



SANYO Semiconductors

DATA SHEET

FW342

N-Channel and P-Channel Silicon MOSFETs

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 | | 6 | -5 | A |
| Drain Current (PW≤10s) | I _D | duty cycle≤1% | 7 | -5.5 | A |
| Drain Current (PW≤100ms) | I _D | duty cycle≤1% | 10 | -9 | A |
| Drain Current (PW≤10μs) | I _{DP} | duty cycle≤1% | 24 | -20 | A |
| Allowable Power Dissipation | P _D | Mounted on a ceramic board (1500mm ² ×0.8mm)1unit, PW≤10s | 1.8 | | W |
| Total Dissipation | P _T | Mounted on a ceramic board (1500mm ² ×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} =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 =6A | 4.6 | 7.8 | | S |
| Static Drain-to-Source On-State Resistance | R _{DS(on)1} | I _D =6A, V _{GS} =10V | | 25 | 33 | mΩ |
| | R _{DS(on)2} | I _D =3A, V _{GS} =4.5V | | 35 | 49 | mΩ |
| | R _{DS(on)3} | I _D =3A, V _{GS} =4V | | 37 | 52 | mΩ |

Marking : W342

Continued on next page.

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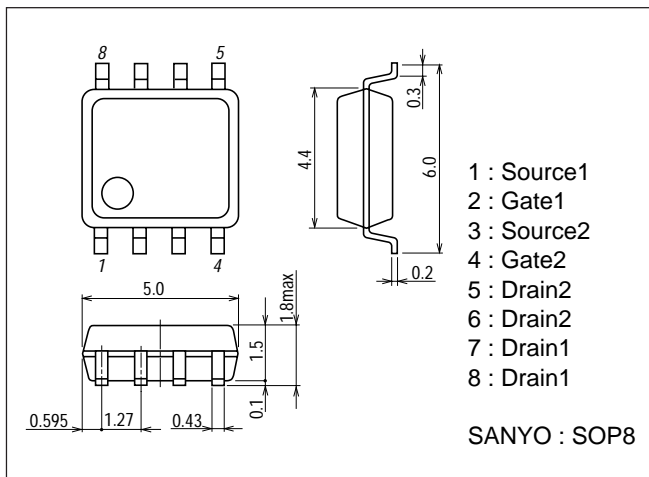
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|-------------------------------------|---------|-------|----------|------------|
| | | | min | typ | max | |
| Input Capacitance | Ciss | $V_{DS}=10V, f=1MHz$ | | 850 | | pF |
| Output Capacitance | Coss | $V_{DS}=10V, f=1MHz$ | | 170 | | pF |
| Reverse Transfer Capacitance | Crss | $V_{DS}=10V, f=1MHz$ | | 125 | | pF |
| Turn-ON Delay Time | $t_d(on)$ | See specified Test Circuit. | | 12.5 | | ns |
| Rise Time | t_r | See specified Test Circuit. | | 108 | | ns |
| Turn-OFF Delay Time | $t_d(off)$ | See specified Test Circuit. | | 77 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | 61 | | ns |
| Total Gate Charge | Qg | $V_{DS}=10V, V_{GS}=10V, I_D=6A$ | | 16 | | nC |
| Gate-to-Source Charge | Qgs | $V_{DS}=10V, V_{GS}=10V, I_D=6A$ | | 3.4 | | nC |
| Gate-to-Drain "Miller" Charge | Qgd | $V_{DS}=10V, V_{GS}=10V, I_D=6A$ | | 2.4 | | nC |
| Diode Forward Voltage | VSD | $I_S=6A, V_{GS}=0$ | | 0.84 | 1.2 | V |
| [P-channel] | | | | | | |
| 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} | $V_{GS}=\pm 16V, V_{DS}=0$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}=-10V, I_D=-1mA$ | -1.2 | | -2.6 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS}=-10V, I_D=-5A$ | 4.5 | 7.5 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D=-5A, V_{GS}=-10V$ | | 41 | 53 | m Ω |
| | $R_{DS(on)2}$ | $I_D=-3A, V_{GS}=-4.5V$ | | 62 | 87 | m Ω |
| | $R_{DS(on)3}$ | $I_D=-3A, V_{GS}=-4V$ | | 70 | 98 | m Ω |
| 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 | Qg | $V_{DS}=-10V, V_{GS}=-10V, I_D=-5A$ | | 16.5 | | nC |
| Gate-to-Source Charge | Qgs | $V_{DS}=-10V, V_{GS}=-10V, I_D=-5A$ | | 2.5 | | nC |
| Gate-to-Drain "Miller" Charge | Qgd | $V_{DS}=-10V, V_{GS}=-10V, I_D=-5A$ | | 2.5 | | nC |
| Diode Forward Voltage | VSD | $I_S=-5A, V_{GS}=0$ | | -0.85 | -1.5 | V |

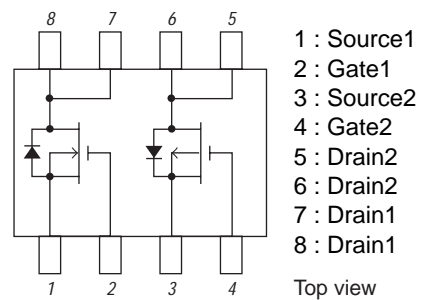
Package Dimensions

unit : mm

2129



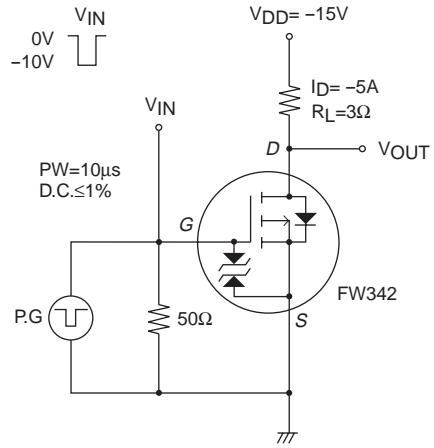
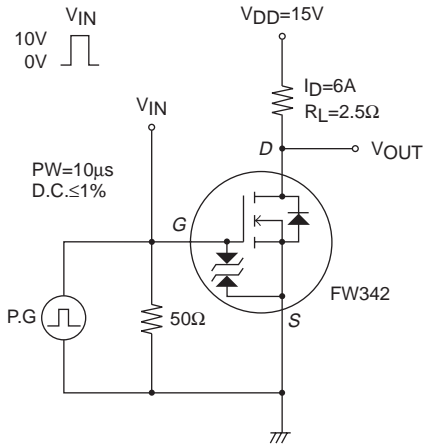
Electrical Connection



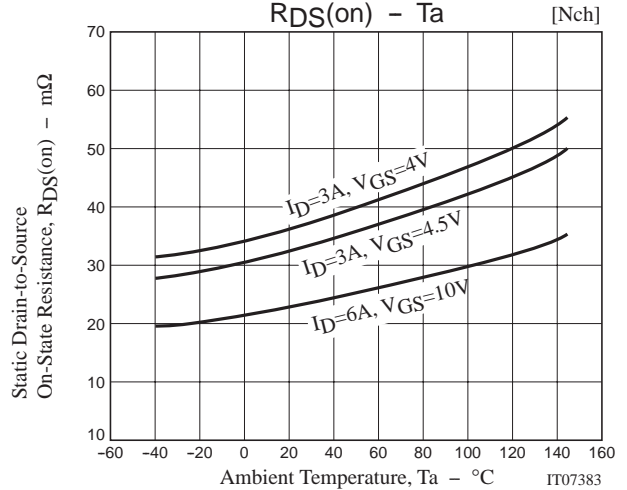
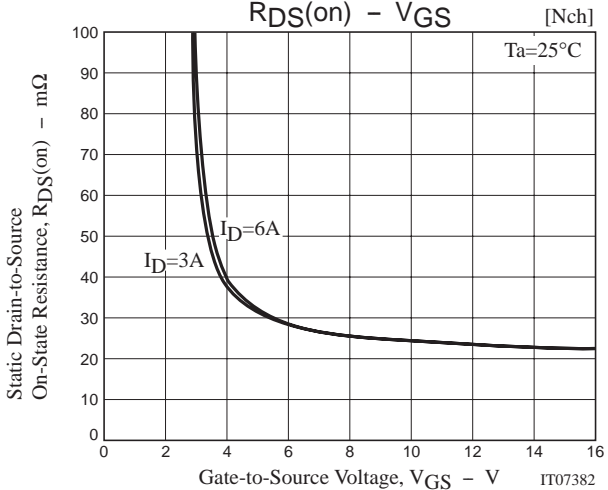
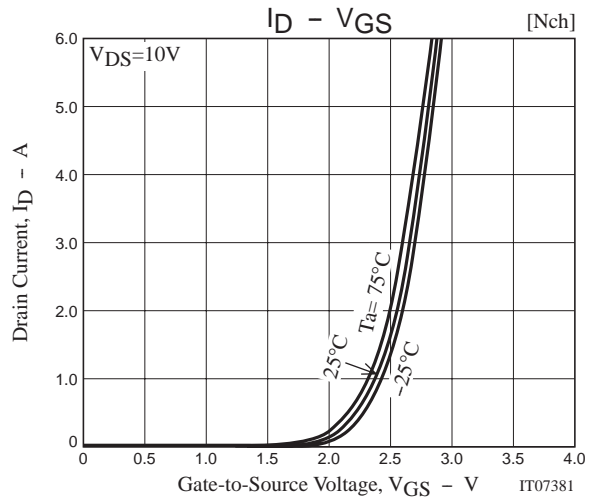
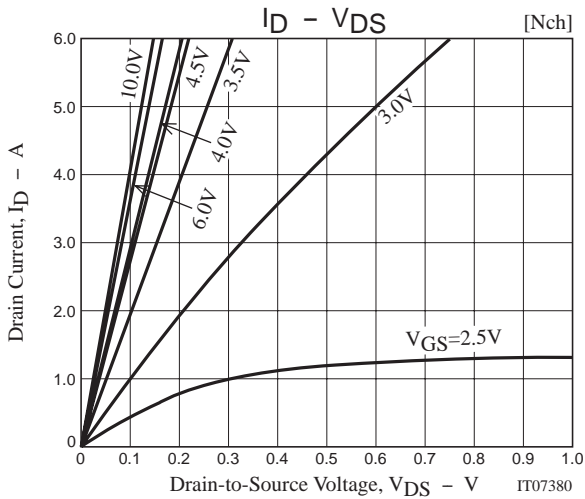
Switching Time Test Circuit

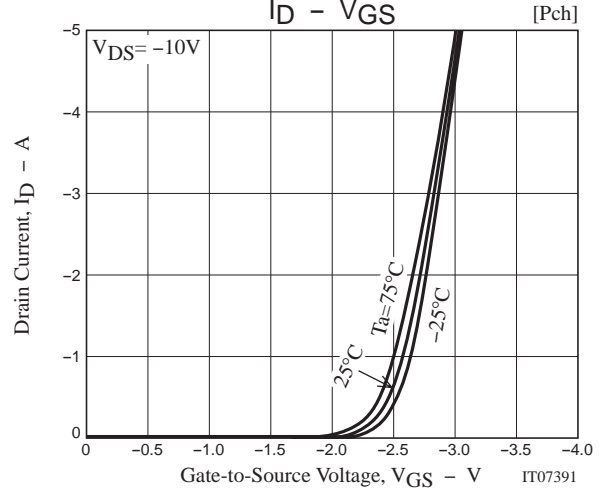
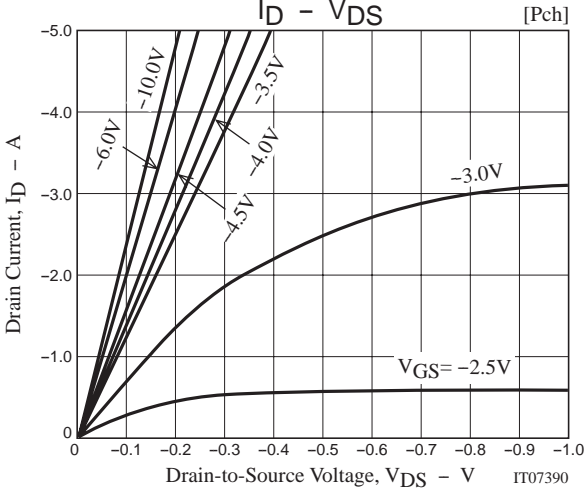
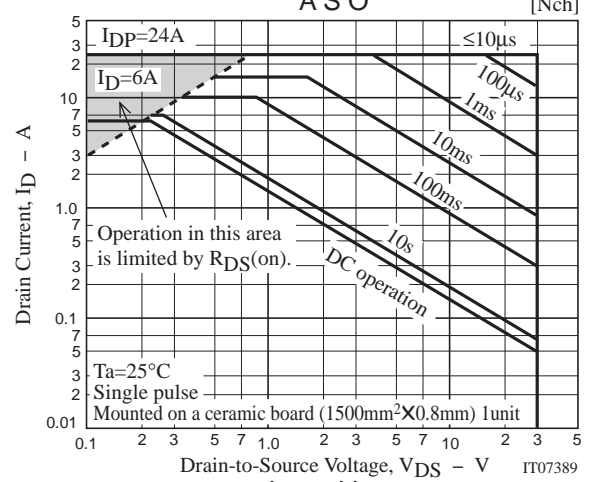
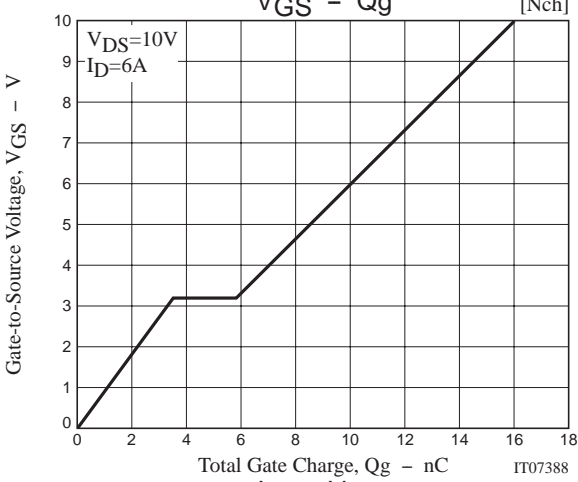
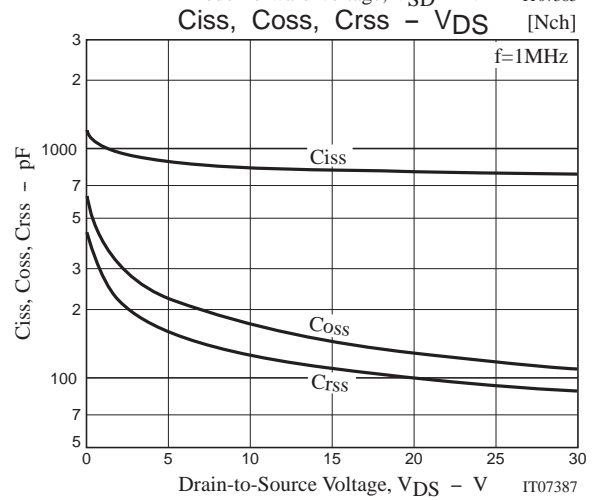
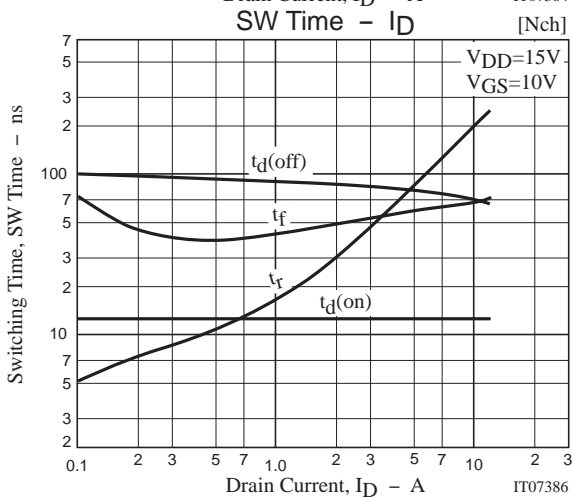
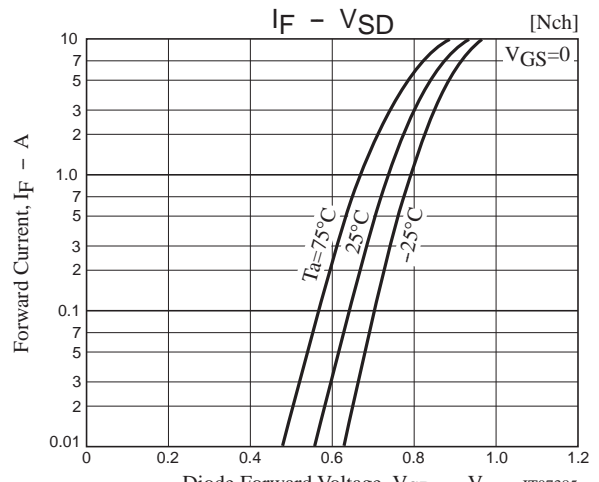
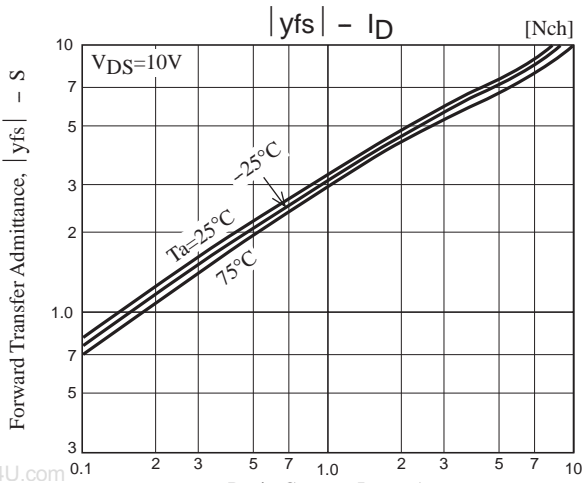
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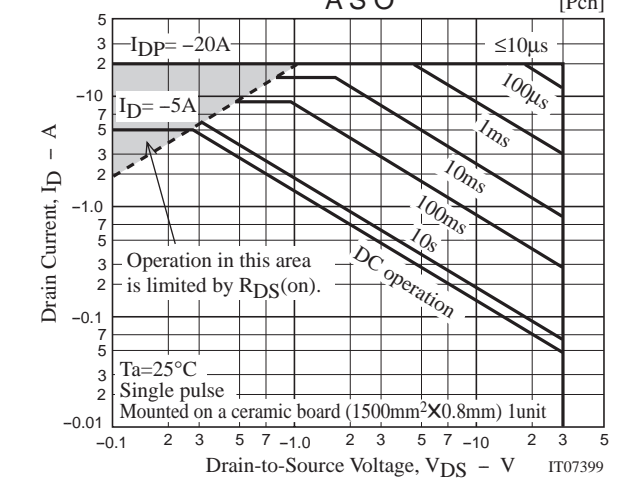
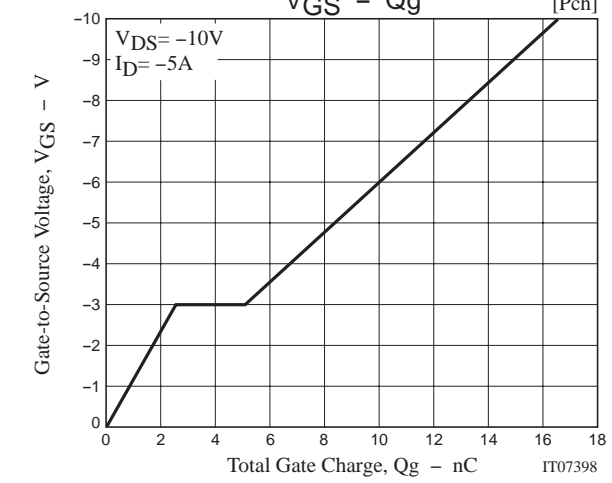
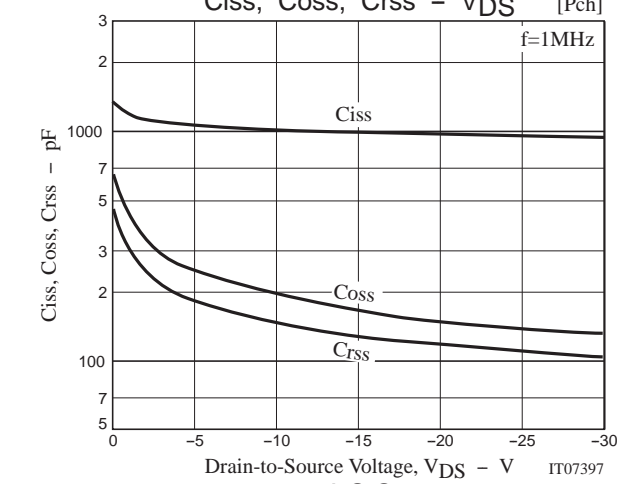
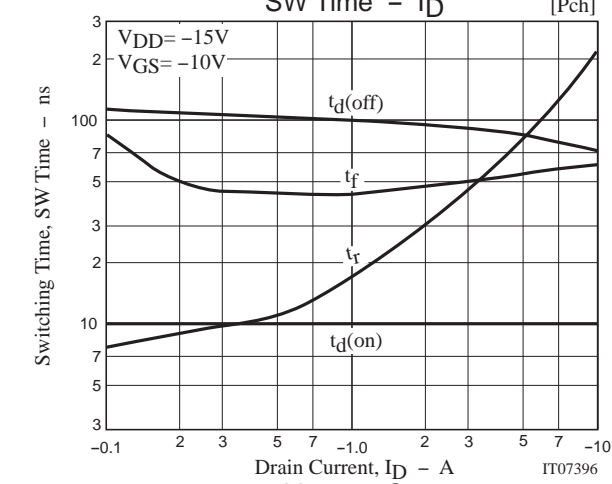
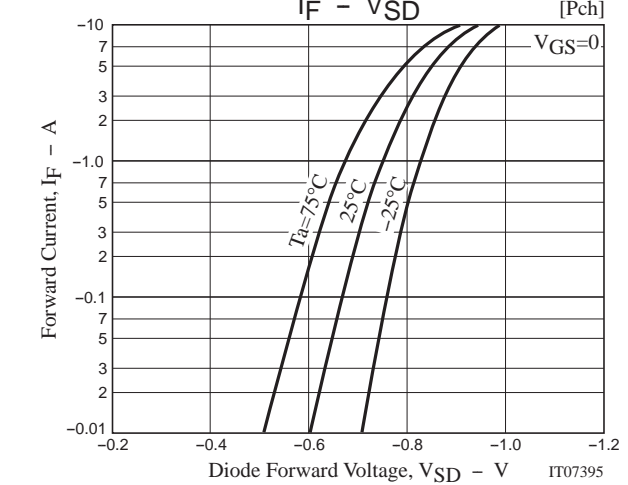
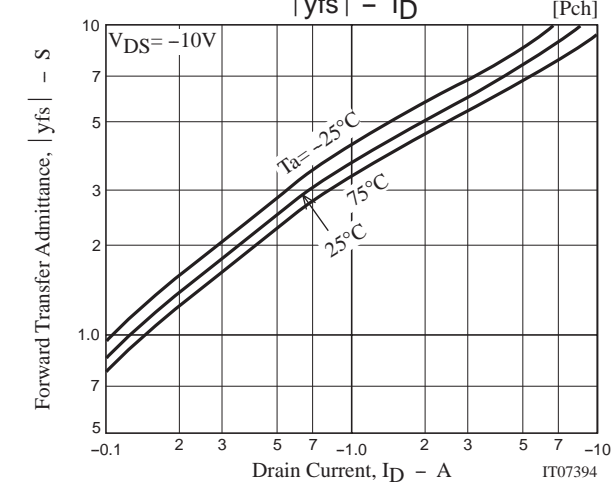
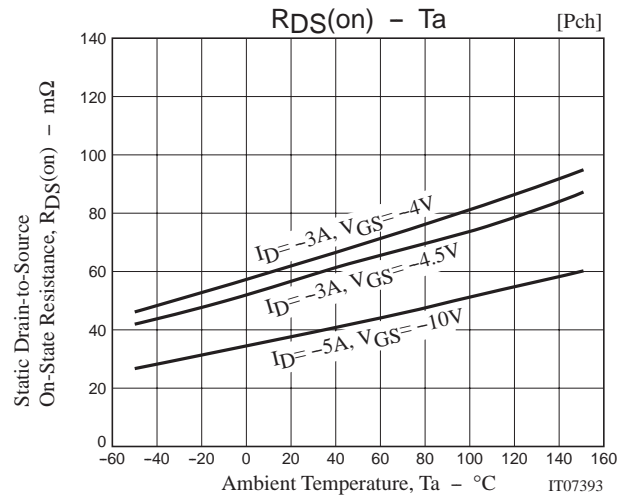
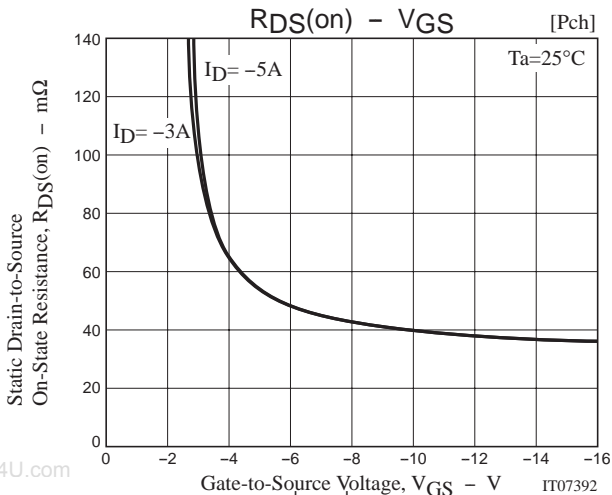
[P-channel]

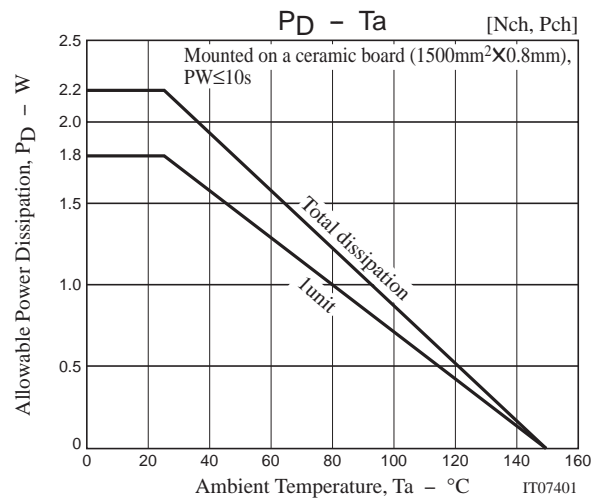
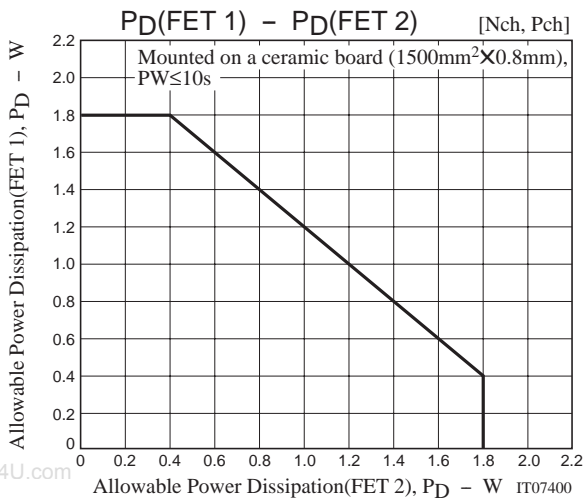


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Note on usage : Since the FW342 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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