



VEC2611 — N-Channel and P-Channel Silicon MOSFETs

General-Purpose Switching Device Applications

Features

- The VEC2611 incorporates an N-channel MOSFET and a P-channel MOSFET that feature low ON-resistance, thereby enabling high-density mounting.
- 1.8V drive.
- Mounting height 0.75mm.

Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | N-channel | P-channel | Unit |
|-----------------------------|------------------|--|-------------|-----------|------|
| Drain-to-Source Voltage | V _{DSS} | | 20 | -12 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±10 | ±8 | V |
| Drain Current (DC) | I _D | | 3 | -2.6 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10μs, duty cycle≤1% | 12 | -10.4 | A |
| Allowable Power Dissipation | P _D | Mounted on a ceramic board (900mm²×0.8mm)1unit | 0.9 | | W |
| Total Dissipation | P _T | Mounted on a ceramic board (900mm²×0.8mm) | 1.0 | | 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} =0V | 20 | | | V |
| Zero-Gate Voltage Drain Current | I _{DSS} | V _{DS} =20V, V _{GS} =0V | | | 1 | μA |
| Gate-to-Source Leakage Current | I _{GSS} | V _{GS} =±8V, V _{DS} =0V | | | ±10 | μA |
| Cutoff Voltage | V _{GS(off)} | V _{DS} =10V, I _D =1mA | 0.4 | | 1.3 | V |
| Forward Transfer Admittance | y _{fs} | V _{DS} =10V, I _D =1.5A | 3.3 | 5.6 | | S |

Marking : CP

Continued on next page.

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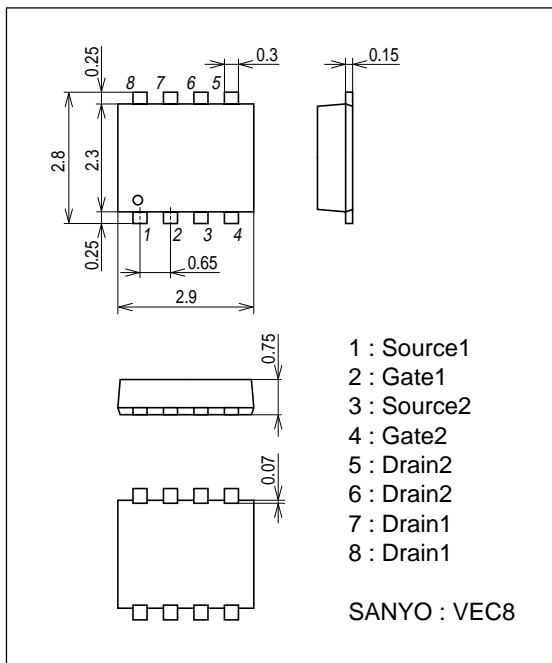
Continued from preceding page.

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|----------------------|---|---------|-------|------|------|
| | | | min | typ | max | |
| Static Drain-to-Source On-State Resistance | R _{DS(on)1} | I _D =1.5A, V _{GS} =4V | | 53 | 69 | mΩ |
| | R _{DS(on)2} | I _D =1A, V _{GS} =2.5V | | 63 | 90 | mΩ |
| | R _{DS(on)3} | I _D =0.5A, V _{GS} =1.8V | | 77 | 116 | mΩ |
| Input Capacitance | C _{iss} | V _{DS} =10V, f=1MHz | | 280 | | pF |
| Output Capacitance | C _{oss} | V _{DS} =10V, f=1MHz | | 60 | | pF |
| Reverse Transfer Capacitance | C _{rss} | V _{DS} =10V, f=1MHz | | 38 | | pF |
| Turn-ON Delay Time | t _{d(on)} | See specified Test Circuit. | | 13 | | ns |
| Rise Time | t _r | See specified Test Circuit. | | 35 | | ns |
| Turn-OFF Delay Time | t _{d(off)} | See specified Test Circuit. | | 35 | | ns |
| Fall Time | t _f | See specified Test Circuit. | | 25 | | ns |
| Total Gate Charge | Q _g | V _{DS} =10V, V _{GS} =4V, I _D =3A | | 8.8 | | nC |
| Gate-to-Source Charge | Q _{gs} | V _{DS} =10V, V _{GS} =4V, I _D =3A | | 0.85 | | nC |
| Gate-to-Drain "Miller" Charge | Q _{gd} | V _{DS} =10V, V _{GS} =4V, I _D =3A | | 0.85 | | nC |
| Diode Forward Voltage | V _{SD} | I _S =3A, V _{GS} =0V | | 0.82 | 1.2 | V |
| [P-channel] | | | | | | |
| Drain-to-Source Breakdown Voltage | V _{(BR)DSS} | I _D =-1mA, V _{GS} =0V | -12 | | | V |
| Zero-Gate Voltage Drain Current | I _{DSS} | V _{DS} =-12V, V _{GS} =0V | | | -10 | μA |
| Gate-to-Source Leakage Current | I _{GSS} | V _{GS} =±6.4V, V _{DS} =0V | | | ±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 =-1.3A | 2.5 | 4.2 | | S |
| Static Drain-to-Source On-State Resistance | R _{DS(on)1} | I _D =-1.3A, V _{GS} =-4.5V | | 80 | 105 | mΩ |
| | R _{DS(on)2} | I _D =-0.7A, V _{GS} =-2.5V | | 115 | 165 | mΩ |
| | R _{DS(on)3} | I _D =-0.3A, V _{GS} =-1.8V | | 155 | 265 | mΩ |
| Input Capacitance | C _{iss} | V _{DS} =-6V, f=1MHz | | 450 | | pF |
| Output Capacitance | C _{oss} | V _{DS} =-6V, f=1MHz | | 100 | | pF |
| Reverse Transfer Capacitance | C _{rss} | V _{DS} =-6V, f=1MHz | | 85 | | pF |
| Turn-ON Delay Time | t _{d(on)} | See specified Test Circuit. | | 15 | | ns |
| Rise Time | t _r | See specified Test Circuit. | | 70 | | ns |
| Turn-OFF Delay Time | t _{d(off)} | See specified Test Circuit. | | 65 | | ns |
| Fall Time | t _f | See specified Test Circuit. | | 50 | | ns |
| Total Gate Charge | Q _g | V _{DS} =-6V, V _{GS} =-4.5V, I _D =-2.6A | | 6.5 | | nC |
| Gate-to-Source Charge | Q _{gs} | V _{DS} =-6V, V _{GS} =-4.5V, I _D =-2.6A | | 0.8 | | nC |
| Gate-to-Drain "Miller" Charge | Q _{gd} | V _{DS} =-6V, V _{GS} =-4.5V, I _D =-2.6A | | 2.0 | | nC |
| Diode Forward Voltage | V _{SD} | I _S =-2.6A, V _{GS} =0V | | -0.87 | -1.5 | V |

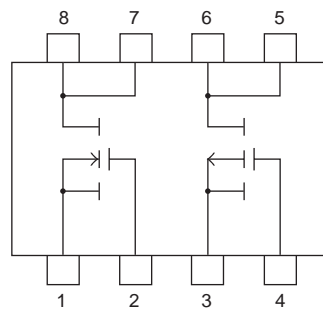
Package Dimensions

unit : mm (typ)

7012-002



Electrical Connection



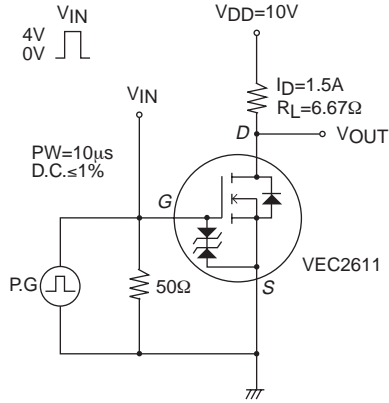
- 1 : Source1
- 2 : Gate1
- 3 : Source2
- 4 : Gate2
- 5 : Drain2
- 6 : Drain2
- 7 : Drain1
- 8 : Drain1

Top view

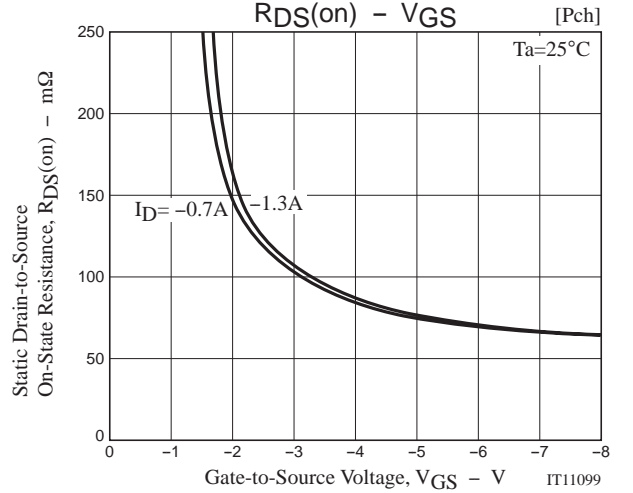
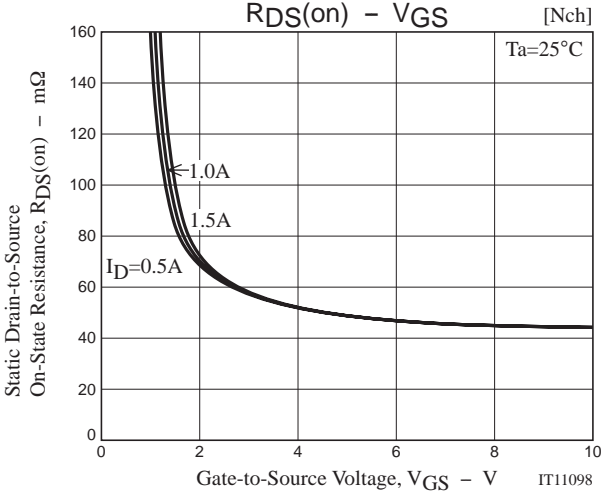
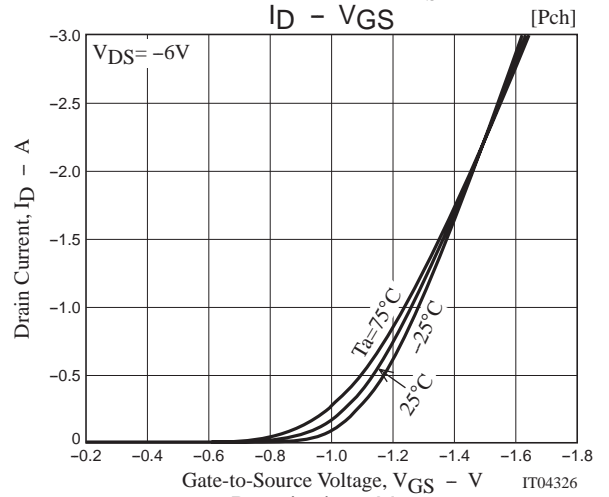
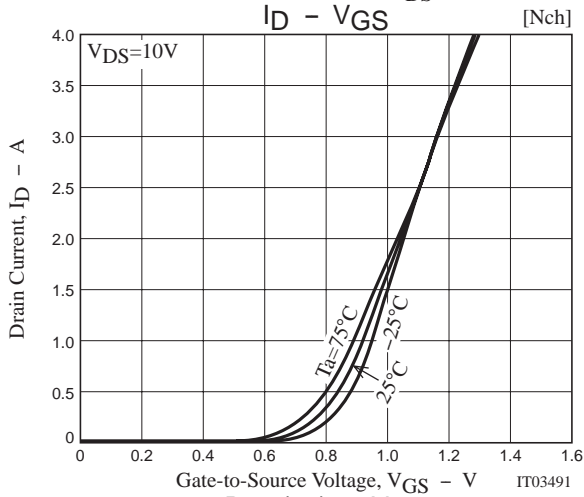
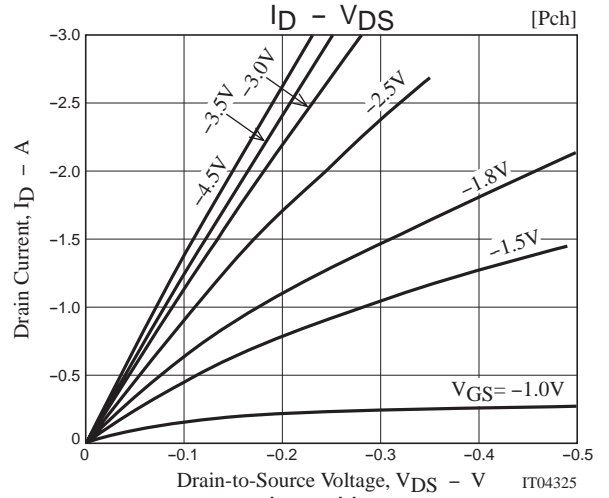
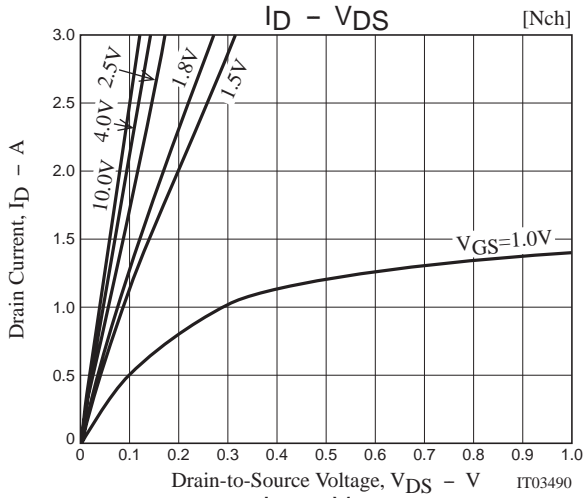
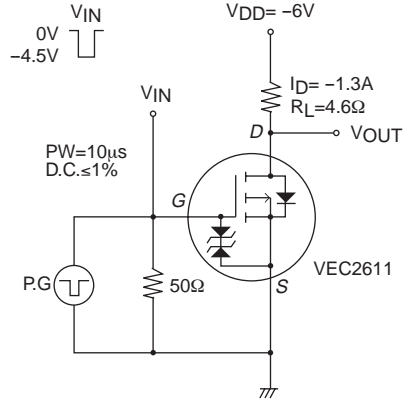
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Switching Time Test Circuit

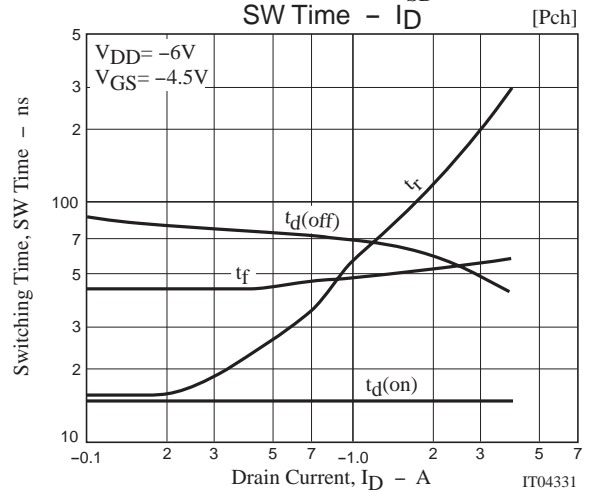
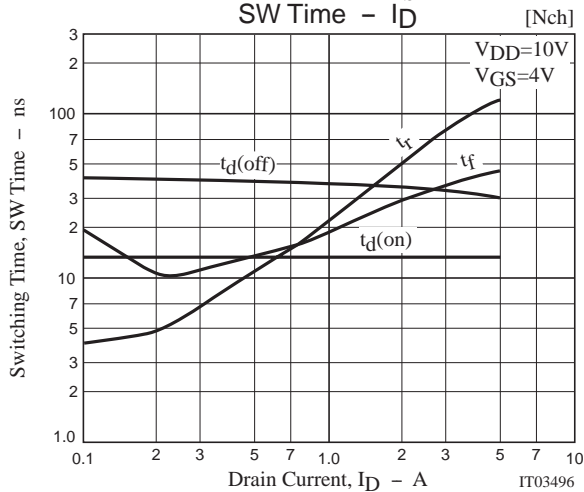
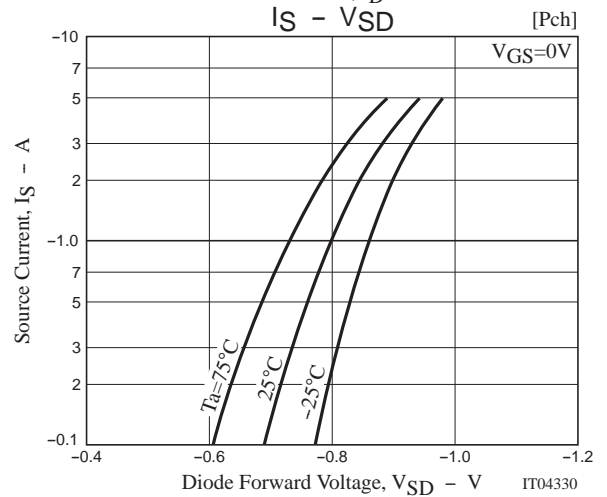
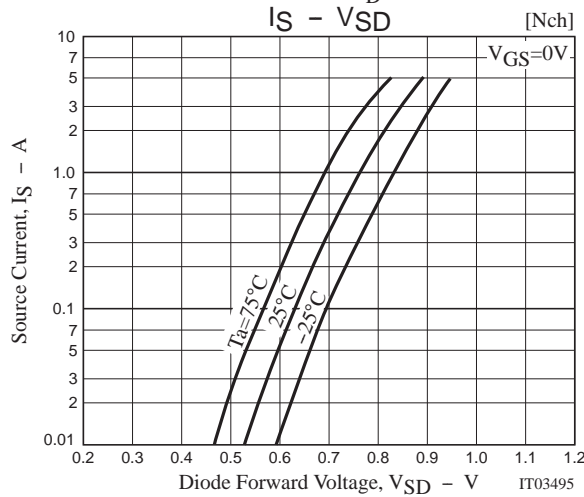
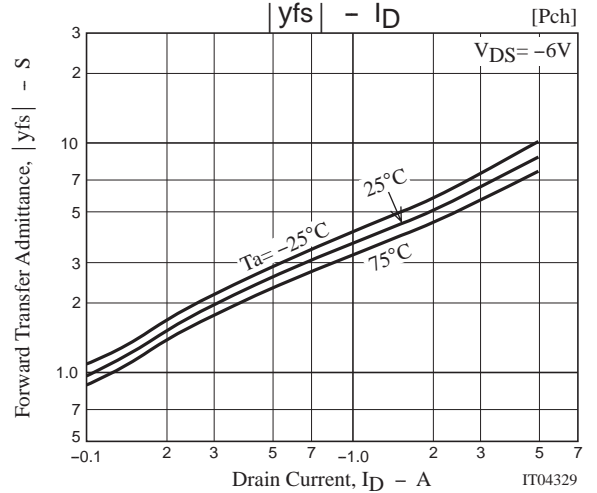
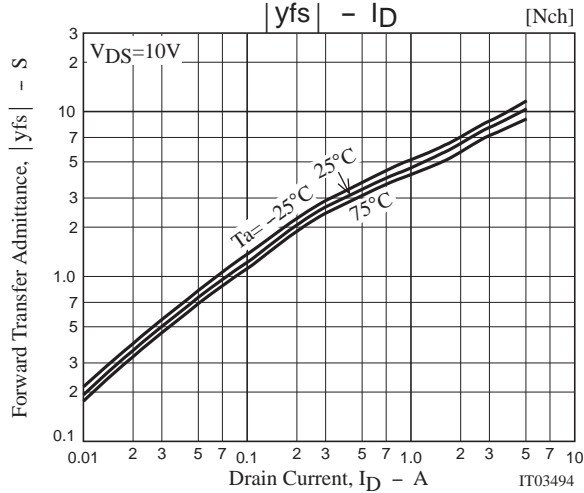
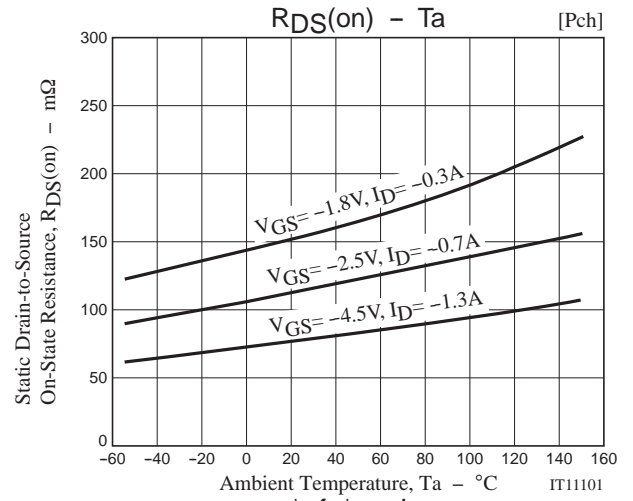
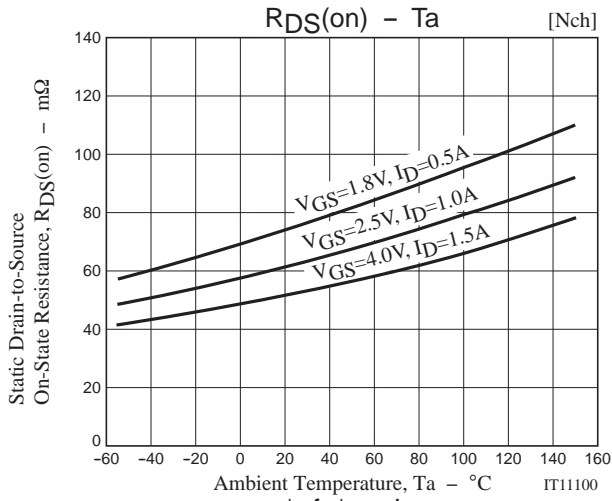
[N-channel]



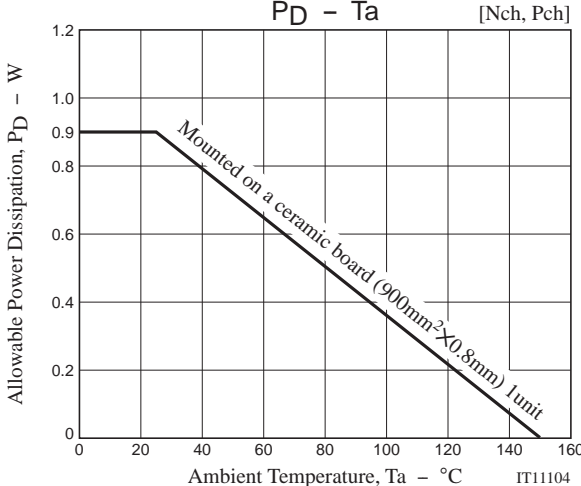
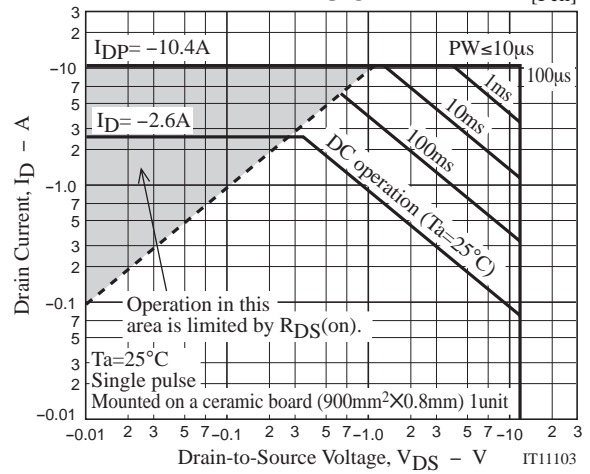
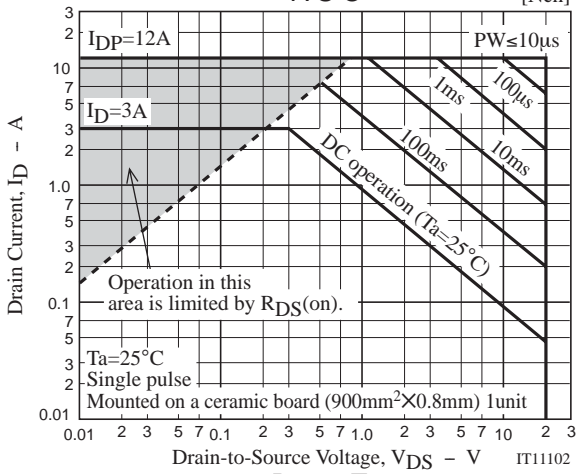
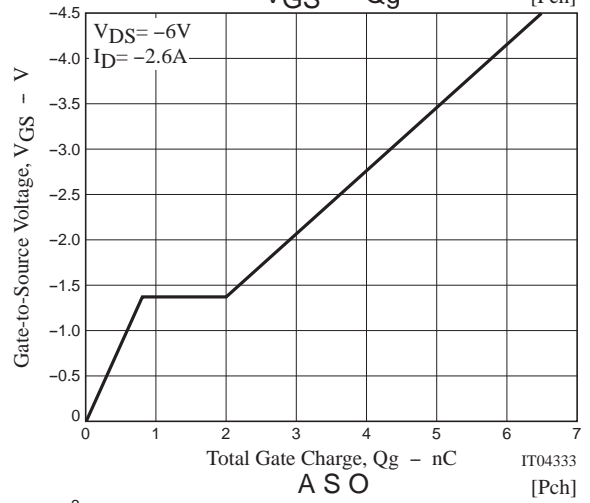
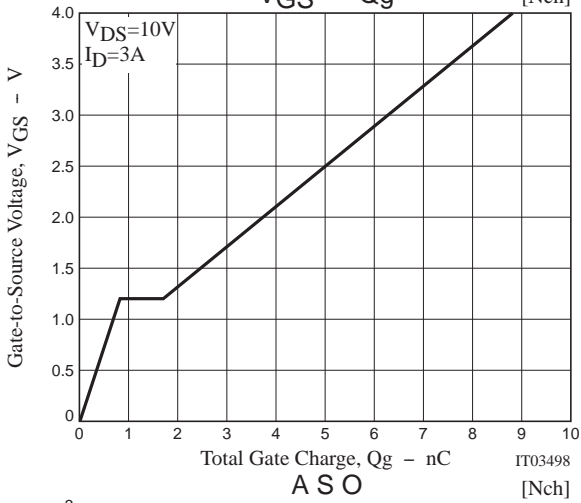
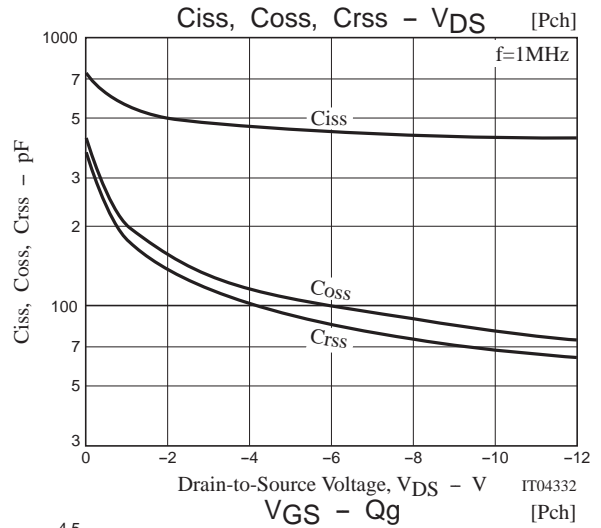
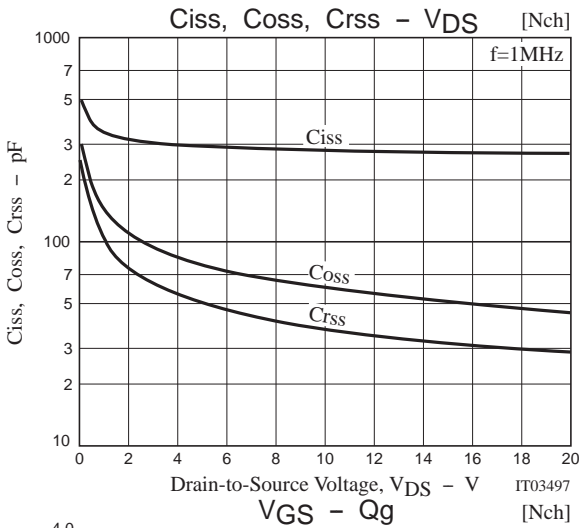
[P-channel]



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Note on usage : Since the VEC2611 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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