Ordering number : ENN7922

SANYO Semiconductors
DATA SHEET

N-Channel and P-Channel Silicon MOSFETs

FW341 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- Composite type with an N-channel MOSFET and a P-channel MOSFET driving from a 4V supply voltage contained in a single package.
- High-density mounting.
- Best suited for motor drive application.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V_{DSS}		30	–30	V
Gate-to-Source Voltage	V_{GSS}		±20	±20	V
Drain Current (DC)	I_D		3.5	–2.5	A
Drain Current (PW≤10s)	I_D	duty cycle≤1%	4	–3	A
Drain Current (PW≤100ms)	I_D	duty cycle≤1%	6	–4.5	A
Drain Current (PW≤10μs)	I_{DP}	duty cycle≤1%	14	–10	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (2000mm²×0.8mm)1unit	1.4		W
Total Dissipation	P_T	Mounted on a ceramic board (2000mm²×0.8mm)	1.7		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	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	|yfs|	V_{DS}=10V, I_D=3.5A	3.0	5.3		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=3.5A, V_{GS}=10V		64	84	mΩ
	R_{DS}(on)2	I_D=1.8A, V_{GS}=4V		105	150	mΩ

Marking : W341

Continued on next page.

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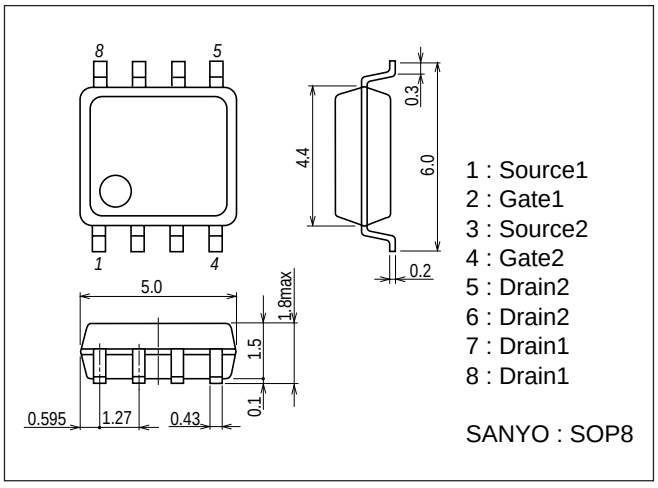
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		180		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		42		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		25		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		7		ns
Rise Time	t_{r}	See specified Test Circuit.		15		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		19		ns
Fall Time	t_{f}	See specified Test Circuit.		5		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_{D}=3.5A		5.0		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_{D}=3.5A		0.9		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_{D}=3.5A		0.6		nC
Diode Forward Voltage	V_{SD}	I_{S}=3.5A, V_{GS}=0		0.88	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_{D}=–1mA, V_{GS}=0	–30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=–30V, V_{GS}=0			–1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=–10V, I_{D}=–1mA	–1.2		–2.6	V
Forward Transfer Admittance	|yfs|	V_{DS}=–10V, I_{D}=–2.5A	2	3		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_{D}=–2.5A, V_{GS}=–10V		110	145	mΩ
	R_{DS}(on)2	I_{D}=–1A, V_{GS}=–4V		240	340	mΩ
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		200		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		47		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		32		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		7		ns
Rise Time	t_{r}	See specified Test Circuit.		3.5		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		20		ns
Fall Time	t_{f}	See specified Test Circuit.		8		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_{D}=–2.5A		5.5		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_{D}=–2.5A		0.98		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=–10V, V_{GS}=–10V, I_{D}=–2.5A		0.82		nC
Diode Forward Voltage	V_{SD}	I_{S}=–2.5A, V_{GS}=0		–0.87	–1.5	V

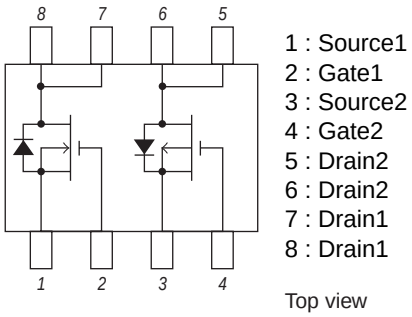
Package Dimensions

unit : mm

2129

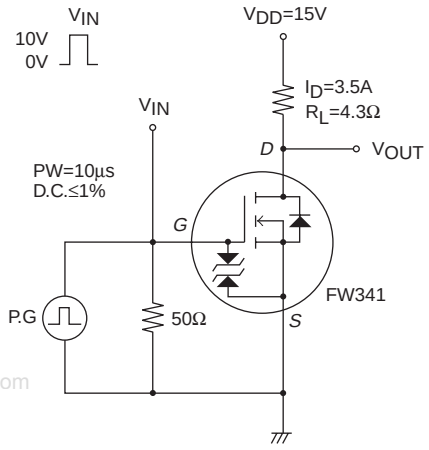


Electrical Connection

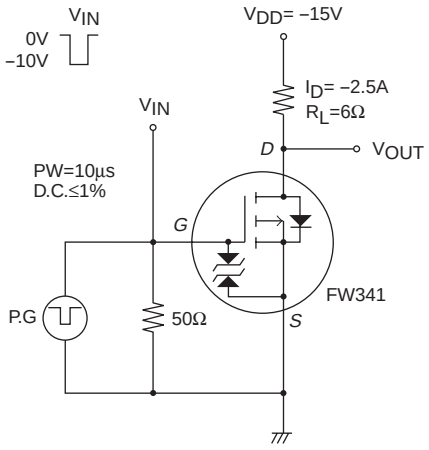


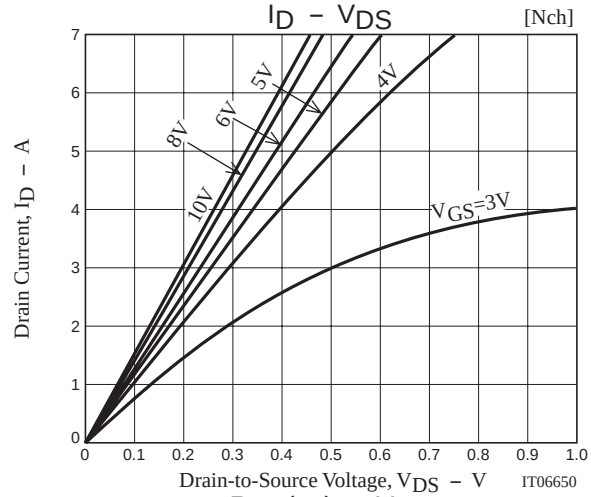
Switching Time Test Circuit

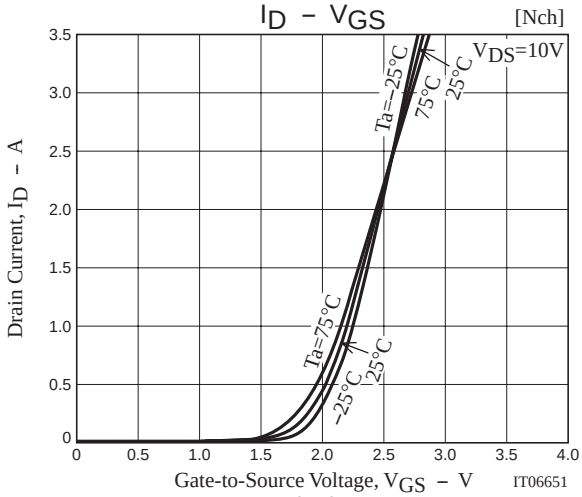
[N-channel]

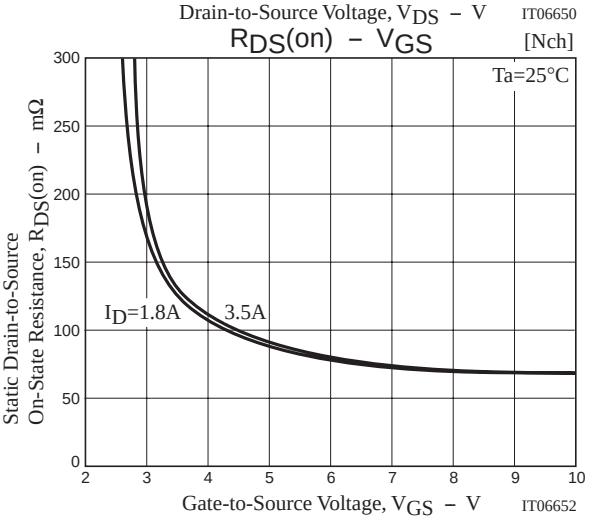


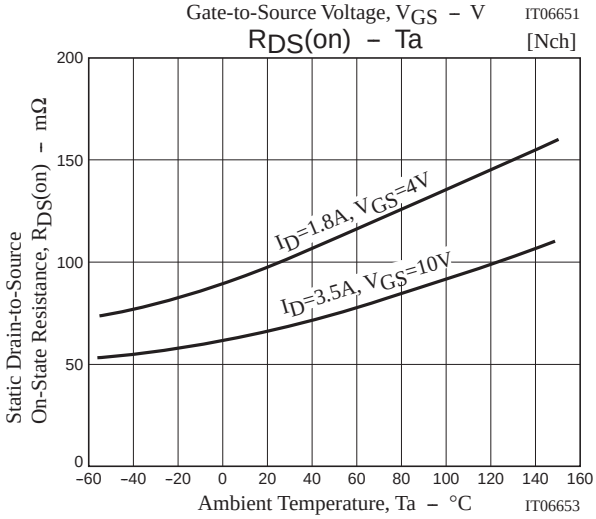
[P-channel]

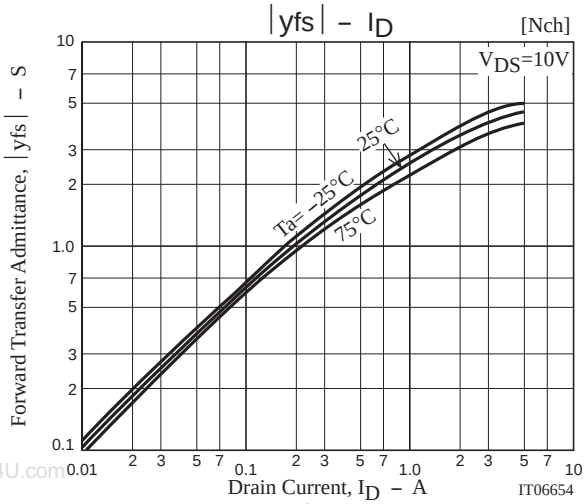


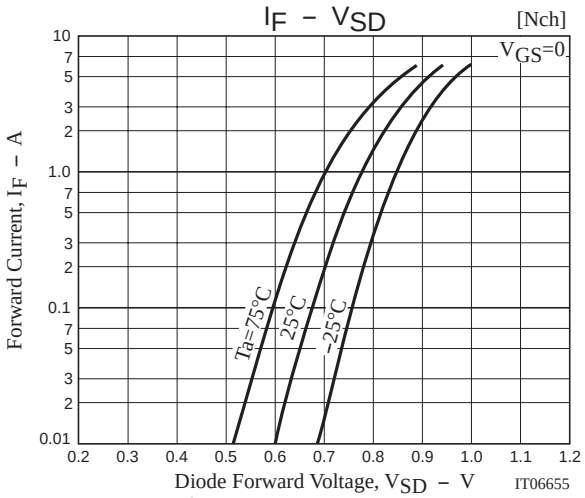


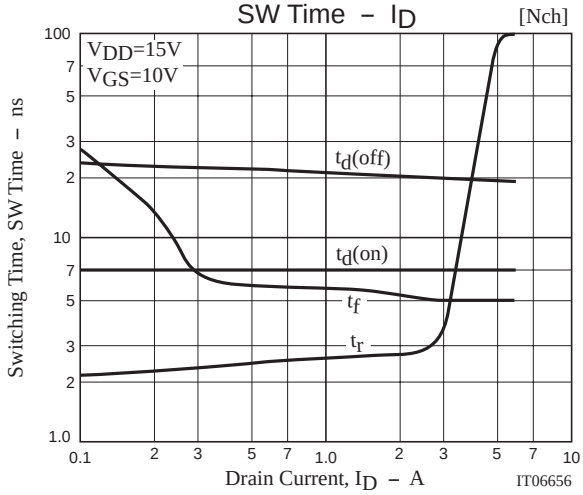


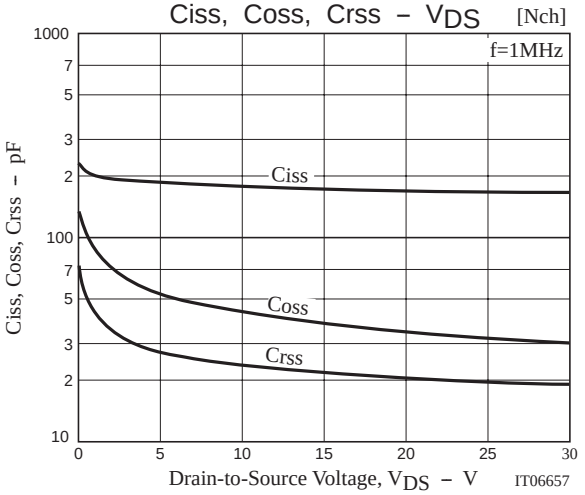


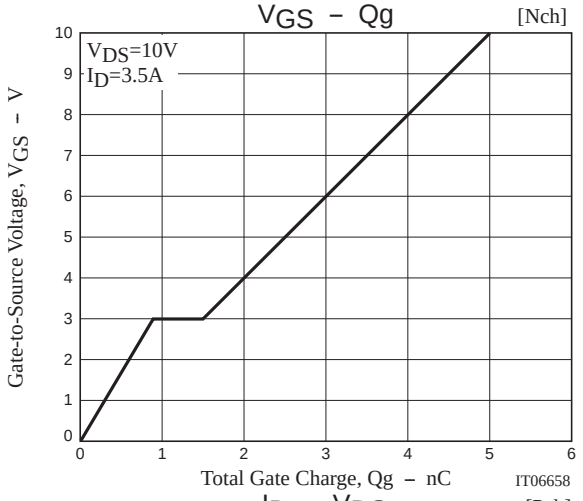


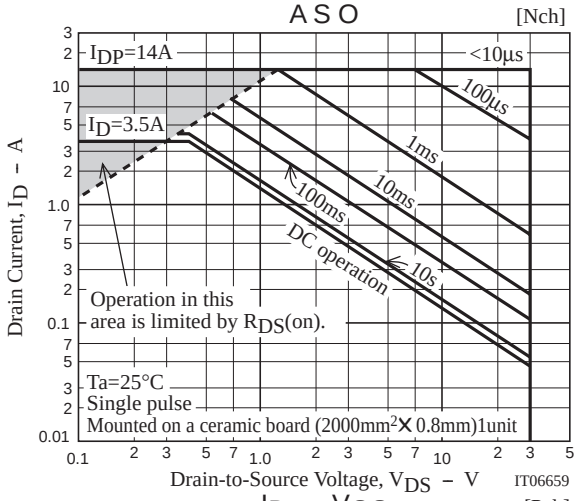


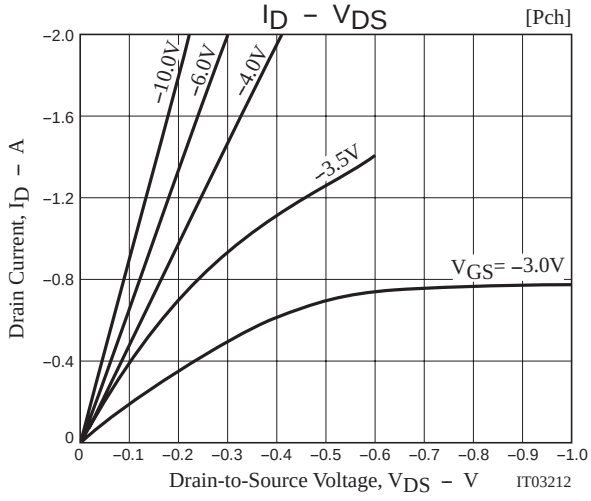


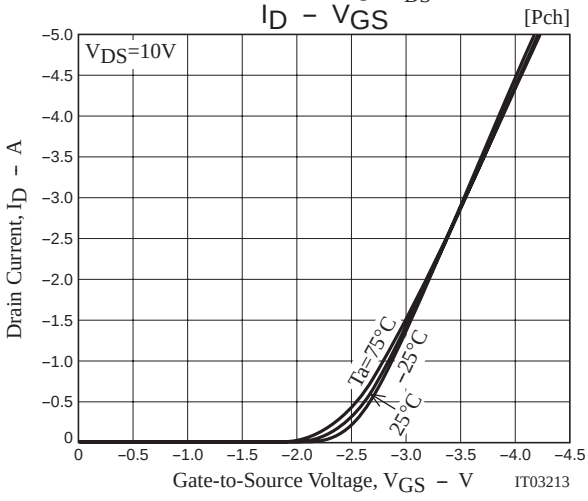


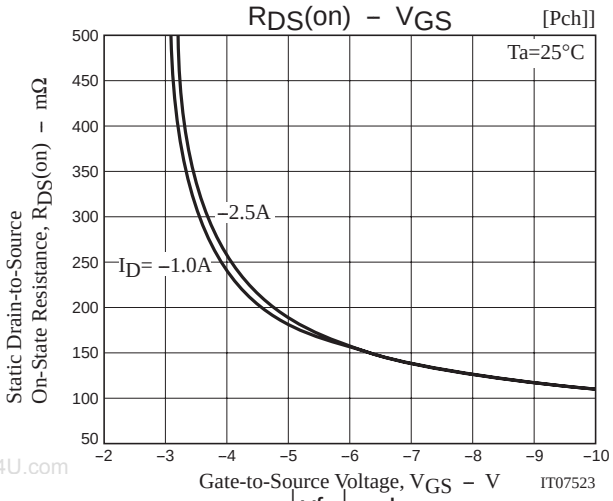


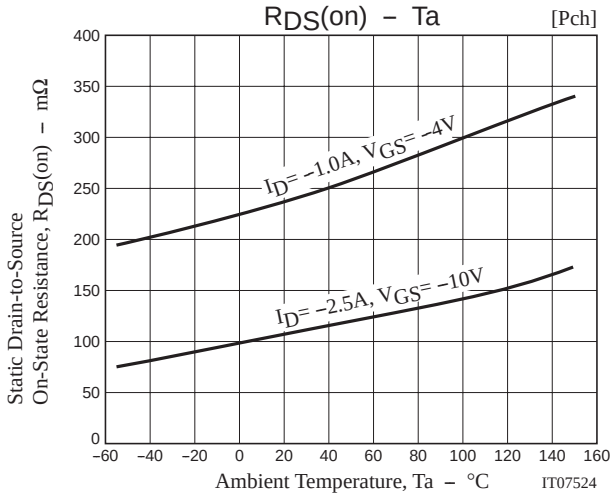


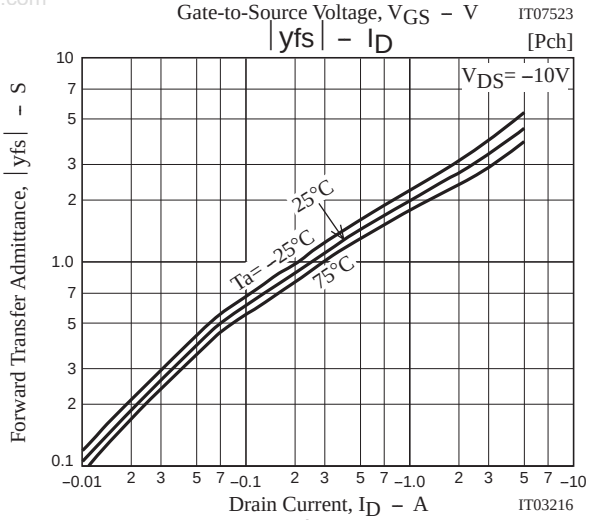


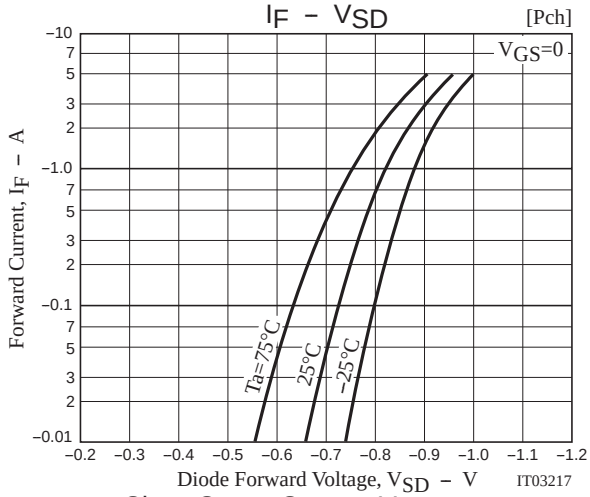


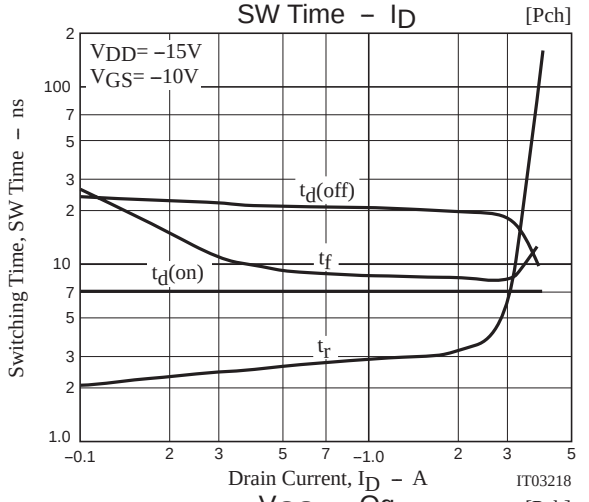


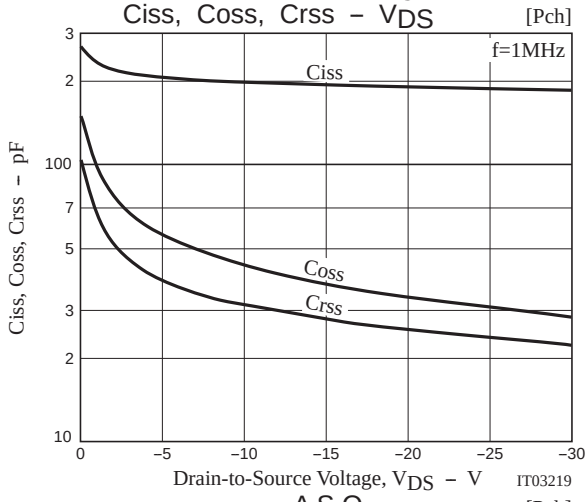


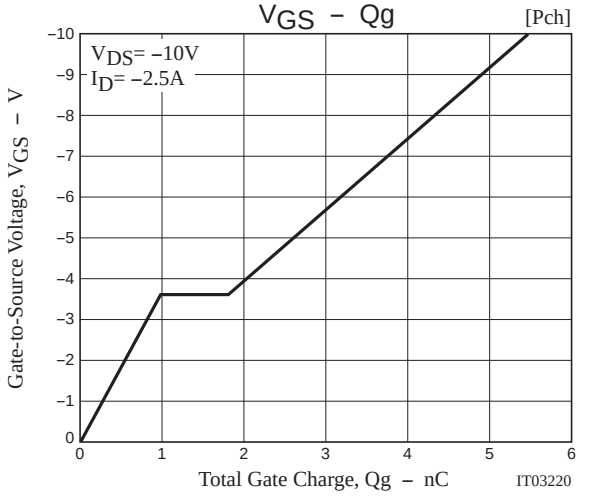


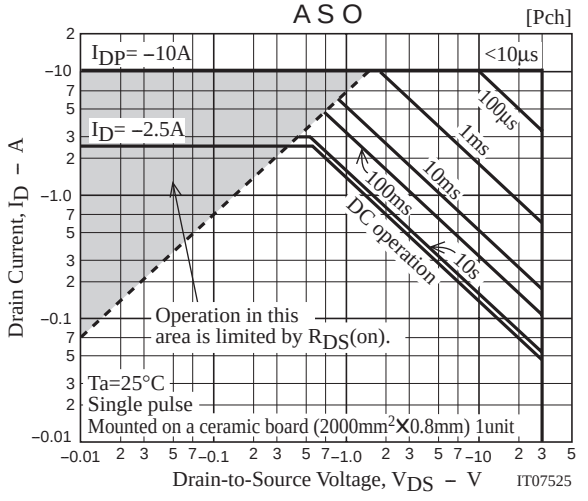


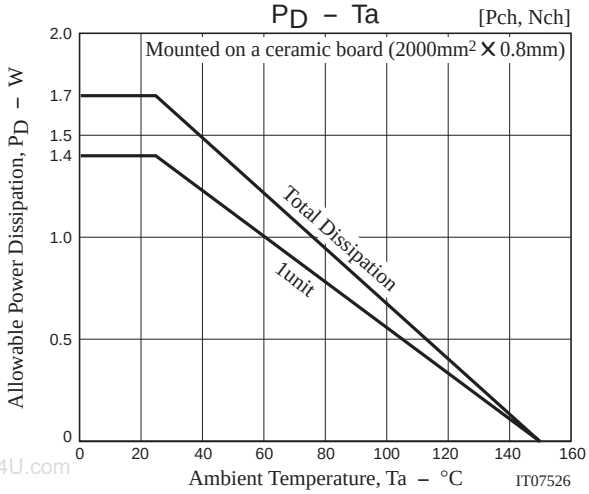












Note on usage : Since the FW341 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.