Ordering number : ENN7918

N-Channel and P-Channel Silicon MOSFETs

MCH6626

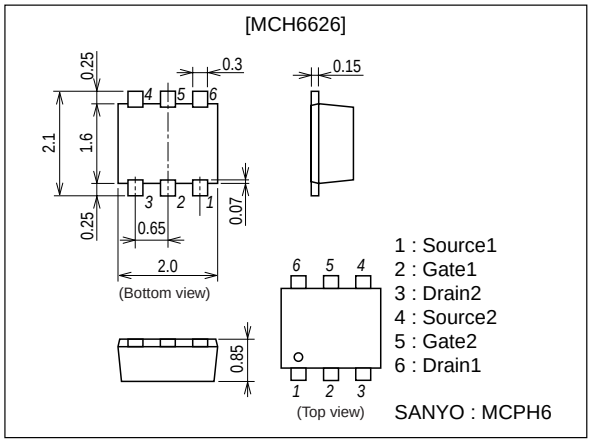
General-Purpose Switching Device Applications

Features

- The MCH6626 incorporates an N-channel MOSFET and a P-channel MOSFET that feature low ON-resistance and high-speed switching, thereby enabling high-density mounting.
- Excellent ON-resistance characteristic.
- 2.5V drive.

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_{DSS}		20	-20	V
Gate-to-Source Voltage	V_{GSS}		±10	±10	V
Drain Current (DC)	I_D		1.6	-1.0	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	6.4	-4.0	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²X0.8mm)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	$V_{(BR)DSS}$	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}=±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	|yfs|	V_{DS}=10V, I_D=0.8A	1.4	2.4		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=0.8A, V_{GS}=4V		180	230	mΩ
	$R_{DS}(on)2$	I_D=0.4A, V_{GS}=2.5V		220	310	mΩ
	$R_{DS}(on)3$	I_D=0.1A, V_{GS}=1.8V		300	450	mΩ

Marking : WA

Continued on next page.

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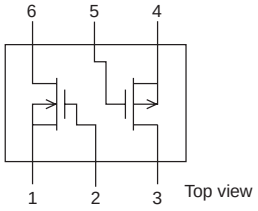
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		105		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		23		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		15		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		6		ns
Rise Time	t_{r}	See specified Test Circuit.		16		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		19		ns
Fall Time	t_{f}	See specified Test Circuit.		8		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4V, I_{D}=1.6A		1.4		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4V, I_{D}=1.6A		0.3		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=4V, I_{D}=1.6A		0.3		nC
Diode Forward Voltage	V_{SD}	I_{S}=1.6A, V_{GS}=0		0.92	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}=±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	|yfs|	V_{DS}=–10V, I_{D}=–500mA	0.7	1.2		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_{D}=–500mA, V_{GS}=–4V		380	500	mΩ
	R_{DS}(on)2	I_{D}=–300mA, V_{GS}=–2.5V		540	760	mΩ
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		115		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		23		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		15		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		8		ns
Rise Time	t_{r}	See specified Test Circuit.		6		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		15		ns
Fall Time	t_{f}	See specified Test Circuit.		7		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–4V, I_{D}=–1A		1.5		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–4V, I_{D}=–1A		0.4		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=–10V, V_{GS}=–4V, I_{D}=–1A		0.3		nC
Diode Forward Voltage	V_{SD}	I_{S}=–1A, V_{GS}=0		–0.9	–1.5	V

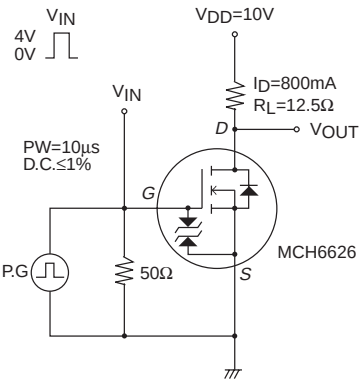
Electrical Connection



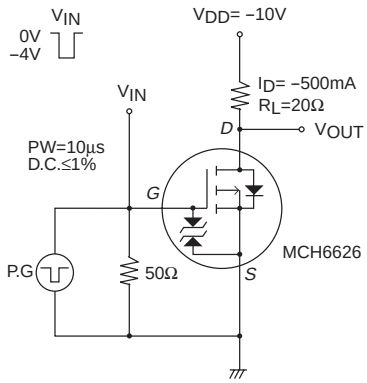
1 : Source1
2 : Gate1
3 : Drain2
4 : Source2
5 : Gate2
6 : Drain1

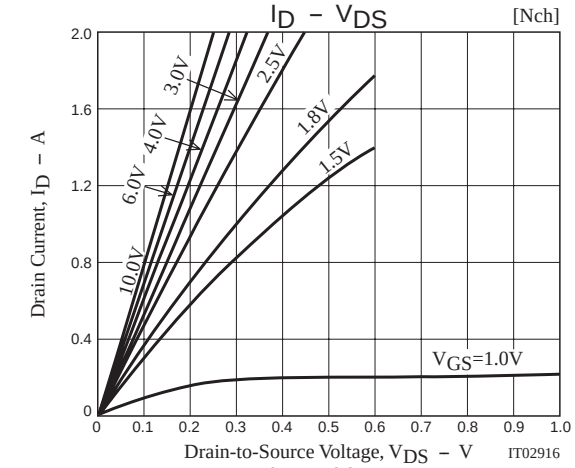
Switching Time Test Circuit

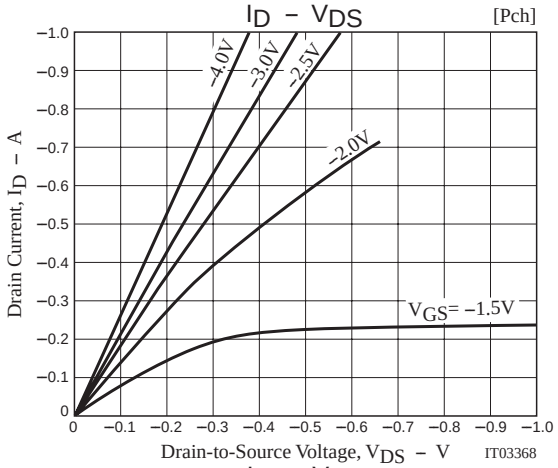
[N-channel]

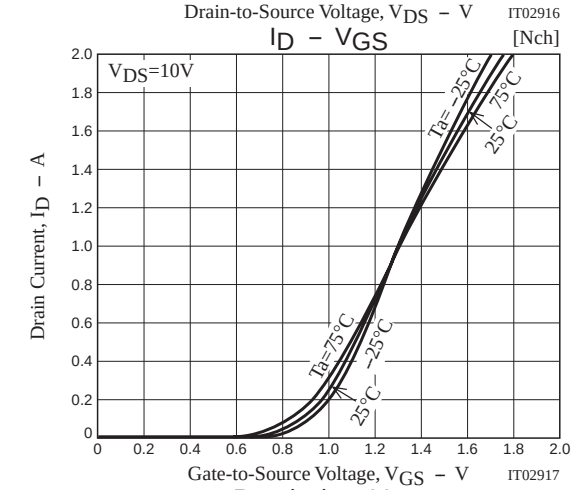


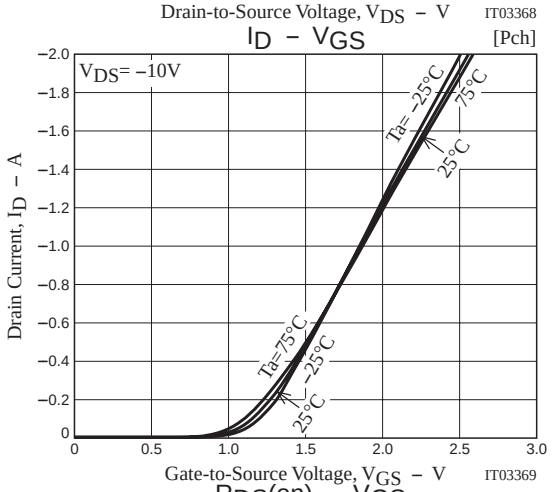
[P-channel]

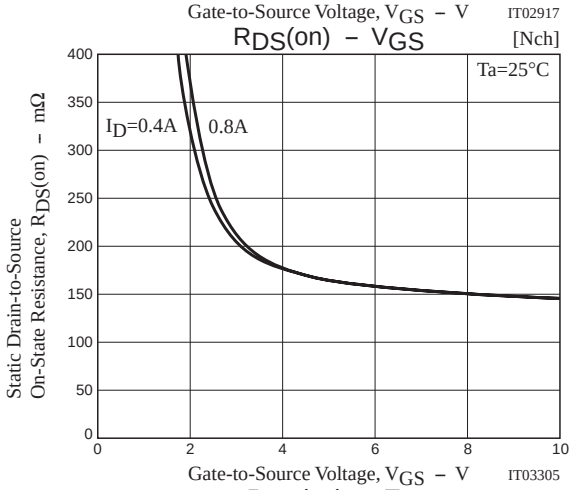


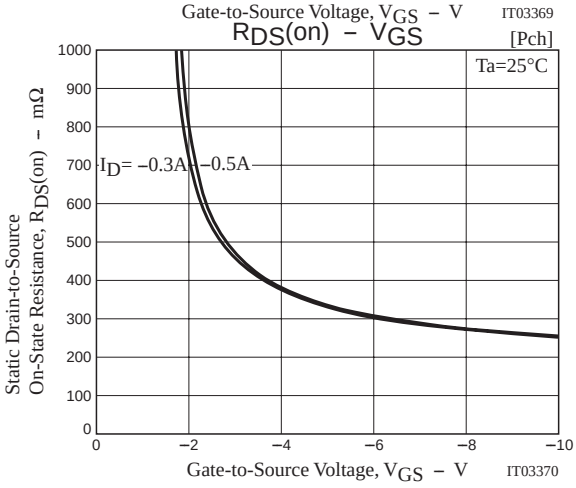


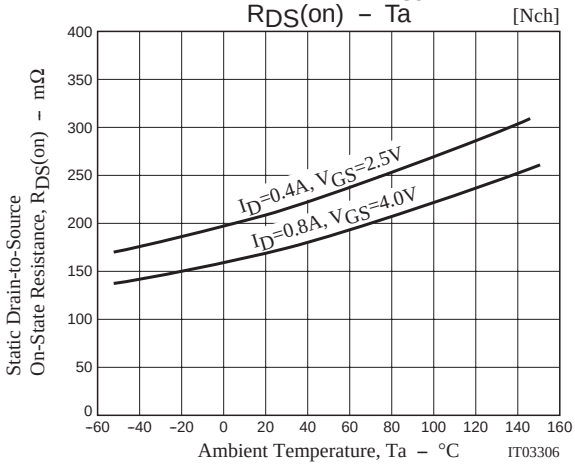


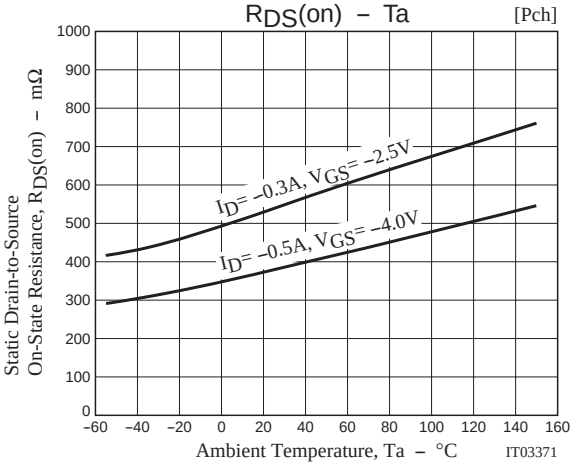


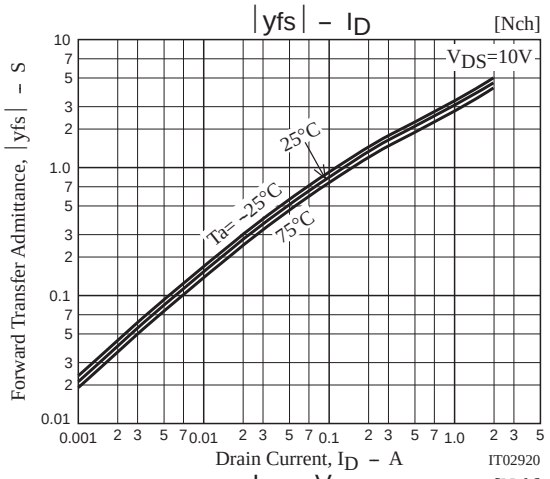


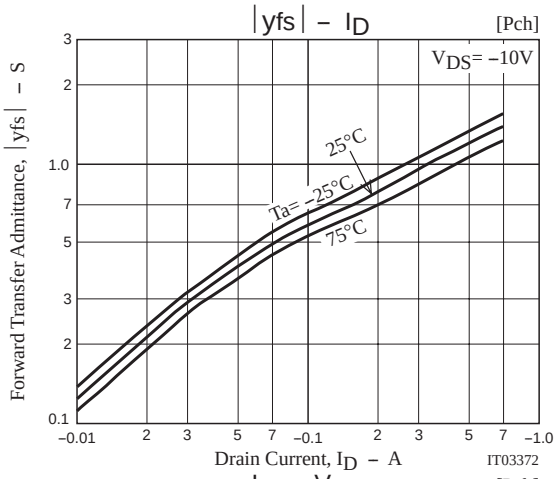


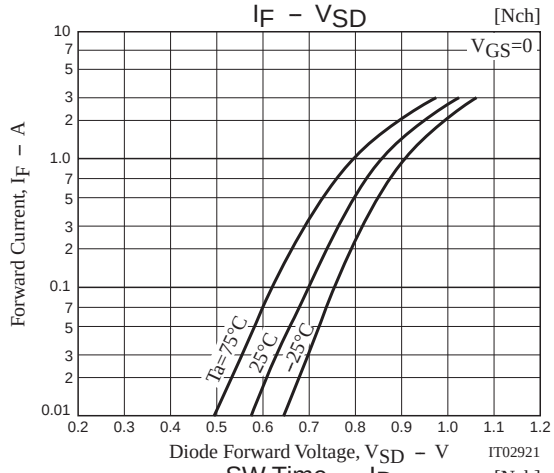


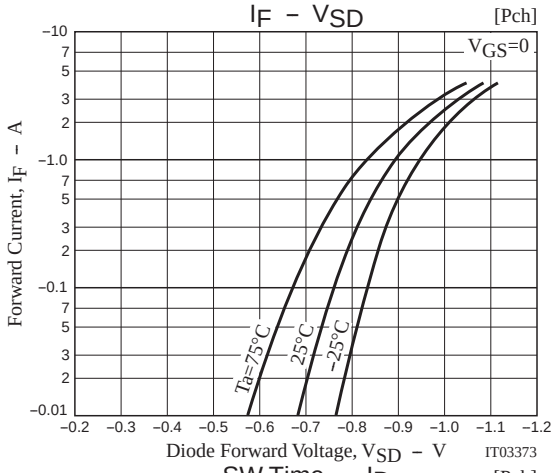


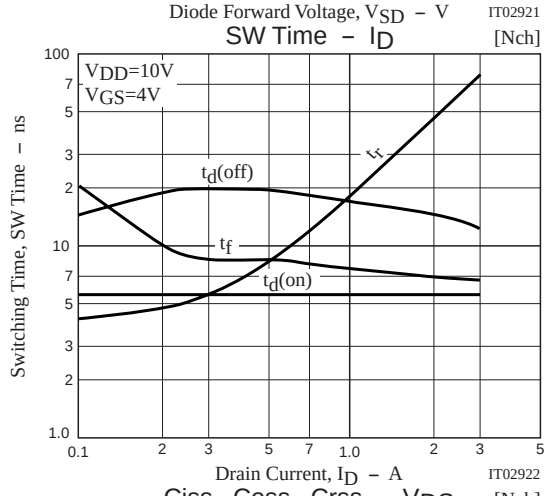


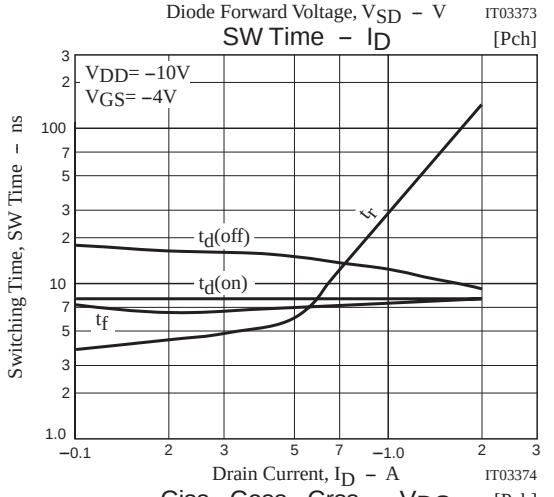


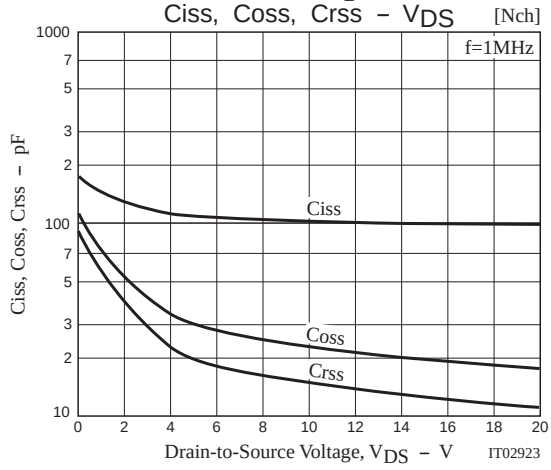


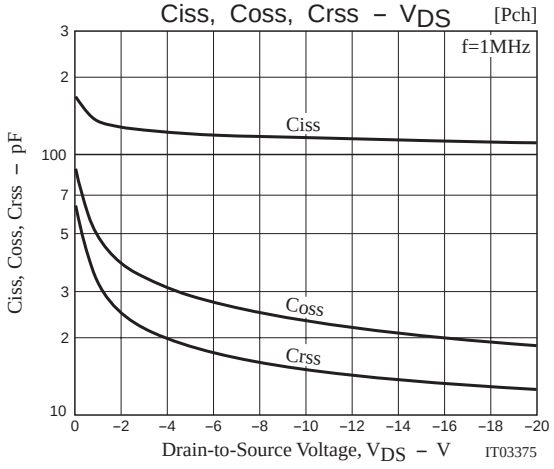


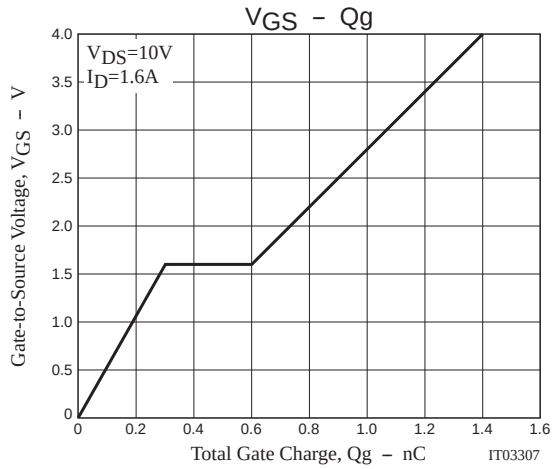


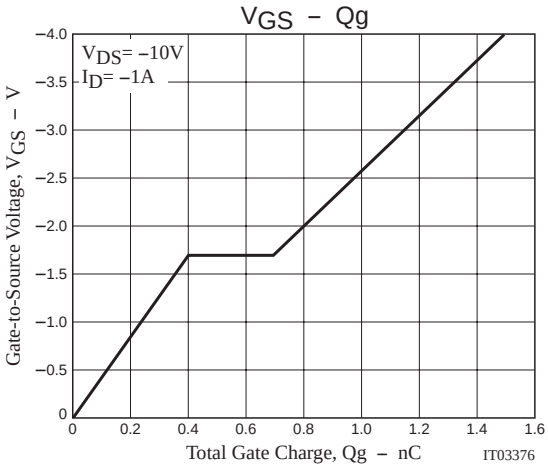


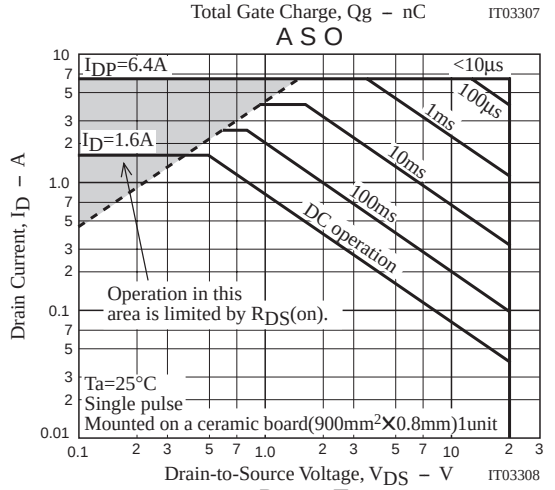


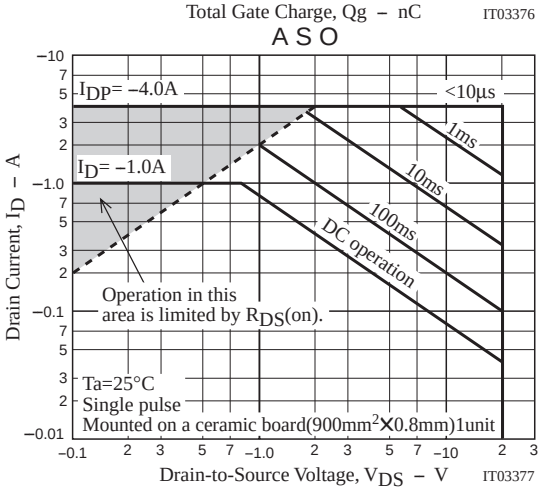


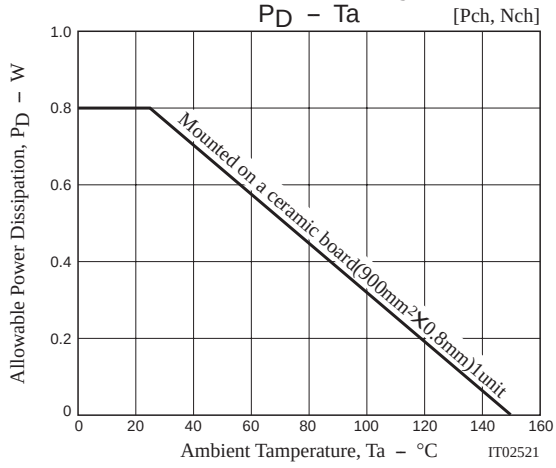












Note on usage : Since the MCH6626 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.