



ON Semiconductor®

ON Semiconductor DATA SHEET

N-Channel and P-Channel Silicon MOSFETs FW905 — General-Purpose Switching Device Applications

Features

- Composite type with an N-channel MOSFET and a P-channel MOSFET driving from a 2.5V 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}		20	-20	V
Gate-to-Source Voltage	V _{GSS}		±10	±10	V
Drain Current (DC)	I _D		7	-6	A
Drain Current (PW≤10μs)	I _{DP}	Duty cycle≤1%	52	-52	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (1500mm²×0.8mm)1unit, PW≤10s	2.3		W
Total Dissipation	P _T	Mounted on a ceramic board (1500mm²×0.8mm), PW≤10s	2.5		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	20			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	0.5		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =7A	9	15		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =7A, V _{GS} =4V		18	24	mΩ
	R _{DS(on)2}	I _D =3A, V _{GS} =2.5V		20	33	mΩ
Input Capacitance	C _{iss}	V _{DS} =10V, f=1MHz		1530		pF
Output Capacitance	C _{oss}	V _{DS} =10V, f=1MHz		230		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =10V, f=1MHz		215		pF

Marking : W905

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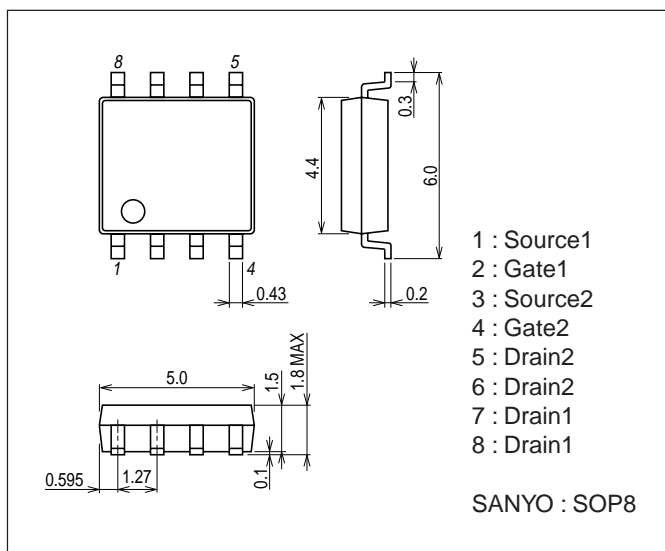
FW905

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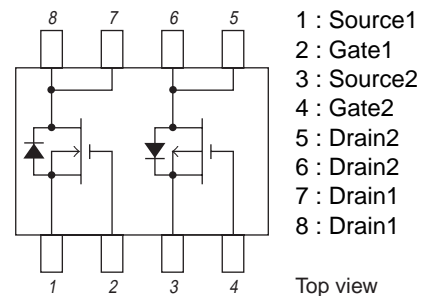
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		19		ns
Rise Time	t_r	See specified Test Circuit.		225		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		125		ns
Fall Time	t_f	See specified Test Circuit.		125		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4V, I_D=7A$		18.5		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=4V, I_D=7A$		3.4		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=4V, I_D=7A$		4.8		nC
Diode Forward Voltage	V_{SD}	$I_S=7A, V_{GS}=0V$		0.79	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0V$	-20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-0.4			V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-6A$	7.8	13		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-6A, V_{GS}=-4V$		30	40	$m\Omega$
	$R_{DS(on)2}$	$I_D=-3A, V_{GS}=-2.5V$		42	59	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-10V, f=1MHz$		1720		pF
Output Capacitance	C_{oss}	$V_{DS}=-10V, f=1MHz$		260		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-10V, f=1MHz$		245		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		19		ns
Rise Time	t_r	See specified Test Circuit.		390		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		110		ns
Fall Time	t_f	See specified Test Circuit.		145		ns
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-4V, I_D=-6A$		18.4		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-10V, V_{GS}=-4V, I_D=-6A$		3.2		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-10V, V_{GS}=-4V, I_D=-6A$		5.2		nC
Diode Forward Voltage	V_{SD}	$I_S=-6A, V_{GS}=0V$		-0.82	-1.2	V

Package Dimensions

unit : mm
7005-003

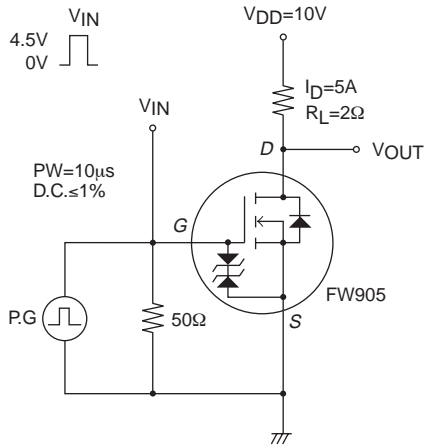


Electrical Connection

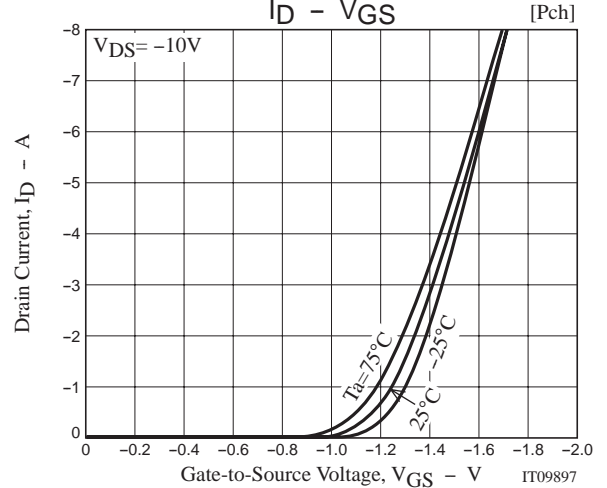
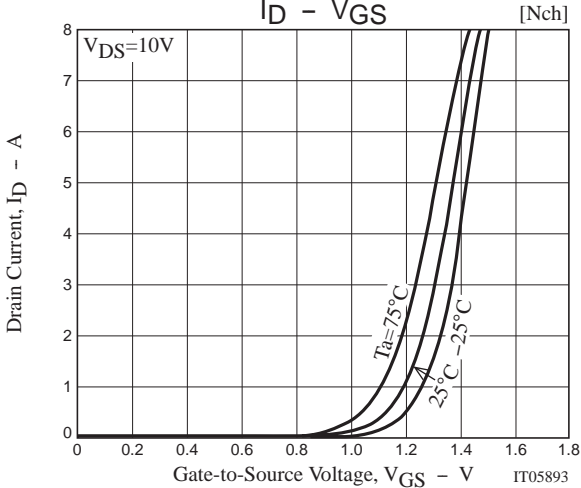
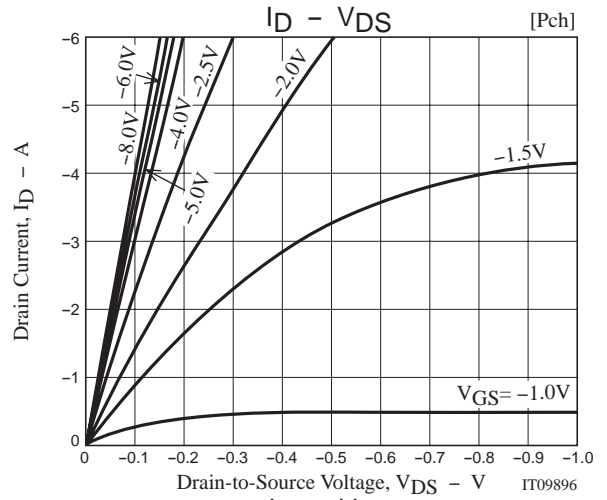
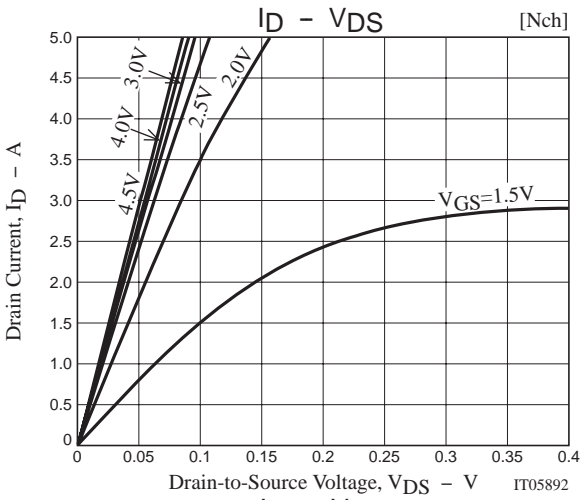
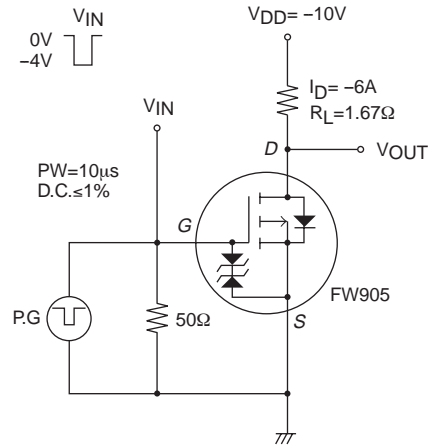


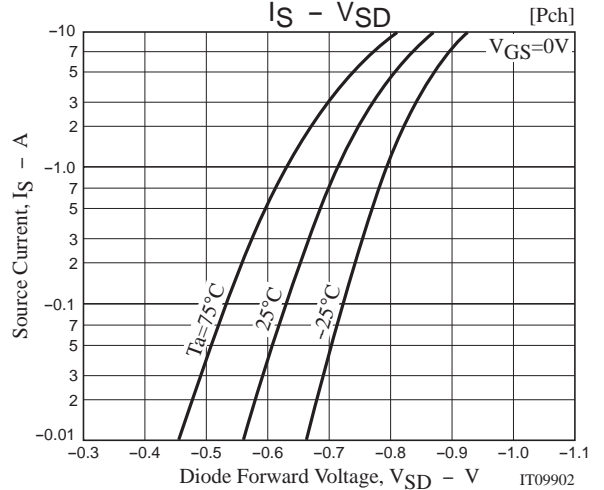
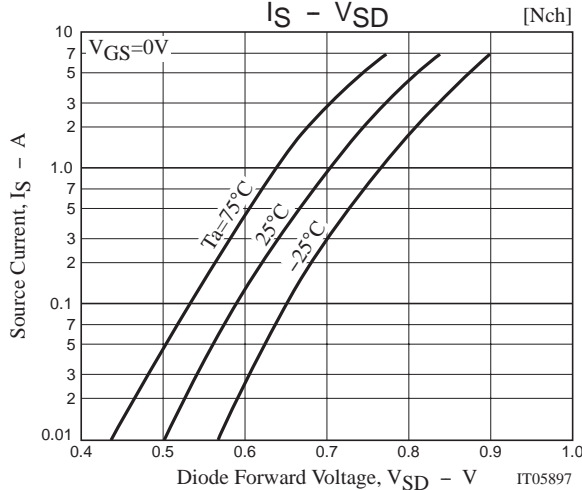
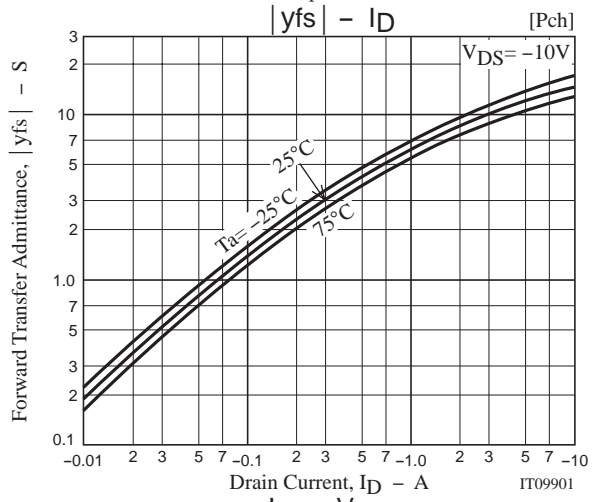
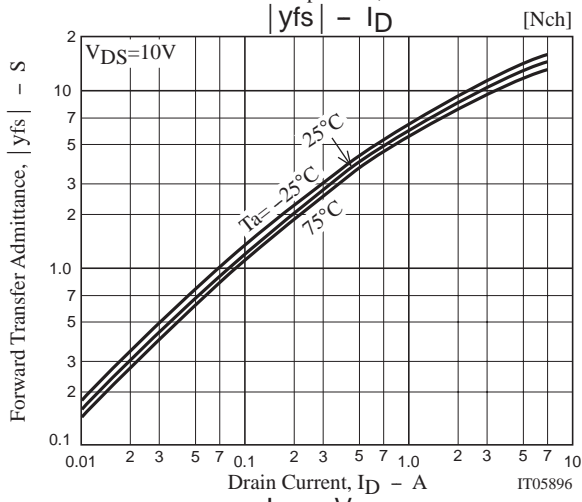
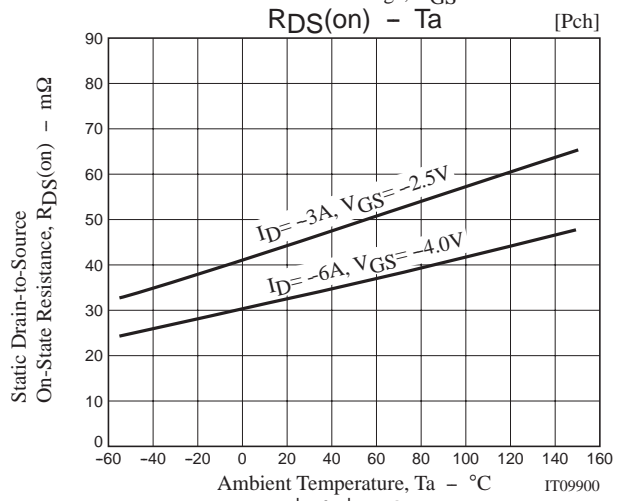
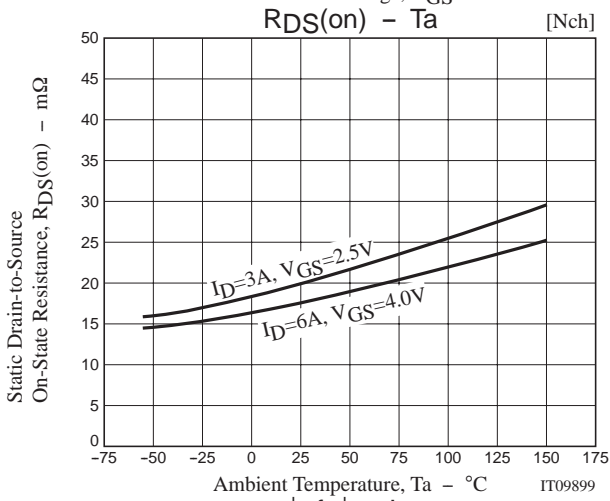
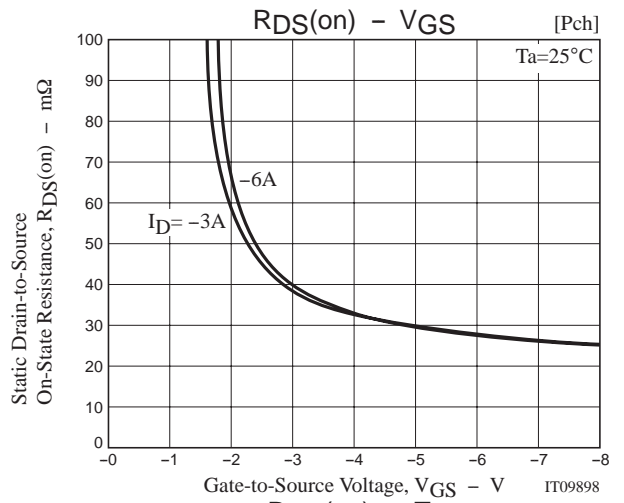
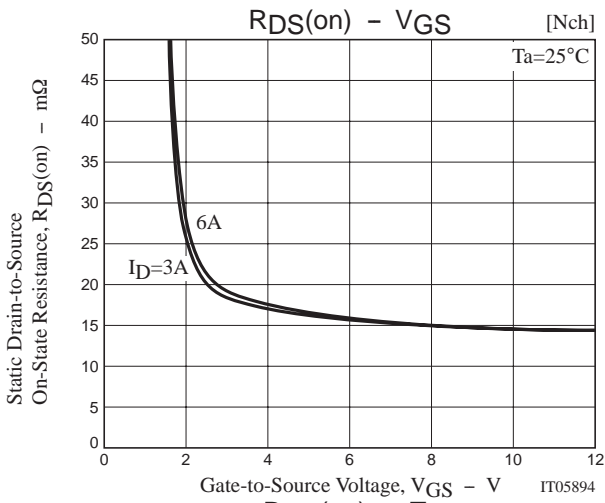
Switching Time Test Circuit

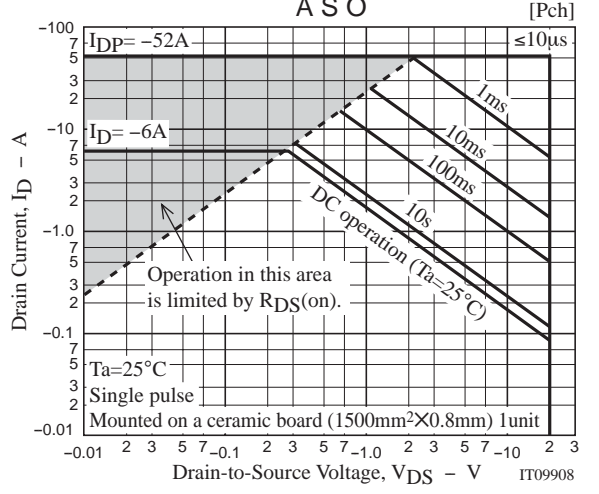
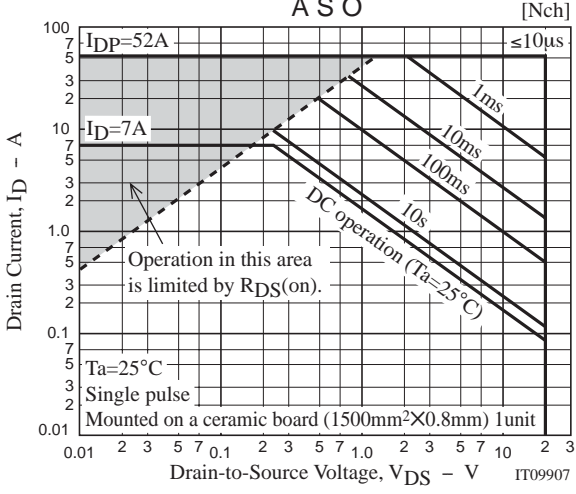
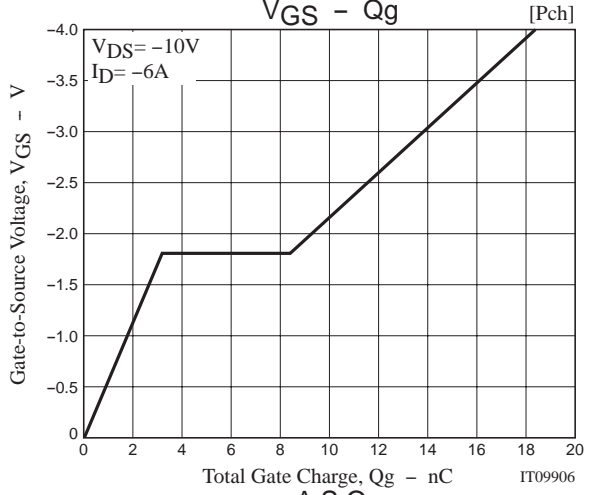
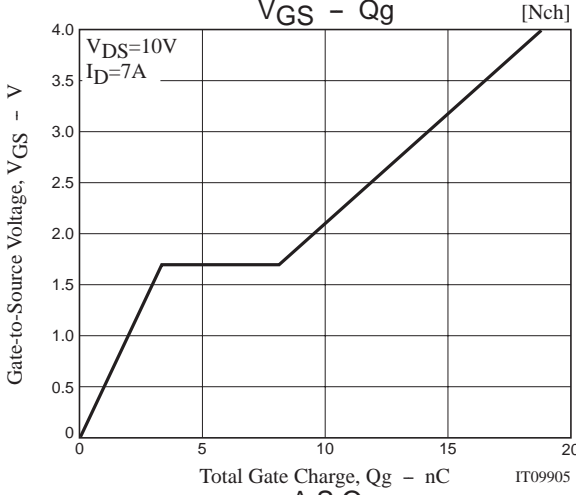
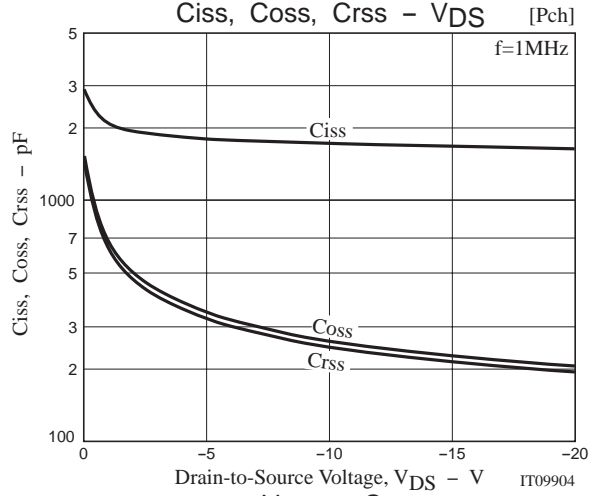
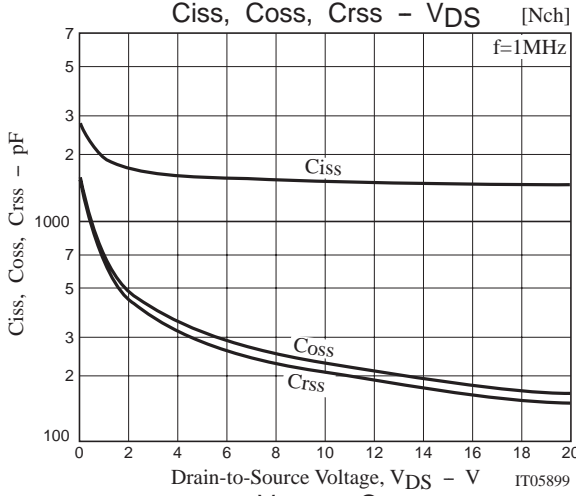
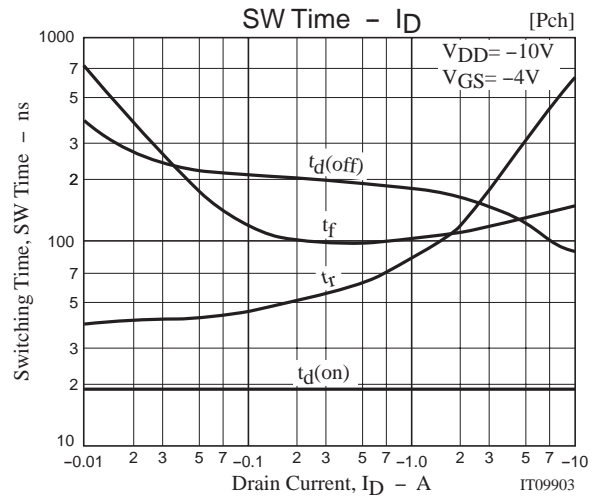
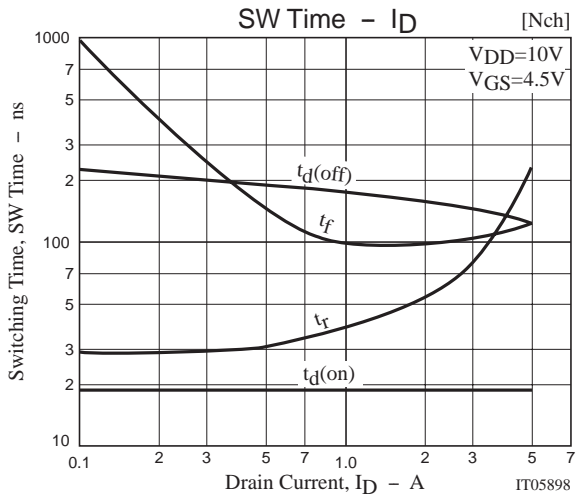
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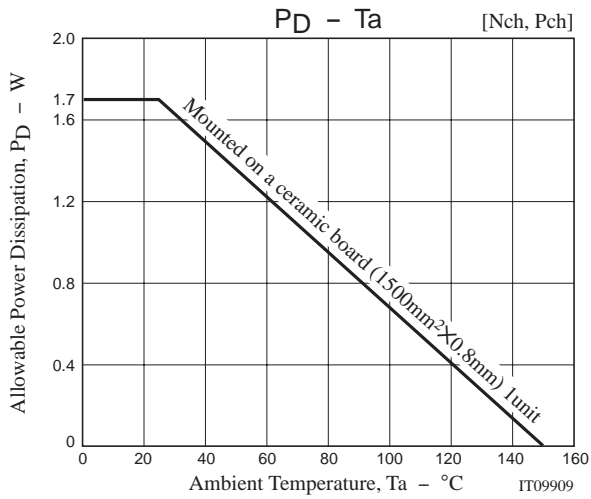
[P-channel]







FW905



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