

**MCH6618**

Ultrahigh-Speed Switching Applications

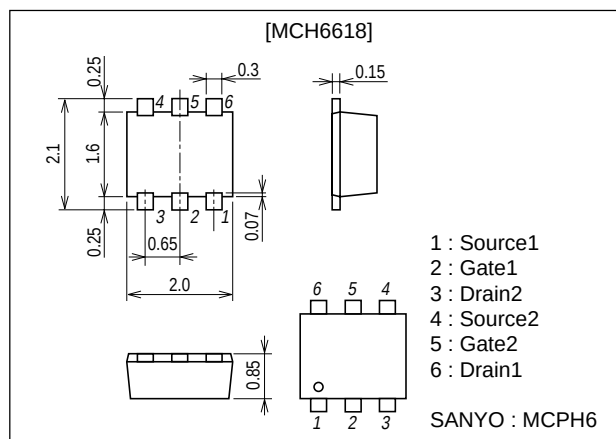
Features

- The MCH6618 encapsulates an N-channel MOSFET and a P-channel MOSFET that feature low ON-resistance and ultrahigh switching-speed, thus allows high-density mounting.
- Low ON-resistance.

Package Dimensions

unit : mm

2173A



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V_{DS}		30	-50	V
Gate-to-Source Voltage	V_{GS}		±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(900mm²×0.8mm)1unit	0.8		W
Channel Temperature	Tch		150		°C
Storage Temperature	Tstg		-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	ID=1mA, VGS=0	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0			10	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VDS=0			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=100μA	0.4		1.3	V
Forward Transfer Admittance	yfs	VDS=10V, ID=80mA	150	220		mS
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=80mA, VGS=4V		2.9	3.7	Ω
	RDS(on)2	ID=40mA, VGS=2.5V		3.7	5.2	Ω
	RDS(on)3	ID=10mA, VGS=1.5V		6.4	12.8	Ω

Marking : FS

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MCH6618

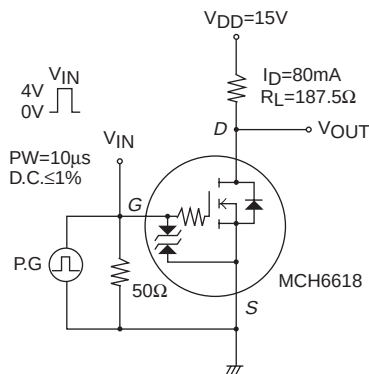
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=10V, f=1MHz$		7.0		pF
Output Capacitance	Coss	$V_{DS}=10V, f=1MHz$		5.9		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=10V, f=1MHz$		2.3		pF
Turn-ON Delay Time	$t_d(on)$	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
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}	$I_S=150mA, V_{GS}=0$		0.87	1.2	V

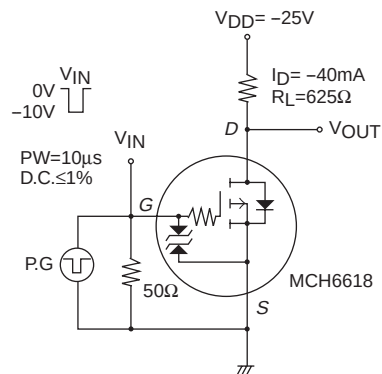
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0$	-50			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-50V, V_{GS}=0$			-10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-100\mu A$	-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	Ciss	$V_{DS}=-10V, f=1MHz$		6.2		pF
Output Capacitance	Coss	$V_{DS}=-10V, f=1MHz$		4.0		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=-10V, f=1MHz$		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}	$I_S=-70mA, V_{GS}=0$		-0.85	-1.2	V

Switching Time Test Circuit

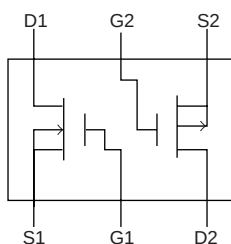
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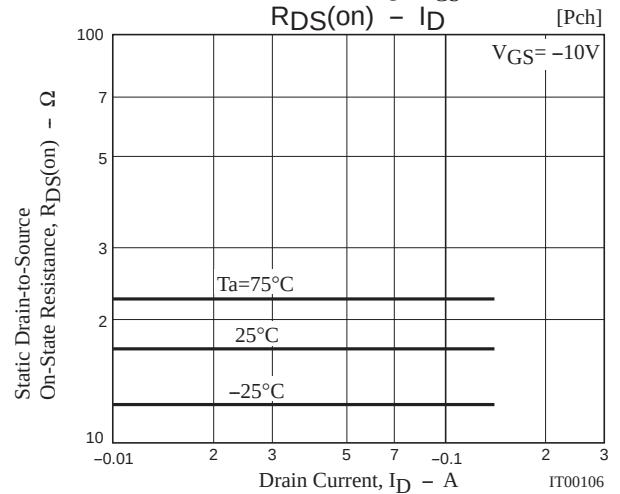
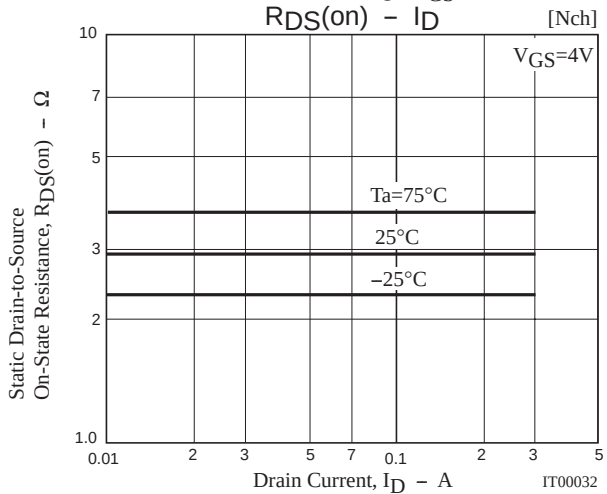
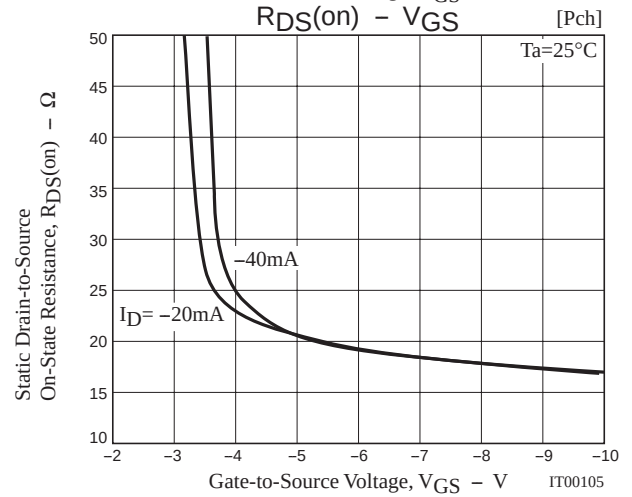
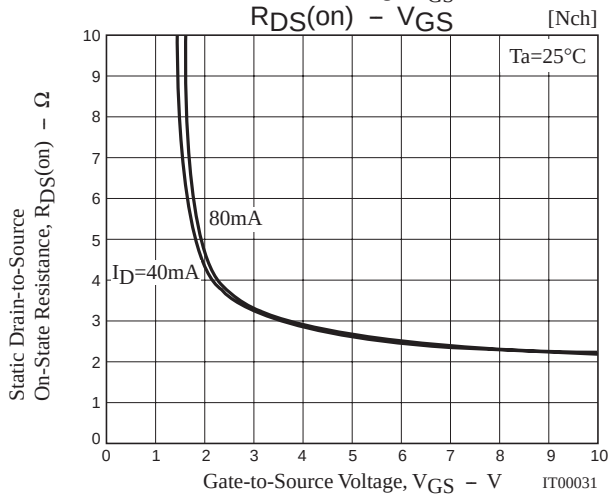
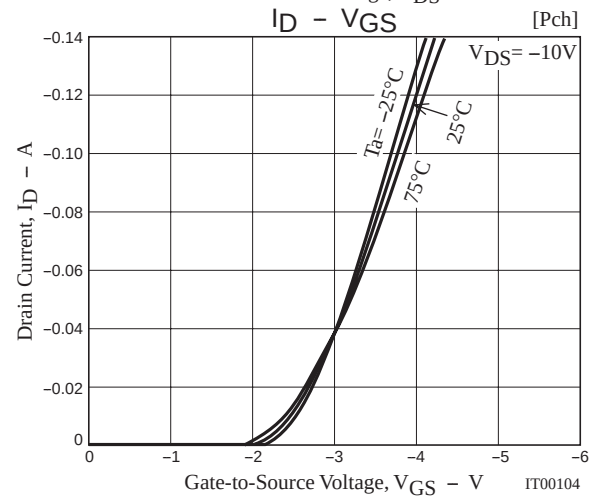
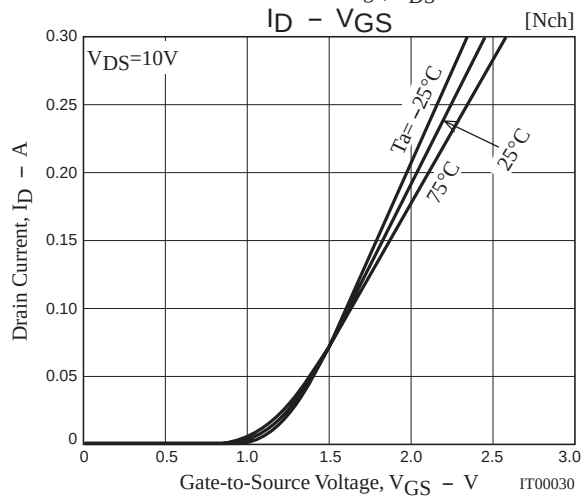
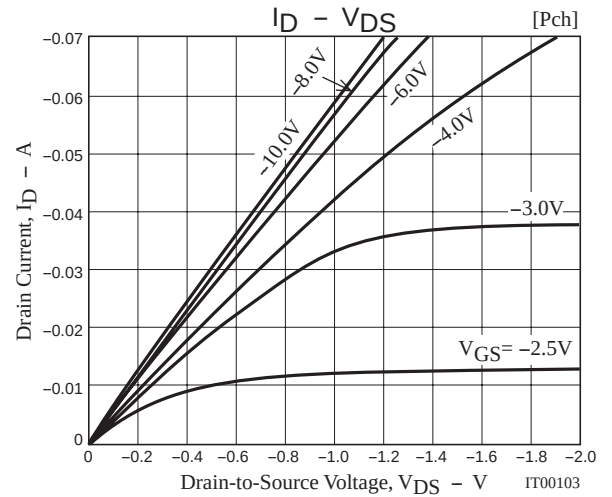
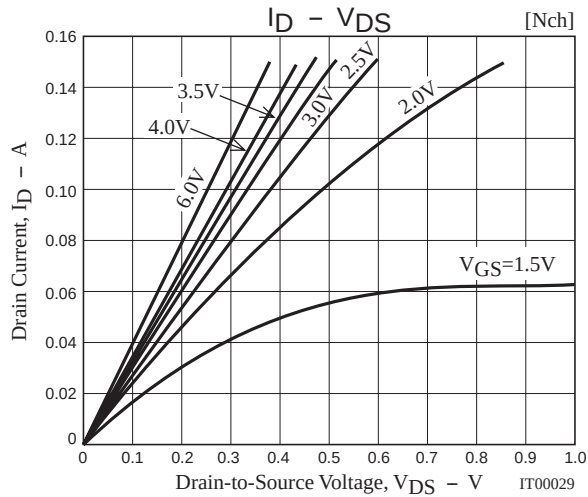


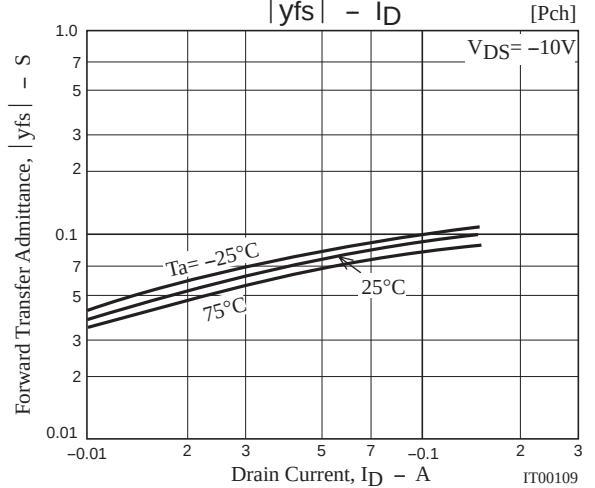
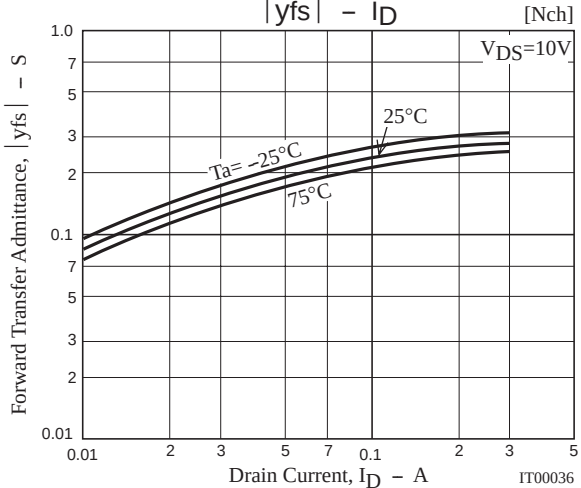
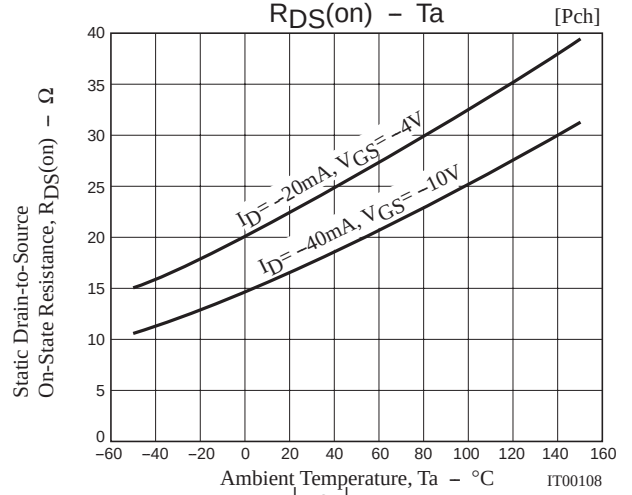
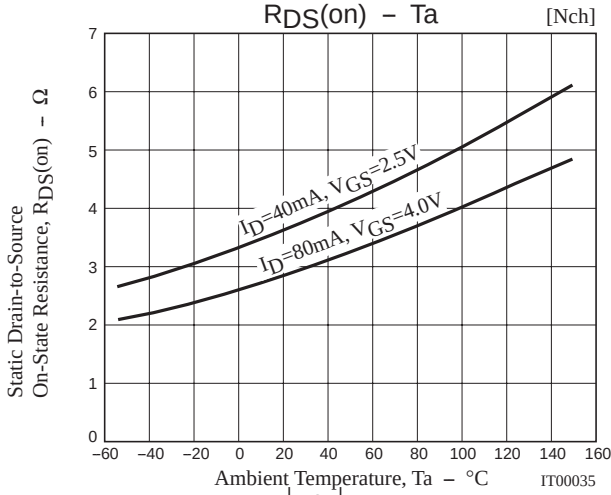
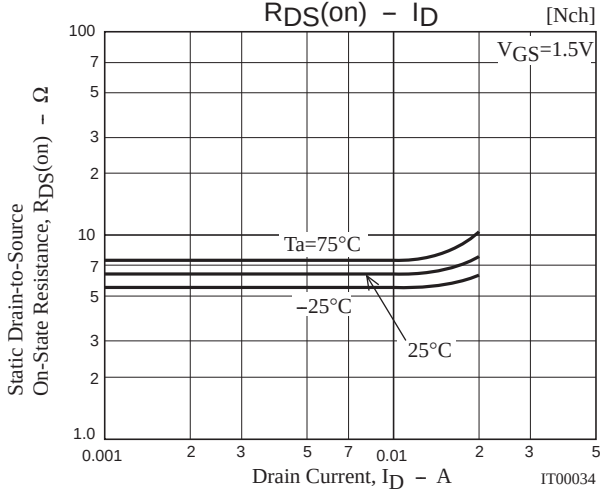
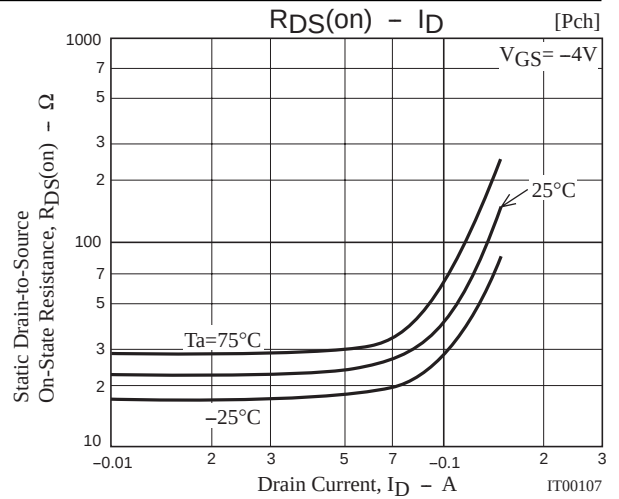
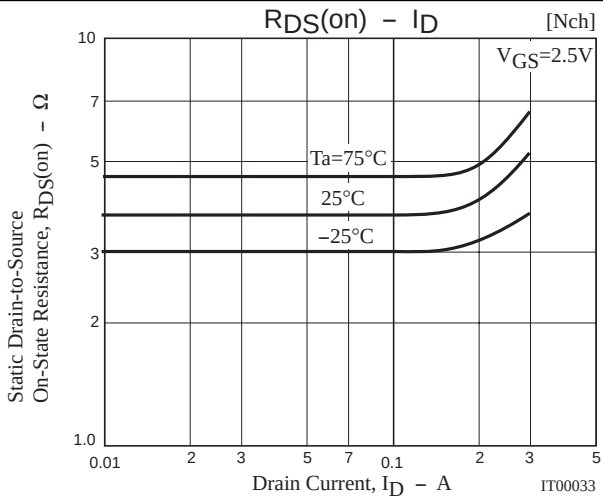
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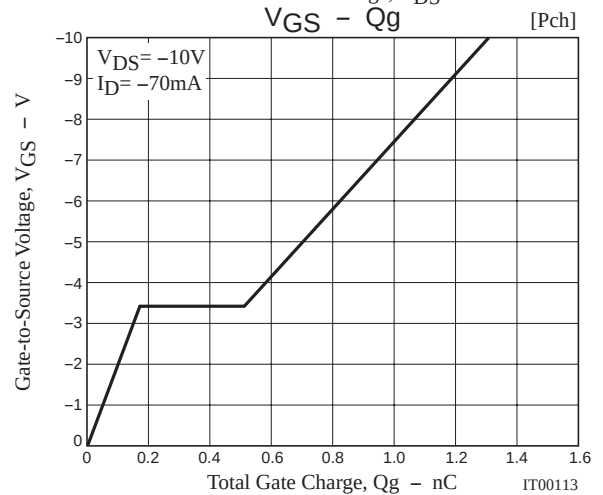
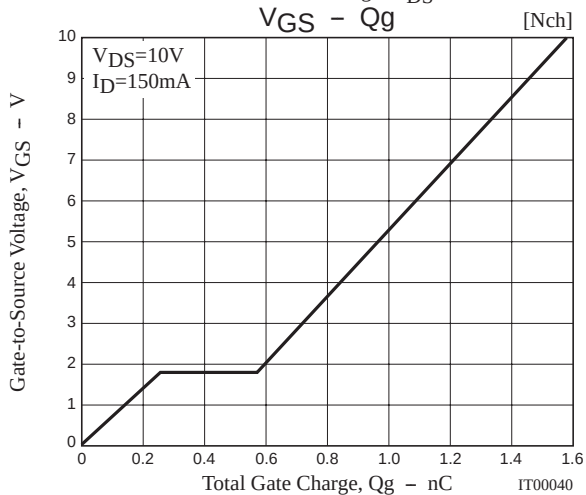
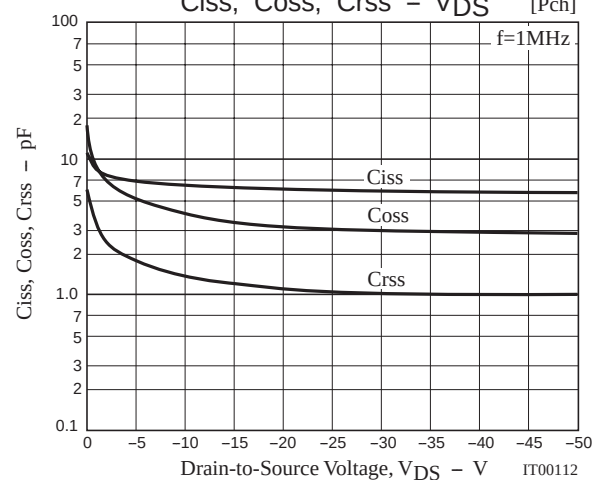
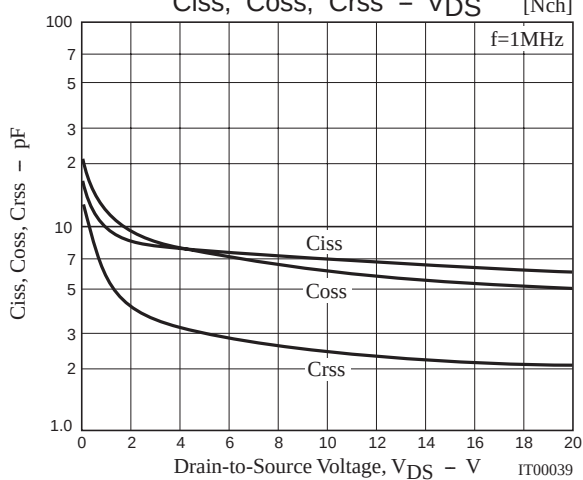
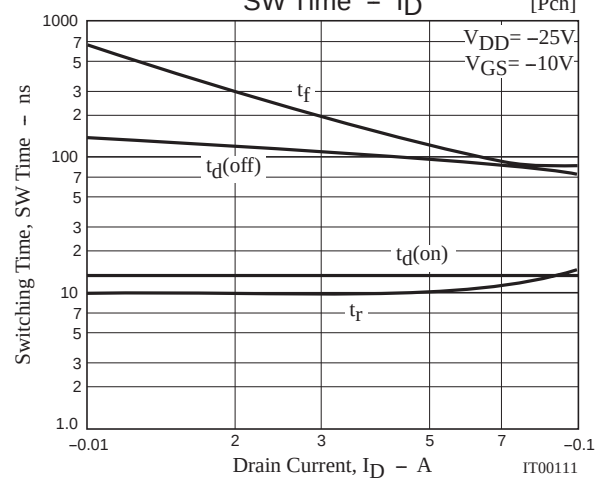
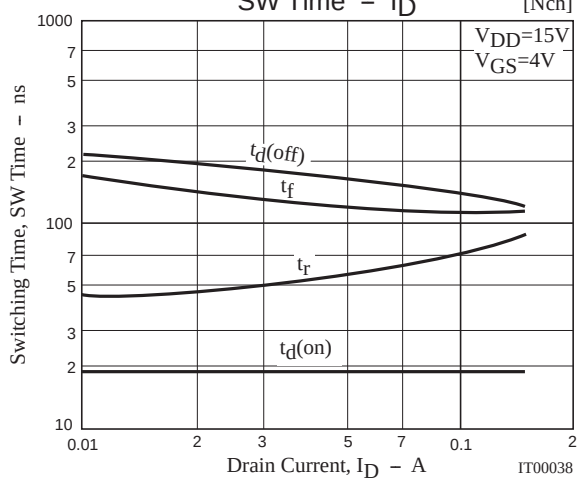
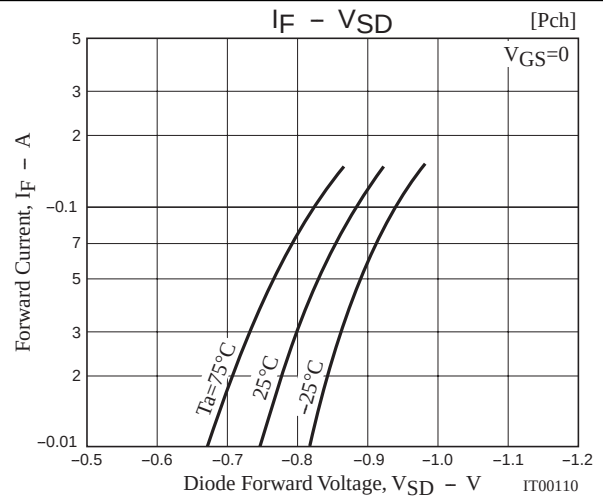
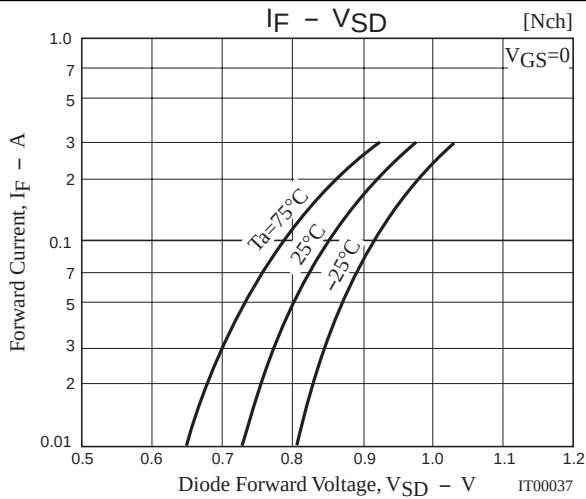


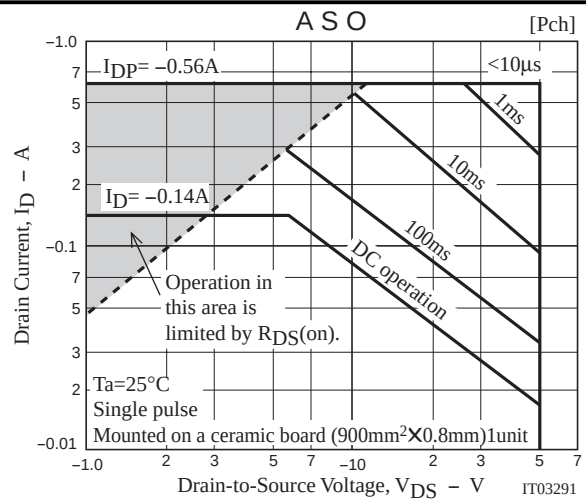
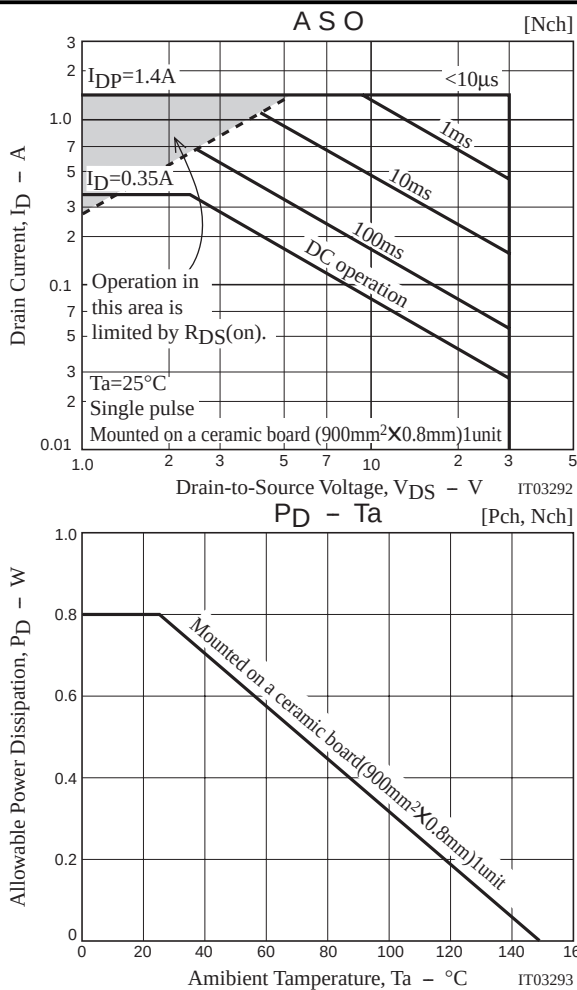
Electrical Connection (Top view)











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