



CPH6311 — P-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|-----------|---|-------------|------------------|
| Drain-to-Source Voltage | V_{DS} | | -20 | V |
| Gate-to-Source Voltage | V_{GS} | | ± 10 | V |
| Drain Current (DC) | I_D | | -5 | A |
| Drain Current (Pulse) | I_{DP} | $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$ | -20 | A |
| Allowable Power Dissipation | PD | Mounted on a ceramic board (900mm \times 0.8mm) | 1.6 | W |
| | | Mounted on a FR4 board $PW \leq 5\text{S}$ | 2.0 | W |
| Channel Temperature | T_{ch} | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ\text{C}$ |

Electrical Characteristics at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|---|---------|-----|----------|------------------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$ | -20 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -20\text{V}$, $V_{GS} = 0\text{V}$ | | | -1 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS} = \pm 8\text{V}$, $V_{DS} = 0\text{V}$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = -10\text{V}$, $I_D = -1\text{mA}$ | -0.4 | | -1.4 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS} = -10\text{V}$, $I_D = -3\text{A}$ | 5.8 | 8.5 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D = -3\text{A}$, $V_{GS} = -4.5\text{V}$ | | 32 | 42 | $\text{m}\Omega$ |
| | $R_{DS(on)2}$ | $I_D = -1\text{A}$, $V_{GS} = -2.5\text{V}$ | | 46 | 60 | $\text{m}\Omega$ |

Marking : JM

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32807PE TI IM TC-00000618 / D2500 TS IM TA-3168 No.6794-1/4

CPH6311

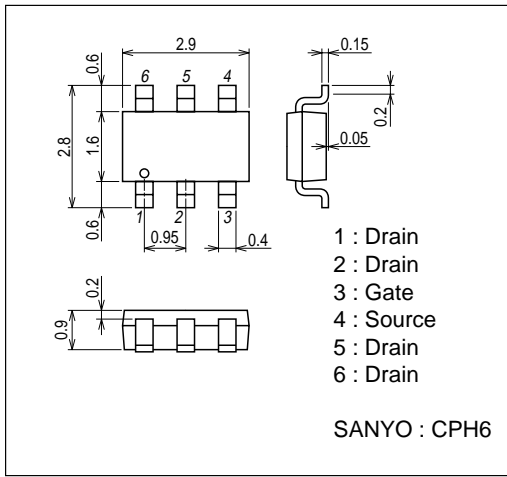
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-------------------------------|--------------|-------------------------------------|---------|-------|------|------|
| | | | min | typ | max | |
| Input Capacitance | Ciss | $V_{DS}=-10V, f=1MHz$ | | 1230 | | pF |
| Output Capacitance | Coss | $V_{DS}=-10V, f=1MHz$ | | 200 | | pF |
| Reverse Transfer Capacitance | Crss | $V_{DS}=-10V, f=1MHz$ | | 170 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit. | | 17 | | ns |
| Rise Time | t_r | See specified Test Circuit. | | 100 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit. | | 100 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | 95 | | ns |
| Total Gate Charge | Qg | $V_{DS}=-10V, V_{GS}=-10V, I_D=-5A$ | | 31 | | nC |
| Gate-to-Source Charge | Qgs | $V_{DS}=-10V, V_{GS}=-10V, I_D=-5A$ | | 2.8 | | nC |
| Gate-to-Drain "Miller" Charge | Qgd | $V_{DS}=-10V, V_{GS}=-10V, I_D=-5A$ | | 4.2 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S=-5A, V_{GS}=0V$ | | -0.83 | -1.5 | V |

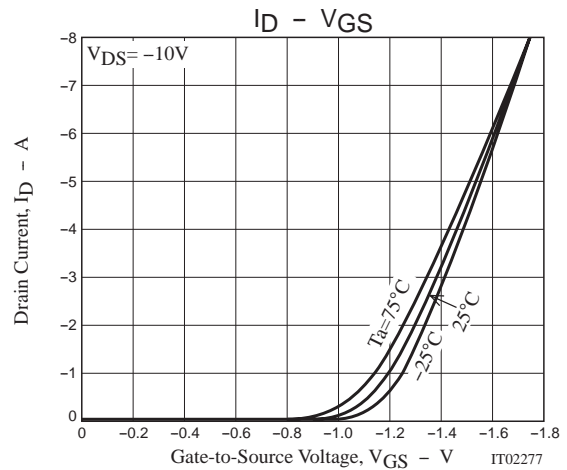
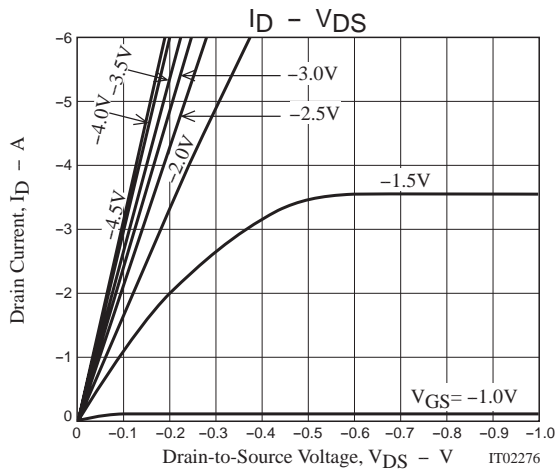
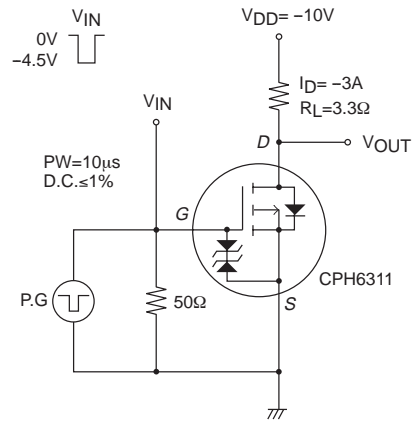
Package Dimensions

unit : mm (typ)

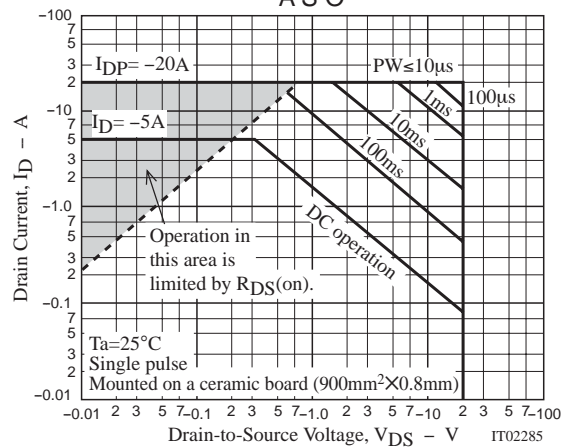
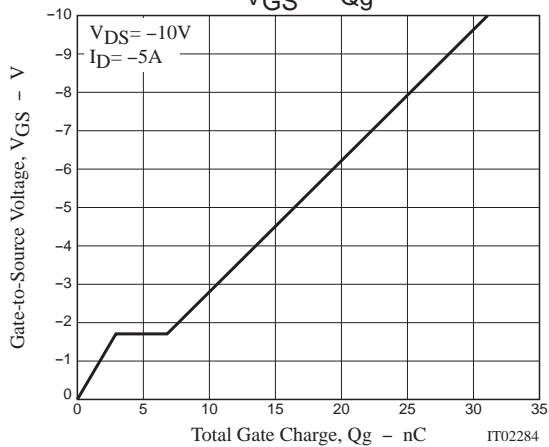
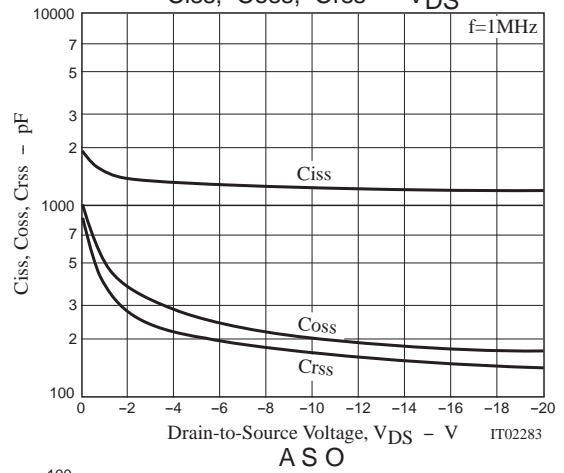
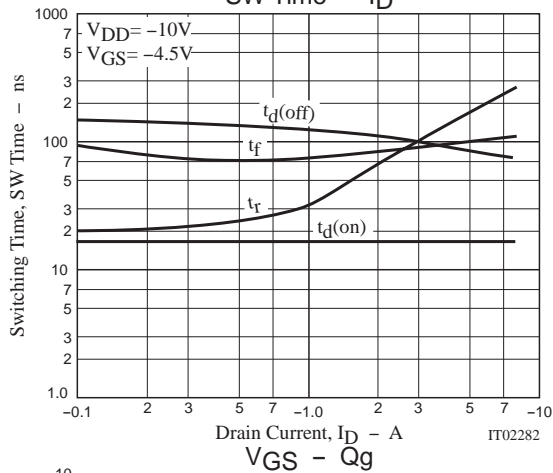
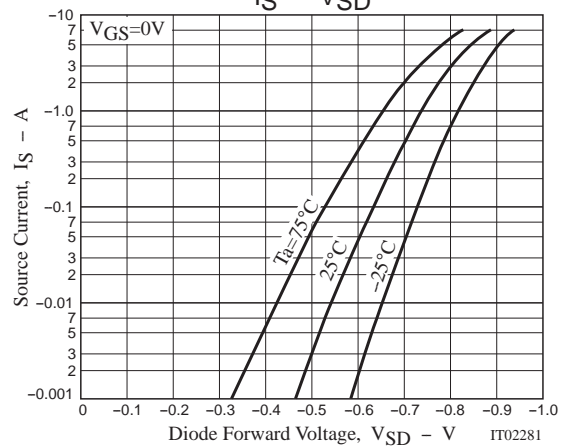
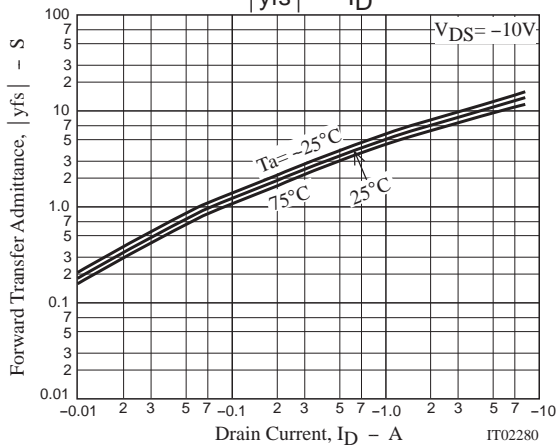
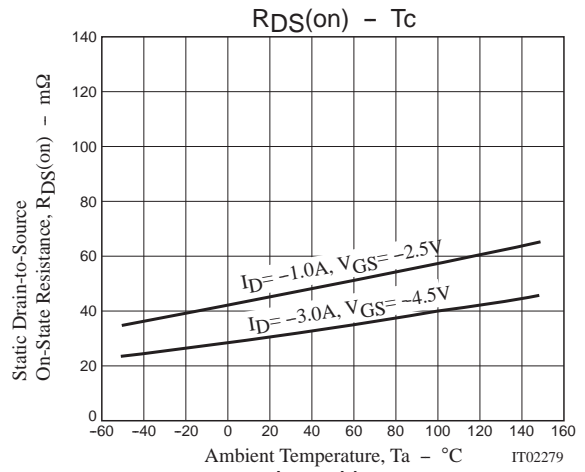
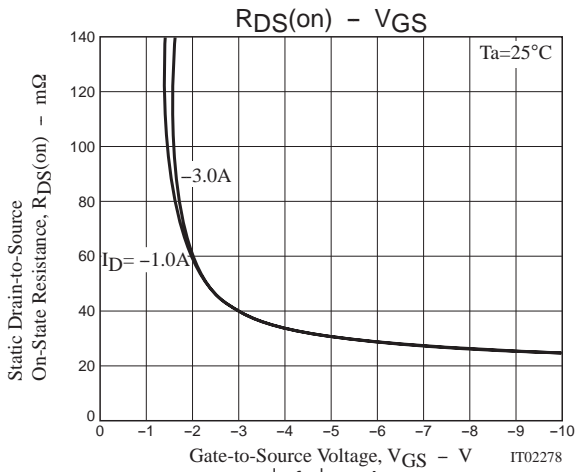
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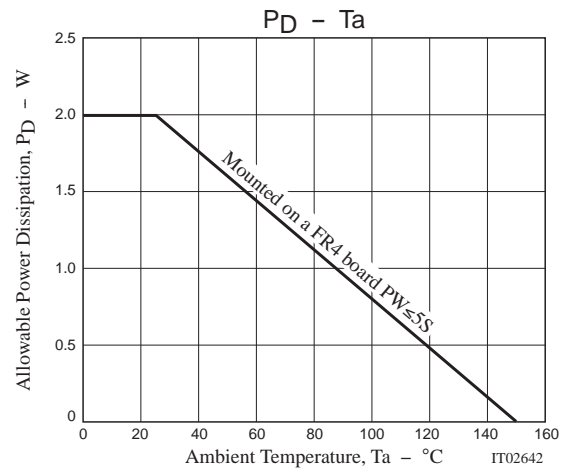
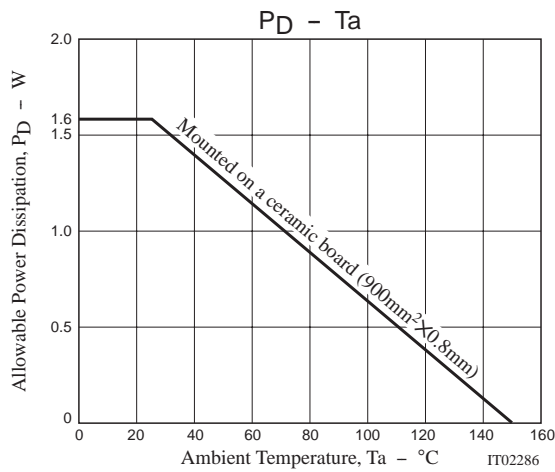
Switching Time Test Circuit



CPH6311



CPH6311



Note on usage : Since the CPH6311 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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