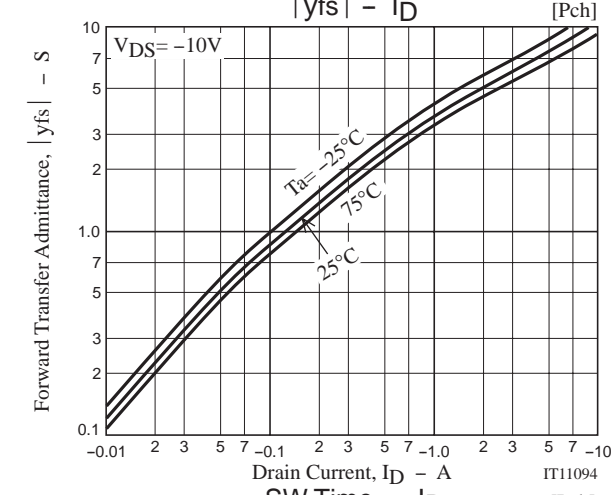
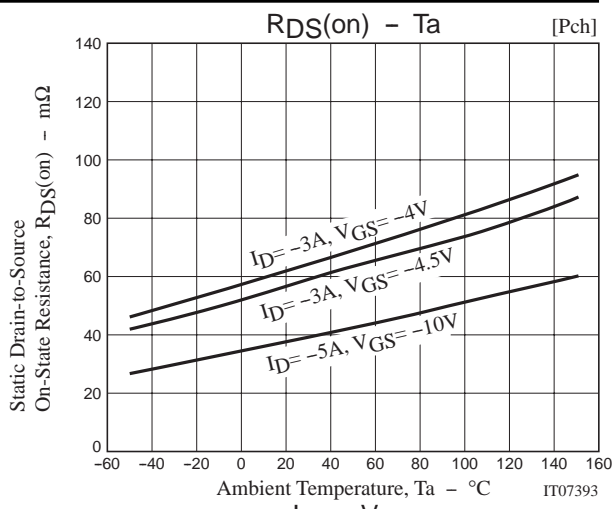
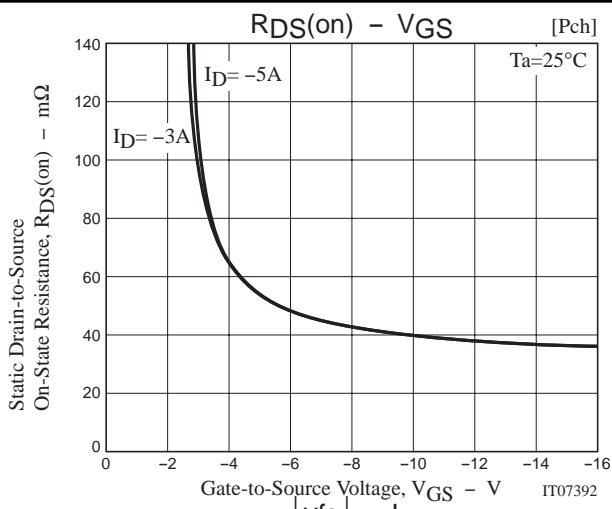
[P-channel]



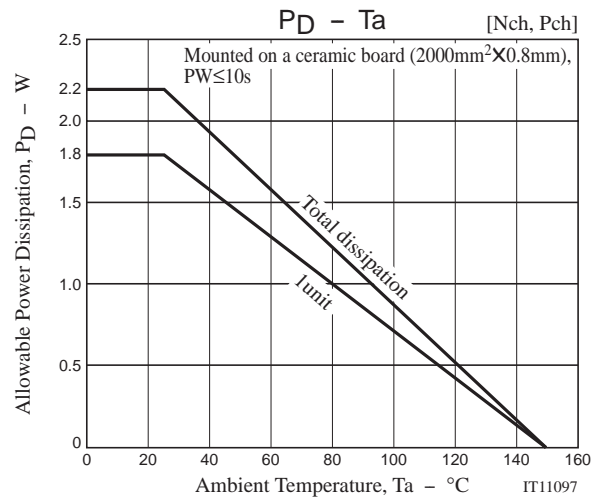
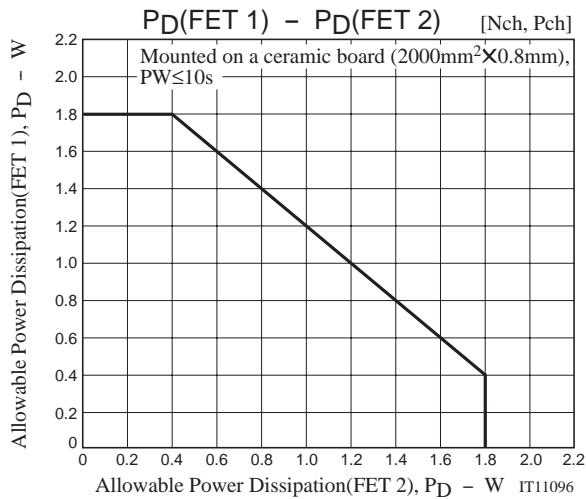
FW340



FW340



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Note on usage : Since the FW340 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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