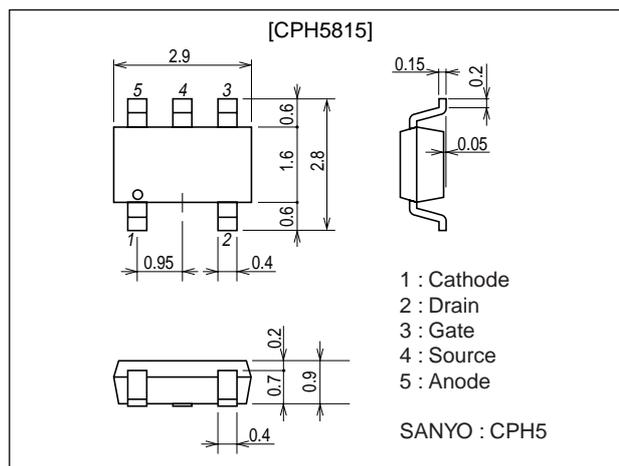


**CPH5815****DC / DC Converter Applications****Features**

- Composite type with a P-Channel Silicon MOSFET (MCH3317) and a Schottky Barrier Diode (SBS007M) contained in one package facilitating high-density mounting.
- [MOS]
 - 1) Low ON-resistance.
 - 2) Ultrahigh-speed switching.
 - 3) 1.8V drive.
- [SBD]
 - 1) Short reverse recovery time.
 - 2) Low forward voltage.

Package Dimensionsunit : mm
2171**Specifications****Absolute Maximum Ratings** at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|--|------------------|--|-------------|------|
| [MOSFET] | | | | |
| Drain-to-Source Voltage | V _{DSS} | | -12 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±10 | V |
| Drain Current (DC) | I _D | | -1.5 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10μs, duty cycle≤1% | -6.0 | A |
| Allowable Power Dissipation | P _D | Mounted on a ceramic board (600mm ² X0.8mm) 1unit | 0.8 | W |
| Channel Temperature | T _{ch} | | -150 | °C |
| Storage Temperature | T _{stg} | | -55 to +125 | °C |
| [SBD] | | | | |
| Repetitive Peak Reverse Voltage | V _{RSM} | | 15 | V |
| Nonrepetitive Peak Reverse Surge Voltage | V _{RSM} | | 15 | V |
| Average Output Current | I _O | | 0.5 | A |
| Surge Forward Current | I _{FSM} | 50Hz sine wave, 1 cycle | 3 | A |
| Junction Temperature | T _J | | -55 to +125 | °C |
| Storage Temperature | T _{stg} | | -55 to +125 | °C |

Marking : QR

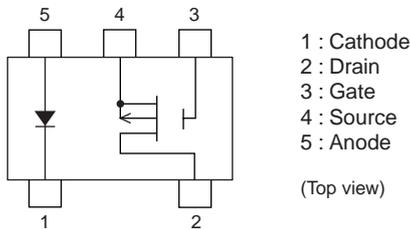
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CPH5815

Electrical Characteristics at Ta=25°C

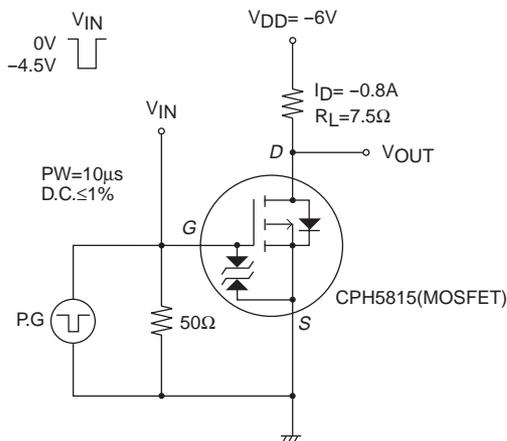
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|---|---------|-------|----------|-----------|
| | | | min | typ | max | |
| [MOSFET] | | | | | | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D = -1mA, V_{GS} = 0$ | -12 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -12V, V_{GS} = 0$ | | | -10 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS} = \pm 8.0V, V_{DS} = 0$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = -6V, I_D = -1mA$ | -0.3 | | -1.0 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS} = -6V, I_D = -0.8A$ | 1.3 | 1.8 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D = -0.8A, V_{GS} = -4.5V$ | | 220 | 290 | $m\Omega$ |
| | $R_{DS(on)2}$ | $I_D = -0.4A, V_{GS} = -2.5V$ | | 320 | 450 | $m\Omega$ |
| | $R_{DS(on)3}$ | $I_D = -0.1A, V_{GS} = -1.8V$ | | 430 | 650 | $m\Omega$ |
| Input Capacitance | C_{iss} | $V_{DS} = -6V, f = 1MHz$ | | 160 | | pF |
| Output Capacitance | C_{oss} | $V_{DS} = -6V, f = 1MHz$ | | 45 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS} = -6V, f = 1MHz$ | | 35 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit. | | 11 | | ns |
| Rise Time | t_r | See specified Test Circuit. | | 45 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit. | | 29 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | 30 | | ns |
| Total Gate Charge | Q_g | $V_{DS} = -6V, V_{GS} = -4.5V, I_D = -1.5A$ | | 2.6 | | nC |
| Gate-to-Source Charge | Q_{gs} | $V_{DS} = -6V, V_{GS} = -4.5V, I_D = -1.5A$ | | 0.25 | | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | $V_{DS} = -6V, V_{GS} = -4.5V, I_D = -1.5A$ | | 0.65 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S = -1.5A, V_{GS} = 0$ | | -0.92 | -1.5 | V |
| [SBD] | | | | | | |
| Reverse Voltage | V_R | $I_R = 0.5mA$ | 15 | | | V |
| Forward Voltage | V_{F1} | $I_F = 0.3A$ | | 0.35 | 0.41 | V |
| | V_{F2} | $I_F = 0.5A$ | | 0.4 | 0.46 | V |
| Reverse Current | I_R | $V_R = 6V$ | | | 200 | μA |
| Interterminal Capacitance | C | $V_R = 10V, f = 1MHz$ cycle | | 20 | | pF |
| Reverse Recovery Time | t_{rr} | $I_F = I_R = 100mA$, see specified Test Circuit. | | | 10 | ns |

Electrical Connection



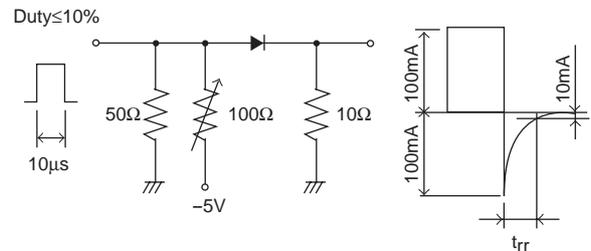
Switching Time Test Circuit

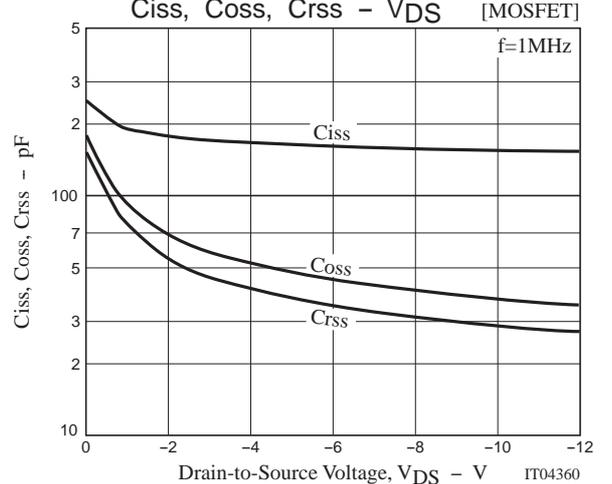
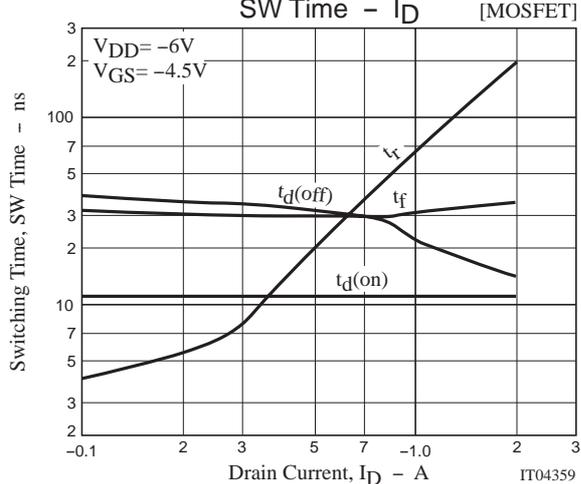
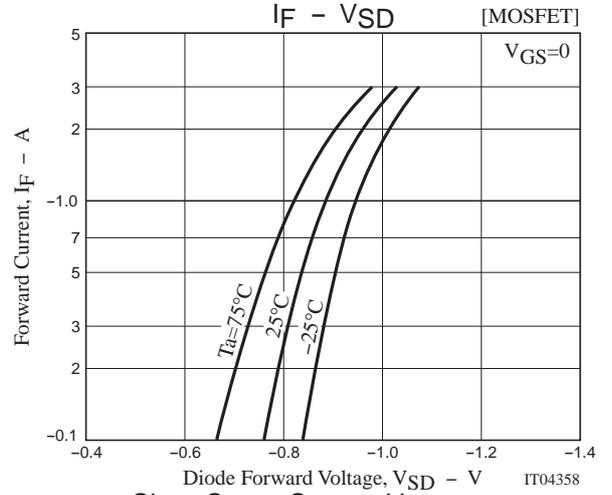
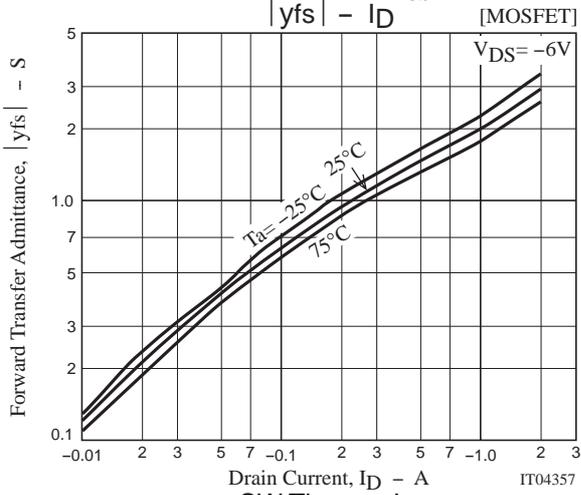
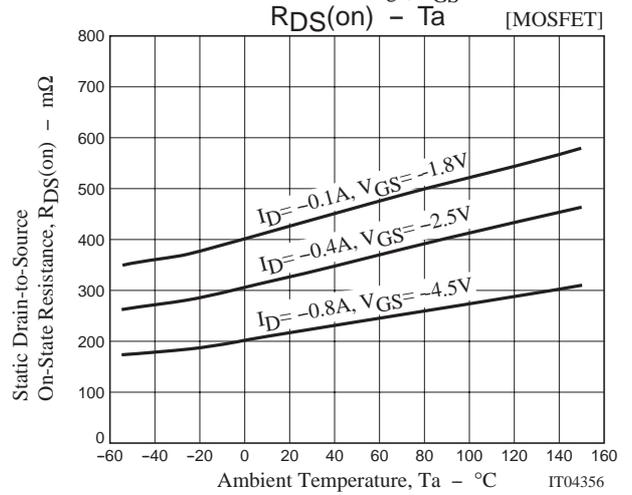
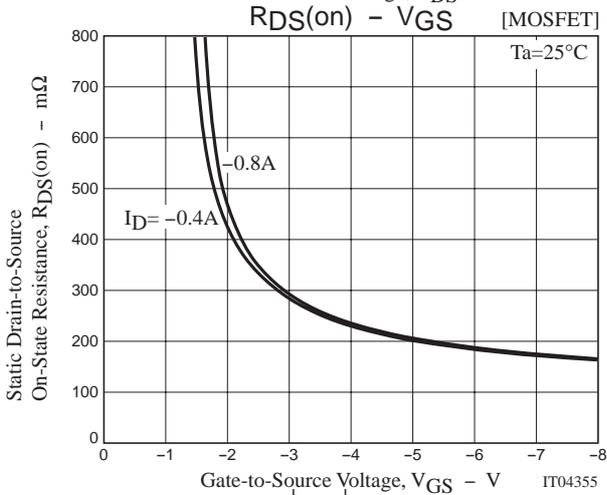
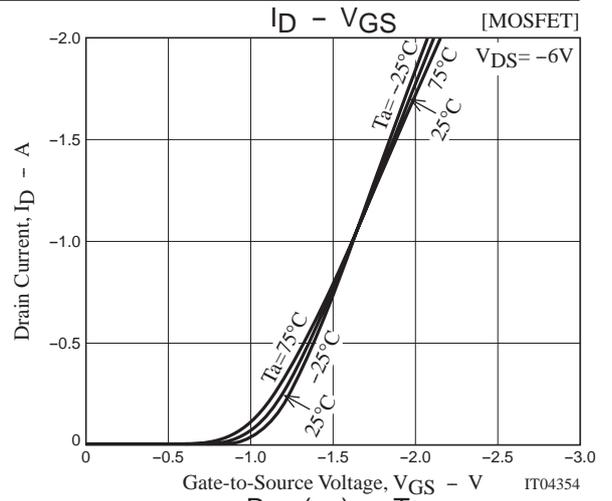
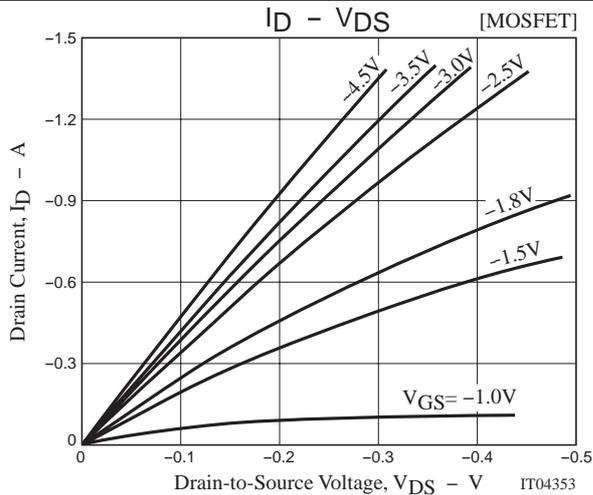
[MOSFET]

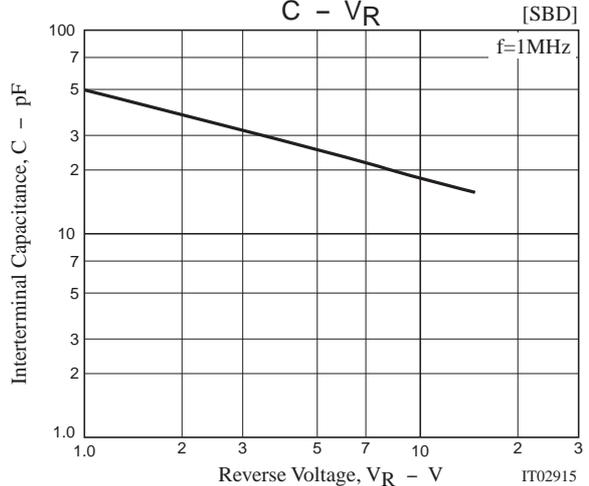
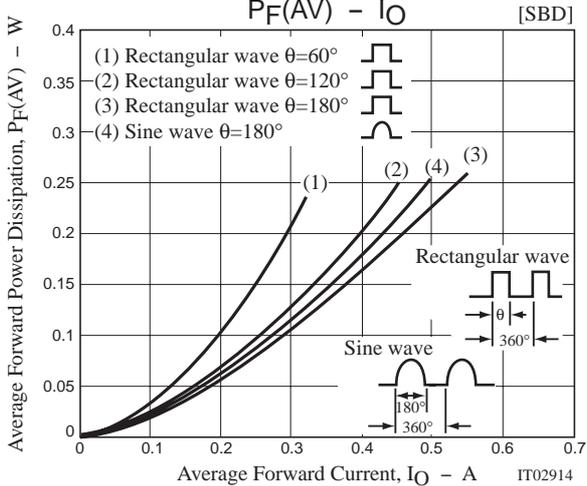
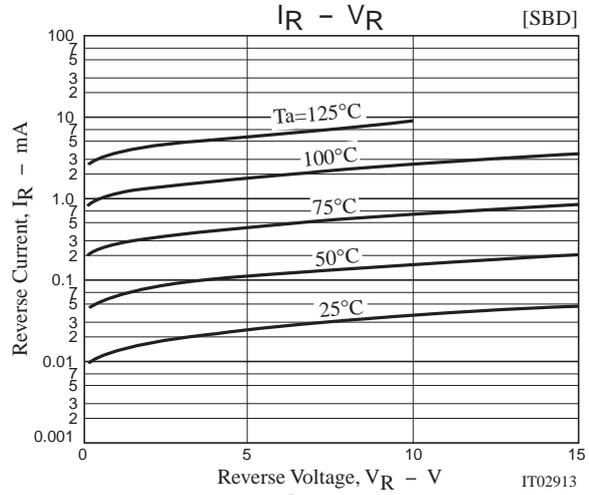
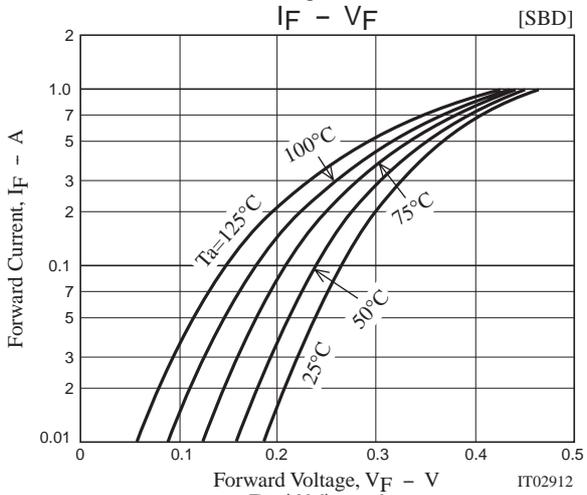
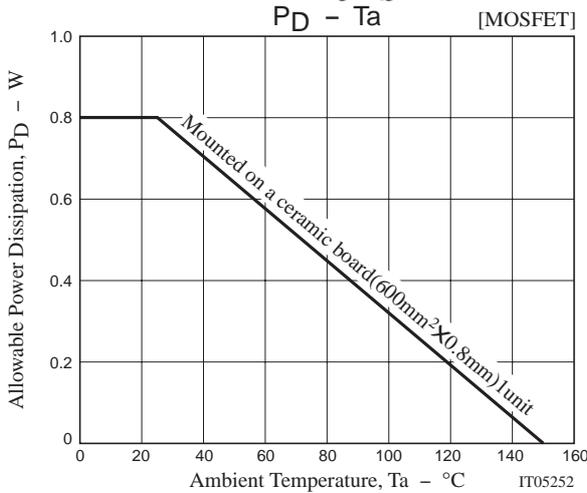
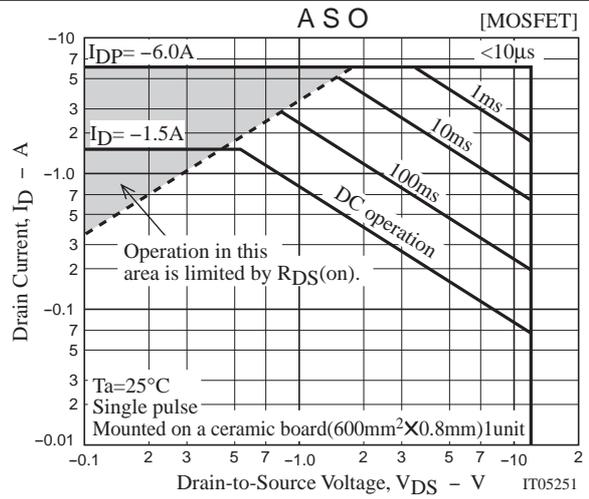
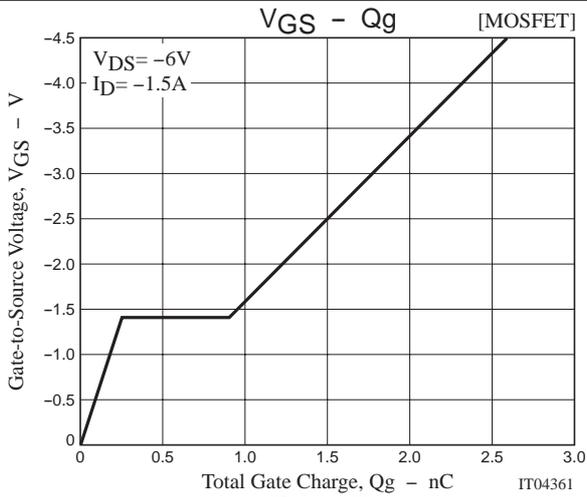


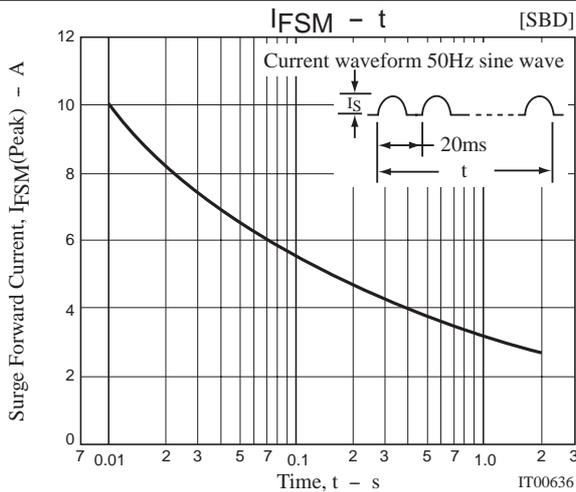
t_{rr} Test Circuit

[SBD]









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