



SANYO Semiconductors

DATA SHEET

CPH5852

MOSFET : P-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

General-Purpose Switching Device Applications

Features

- Composite type containing a P-Channel MOSFET (MCH3312) and a Schottky Barrier Diode (SB1003M3), facilitating high-density mounting.
- [MOS]
 - Low ON-resistance
 - Ultrahigh-speed switching
 - 4V drive
- [SBD]
 - Short reverse recovery time
 - Low forward voltage

Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|--|------------------|--|-------------|------|
| [MOSFET] | | | | |
| Drain-to-Source Voltage | V _{DSS} | | -30 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±20 | 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 | Mounted on a ceramic board (600mm ² X0.8mm) 1unit | 0.9 | W |
| Channel Temperature | T _{ch} | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +125 | °C |
| [SBD] | | | | |
| Repetitive Peak Reverse Voltage | V _{RRM} | | 30 | V |
| Nonrepetitive Peak Reverse Surge Voltage | V _{RSM} | | 35 | V |
| Average Output Current | I _O | | 1 | A |
| Surge Forward Current | I _{FSM} | 50Hz sine wave, 1cycle | 10 | A |
| Junction Temperature | T _J | | -55 to +125 | °C |
| Storage Temperature | T _{stg} | | -55 to +125 | °C |

Marking : YE

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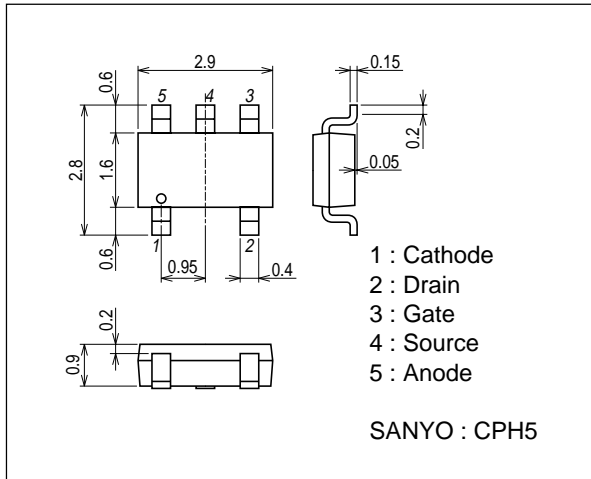
CPH5852

Electrical Characteristics at Ta=25°C

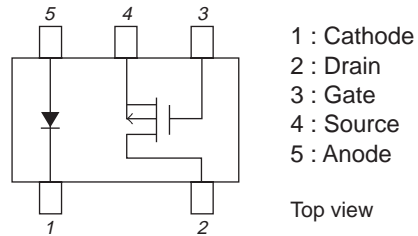
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|---|---------|-------|----------|-----------|
| | | | min | typ | max | |
| [MOSFET] | | | | | | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D=-1mA, V_{GS}=0V$ | -30 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-30V, V_{GS}=0V$ | | | -1 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 16V, V_{DS}=0V$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}=-10V, I_D=-1mA$ | -1.2 | | -2.6 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS}=-10V, I_D=-1A$ | 1.2 | 2.0 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D=-1A, V_{GS}=-10V$ | | 110 | 145 | $m\Omega$ |
| | $R_{DS(on)2}$ | $I_D=-500mA, V_{GS}=-4V$ | | 205 | 290 | $m\Omega$ |
| Input Capacitance | C_{iss} | $V_{DS}=-10V, f=1MHz$ | | 200 | | pF |
| Output Capacitance | C_{oss} | $V_{DS}=-10V, f=1MHz$ | | 47 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS}=-10V, f=1MHz$ | | 32 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit. | | 7.2 | | ns |
| Rise Time | t_r | See specified Test Circuit. | | 2.9 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit. | | 21 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | 8.7 | | ns |
| Total Gate Charge | Q_g | $V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$ | | 5.5 | | nC |
| Gate-to-Source Charge | Q_{gs} | $V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$ | | 0.98 | | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | $V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$ | | 0.82 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S=-2A, V_{GS}=0V$ | | -0.85 | -1.2 | V |
| [SBD] | | | | | | |
| Reverse Voltage | V_R | $I_R=0.5mA$ | 30 | | | V |
| Forward Voltage | V_{F1} | $I_F=0.7A$ | | 0.45 | 0.5 | V |
| | V_{F2} | $I_F=1.0A$ | | 0.48 | 0.53 | V |
| Reverse Current | I_R | $V_R=16V$ | | | 15 | μA |
| Interterminal Capacitance | C | $V_R=10V, f=1MHz$ cycle | | 27 | | pF |
| Reverse Recovery Time | t_{rr} | $I_F=I_R=100mA$, See specified Test Circuit. | | | 10 | ns |

Package Dimensions

unit : mmm
7017A-005

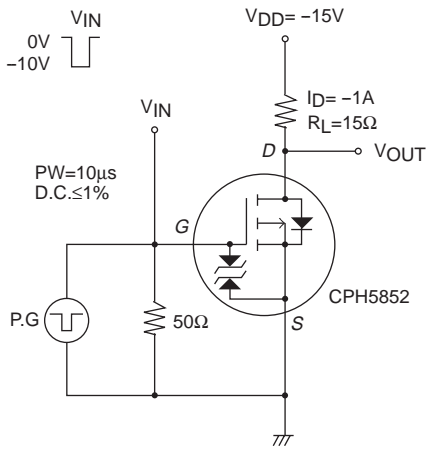


Electrical Connection



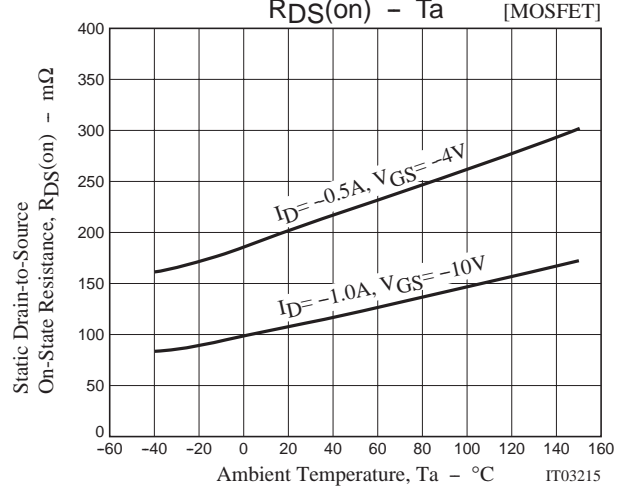
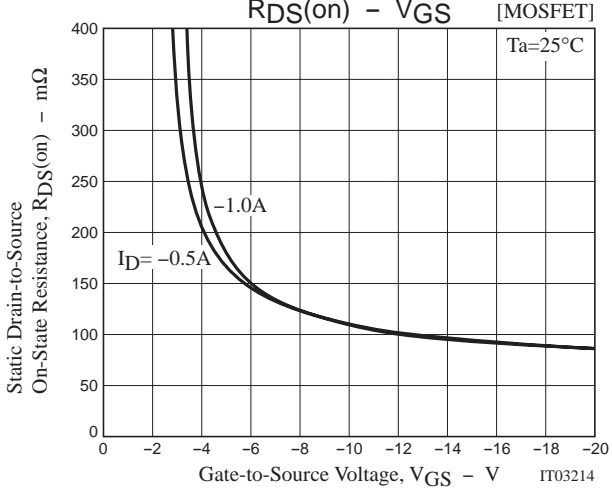
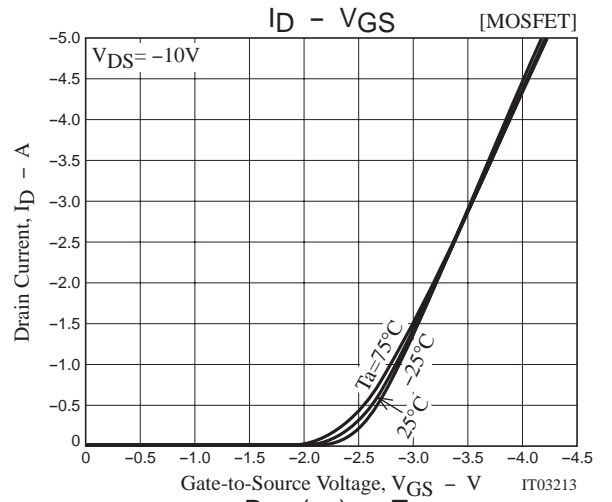
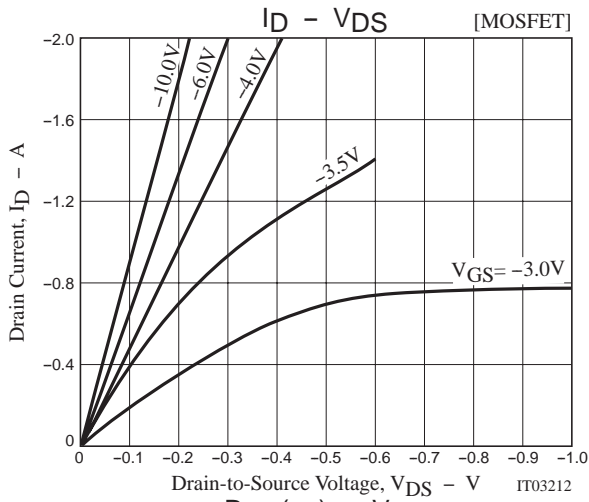
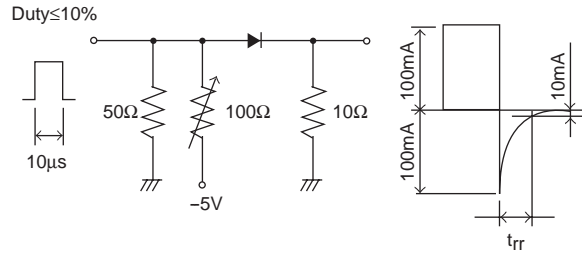
Switching Time Test Circuit

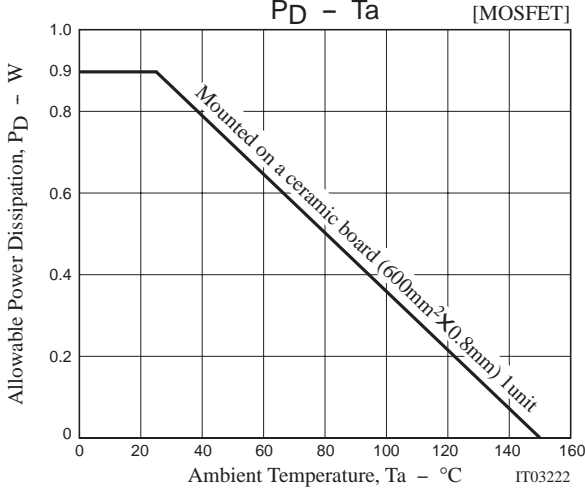
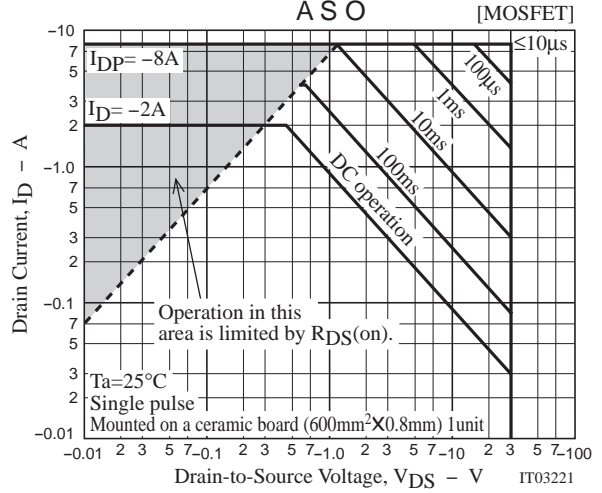
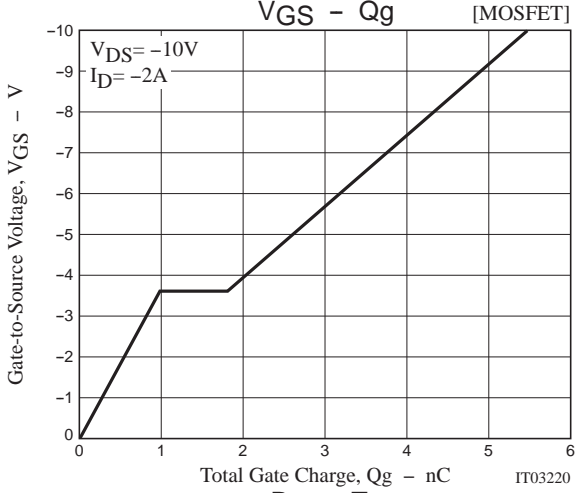
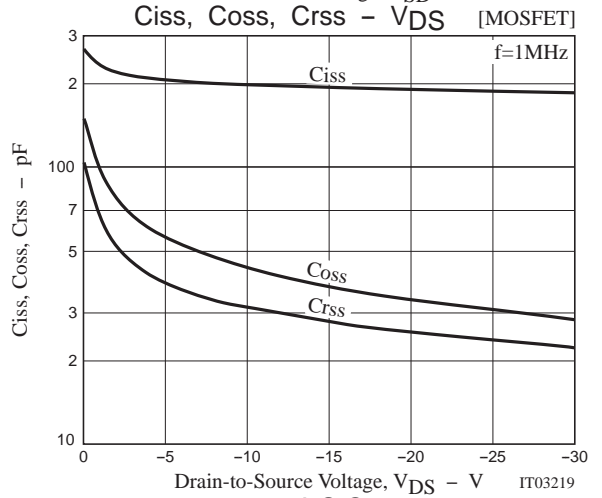
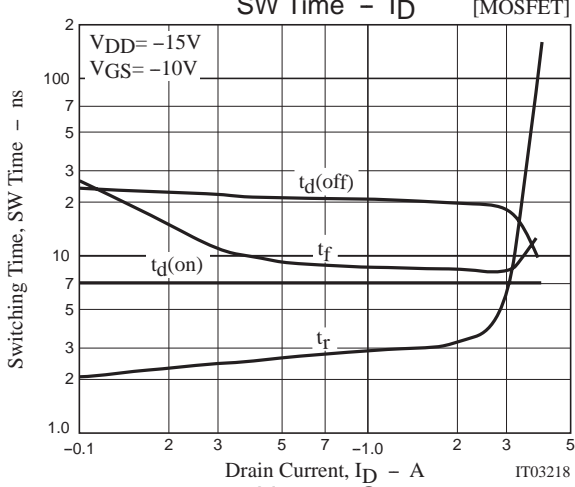
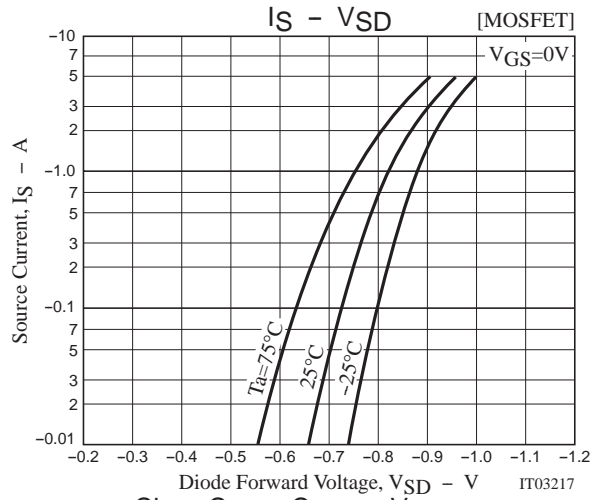
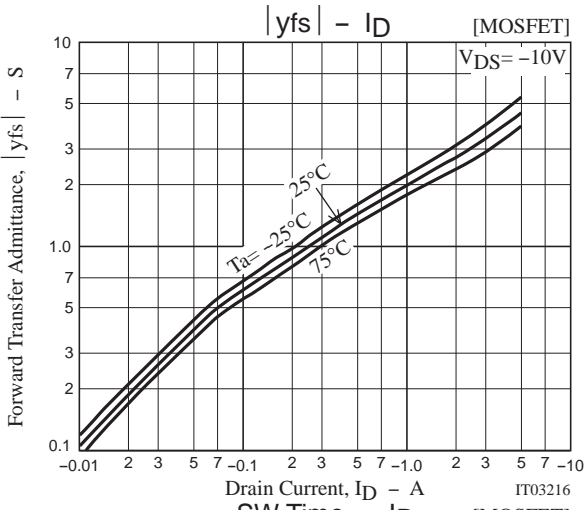
[MOSFET]

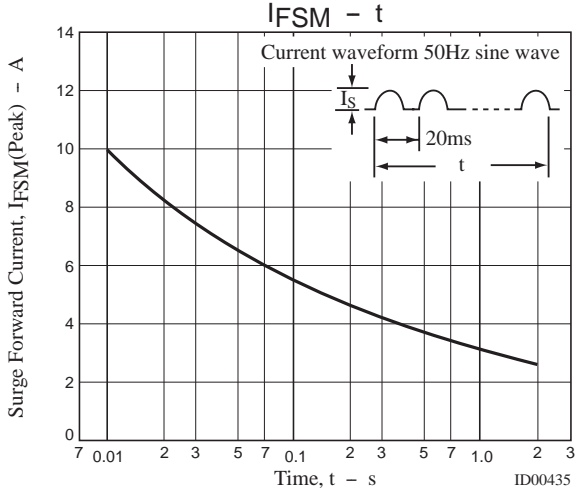
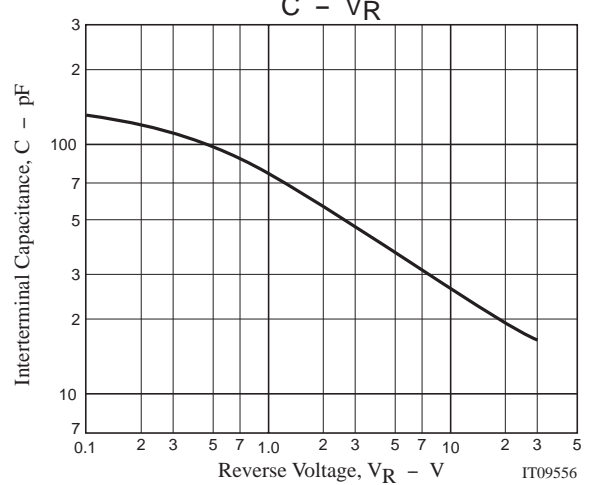
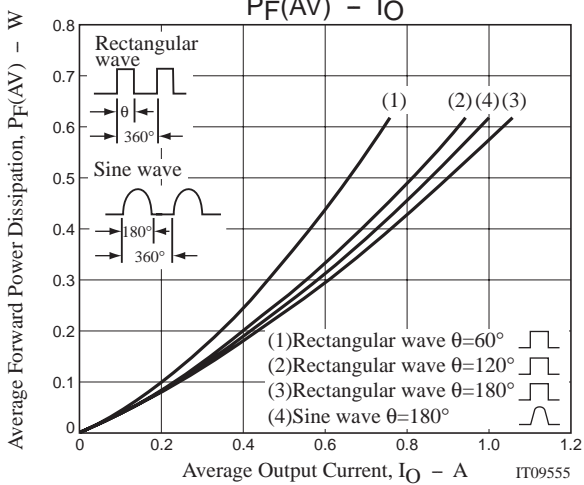
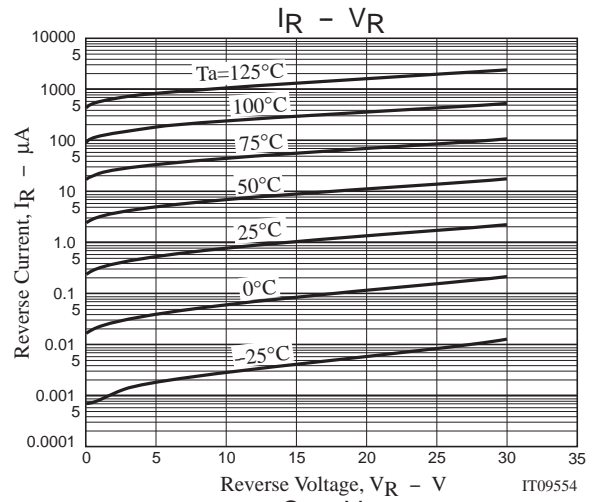
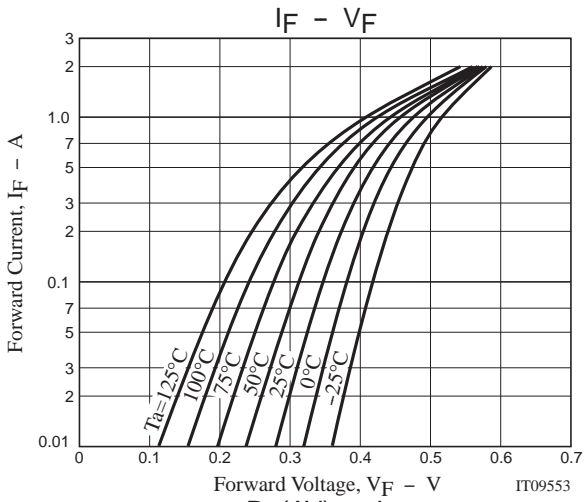


t_{rr} Test Circuit

[SBD]







Note on usage : Since the CPH5852 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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