Ordering number:EN4917

# FX205

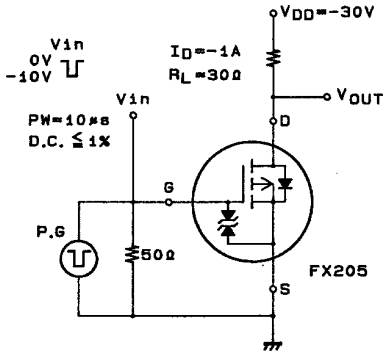
**P-Channel Silicon MOSFET**

## Very High-Speed Switching Applications

## Features

- Low ON-resistance.
- Very high-speed switching.
- Low-voltage drive.

## Switching Time Test CIrcuit

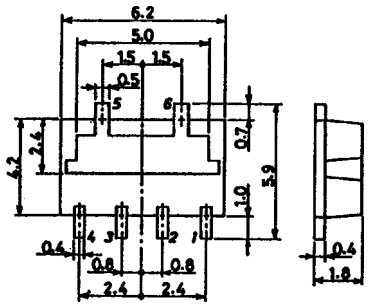



## Package Dimensions

unit:mm

2121

[FX205]




1:No Contact
2:Gate
3:Source
4:No Contact
5:Drain
6:Drain

SANYO:XP5
(Bottom view)

## Specifications

### Absolute Maximum Ratings at Ta = 25˚C

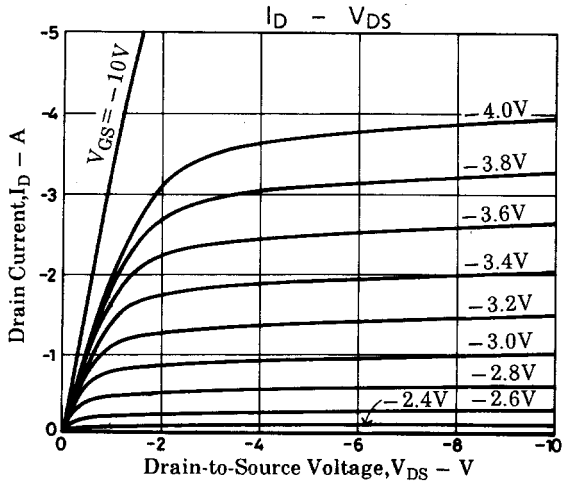
| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Drain-to-Source Voltage | $V_{DSS}$ | | –60 | V |
| Gate-to-Source Voltage | $V_{GSS}$ | | ±25 | V |
| Drain Current (DC) | $I_D$ | | –2 | A |
| Drain Current (Pulse) | $I_{DP}$ | PW≤10μs, duty cycle≤1% | –8 | A |
| Allowable Power Dissipation | $P_D$ | Tc=25˚C | 8 | W |
| | $P_D$ | Mounted on ceramic board (750mm$^2$×0.8mm) | 2 | W |
| Channel Temperature | Tch | | 150 | ˚C |
| Storage Temperature | Tstg | | –55 to +150 | ˚C |

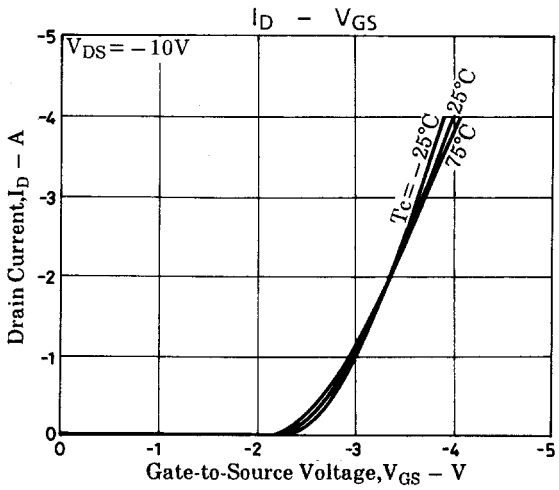
### Electrical Characteristics at Ta = 25˚C

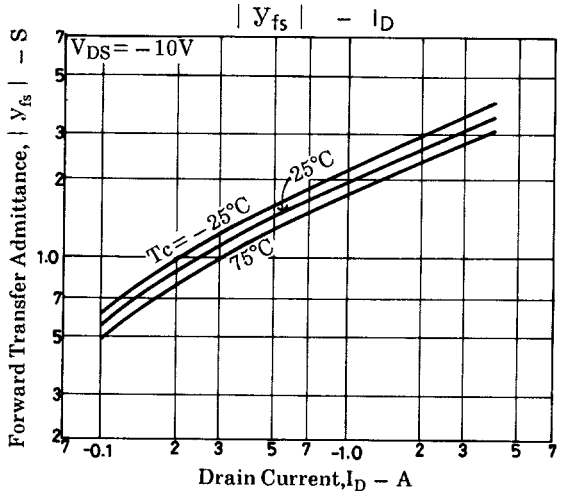
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| D-S Breakdown Voltage | $V_{(BR)DSS}$ | $I_D$=–1mA, $V_{GS}$=0 | –60 | | | V |
| G-S Breakdown Voltage | $V_{(BR)GSS}$ | $I_G$=±100μs, $V_{DS}$=0 | ±25 | | | V |
| Zero-Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=–60V, $V_{GS}$=0 | | | –100 | μA |
| Gate-to-Source Leakage Current | $I_{GSS}$ | $V_{GS}$=±20V, $V_{DS}$=0 | | | ±10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}$=–10V, $I_D$=–1mA | –1.5 | | –2.5 | V |
| Forward Transfer Admittance | $\|Y_{fs}\|$ | $V_{DS}$=–10V, $I_D$=–1A | 1.2 | 2 | | S |
| Static Drain-to-Source ON-State Resistance | $R_{DS(on)}$ | $I_D$=–1A, $V_{GS}$=–10V | | 300 | 400 | mΩ |
| | $R_{DS(on)}$ | $I_D$=–1A, $V_{GS}$=–4V | | 450 | 650 | mΩ |
| Input Capacitance | Ciss | $V_{DS}$=–20V, f=1MHz | | 240 | | pF |
| Output Capacitance | Coss | $V_{DS}$=–20V, f=1MHz | | 150 | | pF |
| Reverse Transfer Capacitance | Crss | $V_{DS}$=–20V, f=1MHz | | 40 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit | | 12 | | ns |
| Rise Time | $t_r$ | See specified Test Circuit | | 16 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit | | 85 | | ns |
| Fall Time | $t_f$ | See specified Test Circuit | | 55 | | ns |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=–2A, $V_{GS}$=0 | | –1.0 | –1.5 | V |

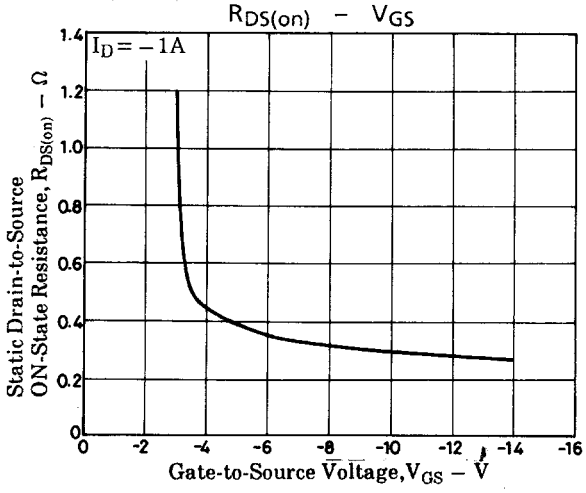
· Marking:205

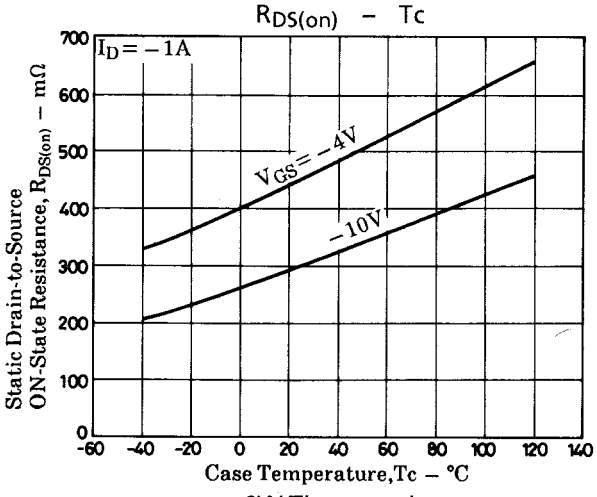

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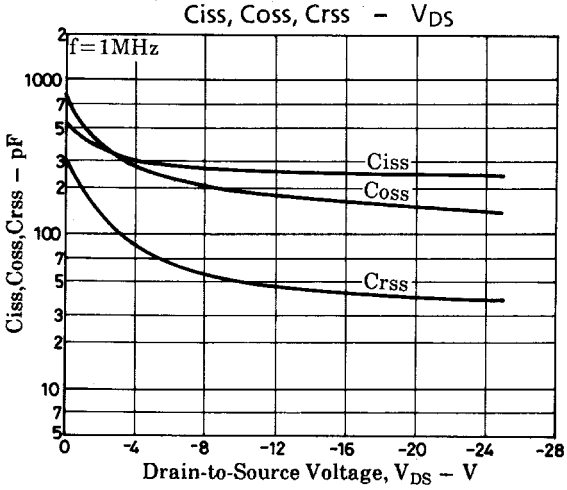

$I_D$ – $V_{DS}$
$V_{GS}$ = –10V
–4.0V
–3.8V
–3.6V
–3.4V
–3.2V
–3.0V
–2.8V
–2.6V
–2.4V
Drain Current, $I_D$ – A
Drain-to-Source Voltage, $V_{DS}$ – V

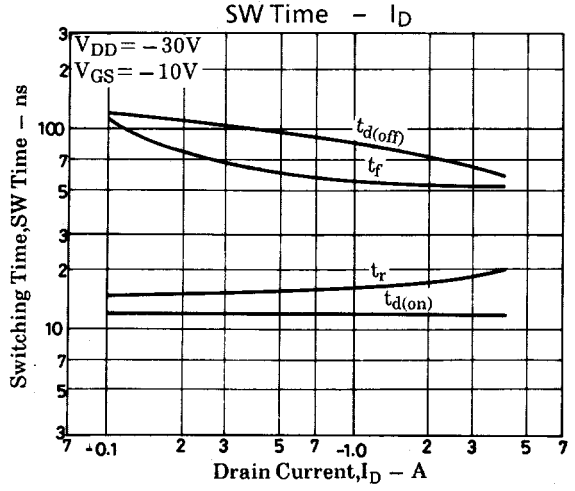

$I_D$ – $V_{GS}$
$V_{DS}$ = –10V
Tc = –25°C
25°C
75°C
Drain Current, $I_D$ – A
Gate-to-Source Voltage, $V_{GS}$ – V

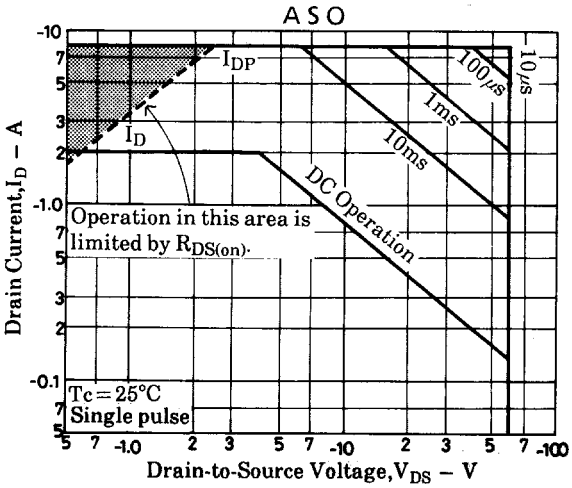

| $y_{fs}$ | – $I_D$
$V_{DS}$ = –10V
Tc = –25°C
25°C
75°C
Forward Transfer Admittance, | $y_{fs}$ | – S
Drain Current, $I_D$ – A

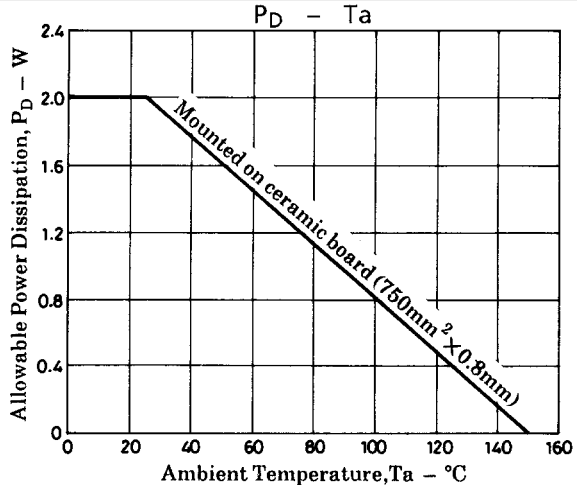

$R_{DS(on)}$ – $V_{GS}$
$I_D$ = –1A
Static Drain-to-Source ON-State Resistance, $R_{DS(on)}$ – Ω
Gate-to-Source Voltage, $V_{GS}$ – V

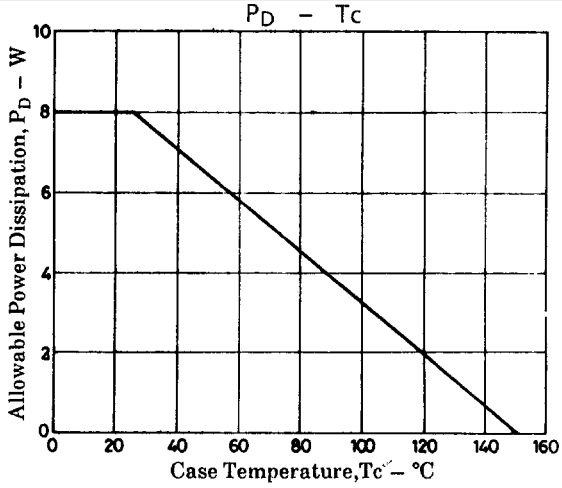

$R_{DS(on)}$ – Tc
$I_D$ = –1A
$V_{GS}$ = –4V
–10V
Static Drain-to-Source ON-State Resistance, $R_{DS(on)}$ – mΩ
Case Temperature, Tc – °C


Ciss, Coss, Crss – $V_{DS}$
f = 1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, $V_{DS}$ – V


SW Time – $I_D$
$V_{DD}$ = –30V
$V_{GS}$ = –10V
$t_{d(off)}$
$t_f$
$t_r$
$t_{d(on)}$
Switching Time, SW Time – ns
Drain Current, $I_D$ – A


ASO
$I_{DP}$
$I_D$
100μs
1ms
10ms
DC Operation
10μs
Operation in this area is limited by $R_{DS(on)}$.
Tc = 25°C
Single pulse
Drain Current, $I_D$ – A
Drain-to-Source Voltage, $V_{DS}$ – V




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