



Load Switching Applications

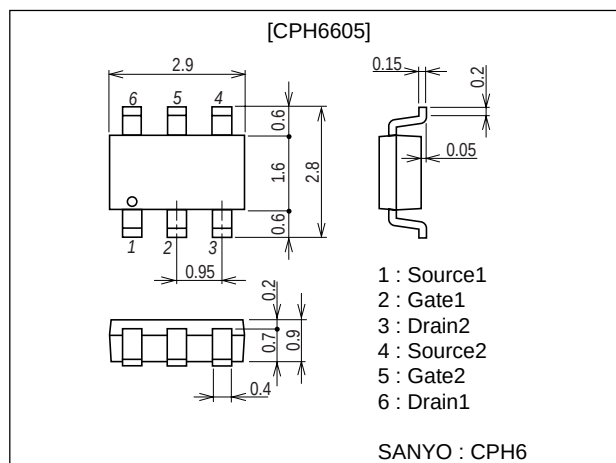
Features

- Dual chip device for high-density mounting.
One of the encapsulated devices is a P-channel MOSFET featuring low ON-resistance and high-speed switching. The other is an N-channel small signal MOSFET used for driving the P-channel MOSFET.
- Optimal for load switch use.
- Excellent ON-resistance characteristic.
- 2.5V drive.

Package Dimensions

unit : mm

2202



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V_{DS}		30	-20	V
Gate-to-Source Voltage	V_{GS}		± 10	± 10	V
Drain Current (DC)	I_D		0.65	-1.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	2.6	-6.0	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm ² ×0.8mm)1unit	0.8		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	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0$			10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=100\mu A$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=150mA$	400	560		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=150mA, V_{GS}=4V$		0.9	1.2	Ω
	$R_{DS(on)2}$	$I_D=80mA, V_{GS}=2.5V$		1.2	1.7	Ω
	$R_{DS(on)3}$	$I_D=10mA, V_{GS}=1.5V$		2.6	5.2	Ω

Marking : FQ

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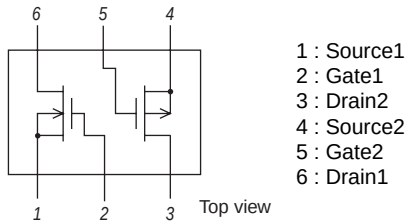
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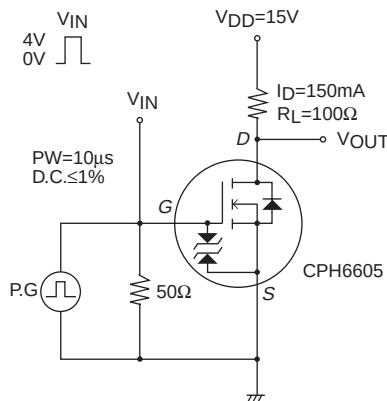
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=10V, f=1MHz$		30		pF
Output Capacitance	Coss	$V_{DS}=10V, f=1MHz$		15		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=10V, f=1MHz$		10		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		32		ns
Rise Time	t_r	See specified Test Circuit.		110		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		250		ns
Fall Time	t_f	See specified Test Circuit.		160		ns
Total Gate Charge	Qg	$V_{DS}=10V, V_{GS}=10V, I_D=300mA$		2.34		nC
Gate-to-Source Charge	Qgs	$V_{DS}=10V, V_{GS}=10V, I_D=300mA$		0.38		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=10V, V_{GS}=10V, I_D=300mA$		0.45		nC
Diode Forward Voltage	VSD	$I_S=300mA, V_{GS}=0$		0.8	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0$	-20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-800mA$	1.6	2.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-800mA, V_{GS}=-4V$		180	235	$m\Omega$
	$R_{DS(on)2}$	$I_D=-400mA, V_{GS}=-2.5V$		240	340	$m\Omega$
Input Capacitance	Ciss	$V_{DS}=-10V, f=1MHz$		290		pF
Output Capacitance	Coss	$V_{DS}=-10V, f=1MHz$		40		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=-10V, f=1MHz$		25		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		10		ns
Rise Time	t_r	See specified Test Circuit.		35		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		32		ns
Fall Time	t_f	See specified Test Circuit.		27		ns
Total Gate Charge	Qg	$V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$		3.2		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$		0.8		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-10V, V_{GS}=-4V, I_D=-1.5A$		0.6		nC
Diode Forward Voltage	VSD	$I_S=-1.5A, V_{GS}=0$		-0.82	-1.2	V

Electrical Connection

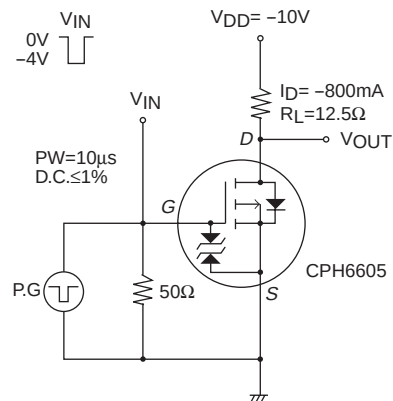


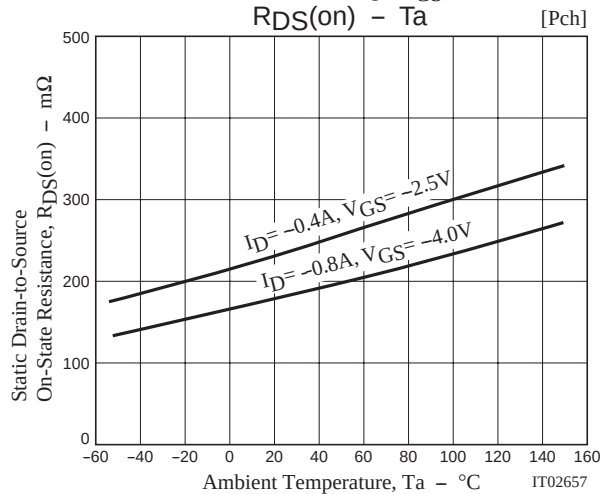
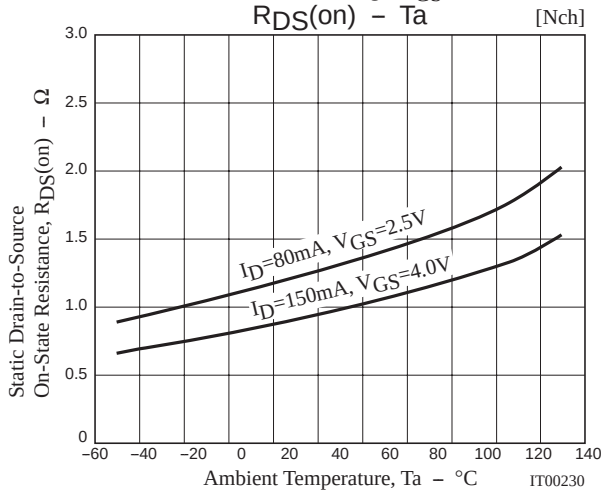
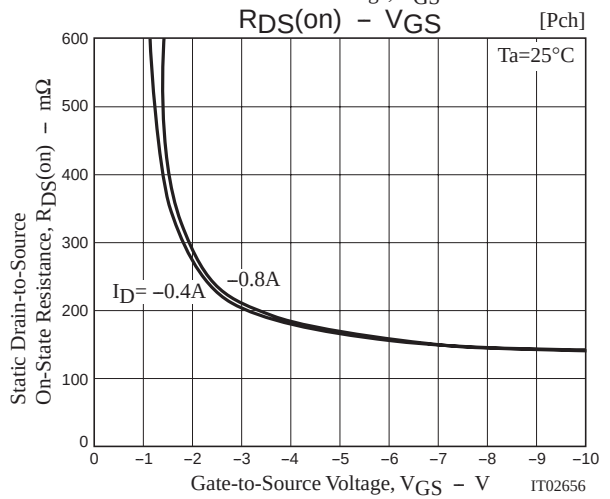
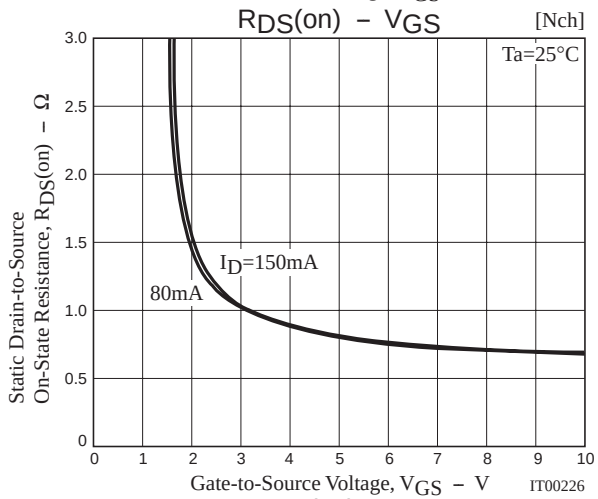
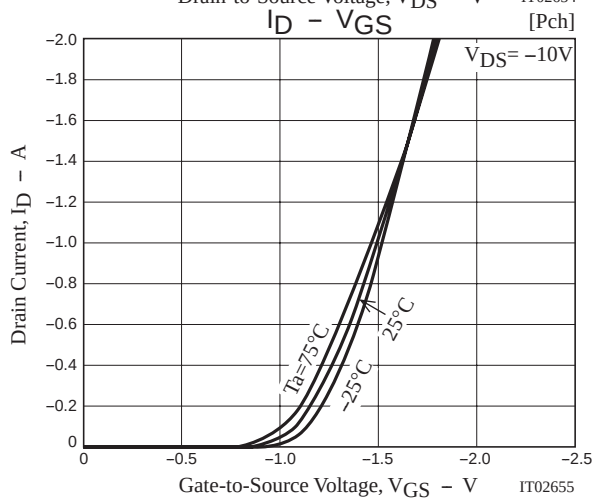
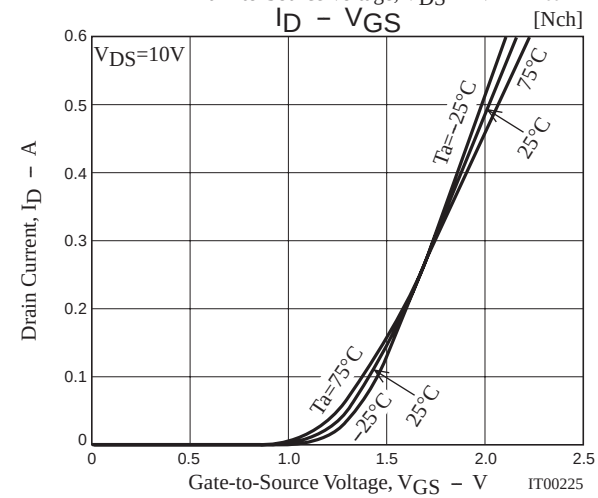
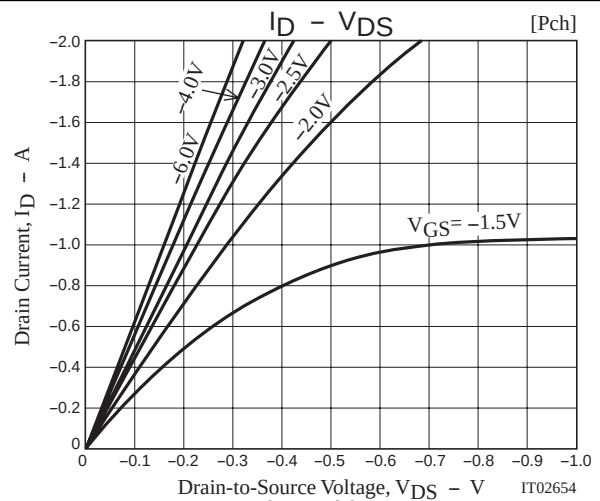
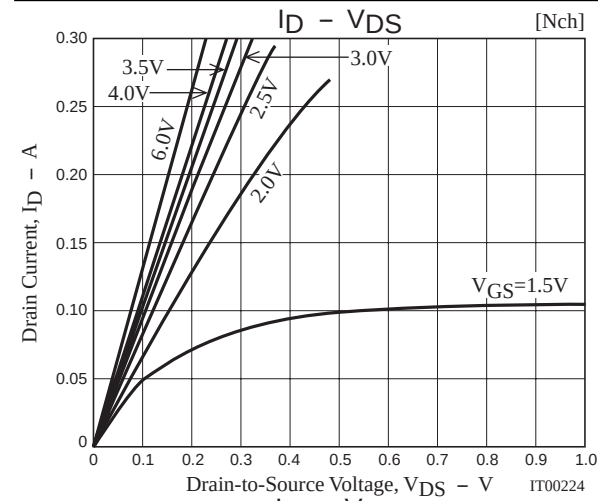
Switching Time Test Circuit

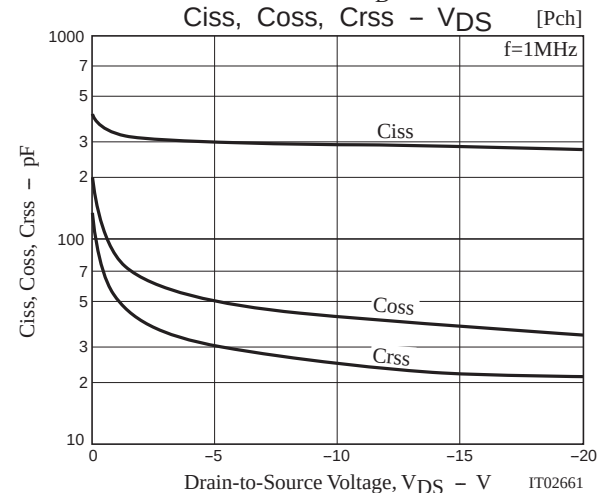
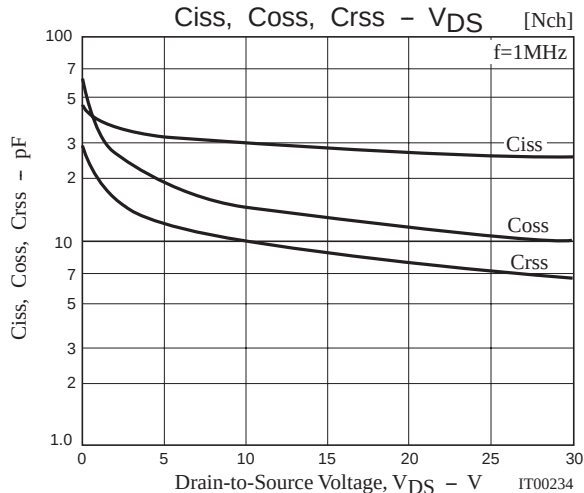
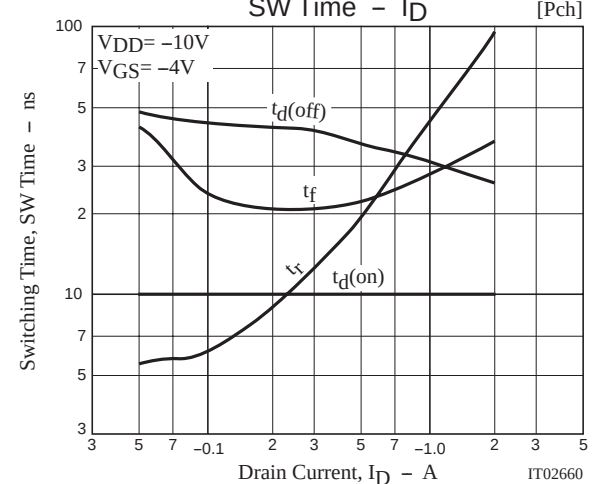
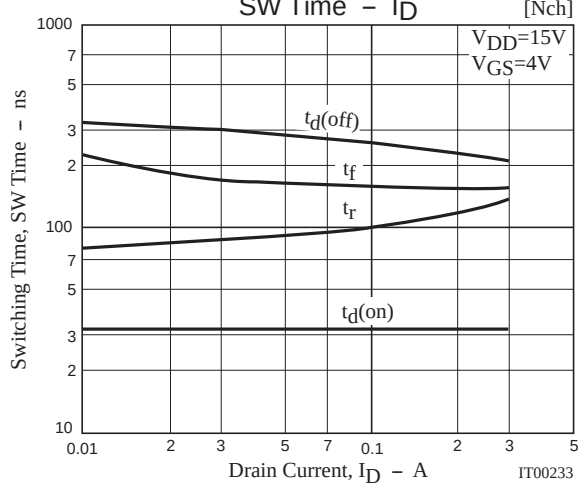
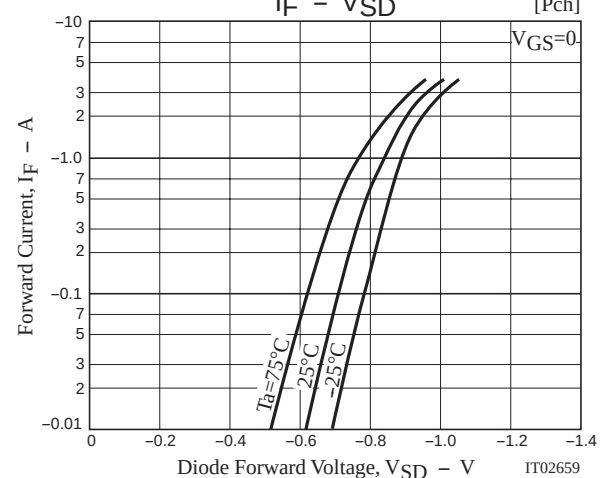
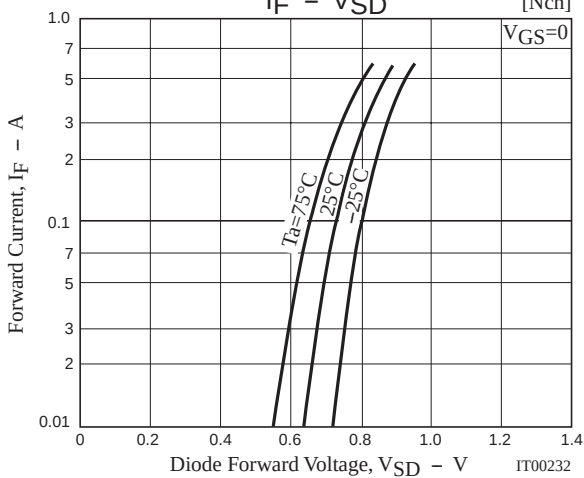
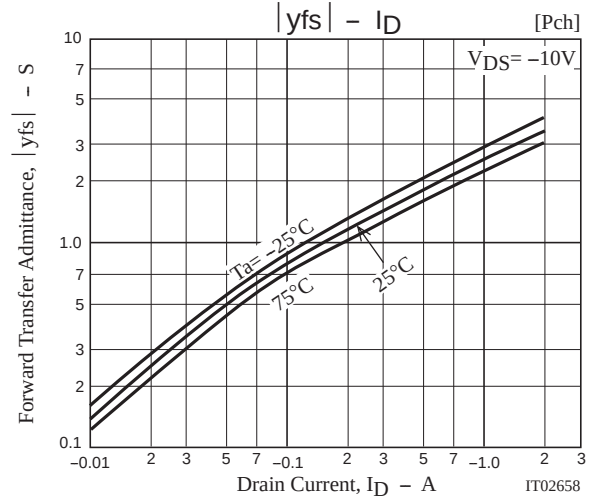
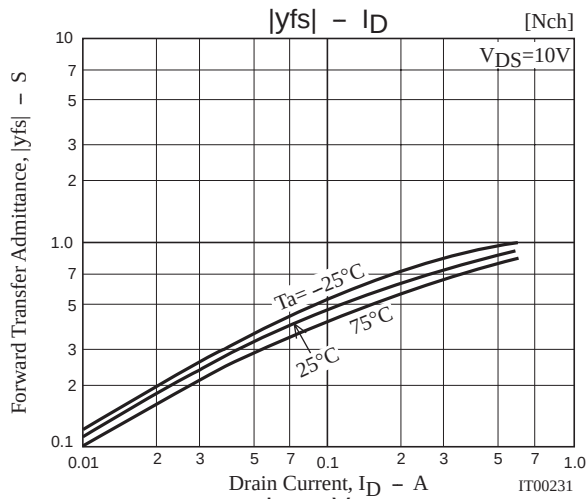
[N-channel]

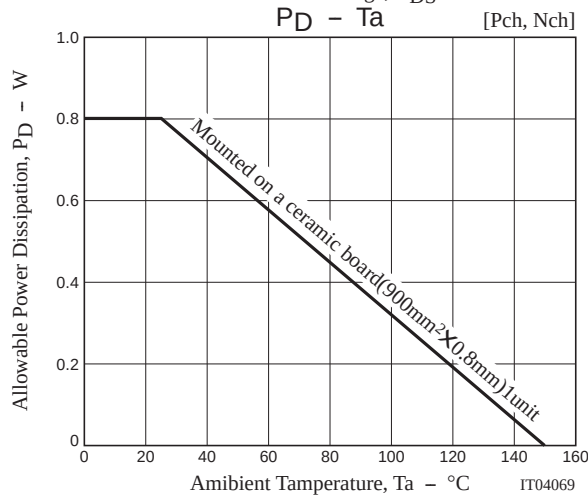
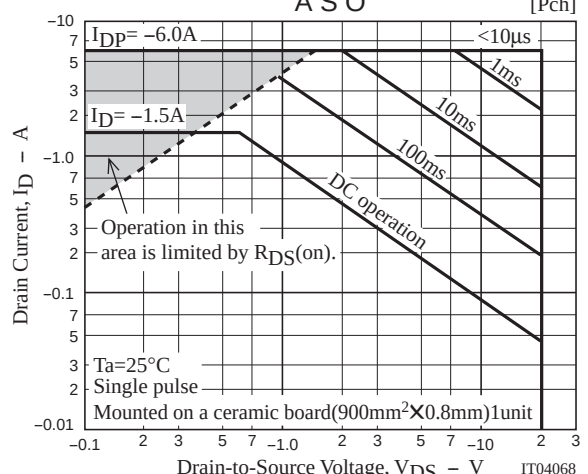
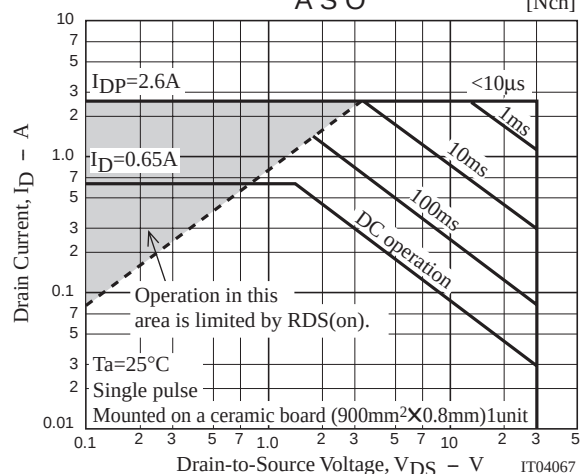
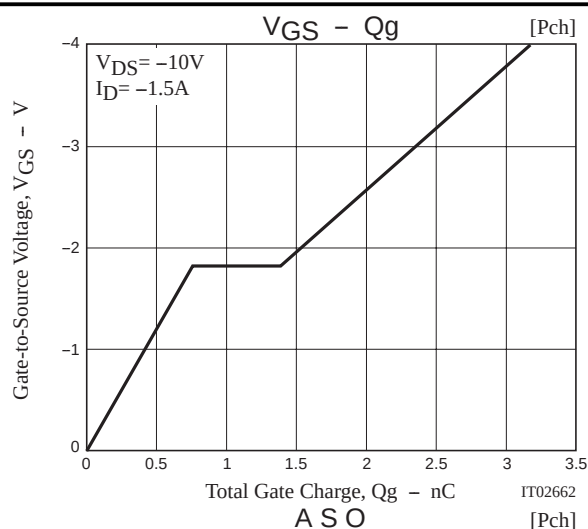
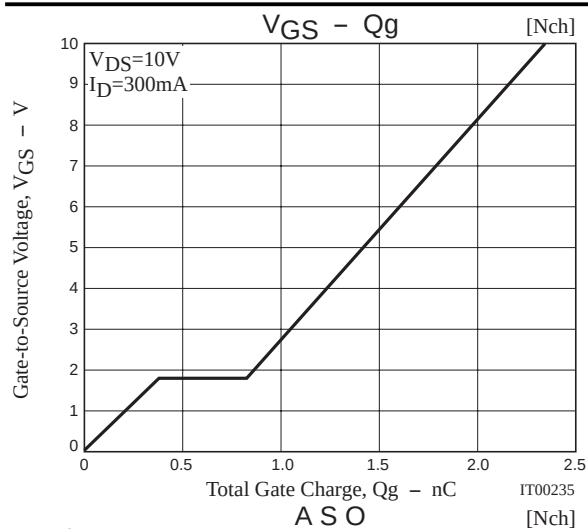


[P-channel]









Note on usage : Since the CPH6605 is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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