

CPH6619

N-Channel and P-Channel Silicon MOSFETs

General-Purpose Switching Device Applications

Features

- Composite type of a low on-resistance ultra-high switching P-channel MOSFET and a small signal N-channel MOSFET for driving P-channel MOSFET enables high-density mounting.
- Excellent ON-resistance characteristic.
- Best suited for load switches.
- N-channel 1.5V drive, P-channel 1.8V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V _{DSS}		30	-12	V
Gate-to-Source Voltage	V _{GSS}		±10	±8	V
Drain Current (DC)	I _D		0.4	-2	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	1.6	-8	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (90mm ² X0.8mm) 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} =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} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =100μA	0.4		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =80mA	0.13	0.22		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =80mA, V _{GS} =4V		2.9	3.7	Ω
	R _{DS(on)2}	I _D =40mA, V _{GS} =2.5V		3.7	5.2	Ω
	R _{DS(on)3}	I _D =10mA, V _{GS} =1.5V		6.4	12.8	Ω
Input Capacitance	C _{iss}	V _{DS} =10V, f=1MHz		7		pF
Output Capacitance	C _{oss}	V _{DS} =10V, f=1MHz		5.9		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =10V, f=1MHz		2.3		pF

Marking : WF

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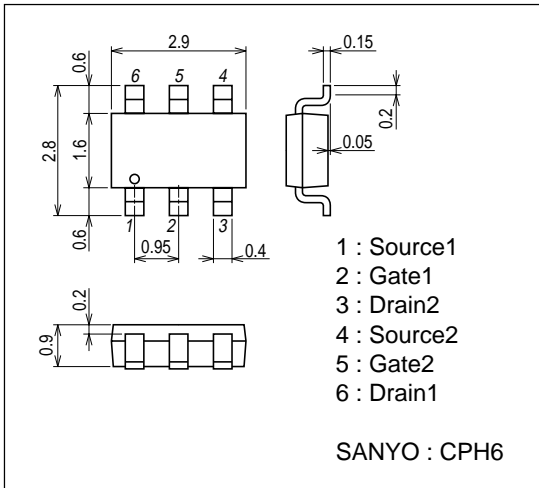
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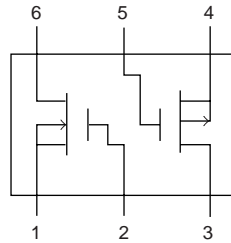
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		19		ns
Rise Time	t_r	See specified Test Circuit.		65		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		155		ns
Fall Time	t_f	See specified Test Circuit.		120		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=150mA$		1.58		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=150mA$		0.26		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=150mA$		0.31		nC
Diode Forward Voltage	V_{SD}	$I_S=150mA, V_{GS}=0V$		0.87	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}	$V_{GS}=\pm 6.4V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-6V, I_D=-1mA$	-0.3		-1.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-6V, I_D=-1A$	1.74	2.9		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-1A, V_{GS}=-4.5V$		130	165	$m\Omega$
	$R_{DS(on)2}$	$I_D=-0.5A, V_{GS}=-2.5V$		180	245	$m\Omega$
	$R_{DS(on)3}$	$I_D=-0.2A, V_{GS}=-1.8V$		240	350	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-6V, f=1MHz$		310		pF
Output Capacitance	C_{oss}	$V_{DS}=-6V, f=1MHz$		90		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-6V, f=1MHz$		80		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		14		ns
Rise Time	t_r	See specified Test Circuit.		53		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		53		ns
Fall Time	t_f	See specified Test Circuit.		52		ns
Total Gate Charge	Q_g	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.0A$		4.6		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.0A$		0.7		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.0A$		1.3		nC
Diode Forward Voltage	V_{SD}	$I_S=-2.0A, V_{GS}=0V$		-0.89	-1.5	V

Package Dimensions

unit : mm (typ)
7018A-007



Electrical Connection

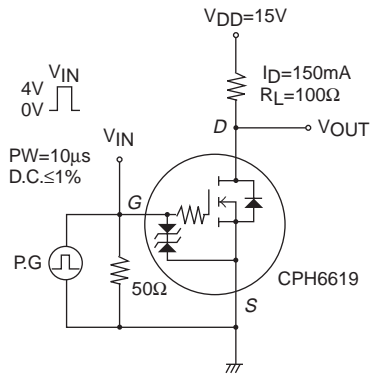


- 1 : Source1
- 2 : Gate1
- 3 : Drain2
- 4 : Source2
- 5 : Gate2
- 6 : Drain1

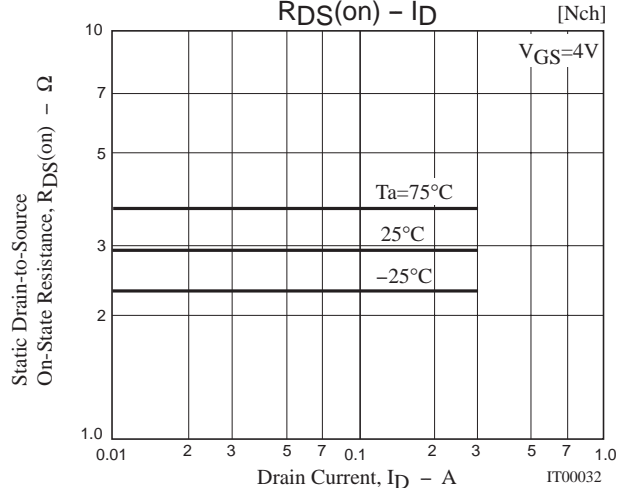
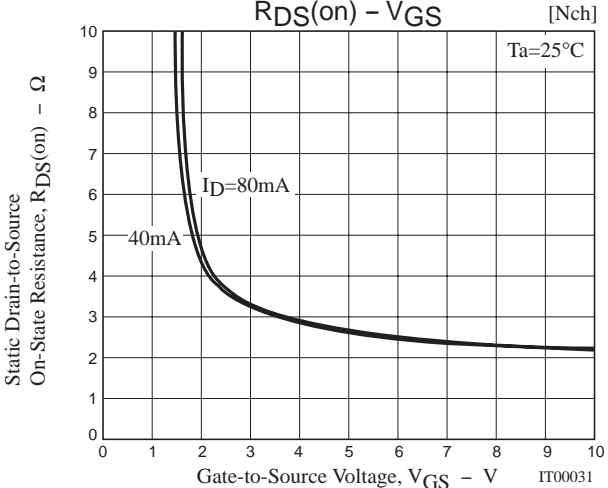
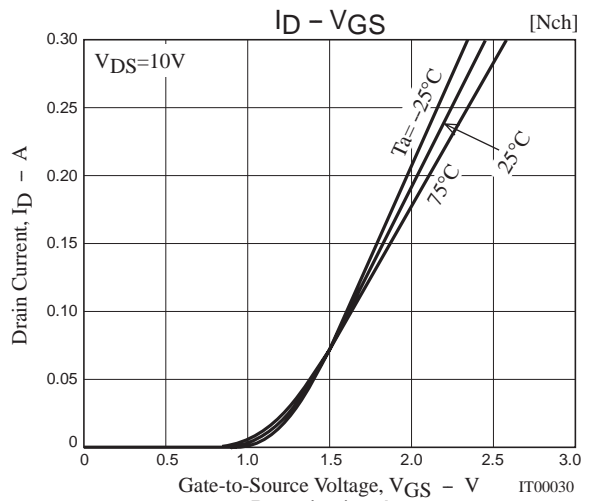
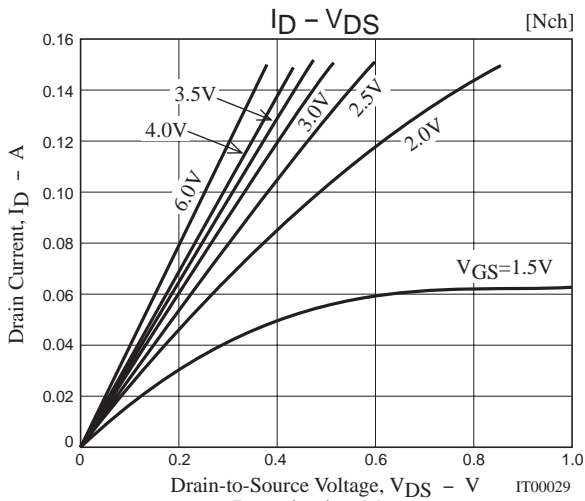
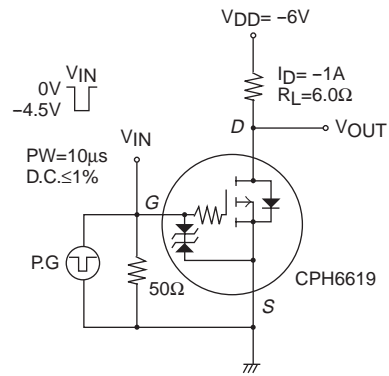
Top view

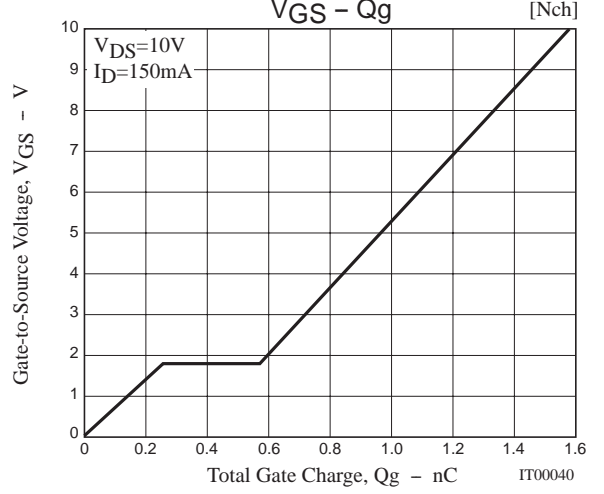
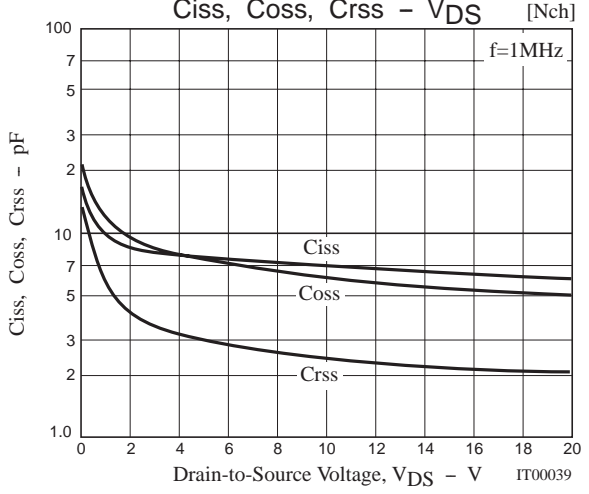
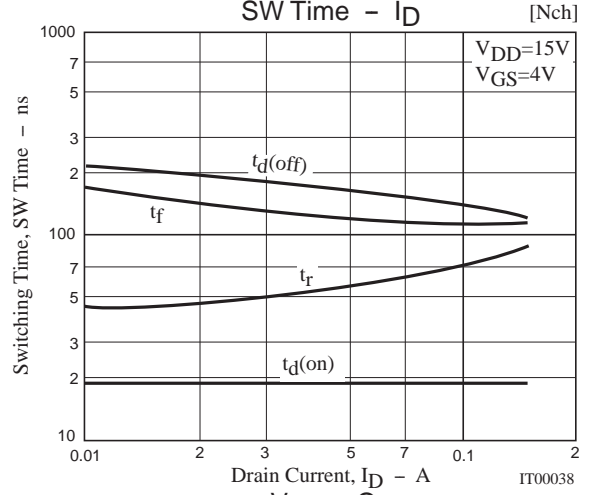
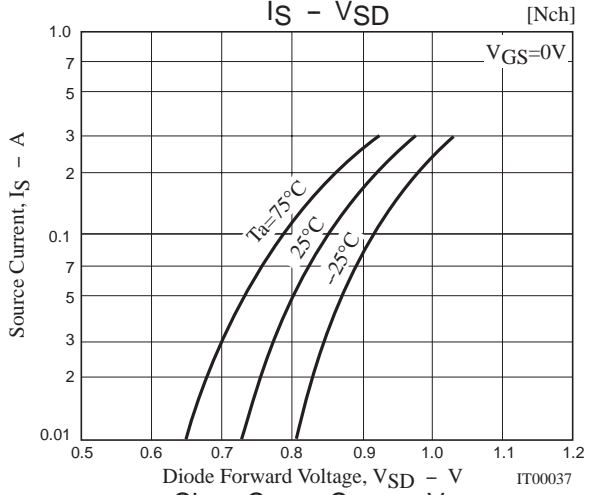
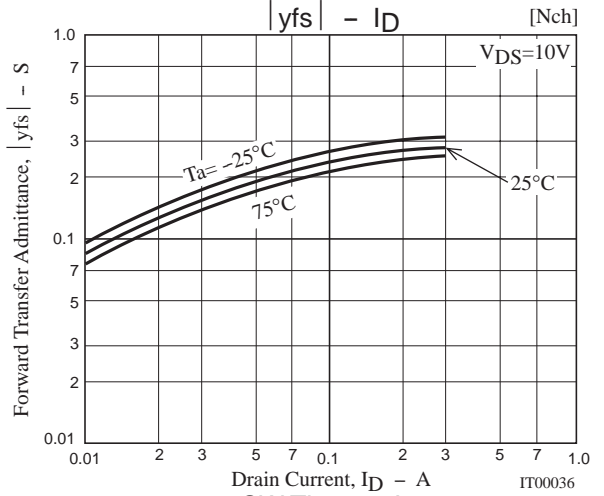
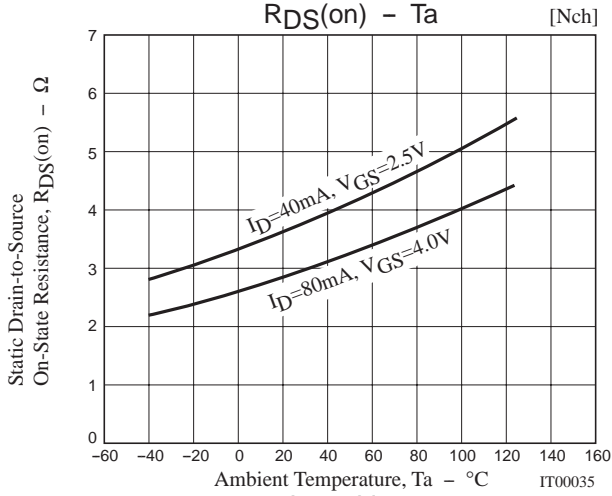
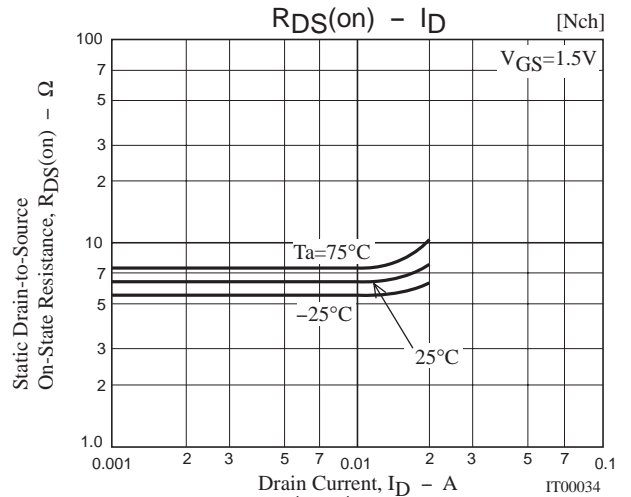
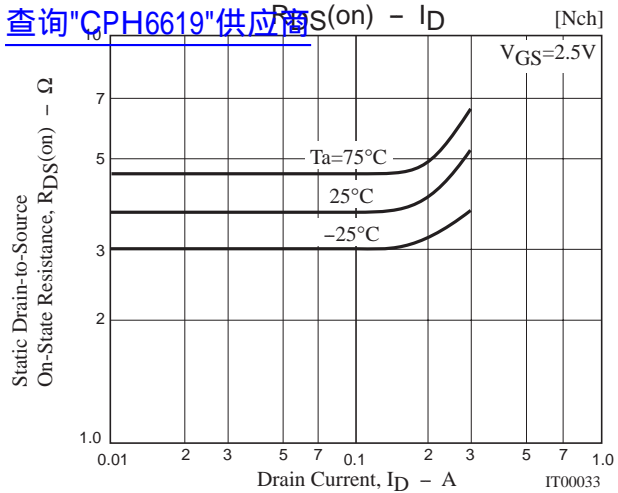
Switching Time Test Circuit

[N-channel]

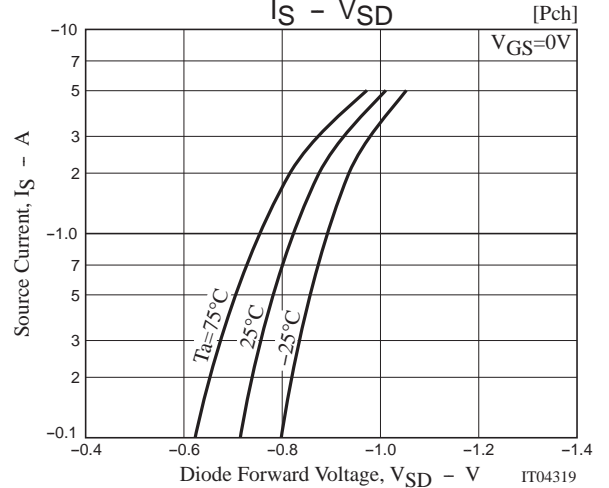
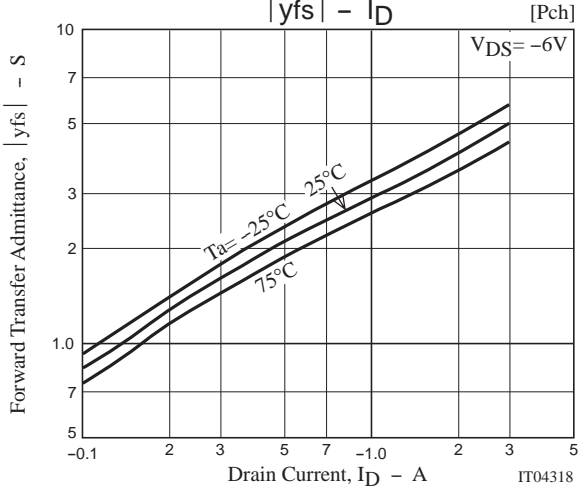
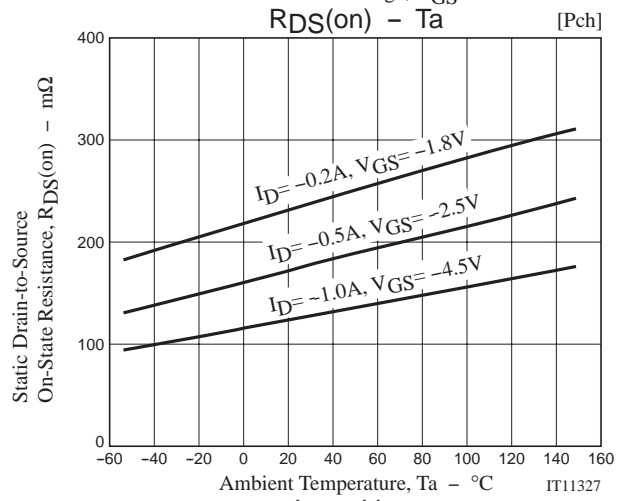
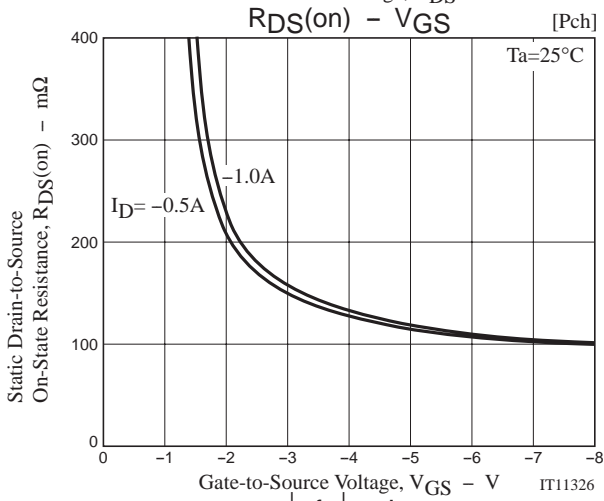
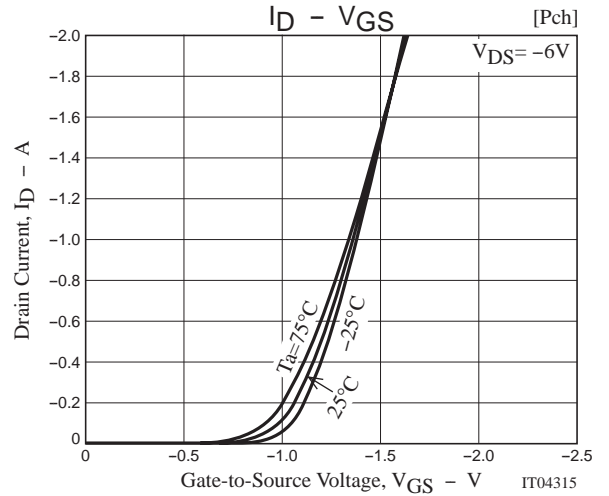
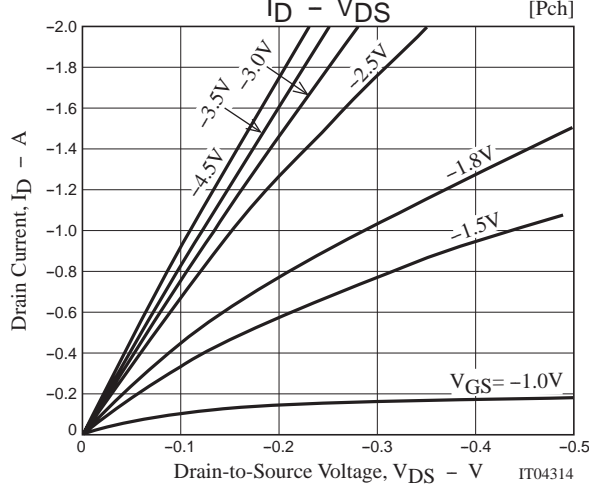
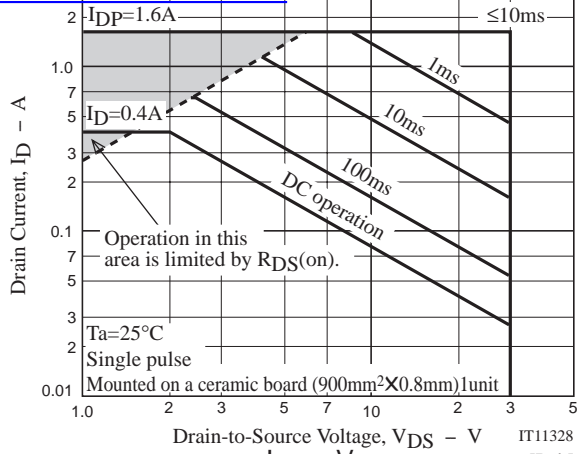


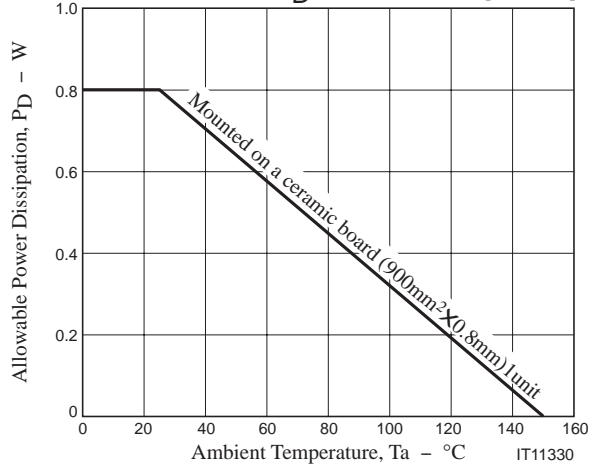
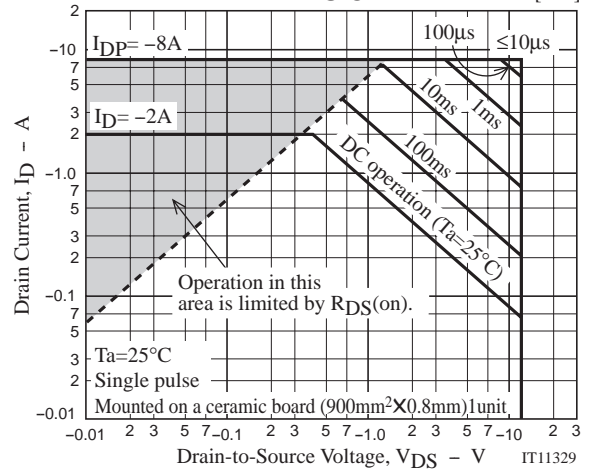
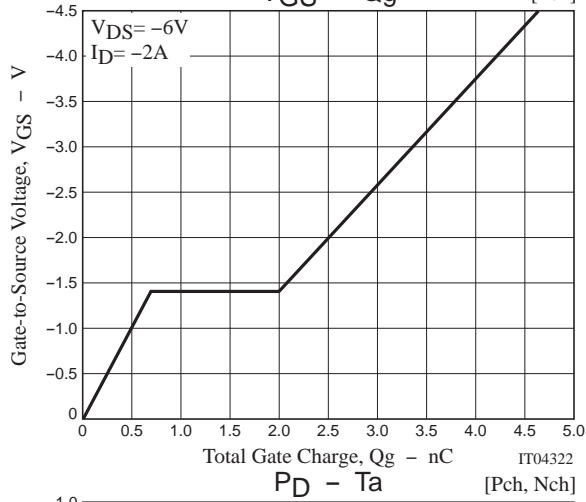
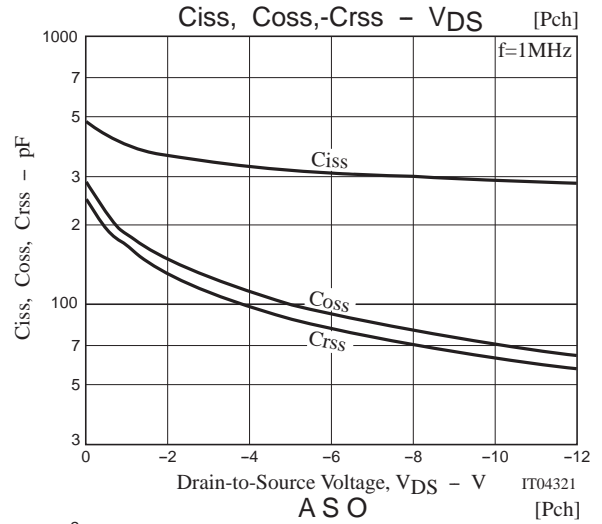
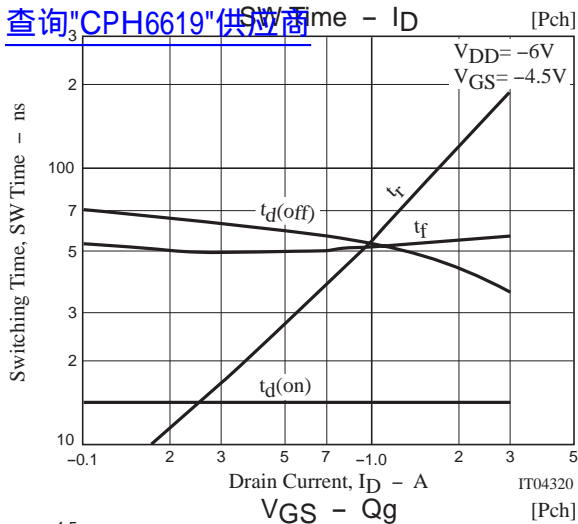
[P-channel]





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Note on usage : Since the CPH6619 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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