Ordering number : ENN7912

SANYO Semiconductors
DATA SHEET

N-Channel and P-Channel Silicon MOSFETs

FW342 — General-Purpose Switching Device Applications

Features

- For motor drives, inverters.
- 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.

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		6	−5	A
Drain Current (PW≤10s)	I_D	duty cycle≤1%	7	−5.5	A
Drain Current (PW≤100ms)	I_D	duty cycle≤1%	10	−9	A
Drain Current (PW≤10μs)	I_{DP}	duty cycle≤1%	24	−20	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1500mm²×0.8mm)1unit, PW≤10s	1.8		W
Total Dissipation	P_T	Mounted on a ceramic board (1500mm²×0.8mm), PW≤10s	2.2		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=6A	4.6	7.8		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=6A, V_{GS}=10V		25	33	mΩ
	R_{DS}(on)2	I_D=3A, V_{GS}=4.5V		35	49	mΩ
	R_{DS}(on)3	I_D=3A, V_{GS}=4V		37	52	mΩ

Marking : W342

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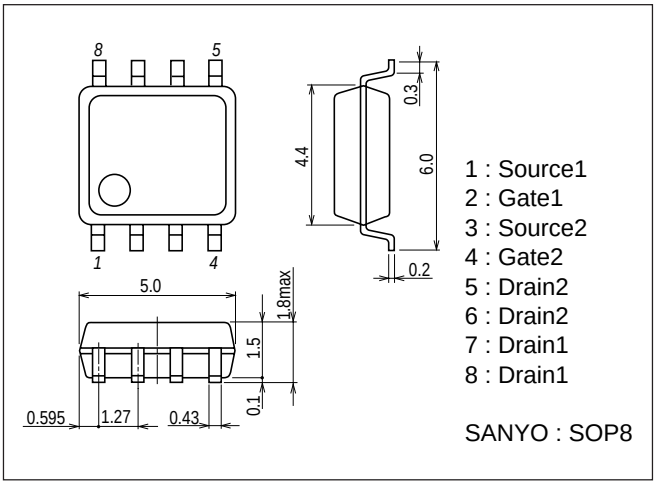
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		850		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		170		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		125		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		12.5		ns
Rise Time	t_r	See specified Test Circuit.		108		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		77		ns
Fall Time	t_f	See specified Test Circuit.		61		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=6A		16		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=6A		3.4		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=6A		2.4		nC
Diode Forward Voltage	V_{SD}	I_S=6A, V_{GS}=0		0.84	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=–5A	4.5	7.5		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=–5A, V_{GS}=–10V		41	53	mΩ
	R_{DS}(on)2	I_D=–3A, V_{GS}=–4.5V		62	87	mΩ
	R_{DS}(on)3	I_D=–3A, V_{GS}=–4V		70	98	mΩ
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		1000		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		195		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		150		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		13		ns
Rise Time	t_r	See specified Test Circuit.		82		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		87		ns
Fall Time	t_f	See specified Test Circuit.		55		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_D=–5A		16.5		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_D=–5A		2.5		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=–10V, V_{GS}=–10V, I_D=–5A		2.5		nC
Diode Forward Voltage	V_{SD}	I_S=–5A, V_{GS}=0		–0.85	–1.5	V

Package Dimensions

unit : mm

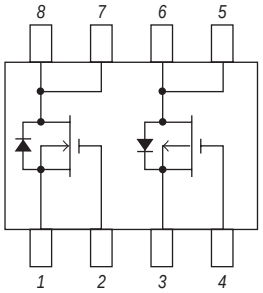
2129



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

SANYO : SOP8

Electrical Connection

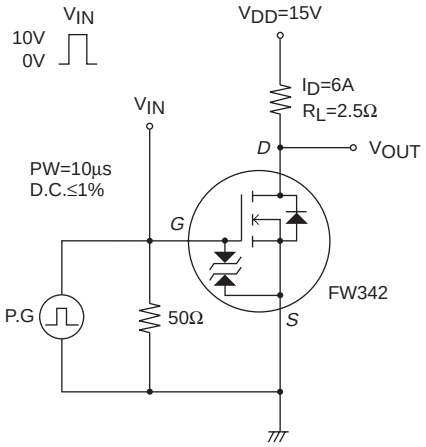


1 : Source1
2 : Gate1
3 : Source2
4 : Gate2
5 : Drain2
6 : Drain2
7 : Drain1
8 : Drain1

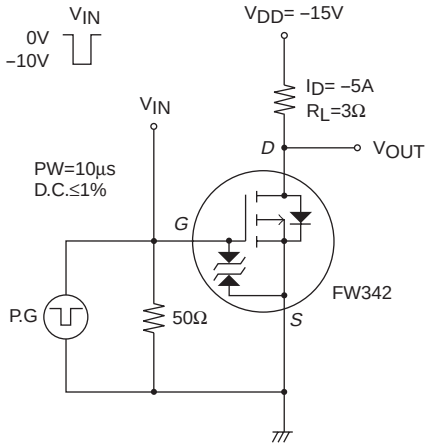
Top view

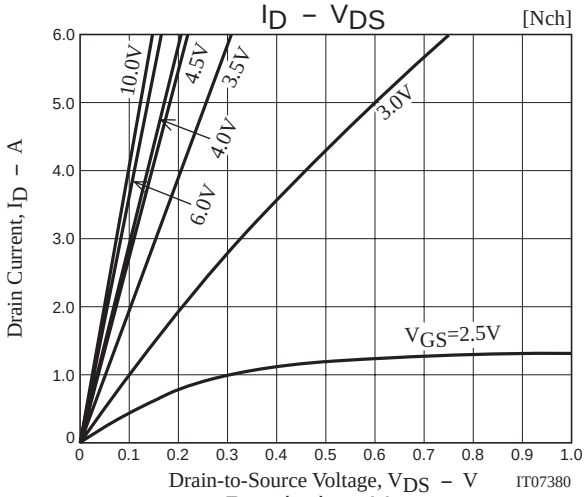
Switching Time Test Circuit

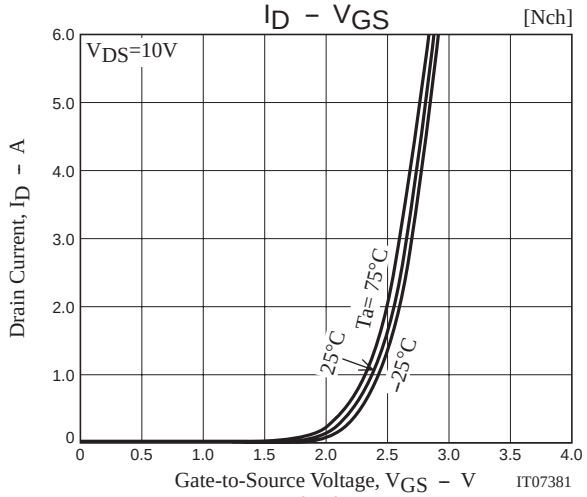
[N-channel]

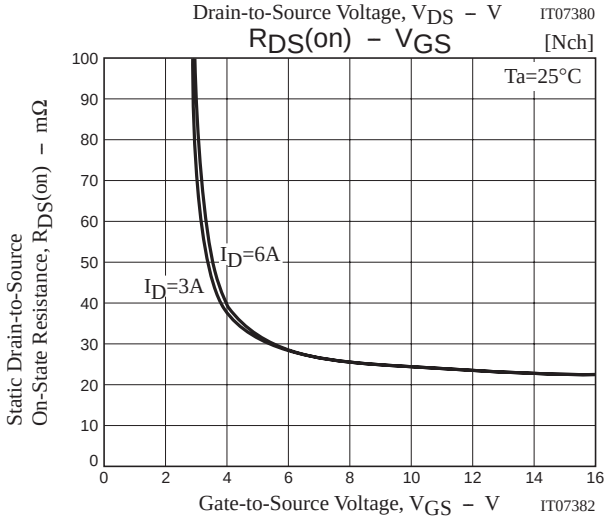


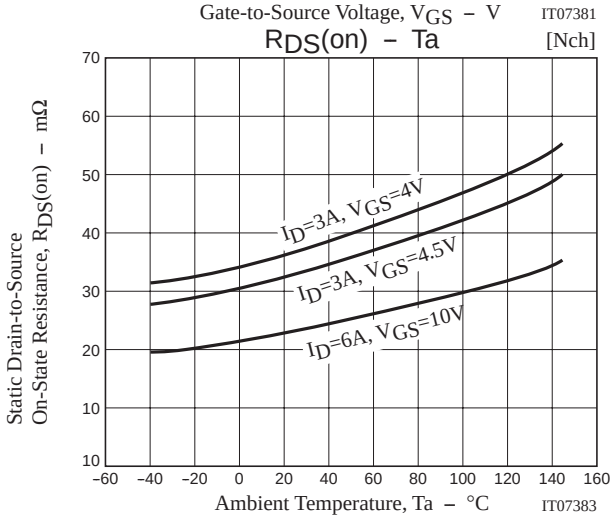
[P-channel]

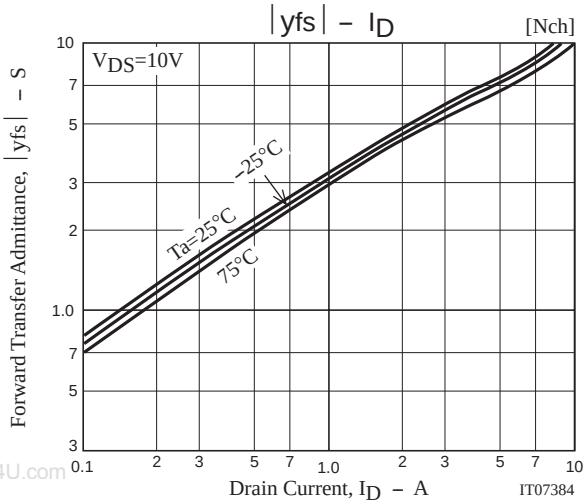


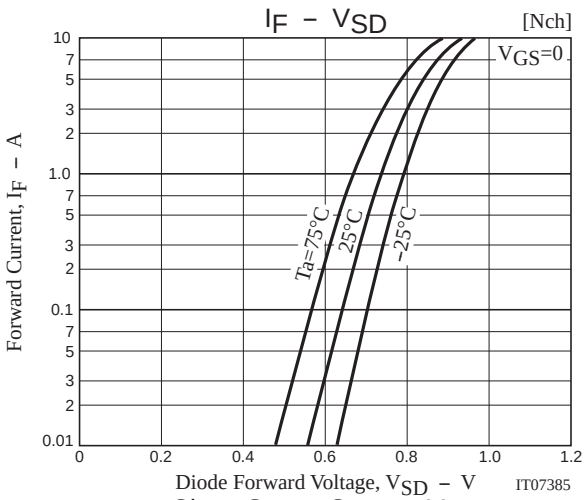


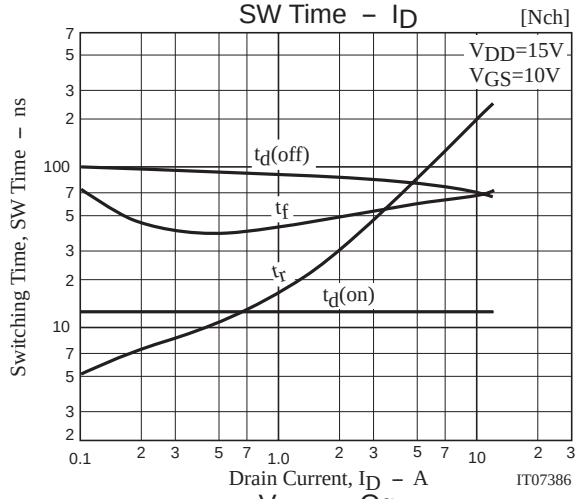


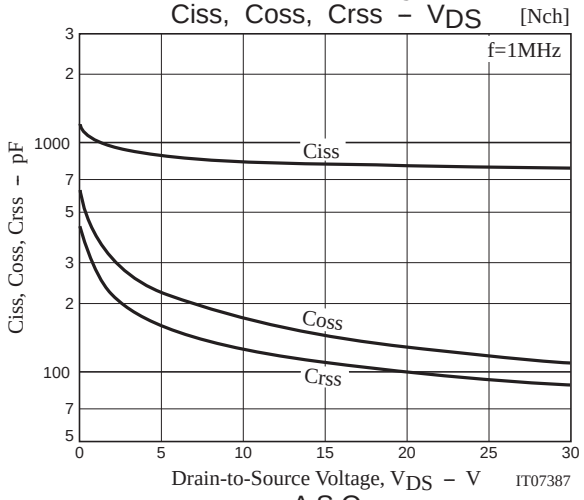


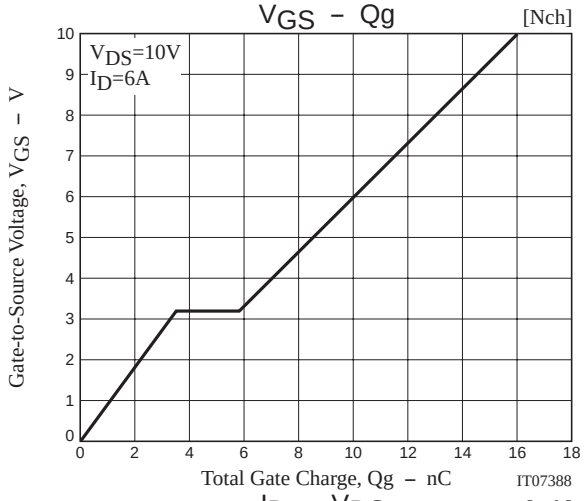


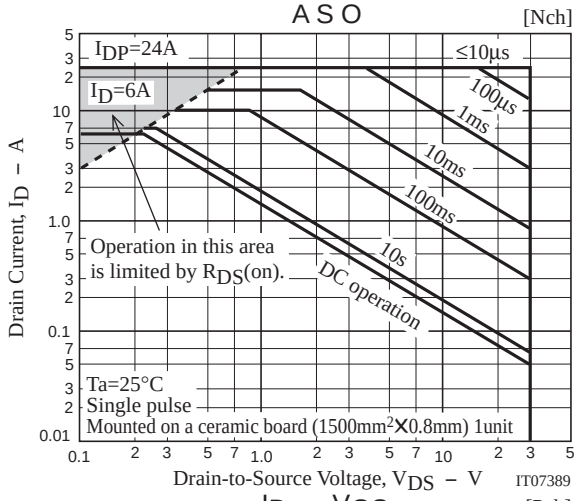


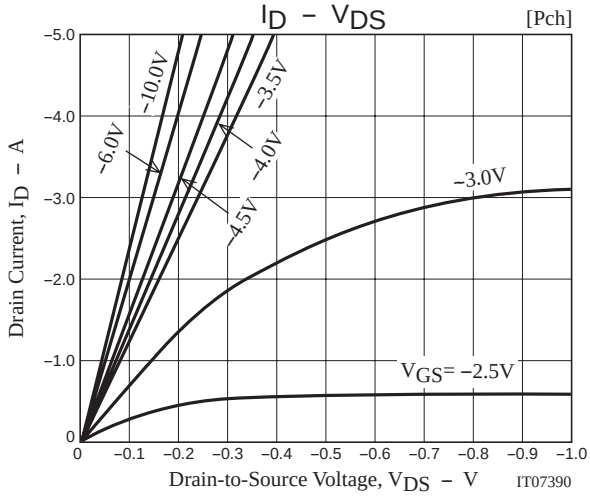


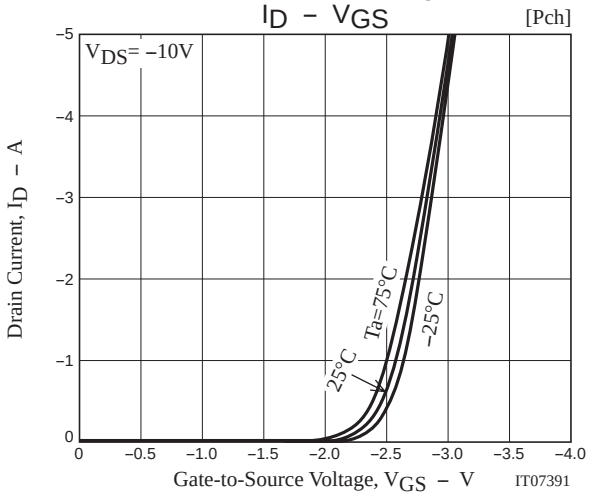


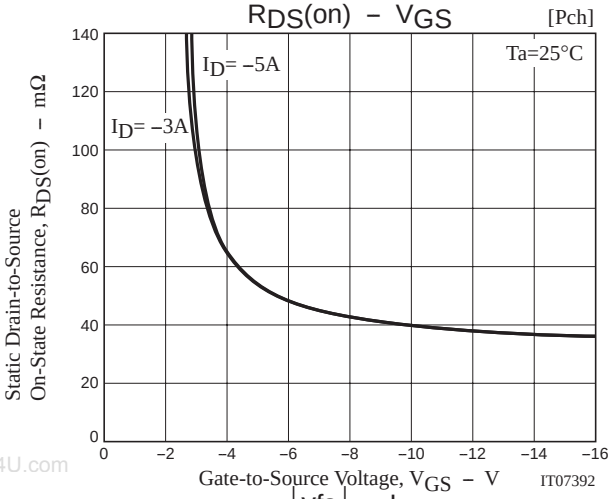


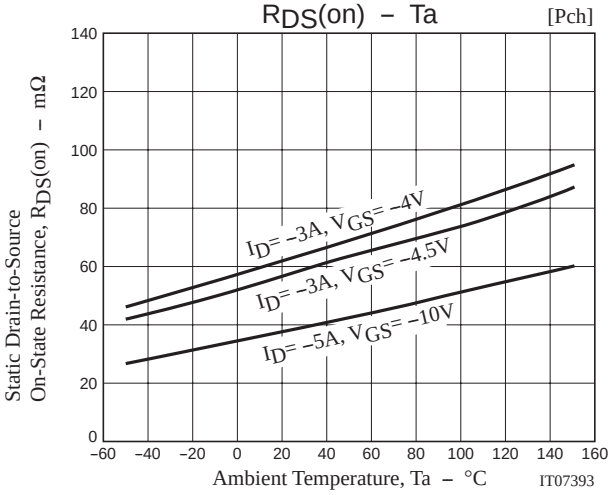


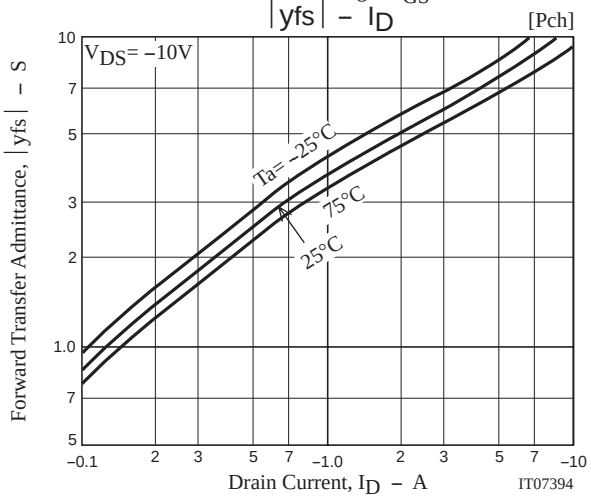


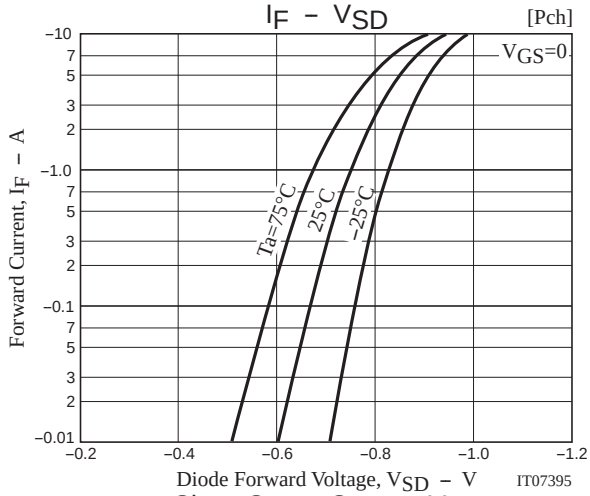


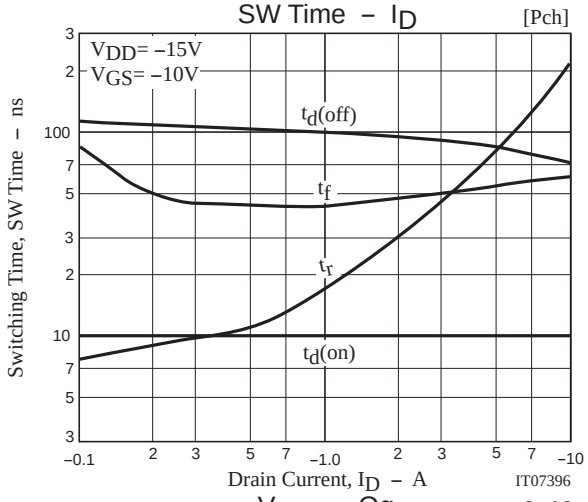


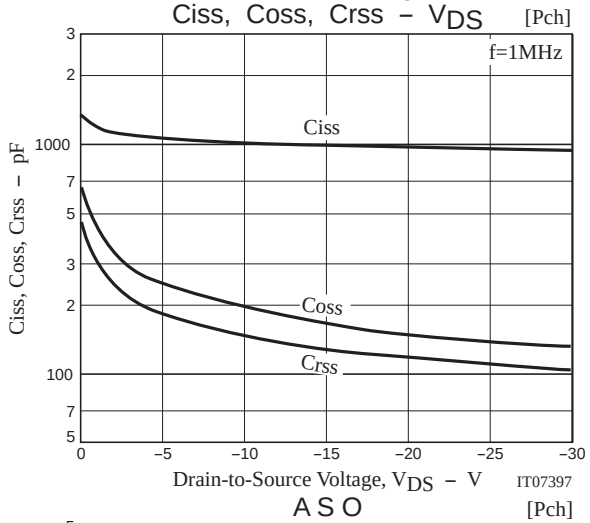


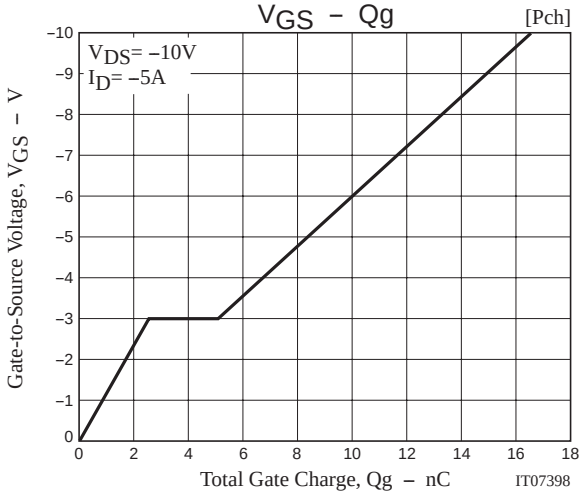


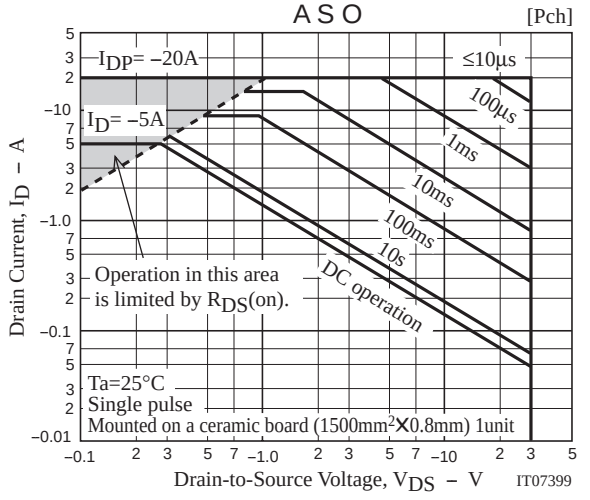


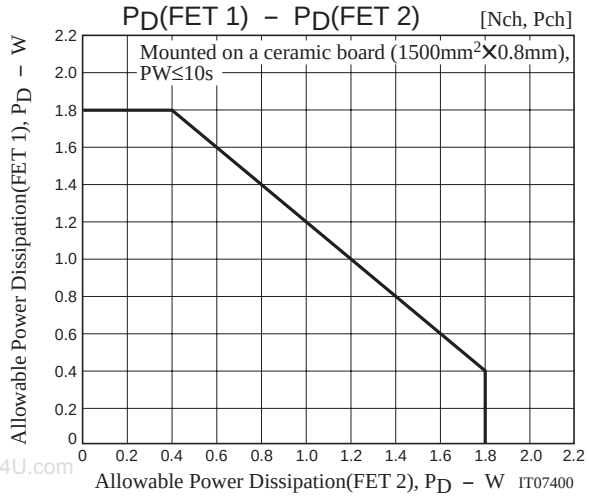


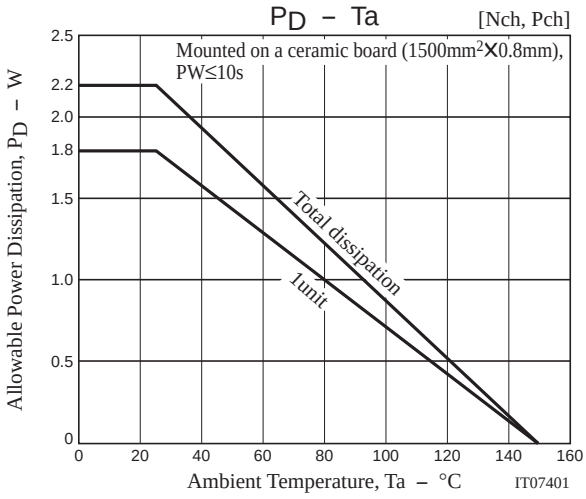












Note on usage : Since the FW342 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.