



SANYO Semiconductors

DATA SHEET

FW342 — General-Purpose Switching Device

Applications

N-Channel and P-Channel Silicon MOSFETs

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	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=0	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=6A	4.6	7.8		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=6A, VGS=10V		25	33	mΩ
	RDS(on)2	ID=3A, VGS=4.5V		35	49	mΩ
	RDS(on)3	ID=3A, VGS=4V		37	52	mΩ

Marking : W342

Continued on next page.

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D2004 TS IM TA-101197 No.7912-1/6

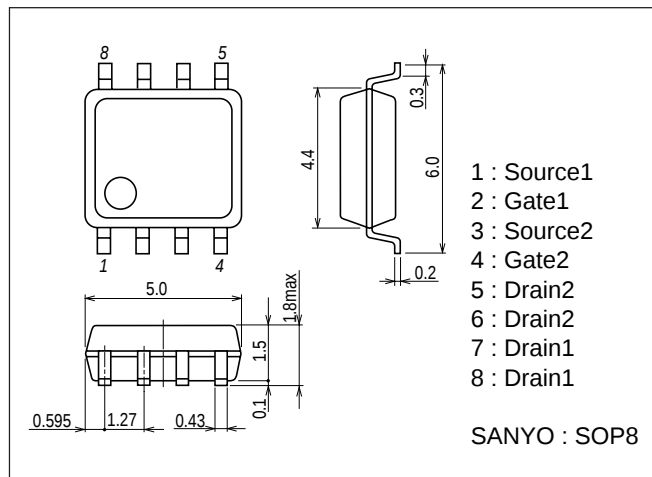
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=10V, f=1MHz$		850		pF
Output Capacitance	Coss	$V_{DS}=10V, f=1MHz$		170		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=10V, f=1MHz$		125		pF
Turn-ON Delay Time	$t_d(on)$	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}	$V_{GS}=\pm 16V, V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ 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	$m\Omega$
	$R_{DS(on)2}$	$I_D=-3A, V_{GS}=-4.5V$		62	87	$m\Omega$
	$R_{DS(on)3}$	$I_D=-3A, V_{GS}=-4V$		70	98	$m\Omega$
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

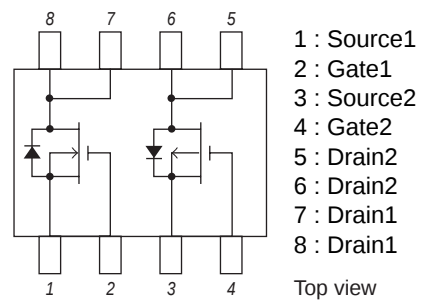
Package Dimensions

unit : mm

2129

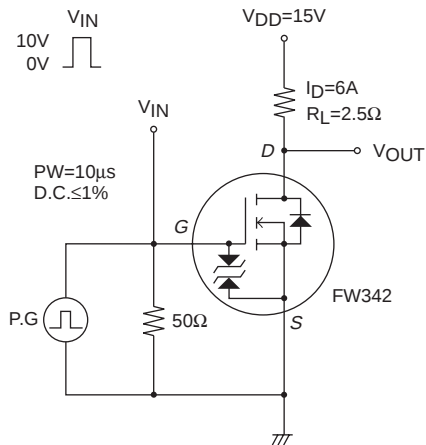


Electrical Connection

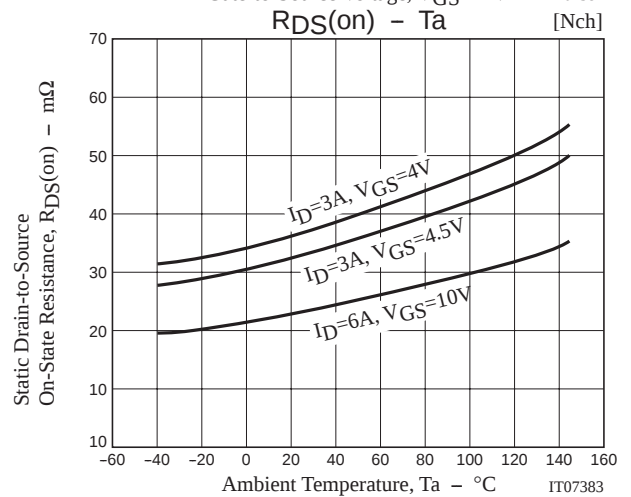
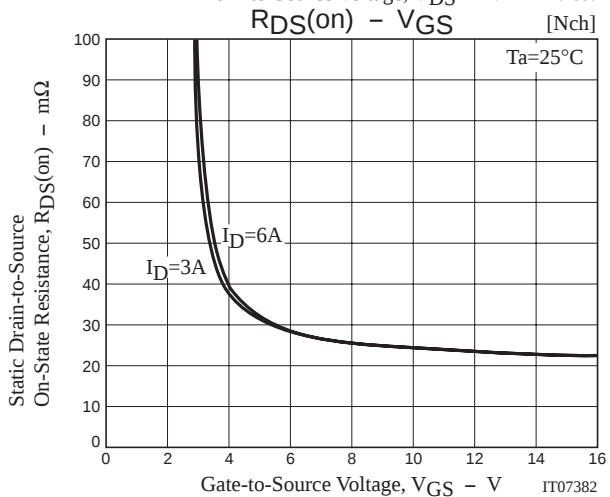
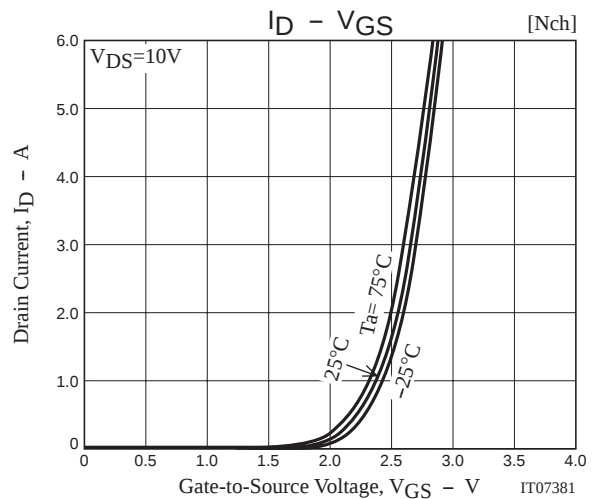
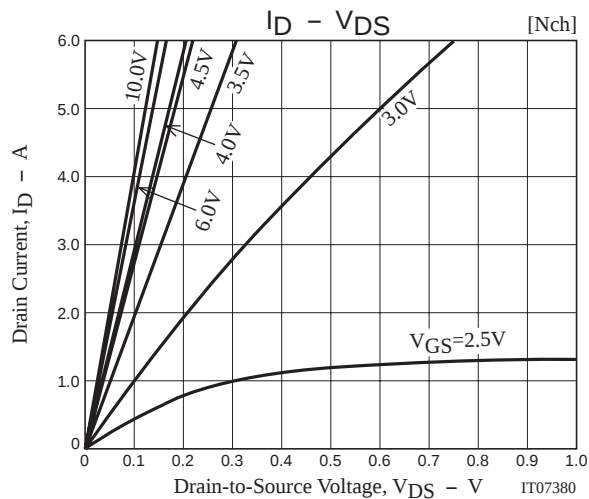
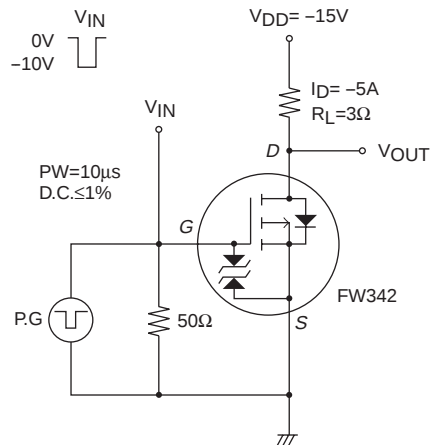


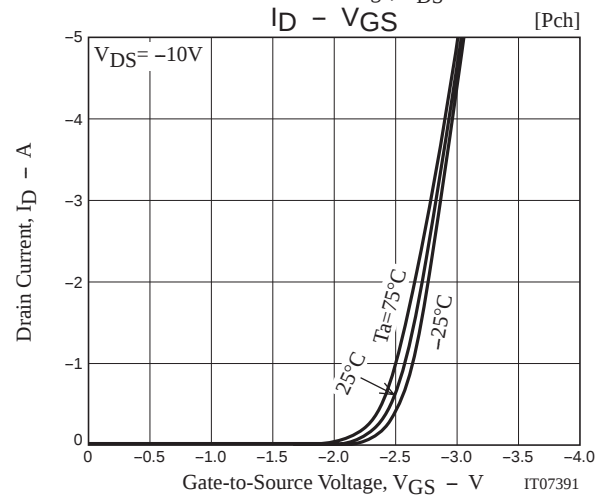
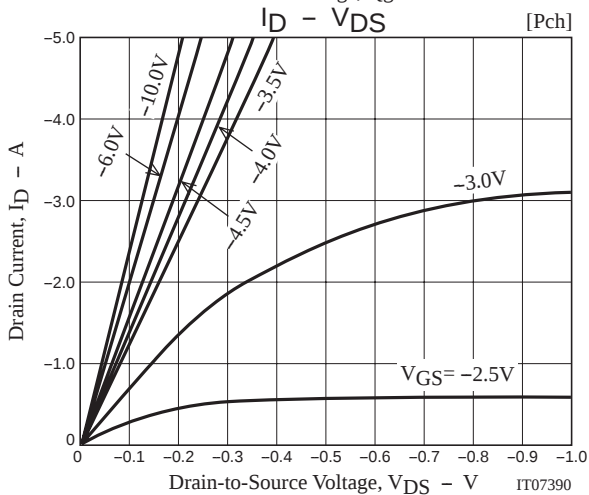
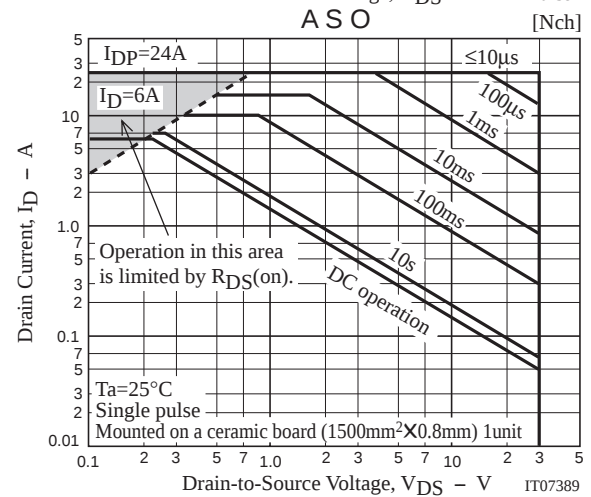
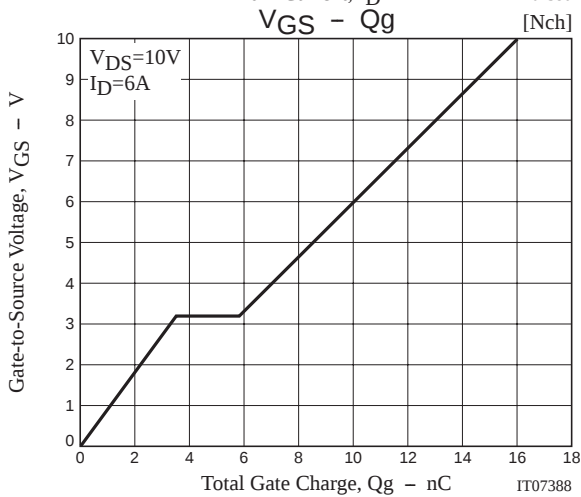
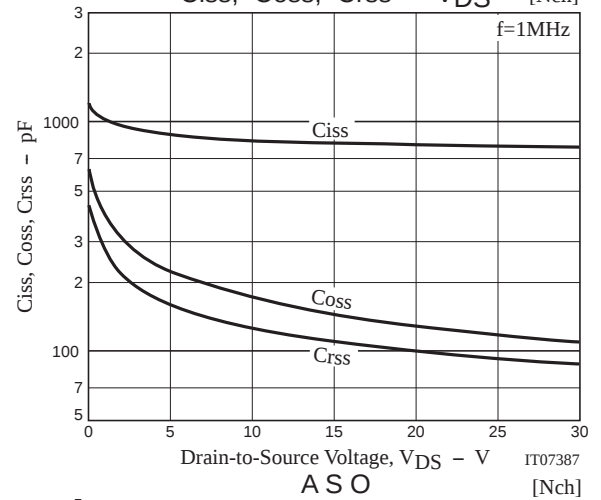
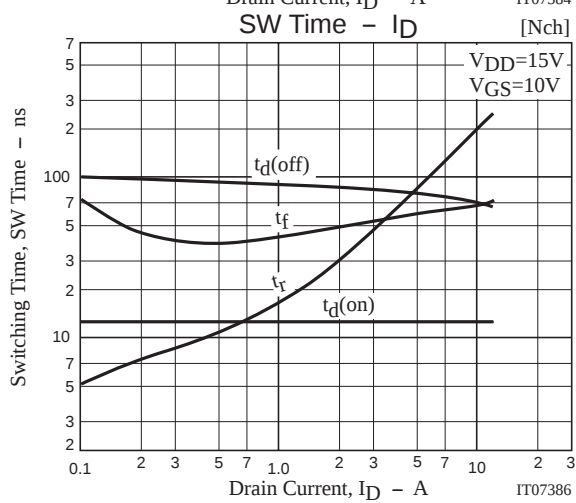
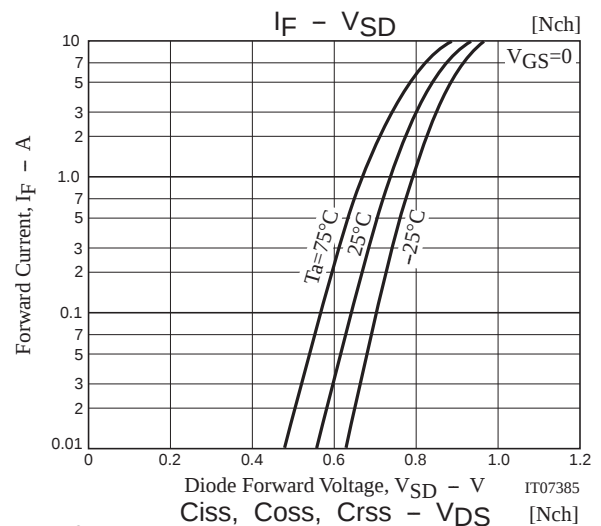
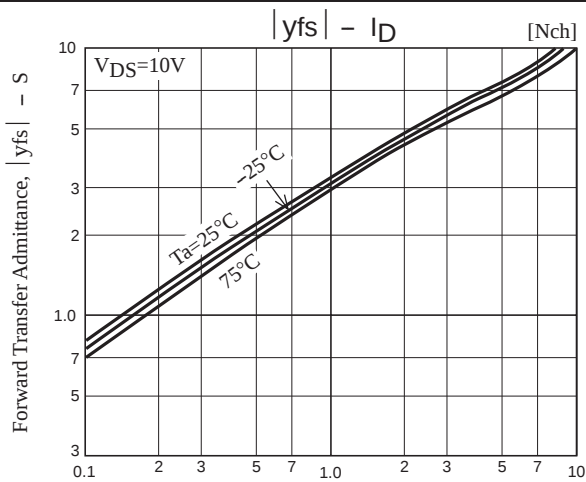
Switching Time Test Circuit

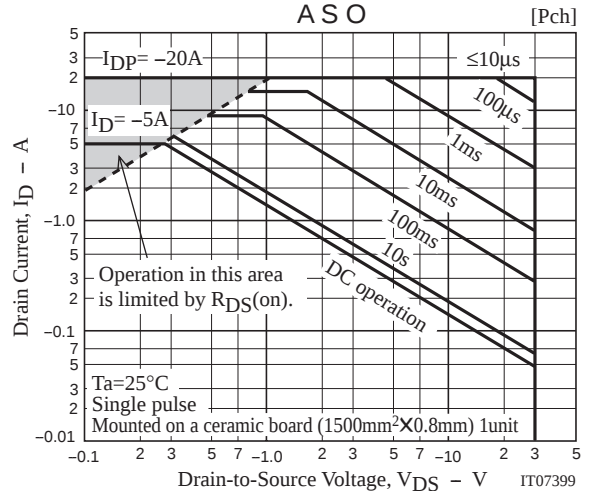
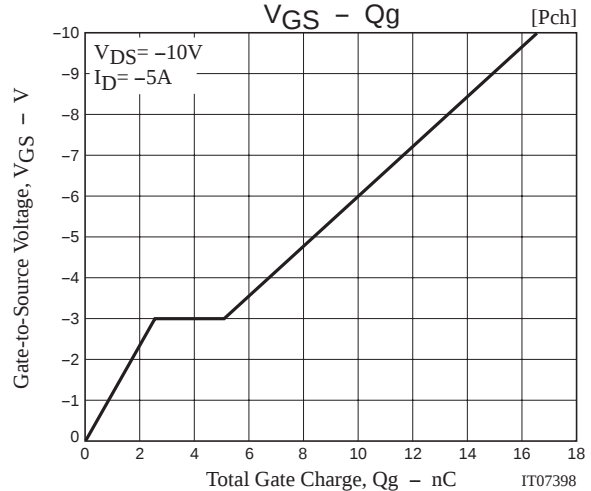
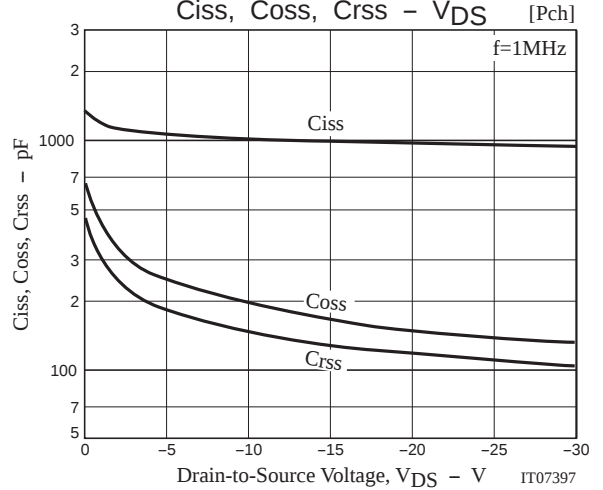
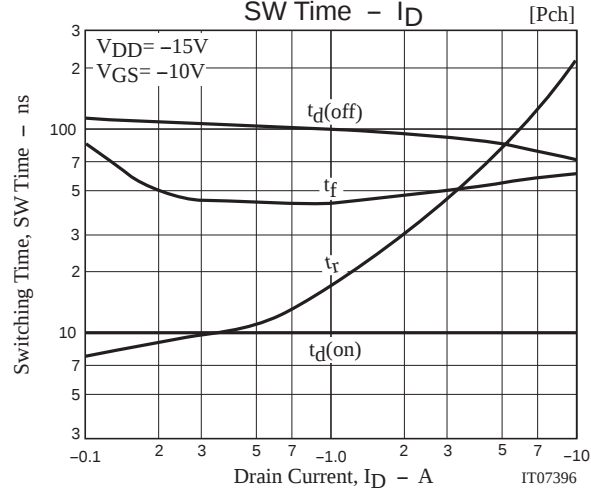
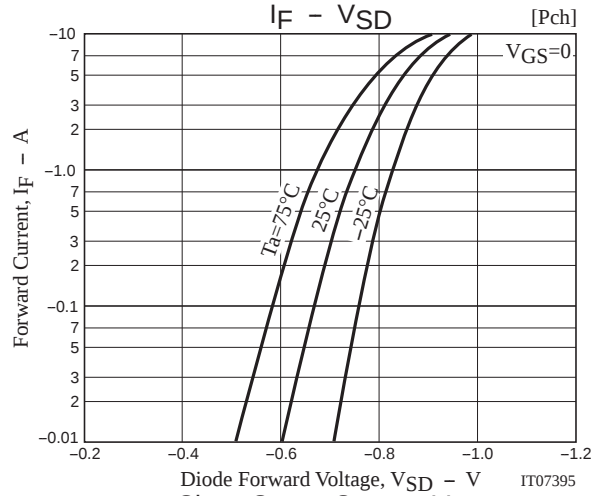
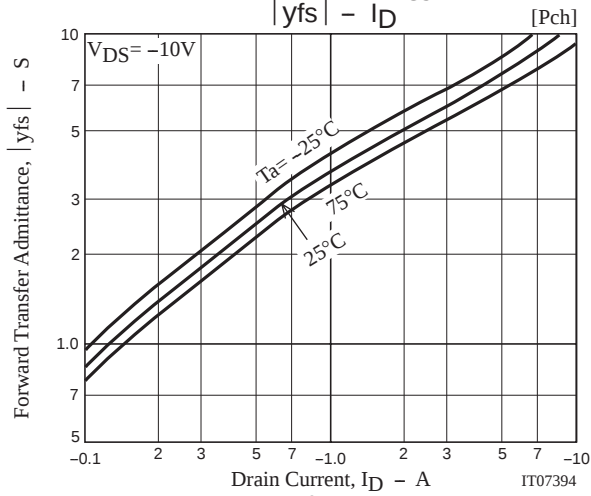
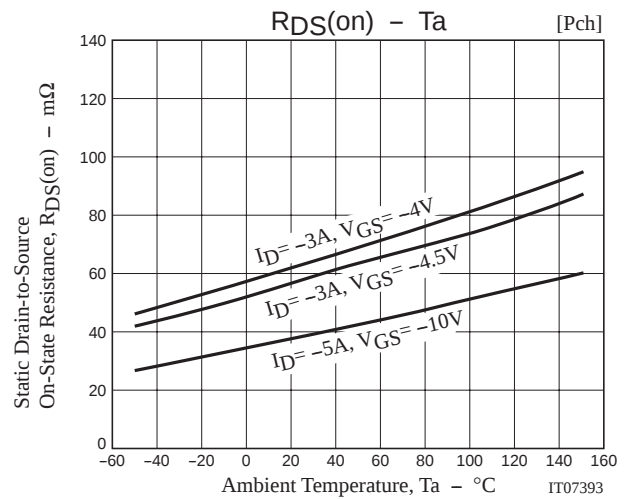
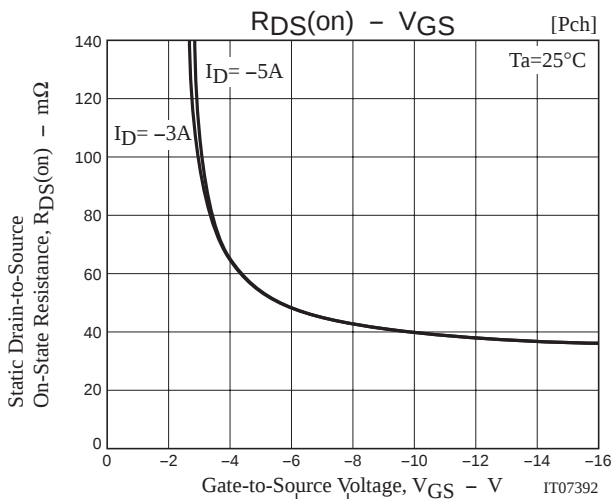
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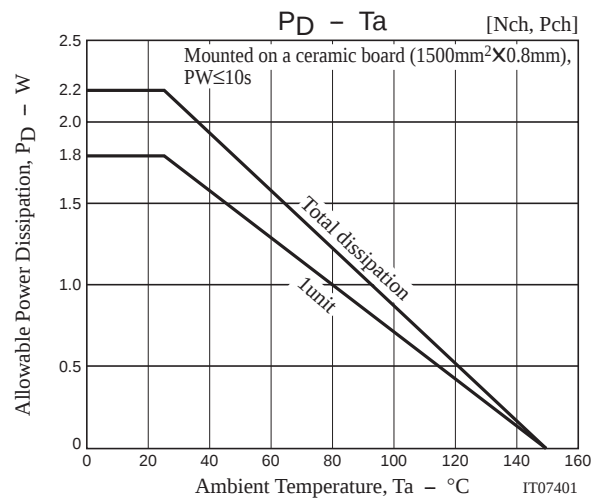
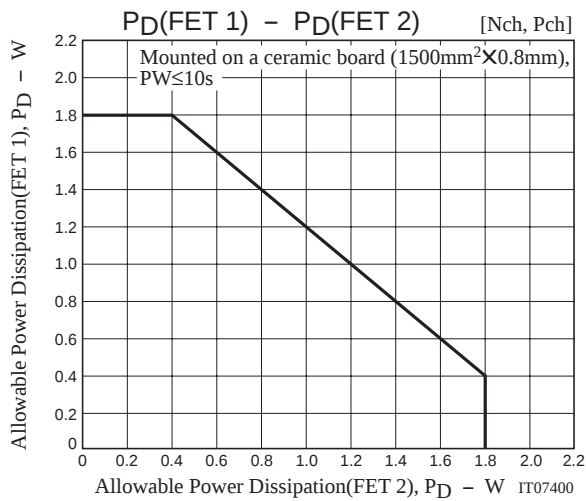


[P-channel]









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

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