



N-Channel and P-Channel Silicon MOSFETs

FW340 — 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		5	-5	A
Drain Current (PW≤10s)	I _D	Duty cycle≤1%	5.5	-5.5	A
Drain Current (PW≤100ms)	I _D	Duty cycle≤1%	7	-9	A
Drain Current (PW≤10μs)	I _{DP}	Duty cycle≤1%	20	-20	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (2000mm ² ×0.8mm)1unit, PW≤10s	1.8		W
Total Dissipation	P _T	Mounted on a ceramic board (2000mm ² ×0.8mm), PW≤10s	2.2		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}	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} =±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 =5A	3.3	5.5		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =5A, V _{GS} =10V		37	48	mΩ
	R _{DS(on)2}	I _D =3A, V _{GS} =4.5V		56	78	mΩ
	R _{DS(on)3}	I _D =3A, V _{GS} =4V		64	90	mΩ

Marking : W340

Continued on next page.

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FW340

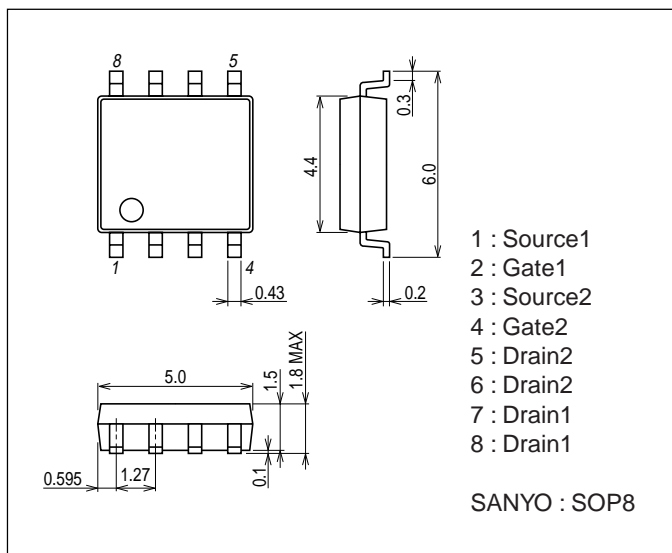
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =10V, f=1MHz		460		pF
Output Capacitance	Coss	V _{DS} =10V, f=1MHz		95		pF
Reverse Transfer Capacitance	Crss	V _{DS} =10V, f=1MHz		75		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		11		ns
Rise Time	t _r	See specified Test Circuit.		20		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		30		ns
Fall Time	t _f	See specified Test Circuit.		20		ns
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =10V, I _D =5A		8.6		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =10V, V _{GS} =10V, I _D =5A		2.0		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =10V, V _{GS} =10V, I _D =5A		1.6		nC
Diode Forward Voltage	V _{SD}	I _S =5A, V _{GS} =0V		0.9	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} =±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 =-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	Q _g	V _{DS} =-10V, V _{GS} =-10V, I _D =-5A		16.5		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =-10V, V _{GS} =-10V, I _D =-5A		2.5		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =-10V, V _{GS} =-10V, I _D =-5A		2.5		nC
Diode Forward Voltage	V _{SD}	I _S =-5A, V _{GS} =0V		-0.85	-1.5	V

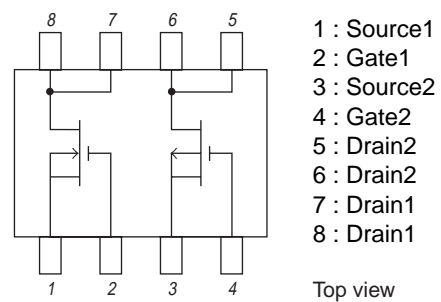
Package Dimensions

unit : mm

7005-003

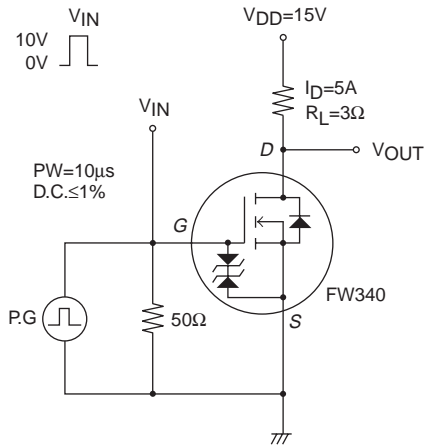


Electrical Connection

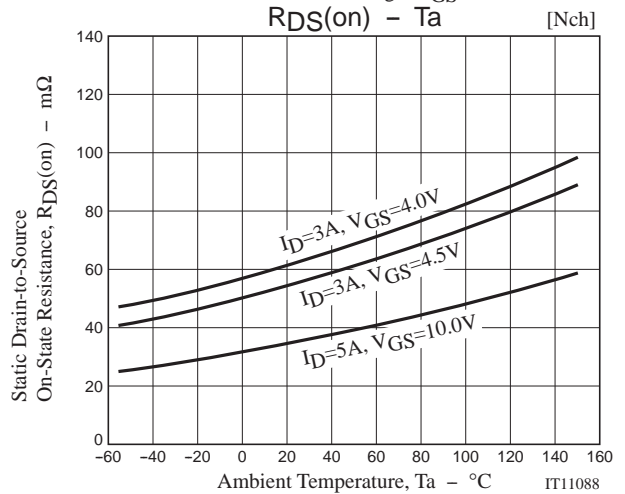
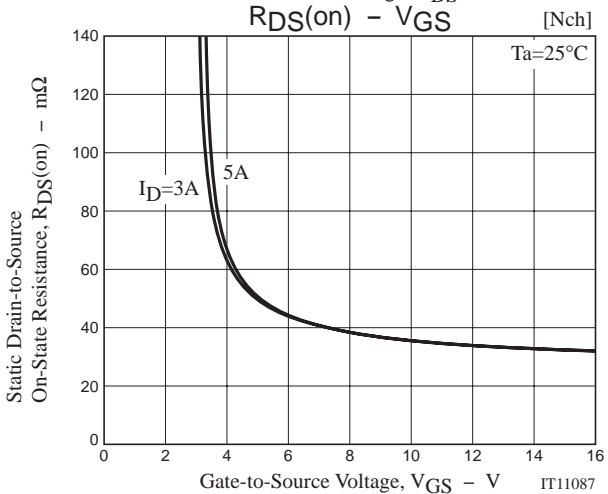
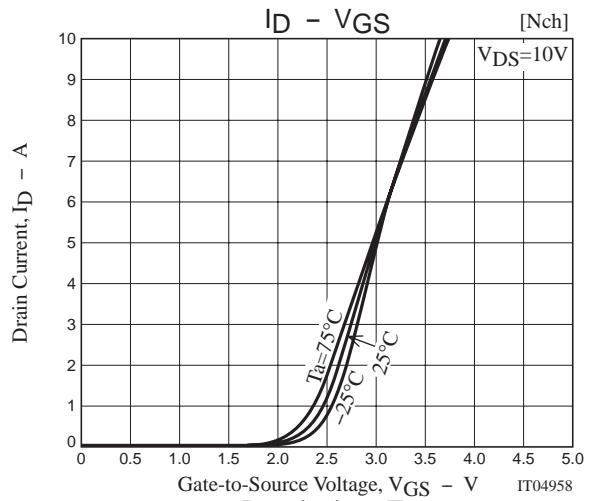
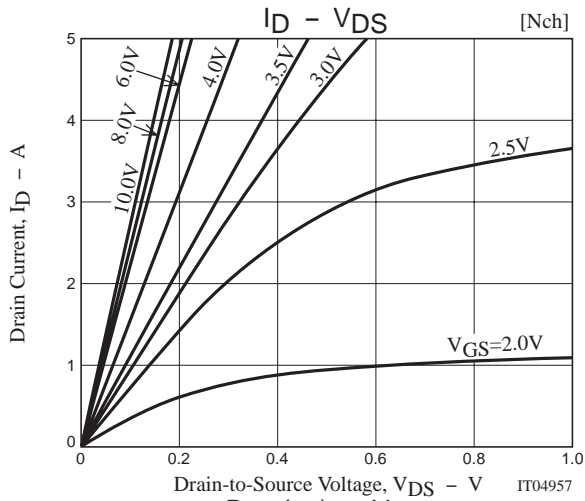
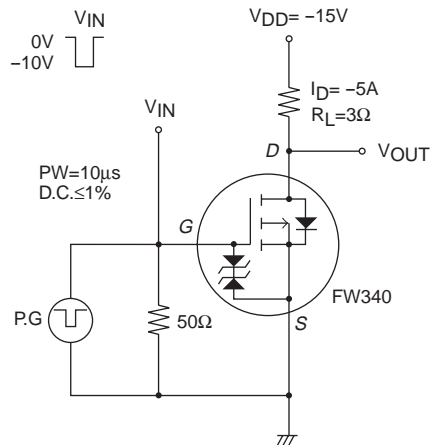


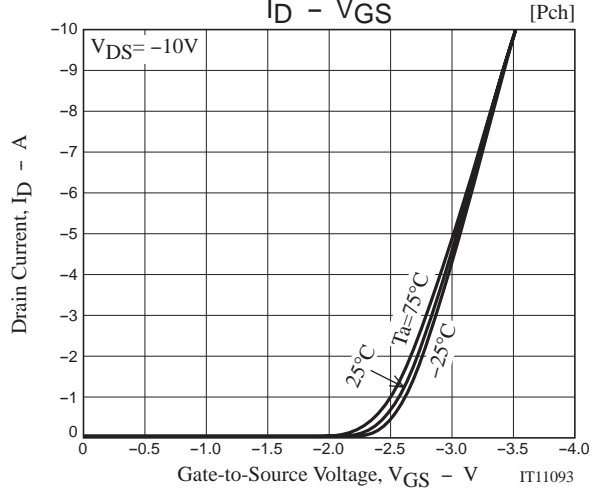
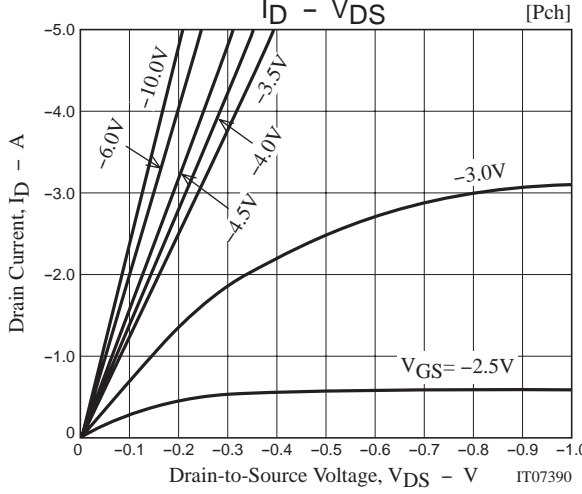
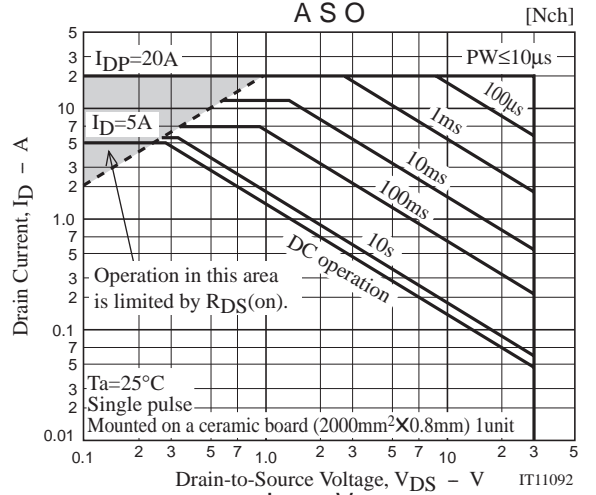
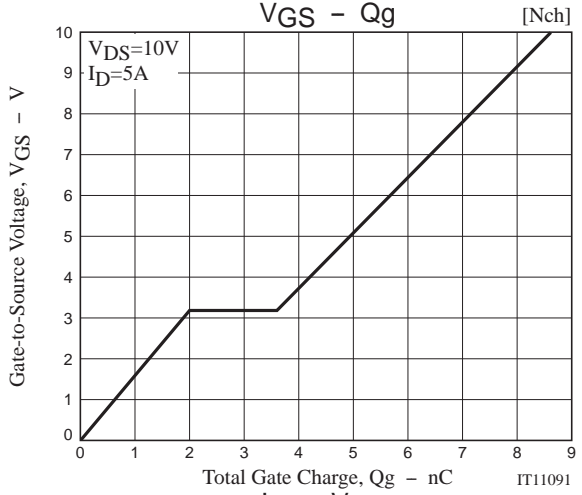
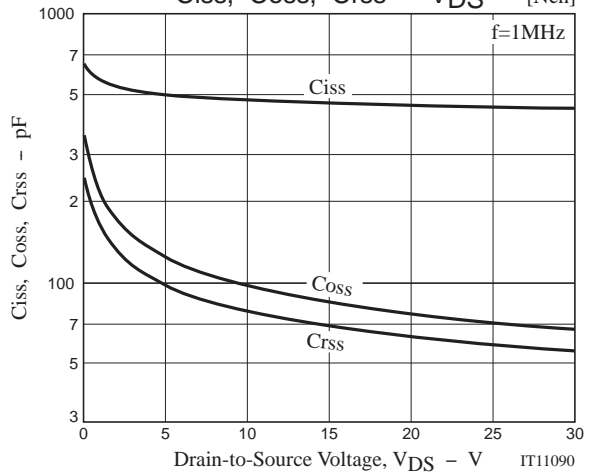
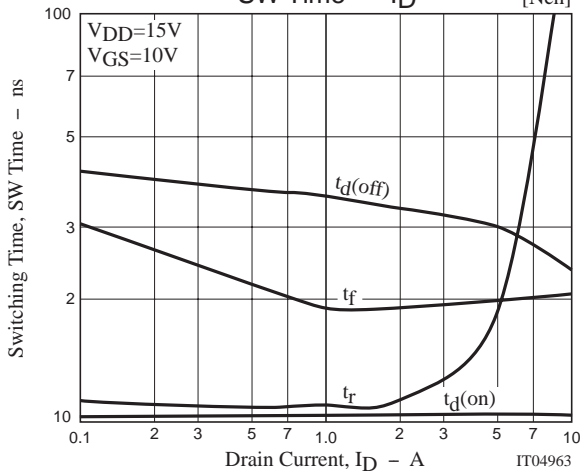
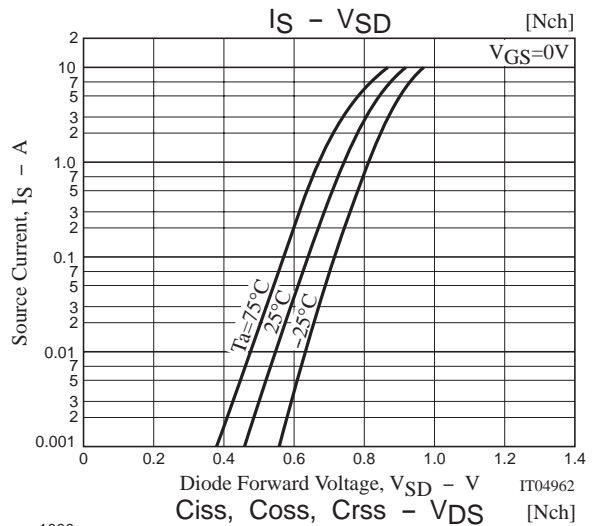
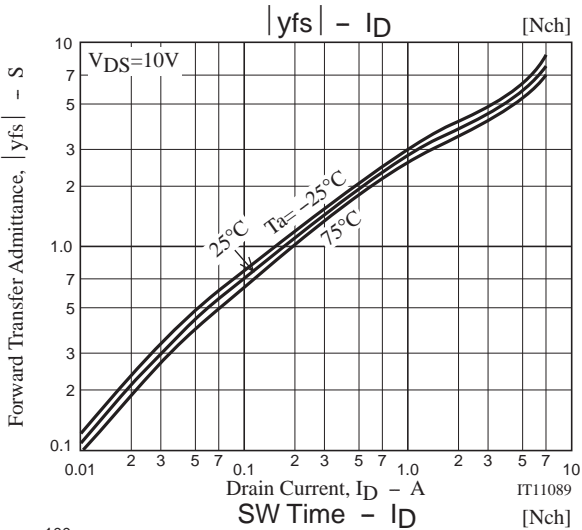
Switching Time Test Circuit

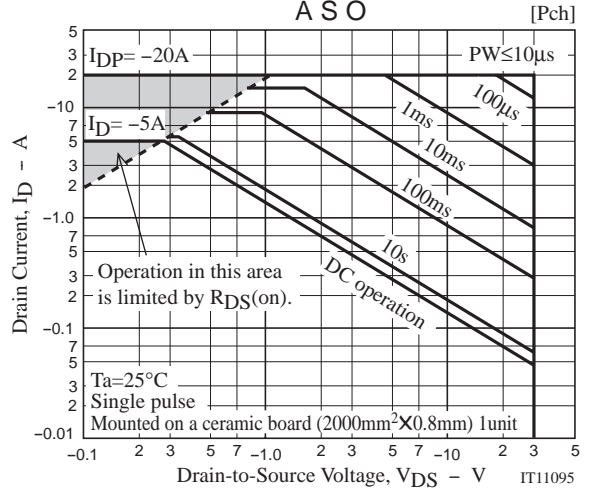
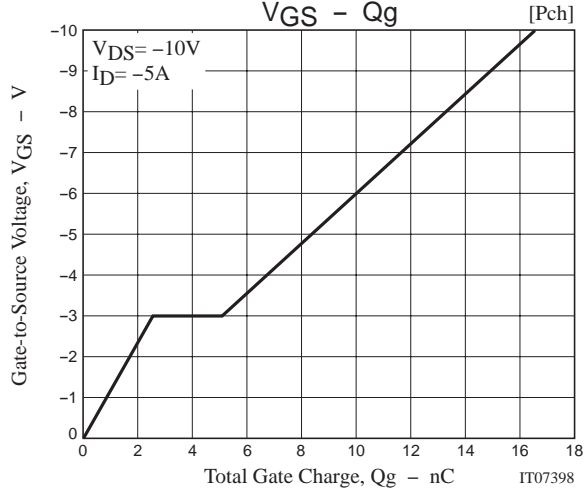
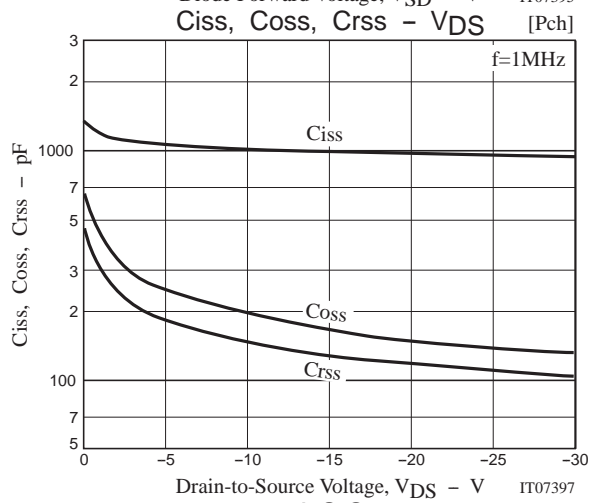
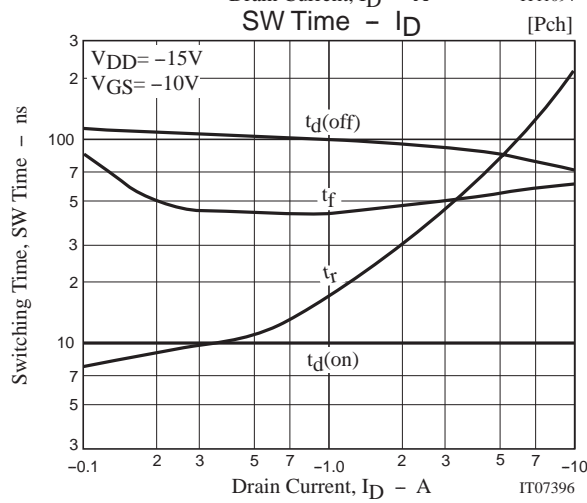
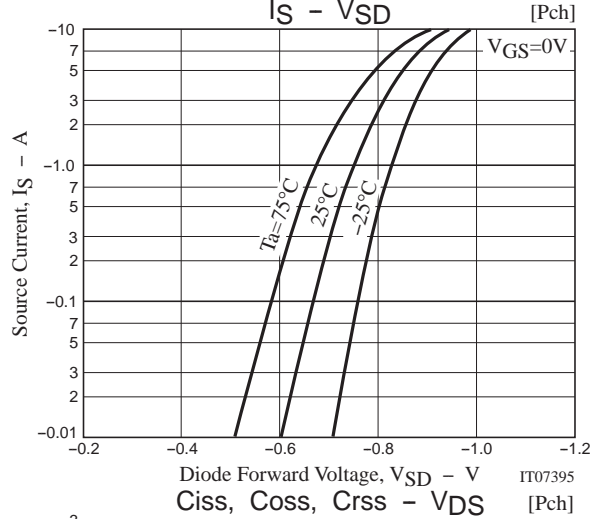
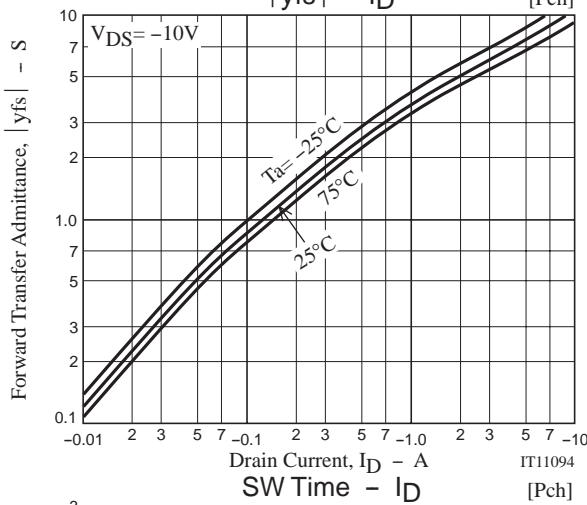
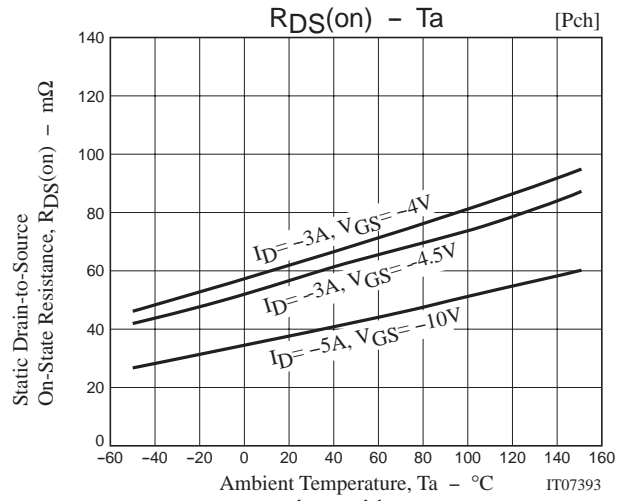
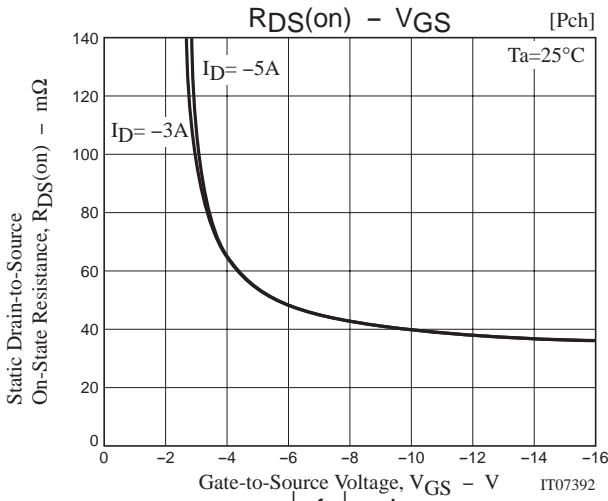
[N-channel]



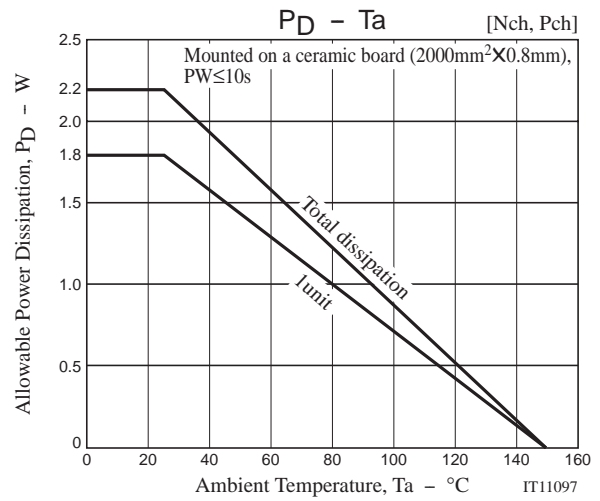
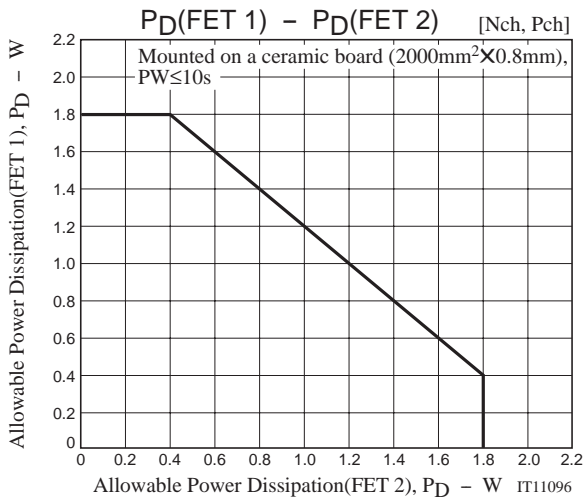
[P-channel]







FW340



Note on usage : Since the FW340 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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