



MCH6618 — General-Purpose Switching Device Applications

N-Channel and P-Channel Silicon MOSFETs

Features

- Composite type with an N-channel and a P-channel MOSFET, allowing high-density mounting.
- Low ON-resistance.
- Ultrahigh switching speed.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V _{DSS}		30	-50	V
Gate-to-Source Voltage	V _{GSS}		±10	±20	V
Drain Current (DC)	I _D		0.35	-0.14	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	1.4	-0.56	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm 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	150	220		mS
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		7.0		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
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

Marking : FS

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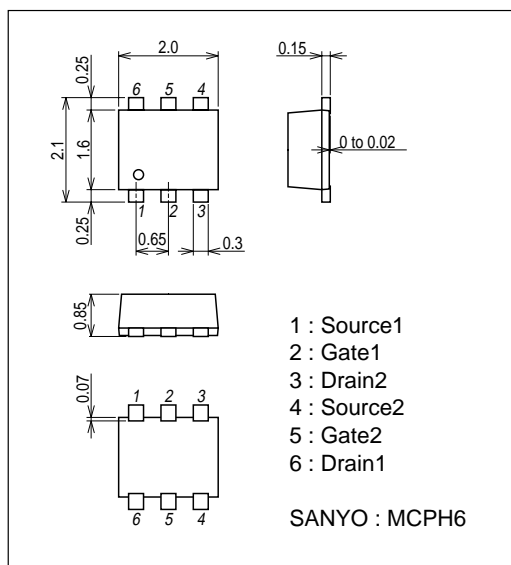
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V _{DS} =10V, V _{GS} =10V, I _D =150mA		1.58		nC
Gate-to-Source Charge	Qgs	V _{DS} =10V, V _{GS} =10V, I _D =150mA		0.26		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =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	-50			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =-50V, V _{GS} =0V			-1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =-10V, I _D =-100μA	-1		-2.5	V
Forward Transfer Admittance	y _{fs}	V _{DS} =-10V, I _D =-40mA	50	70		mS
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =-40mA, V _{GS} =-10V		17	22	Ω
	R _{DS(on)2}	I _D =-20mA, V _{GS} =-4V		23	32	Ω
Input Capacitance	C _{iss}	V _{DS} =-10V, f=1MHz		6.2		pF
Output Capacitance	C _{oss}	V _{DS} =-10V, f=1MHz		4.0		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =-10V, f=1MHz		1.3		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		13		ns
Rise Time	t _r	See specified Test Circuit.		10		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		100		ns
Fall Time	t _f	See specified Test Circuit.		150		ns
Total Gate Charge	Qg	V _{DS} =-10V, V _{GS} =-10V, I _D =-70mA		1.32		nC
Gate-to-Source Charge	Qgs	V _{DS} =-10V, V _{GS} =-10V, I _D =-70mA		0.17		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =-10V, V _{GS} =-10V, I _D =-70mA		0.34		nC
Diode Forward Voltage	V _{SD}	I _S =-70mA, V _{GS} =0V		-0.85	-1.2	V

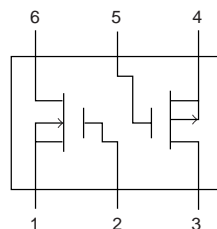
Package Dimensions

unit : mm

7022A-006



Electrical Connection



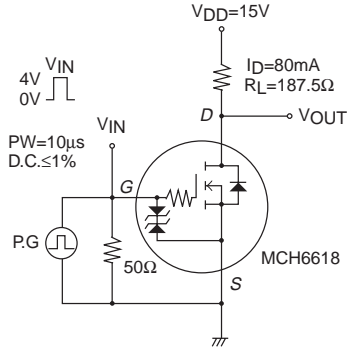
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- 2 : Gate1
- 3 : Drain2
- 4 : Source2
- 5 : Gate2
- 6 : Drain1

Top view

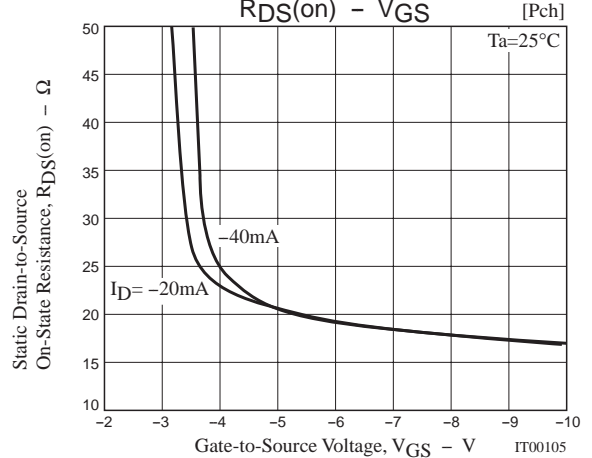
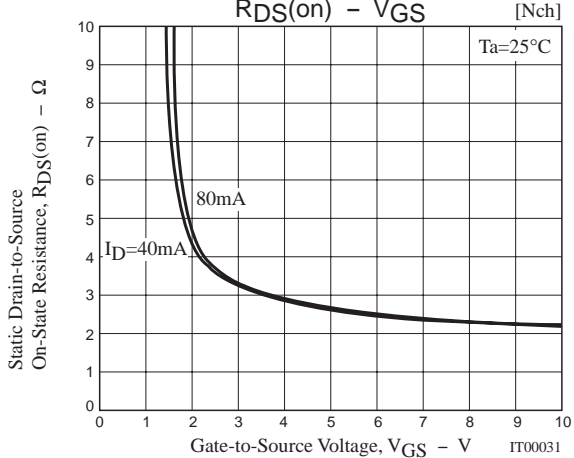
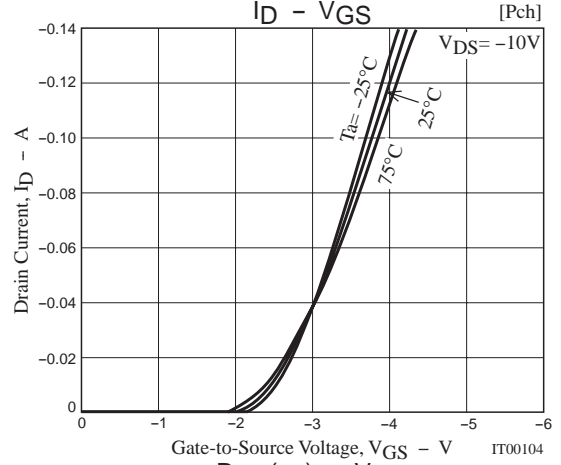
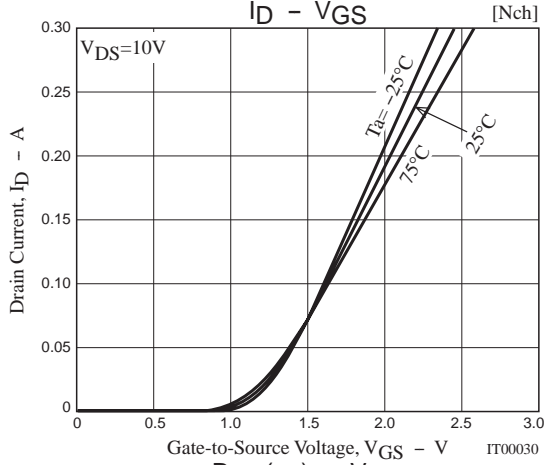
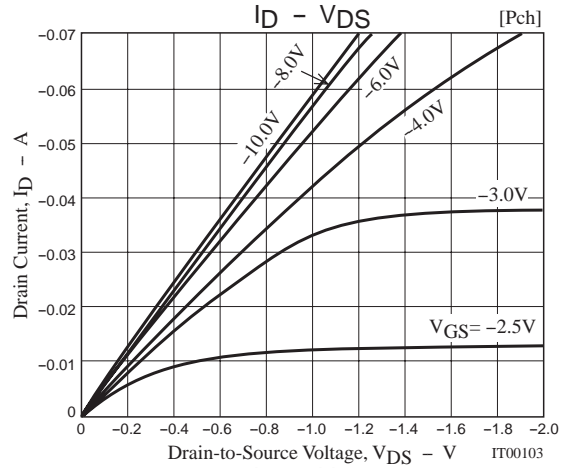
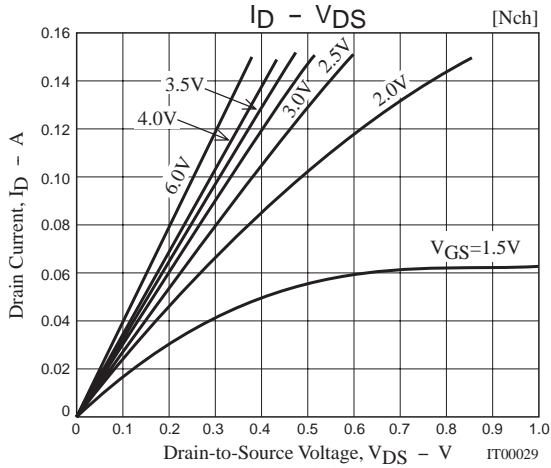
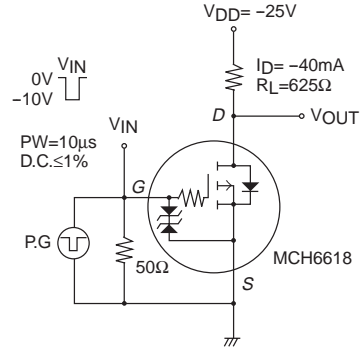
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Switching Time Test Circuit

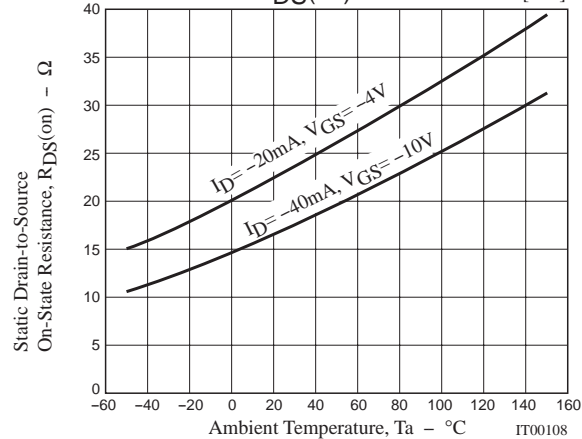
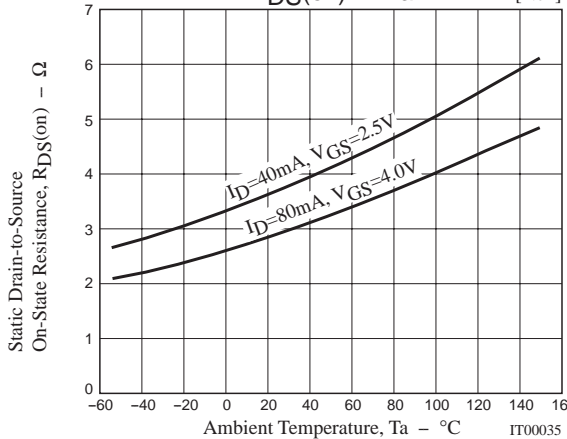
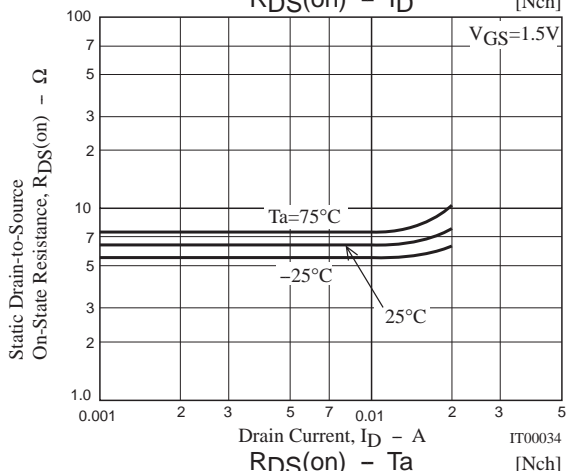
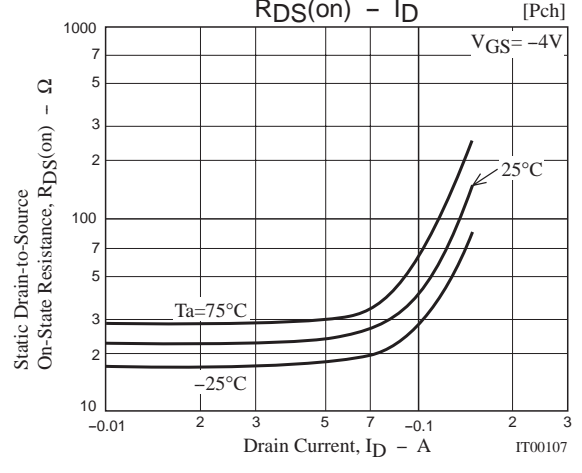
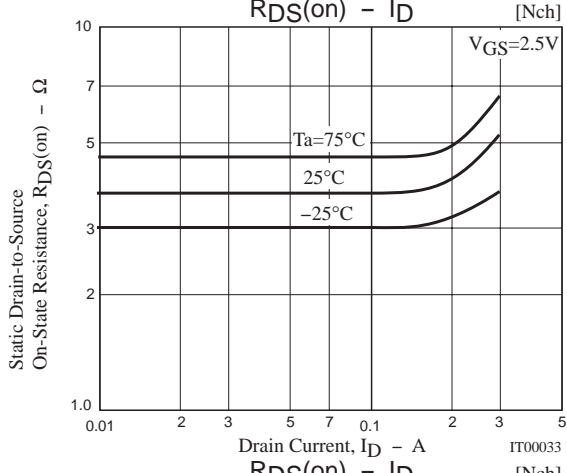
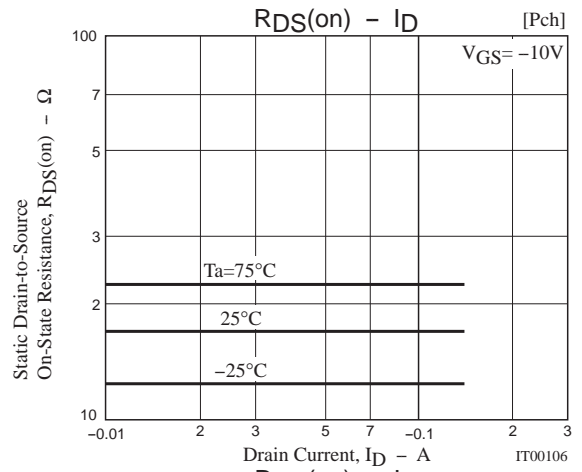
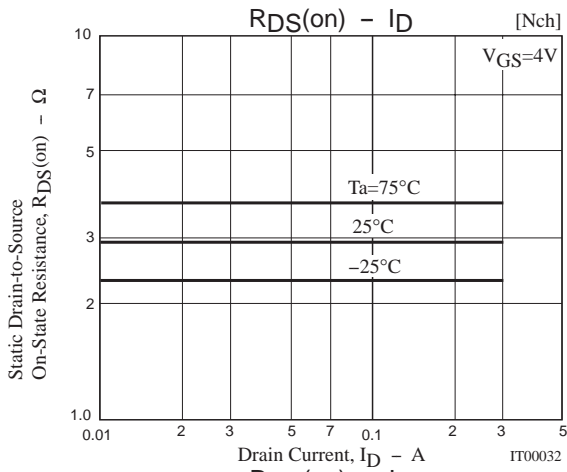
[N-channel]



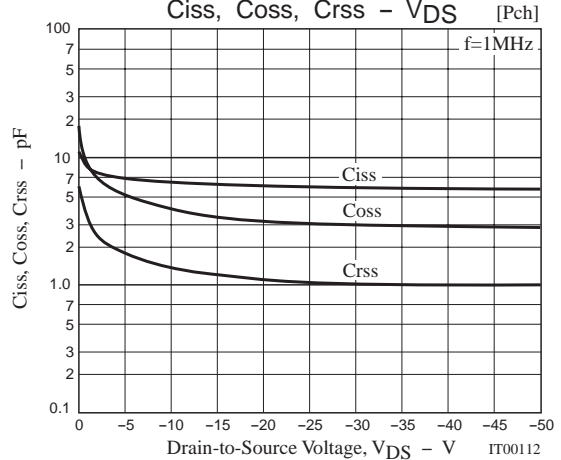
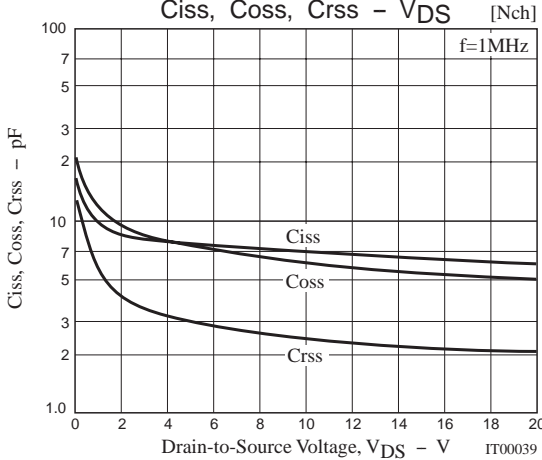
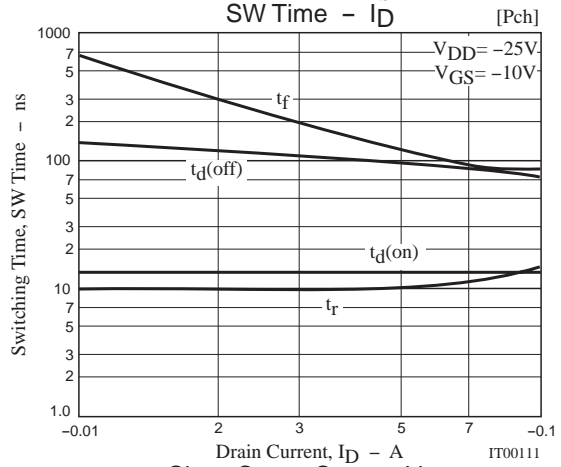
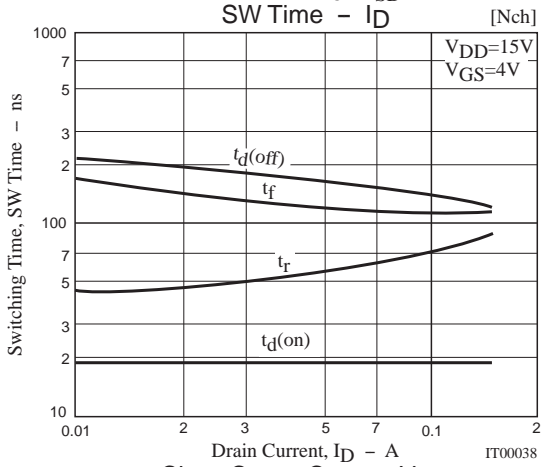
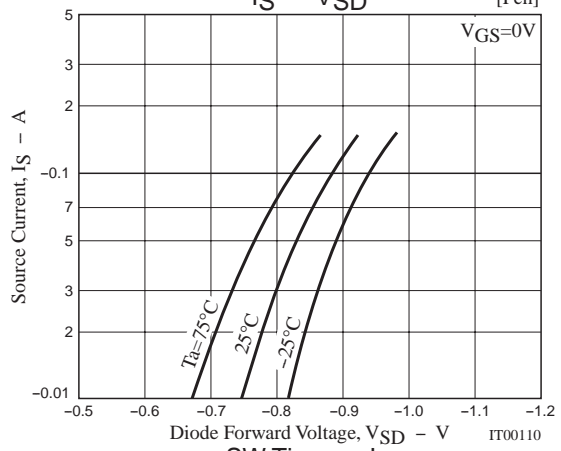
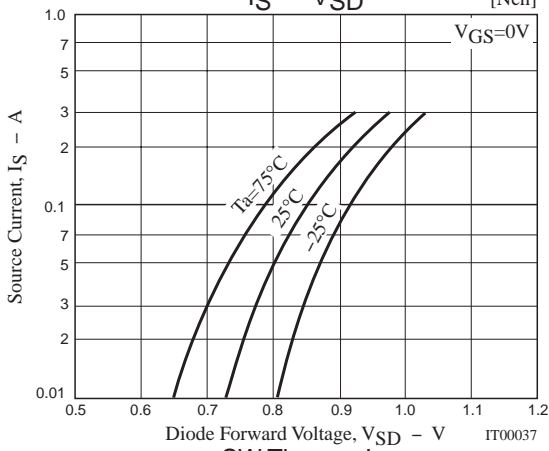
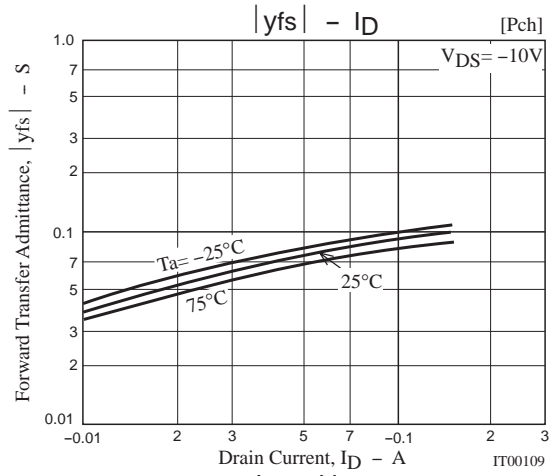
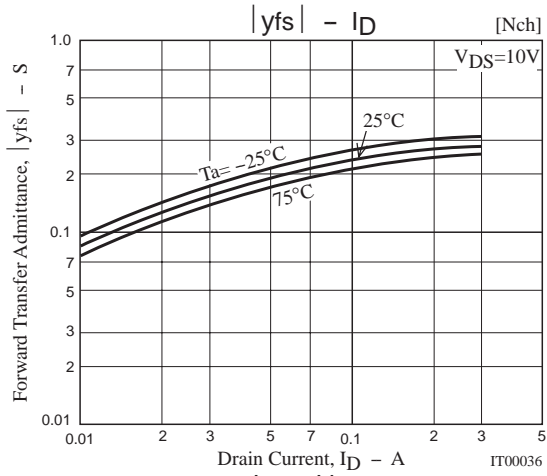
[P-channel]



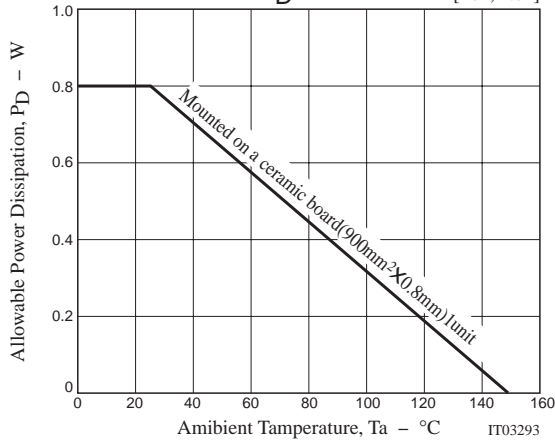
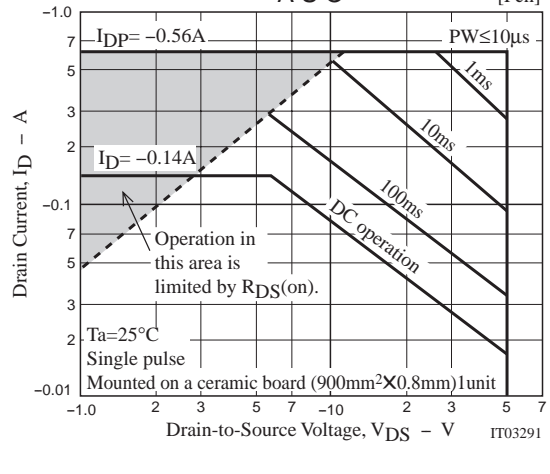
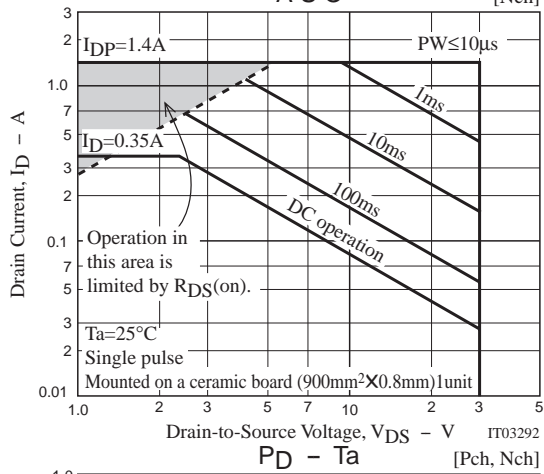
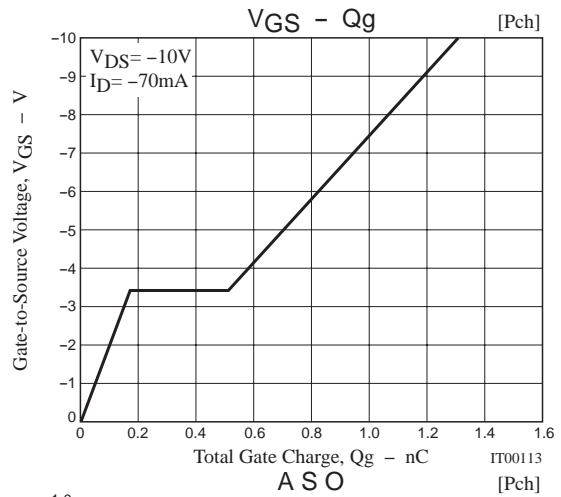
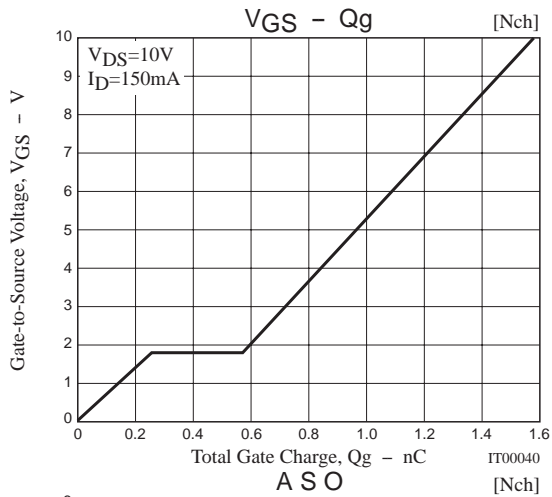
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MCH6618



Note on usage : Since the MCH6618 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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