



MCH6644 — General-Purpose Switching Device Applications

N-Channel and P-Channel Silicon MOSFETs

Features

- The MCH6644 incorporates an N-channel MOSFET and a P-channel MOSFET thereby enabling high-density mounting.
- Excellent ON-resistance characteristic.
- Best suited for load switches.
- 4V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V_{DS}		30	-30	V
Gate-to-Source Voltage	V_{GS}		±20	±20	V
Drain Current (DC)	I_D		1.8	-1.2	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	7.2	-4.8	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	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=1A	0.78	1.3		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=1A, VGS=10V		160	210	mΩ
	RDS(on)2	ID=0.5A, VGS=4V		300	420	mΩ
Input Capacitance	Ciss	VDS=10V, f=1MHz		95		pF
Output Capacitance	Coss	VDS=10V, f=1MHz		22		pF
Reverse Transfer Capacitance	Crss	VDS=10V, f=1MHz		16		pF

Marking : WU

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MCH6644

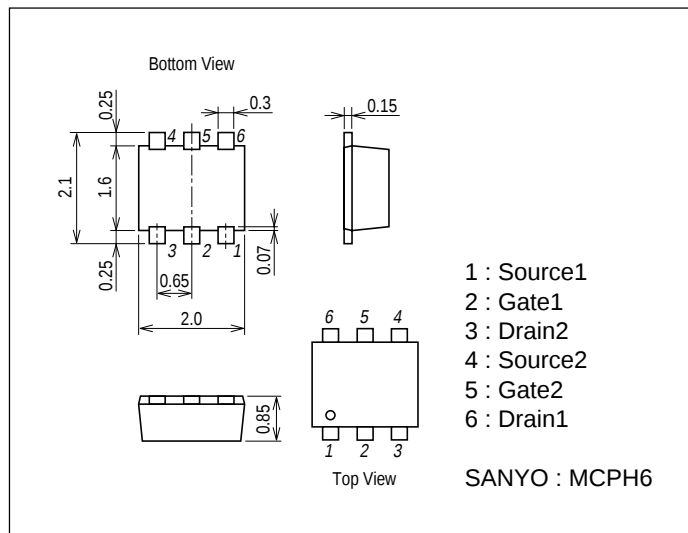
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		6.2		ns
Rise Time	t_r	See specified Test Circuit.		4.5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		13		ns
Fall Time	t_f	See specified Test Circuit.		6.4		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=1.8A$		3.2		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=1.8A$		0.74		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=1.8A$		0.42		nC
Diode Forward Voltage	V_{SD}	$I_S=1.8A, V_{GS}=0V$		0.93	1.2	V
[P-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}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-0.6A$	0.6	1.0		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-0.6A, V_{GS}=-10V$		320	420	m Ω
	$R_{DS(on)2}$	$I_D=-0.3A, V_{GS}=-4V$		590	830	m Ω
Input Capacitance	C_{iss}	$V_{DS}=-10V, f=1MHz$		104		pF
Output Capacitance	C_{oss}	$V_{DS}=-10V, f=1MHz$		22		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-10V, f=1MHz$		17		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		12.5		ns
Rise Time	t_r	See specified Test Circuit.		24		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		12		ns
Fall Time	t_f	See specified Test Circuit.		12.2		ns
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-10V, I_D=-1.2A$		3.3		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-1.2A$		0.48		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-1.2A$		0.45		nC
Diode Forward Voltage	V_{SD}	$I_S=-1.2A, V_{GS}=0V$		-0.91	-1.5	V

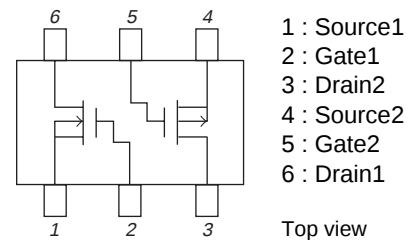
Package Dimensions

unit : mm

7022-006

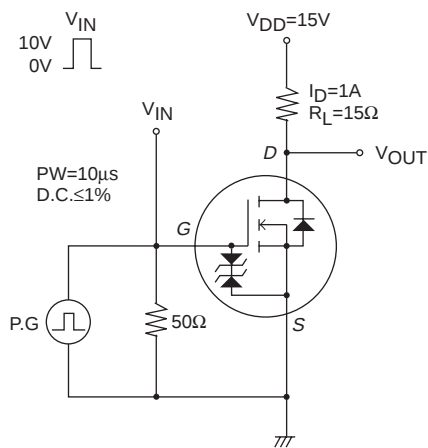


Electrical Connection

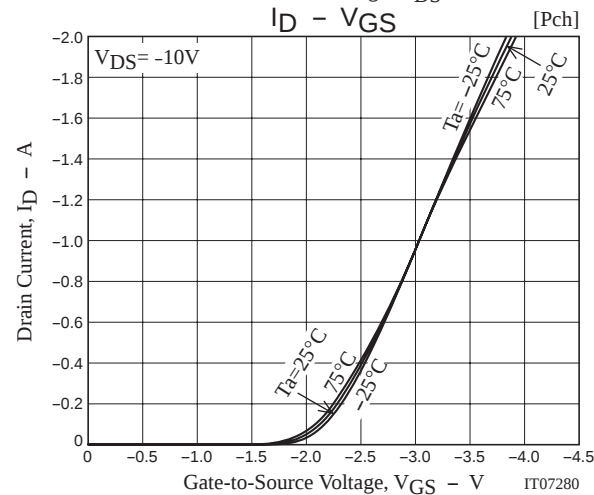
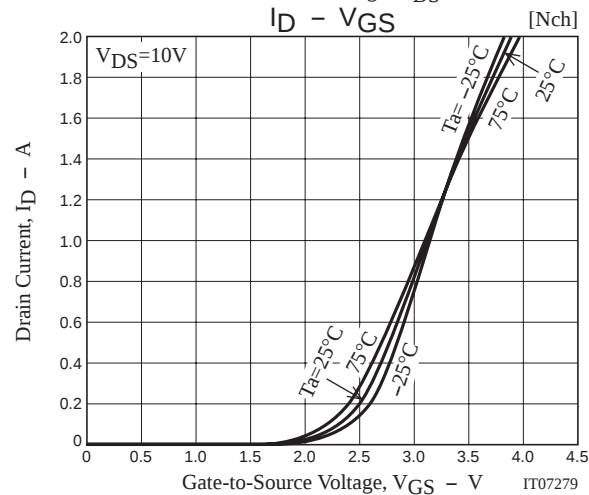
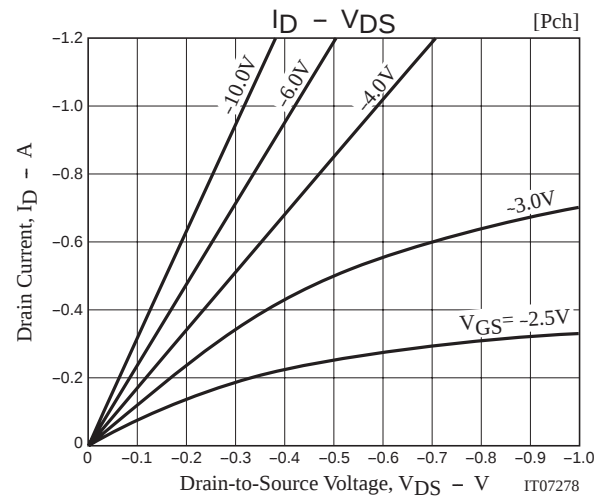
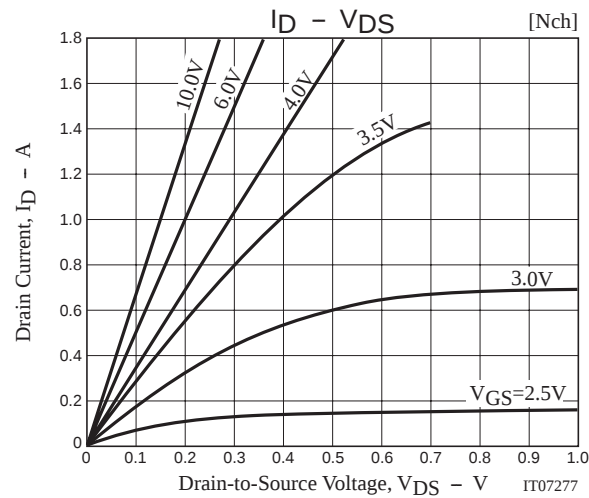
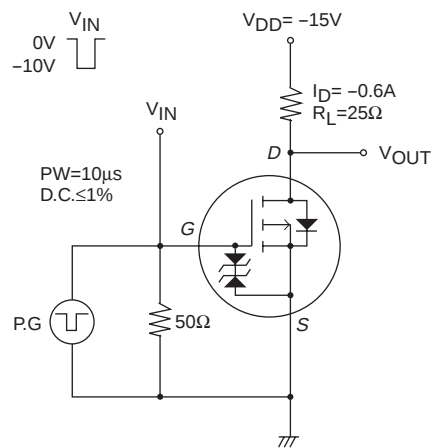


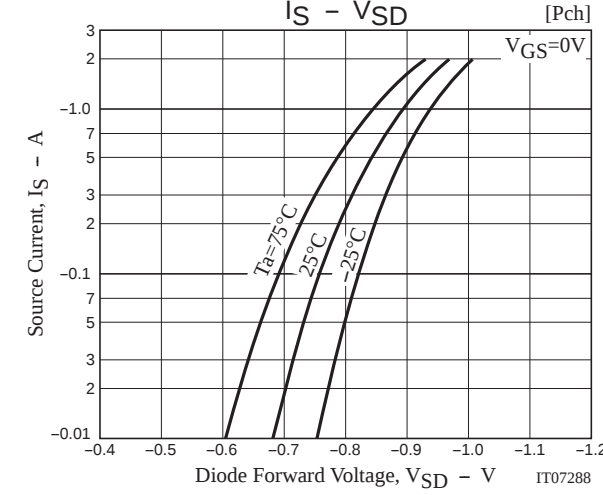
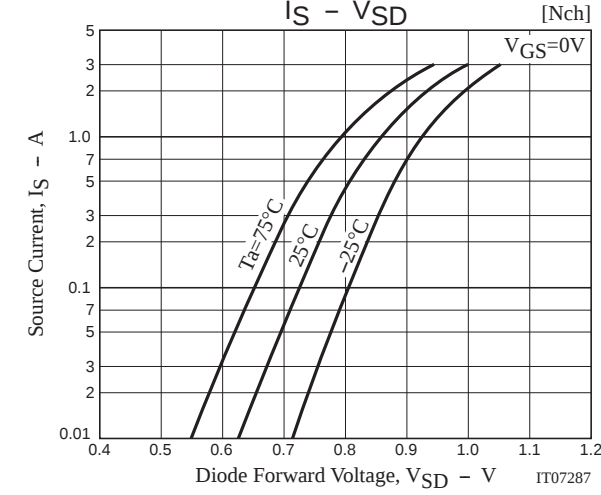
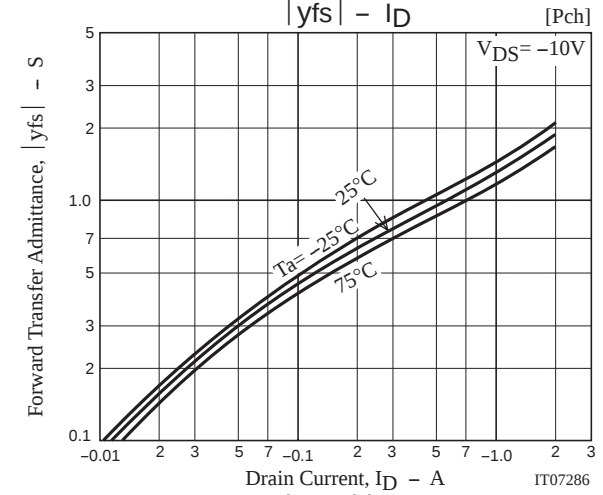
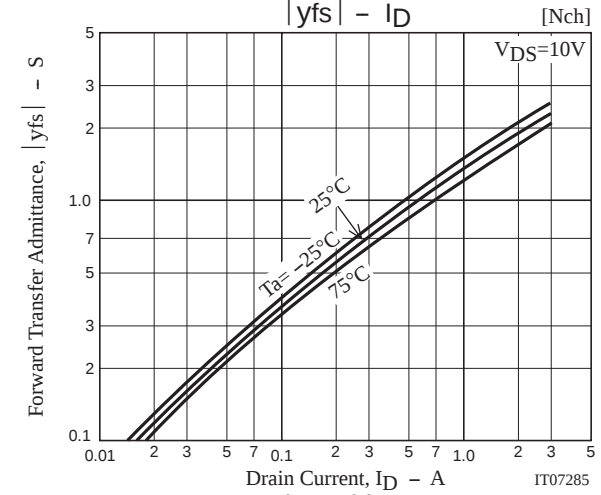
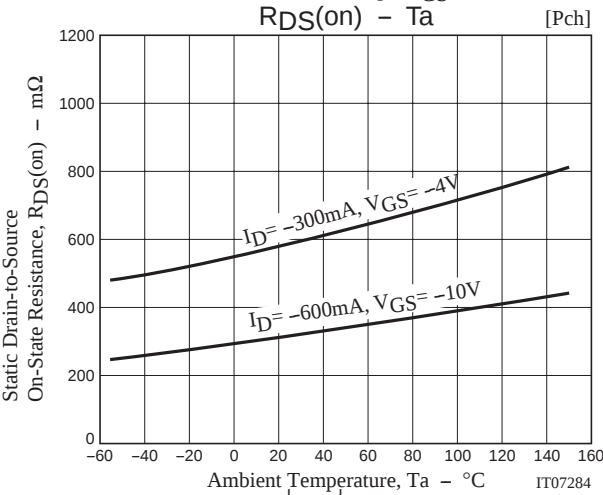
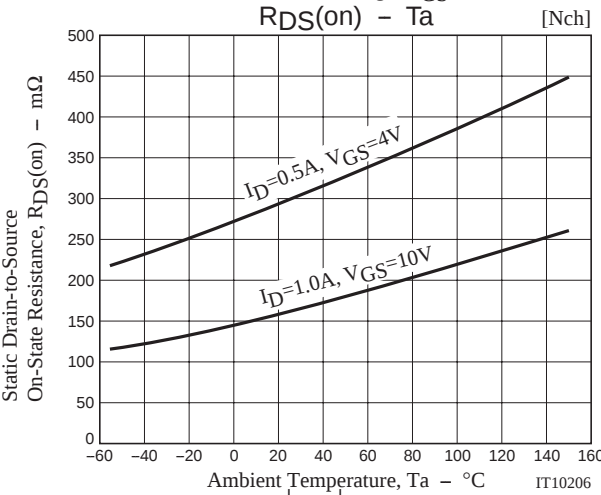
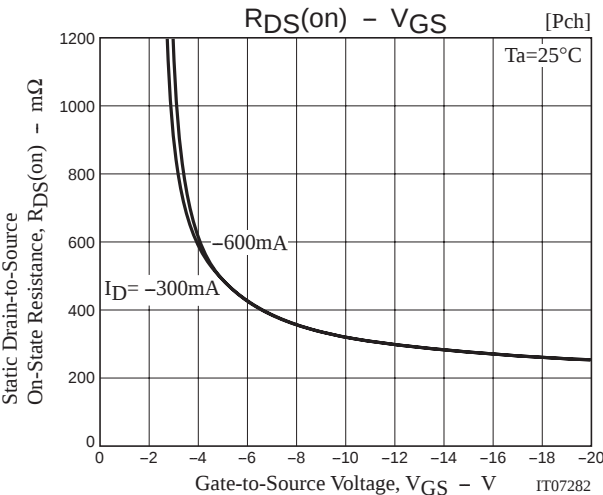
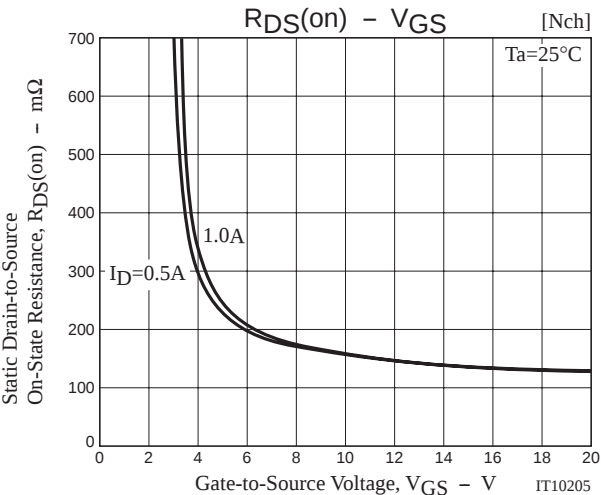
Switching Time Test Circuit

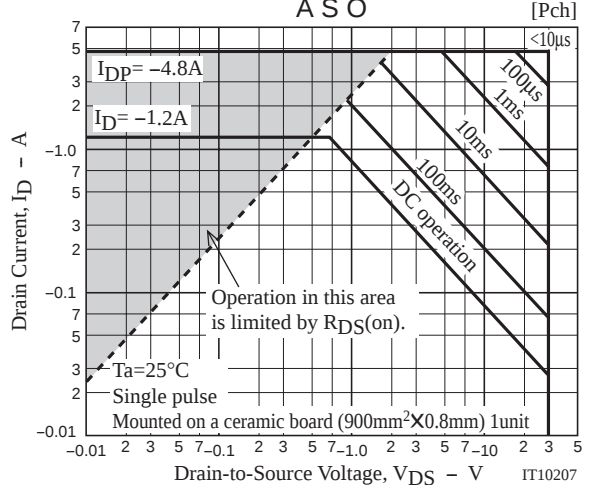
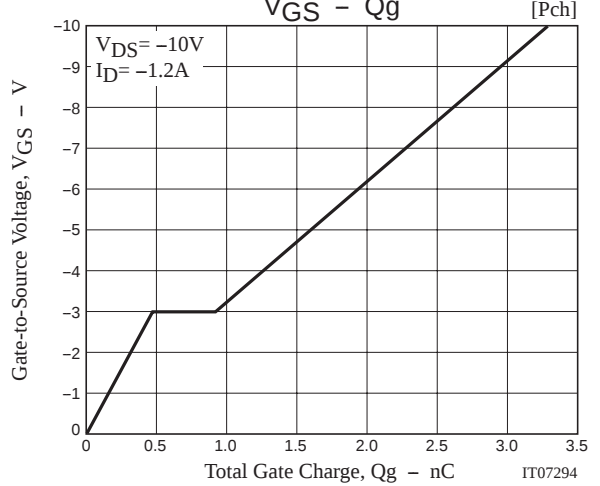
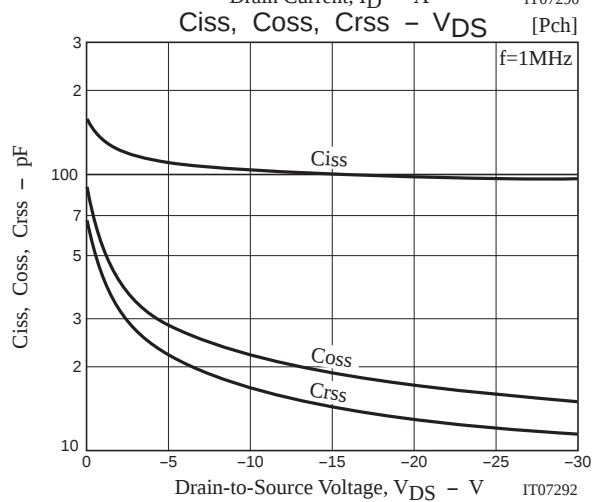
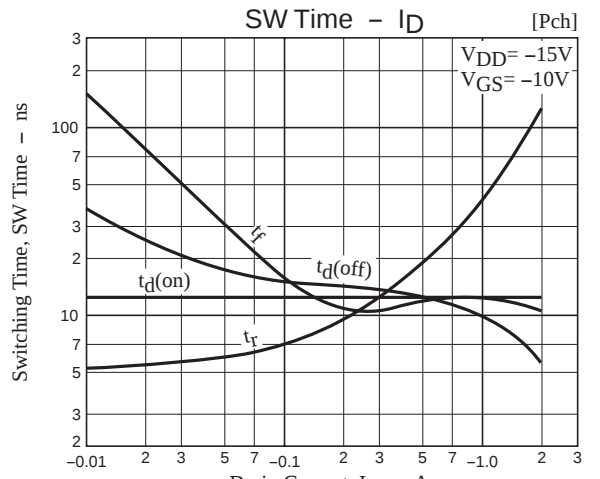
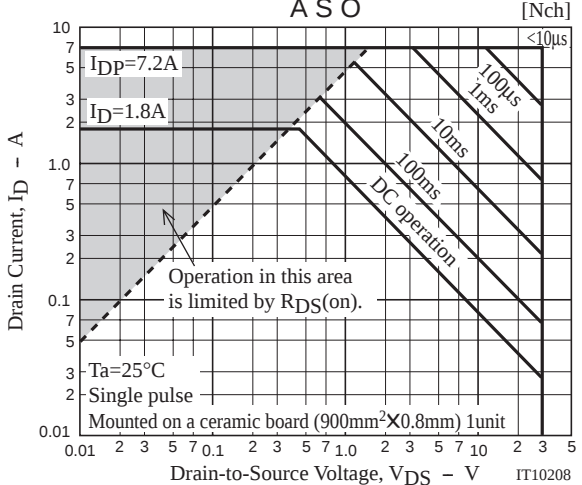
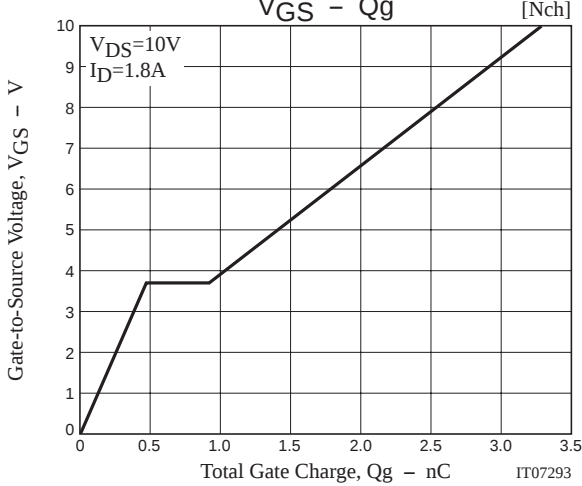
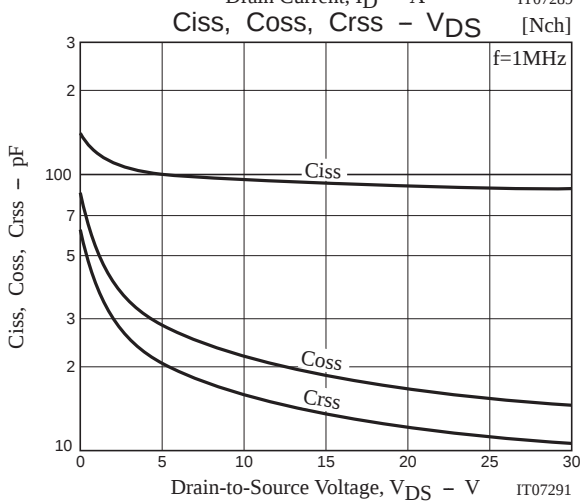
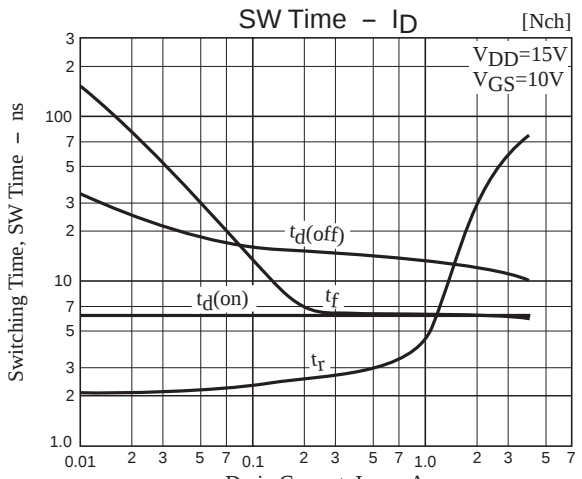
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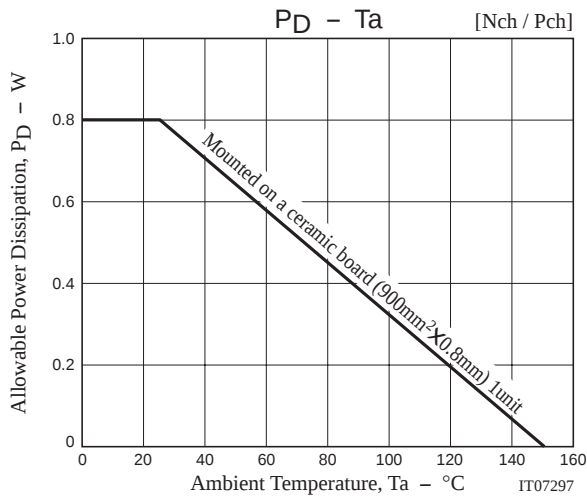


[P-channel]









Note on usage : Since the MCH6644 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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